100 TOP
Programming
WORDS TP BOOKLET
4° MEDIO

100 TOP

Programming

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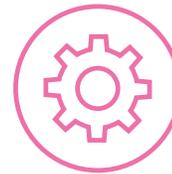
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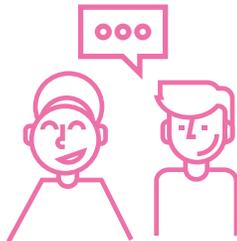
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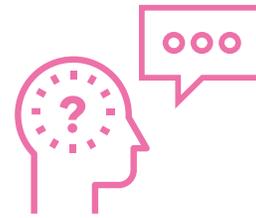
Think & discuss

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Ministerio de
Educación

Gobierno de Chile

¡Bienvenido!
Welcome!

ES

A continuación, te presentamos un recurso elaborado para avanzar en uno de nuestros principales objetivos: mejorar la calidad y fortalecer la enseñanza Técnico-Profesional en el país.

La creación de este Booklet responde a la importancia de aprender el idioma inglés en el contexto de cada especialidad técnica, de manera que en el futuro puedas acceder a mayores oportunidades de especialización y en el mundo laboral.

Es por esta razón que creamos este recurso didáctico, donde proponemos tanto a docentes como estudiantes, las 100 palabras más utilizadas en cada especialidad aplicadas en contextos específicos, fundamentales para el dominio del idioma.

Dado que en el mundo de hoy es importante entregar todas las opciones para favorecer el aprendizaje del inglés, el trabajo continuo de las actividades que ofrece cada unidad te permitirá desarrollar habilidades lingüísticas como la lectura, audición, expresión escrita y oral, además de trabajar colaborativamente en los proyectos al término de cada unidad.

Esperamos que este 100 Top Words Booklet sea una contribución para el aprendizaje del idioma en la especialidad que has elegido.

EN

We are pleased to present you with this resource, which was created to advance one of our primary objectives- improving and strengthening the quality of technical professional education in Chile.

The creation of this booklet responds to the importance of learning the English language in the specific context of each technical specialty and aims to provide you with access to greater opportunities in your area of concentration, and in the labor market in general.

With that in mind we have created this educational resource, through which we propose to teachers and students alike – the 100 most commonly used words for specific contexts, fundamental to language mastery in each area of technical specialization.

Given the current importance of providing all possible opportunities to foment English language acquisition, the successive completion of the activities offered in each unit will facilitate the development of your linguistic abilities, including reading comprehension, written and oral expression, as well in collaborative learning projects provided at the end of each unit.

We hope that the "100 Top Words" Booklet will contribute to your English language learning, in the technical professional concentration that you have chosen.

Tus comentarios nos importan: escríbenos a TPenglish@mineduc.cl

Programming Booklet Glossary

(A)

1. Abstraction (n.) The process of picking out (abstracting) common features of objects and procedures.

2. Administrate (v.) To control the operation or to arrange of something.

3. Attribute (v.) A characteristic.

(B)

4. Backup (n.) To make a copy of information on your computer.

5. Behavioral (adj.) Relating to behavior.

6. BLOB (n.) The term "BLOB" stands for "Binary Large Object" . It is used for storing information in databases.

7. Bool (n.) A Boolean variable, one whose value is either true or false.

8. Boundary (n.) An edge or limit of something.

9. Browser (n.) A computer program that makes it possible for you to read information on the internet.

10. Buit-in (adj.) A built-in quality is an original part of something or someone and cannot be separated from it.

11. Business (n.) The activity of buying and selling goods and services.

(C)

12. C++ (n.) A high-level programming language originally used for writing Unix programs, but which is now used to write applications for nearly every available platform.

13. Call (v.) Call means to invoke a routine in a programming language or voice or data transmission connection between two endpoints.

14. Cardinality (n.) The term "cardinality" in database design has to do with counting tables and values. Cardinality between tables can be one-to-one, many-to-one or many-to-many.

15. Char (n.) Short for character. Any letter, number, space, punctuation mark, or symbol that can be typed on a computer.

16. Class (n.) A class is used in object-oriented programming to describe one or more objects. It serves as a template for creating, or instantiating, specific objects within a program.

17. Coding (v.) The activity of writing computer programs.

18. Column (n.) A column is a vertical group of values within a table. It contains values from a single field in multiple rows.

19. Conceptual model (n.) A conceptual modeling is used to describe physical or social aspects of the world in an abstract way. For example, in the realm of software development, a conceptual model may be used to represent the relationships of entities within a database.

20. Constraint (n.) Element that controls what you do by keeping you within limits.

21. Content (n.) The ideas that are contained in a piece of writing, a speech, or a film.

22. Customer (n.) A person or company that buys goods or services.

D

23. Data type (n.)
A data type is a data storage format that can contain a specific type or range of values.

24. Database (n.)
A database is a data structure that stores organized information.

25. Derive (v.)
To receive or obtain something from something else.

26. Designate (v.)
To say officially that a place or thing has a particular character or purpose.

27. Development (n.)
The process in which someone or something grows or changes and becomes more advanced.

28. Digital platform (n.)
A digital environment composed of varied services.

29. Documentation (n.)
Process of providing proof for the things you write about and naming the texts that you use.

30. Domain (n.)
Also referred to as domain name. The location of a website.

E

31. Embed (v.)
To fix something firmly into a substance.

32. Encapsulation (n.)
The process of combining elements to create a new entity. For example, a procedure is a type of encapsulation because it combines a series of computer instructions.

33. Ensure (v.)
To make something certain to happen.

34. Entity (n.)
In relation to a database, an entity is a single person, place, or thing about which data can be stored.

35. Execute (v.)
To make a computer program or instruction work.

F

36. Failure (n.)
The fact of something not working or stopping working as well as it should.

37. Feature (n.)
A typical quality or an important part of something.

38. Fix (v.)
To repair something.

39. Float (n.)
It refers to a floating-point number that contains floating decimal points. For example, 0,001.

40. Foreign key (n.)
A foreign key is a column or columns of data in one table that connects to the primary key data in the original table.

41. Function (n.)
A function is a unit of code that is often defined by its role within a greater code structure. Specifically, a function contains a unit of code that works on various inputs, many of which are variables, and produces concrete results.

H

42. Hierarchy (n.)
Hierarchical, or hierarchy, refers to systems that are organized in the shape of a pyramid. Items, such as objects, names, categories, or values, are represented as above, below, or at the same level as another item.

43. Host (v.)
To provide the computer hardware and software that allows a website to exist on the internet.

I

44. Index (n.)
In database systems, an index (IDX) is a data structure defined on columns in a database table to significantly speed up data retrieval operations.

45. Inherit (v.)   To receive a trait from a parent.

46. Inheritance (n.)   The act of receiving something from a predecessor.

47. Integer (n.)   An integer is a whole number (not a fraction) that can be positive, negative, or zero.

48. Integrity (n.)   Refers to the validity of data.

49. Interactivity (n.)   The involvement of users in the exchange of information with computers and the degree to which this happens.

50. Interview (n.)   A meeting in which someone asks you questions to see if you are suitable for a job or course.

51. Invest (v.)   To put money or effort into something to make a profit or achieve a result.

J

52. Java (n.)   A high-level programming language.

K

53. Key (n.)   A key is a field, or combination of fields, in a database table used to retrieve and sort rows in the table based on certain requirements.

L

54. Layout (n.)   In word processing and desktop publishing, layout refers to the arrangement of text and graphics. The layout of a document can determine which points are emphasized, and whether the document is aesthetically pleasing.

55. Logical model (n.)   Also known as logical data model. It identifies entities, attributes, relationships, domains and defines what each instance means. The logical data model is the architect or designer view of the data.

M

56. Malfunction (n.)   A failure to work or operate correctly.

57. Manage (v.)   To control or organize someone or something, especially a business.

58. Marker (n.)   The marker interface pattern is a design pattern in computer science, used with languages that provide a run-time type information about objects.

59. Market (n.)   Trade in goods of a particular kind.

60. Method (n.)   A method, in the context of object-oriented programming, is a procedure or function associated with a class. As part of a class, a method defines a particular behavior of a class instance.

N

61. Null (adj.)   In mathematical sets, the null set, also called the empty set, is the set that does not contain anything.

O

62. Object (n.)   An object, in object-oriented programming (OOP), is an abstract data type created by a developer. It can include multiple properties and methods and may even contain other objects.

63. Object-oriented programming /OOP (n.) — It refers to a programming methodology based on objects, instead of just functions and procedures. These objects are organized into classes, which allow individual objects to be grouped.

64. Owner (n.) — A person or organization that owns something.

(P) **65. Package** (n.) — A package is a schema object that groups logically related PL/SQL types, variables, constants, subprograms, cursors, and exceptions.

66. Parameter (n.) — In programming, the term parameter is synonymous with argument, a value that is passed to a routine.

67. Performance (n.) — The act of doing a job. It also refers to how well an activity is done.

68. Physical model (n.) — The logical data model is used as the blueprint of what data is involved while the physical data model details how that data will be implemented.

69. Polymorphism (n.) — A programming language's ability to process objects differently depending on their data type or class. More specifically, it is the ability to redefine methods for derived classes.

70. Primary key (n.) — A primary key is a unique identifier for a database record. When a table is created, one of the fields is typically assigned as the primary key. While the primary key is often a number, it may also be a text field or other data type.

71. Procedure (n.) — A procedure is a small section of a program that performs a specific task. Procedures can be used repeatedly throughout a program.

72. Provider (n.) — An organization or company that makes a service available to the public.

73. Publish (v.) — To make information available to the public.

(Q) **74. Quality** (n.) — The degree of excellence of something, often a high degree of it.

75. Query (n.) — Query is another word for question. One type of query, which many people perform multiple times a day, is a search query. Each time you search for something using a search engine, you perform a search query.

(R) **76. Record** (n.) — In computer data processing, a record is a collection of data items arranged for processing by a program.

77. Relational Database (n.) — A relational database is a database model that stores data in tables. Most of databases used in modern applications are relational, so the terms "database" and "relational database" are often used synonymously.

78. Reusability (n.)

Reusability can take place at different levels and in many forms. At the lowest level we can, for example, reuse existing code within a member function via cut and paste and add new functionality to that function.

79. Role (n.)

The position or purpose that someone or something has in a situation, organization, society, or relationship.

80. Routine (n.)

A section of a program that performs a particular task. Programs consist of modules, each of which contains one or more routines. The term routine is synonymous with procedure, function, and subroutine.

81. Row (n.)

A row is a horizontal group of values within a table. It contains values for multiple fields, which are defined by columns. Because rows contain data from multiple columns, in databases, each table row may be considered a record.

82. Run (v.)

To cause something to operate.

(S) **83. Secure** (v.)

To make certain something is protected from danger or risk.

84. Sequence (n.)

Sequences are the main logical structure of algorithms or programs. When creating algorithms or programs, the instructions are presented in a specific correct order. A sequence can contain any number of instructions, but each instruction must be run in the order it is presented.

85. Server (n.)

A central computer from which other computers get information.

86. Set up (v.)

To organize or plan something such as an event or system.

87. Soft (adj.)

Concept that refers to communicational and social skills.

88. Storage (n.)

The process of saving and keeping information, music, etc. on a computer.

89. Store (v)

To copy data from a CPU to memory, or from memory to a mass storage device.

90. Structured programming language (n.)

Structured programming is a subset of procedural programming. It is also known as modular programming. Its main purpose is to enforce a logical structure on the program being written to make it more efficient and easier to understand and modify.

91. Subclass (n.)

A class that inherits the instance variables and member functions of its superclass.

92. Subprogram (n.)

A subprogram is a sequence of instructions whose execution is invoked from one or more remote locations in a program, with the expectation that when the subprogram execution is complete, execution resumes at the instruction after the one that invoked the subprogram.

93. Superclass (n.) — In object-oriented programming, a class from which other classes inherit code is called a superclass.

(T) **94. Table** (n.) — A table is a data structure that organizes information into rows and columns. It can be used to both store and display data in a structured format.

95. Technical (adj.) — Relating to practical skills and methods that are used in a particular activity.

96. Thought process (n.) — The process of using your mind to consider something carefully.

97. Timestamp (n.) — A timestamp is a specific date and time "stamped" on a digital record or file. While most often used as a noun, the word "timestamp" can also be a verb.

98. Traffic (n.) — Network traffic, sometimes referred to as data traffic, is the amount of data which moves across a network during any given time.

(U) **99. Unstructured programming language** (n) — Unstructured programming is a paradigm of programming in which the statements are executed in sequence as written.

100. Upload (v.) — To copy or move programs or information to a larger computer system or to the internet.

Do you want to learn more concepts and put them into practice to complement this booklet? Visit these sites:

Codecademy
Khan Academy
Learn Java
W3Schools

Unit I: Relational Database Design
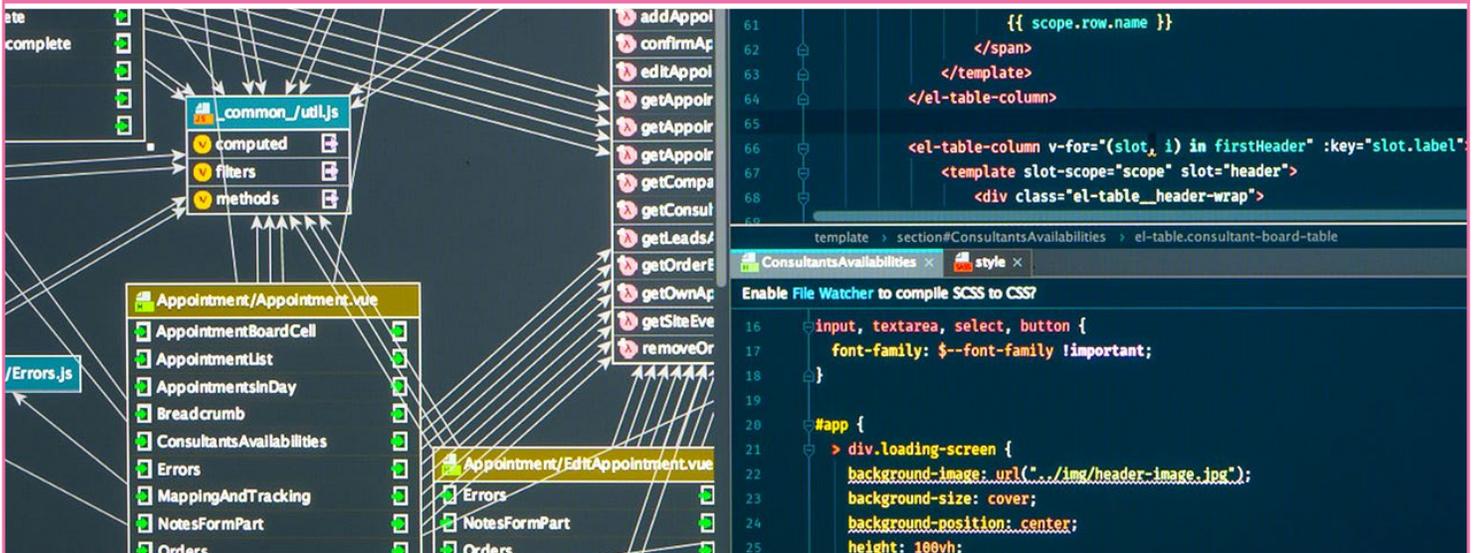
Goals: -To understand relevant information from a video related to relational databases to design database tables.

-To understand relevant information from a written text describing primary and foreign keys to designate unique columns in a table.

-To produce and understand fluently oral texts regarding coding procedures to identify the data type of given concepts.

-To use knowledge of English in the comprehension of data model diagrams to design a physical data model.

Skills: Listening, Reading, Speaking and Writing.

Project: Databases in action. To produce a presentation of a physical database model to represent the effective use of databases in solving issues.

☆ 27 KEY WORDS

Attribute (n.)	Database (n.)	Logical model (n.)	Row (n.)
BLOB (n.)	Designate (v.)	Marker (n.)	Table (n.)
Bool (n.)	Entity (n.)	Null (adj.)	Timestamp (n.)
Cardinality (n.)	Float (n.)	Physical model (n.)	
Char (n.)	Foreign key (n.)	Primary key (n.)	
Column (n)	Index (n.)	Query (n.)	
Conceptual model (n.)	Integer (n.)	Record (n.)	
Data type (n.)	Key (n.)	Relational database (n.)	

Lesson I: Listening Comprehension
Relational Database

BEFORE YOU LISTEN

I. Answer the following questions with the help of a partner:

A. How would you describe a database? Are all databases the same?

B. What examples of different databases can you think of?

II. Watch the following video "What is a Relational Database?" and check your previous answers.

▶ Watch a video

WHILE YOU LISTEN

III. Order the following statements (1-5) as you hear them. Watch the video again and check your answers.

a) _____ Each table has a primary key that defines its information.

b) _____ Benefits revolve around accuracy, flexibility, collaboration, trust, and security.

c) _____ A relational database is composed of tables of data.

d) _____ SQL is a standard user interface for querying relational databases.

e) _____ Users can manipulate relational databases to find the view that fits their needs.

IV. Look at the following pictures. Which one do you think represents the idea from the video best?

A

B

C
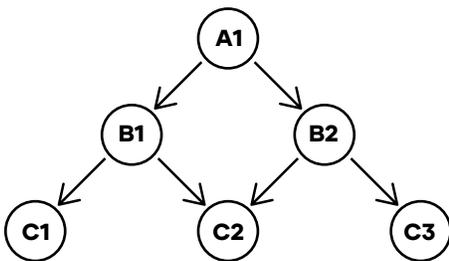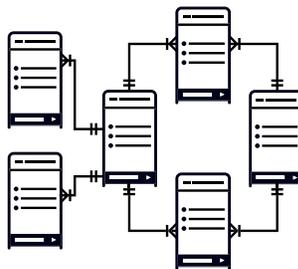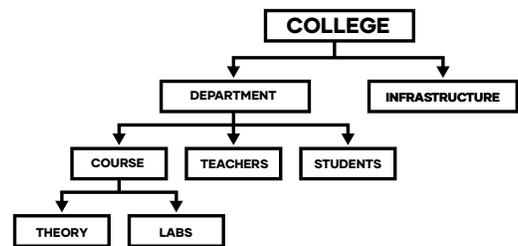
V. Look at the following example of an entity and its attributes. Then, create as many entities with some of their possible attributes as you can for 5 minutes. Bear in mind that in relational databases, tables are referred to as entities and the characteristics or properties of an entity are the attributes.

BOOK			
- Book ID - Title - Author - Publisher - Genre - Price			

VI. Pair up with a classmate. Exchange notebooks with your partner and check if there are any more attributes you can think of for your examples.

VII. Discuss. As a whole class, answer these questions:

A. How can you differentiate entities from attributes?

B. What examples of databases could you build using some of the entities mentioned in class?

BEFORE YOU READ

I. Match the definitions (1 -5) to their concepts (a-e).

a) Key ___3___

b) Data _____

c) Value _____

d) Null _____

e) Index _____

1. A lookup table that the database search engine can use to speed up data retrieval.

2. Marker used to indicate that a data value does not exist in the database.

3. Data to generate relationships among different database tables.

4. Small facts and information without context.

5. Data that databases just store.

II. Read the following text:

WHAT IS THE DIFFERENCE BETWEEN A PRIMARY KEY AND A FOREIGN KEY?

Primary Keys

For a table to qualify as a relational table, it must have a primary key. The primary key consists of one or more columns whose data contained within are used to uniquely identify each row in the table. As an example, you can think of them as an address. If the rows in a table were mailboxes, then the primary key would be the listing of street addresses.

When a primary key is composed of multiple columns, the data from each column are used to determine whether a row is unique.

To be a primary key, several conditions must hold true:

- First, as we mentioned, the columns must be unique. To clarify, we are referring to the data within the rows, not the column names themselves. Also, no value in the columns can be blank or null.
- When defining a table, you specify the primary key.
- A table has just one primary key, and its definition is mandatory.
- The primary key for each table is stored in an index. The index is used to enforce the uniqueness requirement. It also makes it easier for foreign key values to refer back to corresponding primary key values.

Foreign Keys

A foreign key is a set of one or more columns in a table that refers to the primary key in another table. There are not any special code, configurations, or table definitions you need to place to officially "designate" a foreign key.

Look at the picture below to see an example of tables linked by primary keys (PK) and foreign keys (FK).

EMPLOYEE

Employee Number PK
EmpFirst Name
Emplast Name
EmpStreet Address
EmpCity
EmpState
EmpZipcode
EmpPhone Nomber
Position
Hourty Rate
Date Hired

CUSTOMERS

Customer ID   PK
CustFirst Name
Custlast Name
CustStreet Address
CustCity
CustState
CustZipcode
CustPhone
CustEmail Address

ORDERS

Order Number   PK
Customer ID   FK
Order Date
Ship Date
Employee Number FK

Picture taken from: *Refining All Foreign Keys :: Chapter 10. Table Relationships :: Part II: The Design Process :: Database design for mere mortals :: SQL :: eTutorials.org.* Etutorials.org. **http://etutorials.org/SQL/Database+design+for+mere+mortals/Part+II+The+Design+Process/Chapter+10.+Table+Relationships/Refining+All+Foreign+Keys/.**

Text Adapted from: *Foreign and Primary Key Values – What is the Difference? – Essential SQL.* Essential SQL. **https://www.essentialsql.com/foreign-primary-key-differences/.**

III. Mark the ideas true (T) or false (F).

A. Some relational tables include a primary key. ____

B. A primary key uniquely identifies each record in a table. ____

C. A foreign key is a field in one table that is used as a link to a field inanother table. ____

D. You can insert a record even if the primary key value is null. ____

E. Primary or foreign keys belong to flat file databases. ____

AFTER YOU READ

IV. Look at the following database records from an app that helps you find lost dogs from a small town. Here, pet owners post information about their missing friends and other users report if they have seen the animal around their house or not. Mark P if you think the column refers to a **Primary key**, F to refer to a **Foreign key** or E to leave the square **Empty.**

USER

USERNAME ☐	Full_name ☐
IAN03	Ian Rojas...
Jess_	Jess Fuentes...
MonFu	Mónica Fuentes...

ENTRY

Post_id ☐	Username ☐	Info ☐
001	MonFu	Good morning...
002	MonFu	Hello everyone!...
003	IAN03	Ted enjoys playing...

SIGHTING

Post_id ☐	Username ☐	Info ☐
002	Jess_	1
002	IAN03	1
003	MonFu	–1

V. Check your answers and discuss:

What helped you identify a primary or foreign key?

VI. Work in groups of 3-4 people. Look at the entities and attributes described in Exercise V from last class. Then, choose one example and design a relational database with at least 2 tables where PK (primary keys) and FK (foreign keys) are clearly designated as the example above.

VII. Present your work to the class.

Lesson III: Speaking
Data type

I. Discuss. Then, watch the video **"Table Columns and Data Types"** to check your answers.

A. What different types of data have you heard of?

B. Do languages, like English, have "data types"?

Trainee: Are we ready to start inserting into MySQL?

Project leader: Not yet. We finished our A) (conceptual/logical) model, which defines the entities, attributes, and relationships.

Trainee: I see. Now we need the B) (conceptual/physical) model to describe how the database will be implemented within the DBMS.

Project Leader: Exactly. Let's identify the data type for each column definition.

Trainee: Okay, so the shop sells movies.
Some of the attributes for the entity Movies are: Title, Genre, and Year of release.

Project Leader: You're right. For example, the title is a C) (varchar/char) because you need a random number of letters to complete this field.

Trainee: I get it. Is Year of release a D) (date/timestamp)?

Project leader: Not really. We are using an integer just for the year.

Trainee: Because we need numbers for this one.

Project Leader: Excellent. Keep up the good work!

III. Work with a classmate. Practice the dialogue. Then, complete the chart below with the correct data type for each field – you can use the concepts more than once if necessary.

> **Int (integer) - Date – Bool – Float – Decimal Char**
> **Timestamp – Varchar- BLOB**

Field Name	Sample Data	Data Type
Movie id	0223	**A) Integer**
Title	Web Programming Chronicles	B)
Cover Picture		C)
Genre	Science Fiction	D)
Year of release	2020	E)
Age Appropriateness (+18)	Yes	F)

IV. Change the dialogue using the words from activity III table. Then, practice the dialogue with your partner.

V. Present the dialogue in front of the class.

Conceptual Model

Students	Enrolments	Courses
Student Details	Student enrolments in courses	Course Details

Logical Model

Students
- Student ID
- First Name
- Last Name
- Address
- Email
- Phone
- Program Enrolled in

Enrolments
- Student ID (FK)
- Course ID (FK)
- Mark Obtained
- Status

Courses
- Course ID
- Name
- Tutor
- Duration

Physical Model

tbl_Student
- StudentID INTEGER
- firstname VARCHAR (25)
- lastname VARCHAR (25)
- address1 VARCHAR (25)
- address2 VARCHAR (25)
- city VARCHAR (20)
- state VARCHAR (10)
- postalcode VARCHAR (10)
- phone_cell VARCHAR (10)
- phone_home VARCHAR (10)
- email VARCHAR (25)
- program VARCHAR (5)

1   0..*

tbl_enrolments
- StudentID INTEGER
- courseID INTEGER
- mark_obtained DOUBLE
- enrolment_status VARCHAR (10)
- enrolment_date DATETIME
- payment_date DATETIME

0..*   1

tbl_course
- courseID INTEGER
- course_name VARCHAR (25)
- tutor_name VARCHAR (25)
- duration_in_weeks INTEGER

PRE-WRITING

I. Look at the different representation models.

    A. What are the main differences among the 3 of them?

    B. Which is the most detailed?

    C. What does "1" and "0...*" mean in the last model?

II. Watch the following video titled "Entity Relationship Diagram – ERD – Conceptual Model" and share ideas on how it complements your understanding of the previous models.

III. Work in pairs and design a physical data model. For this task, you need to continue deepening the relational database model started in our second lesson of this unit.

REVISING

IV. Check your work using the table below.

Did we …?	√
Identify the entities and their attributes?	
Identify the primary and foreign keys?	
Clearly set the relationships (cardinalities) between tables?	
Include the data type for each attribute?	
Ask a neighbor partner to check our work?	

V. Transfer your paper-based work into a software-based model. Save the picture and send it to your teacher so that the tasks can be projected on the board/screen.
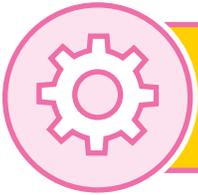
Project: Databases in action
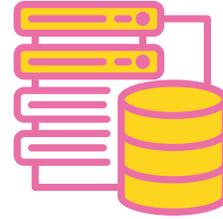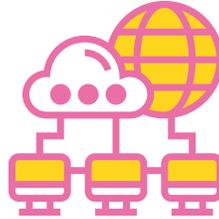
Throughout these lessons, we deepened our understanding of relational databases, how data is stored in different tables and how these communicate to each other thanks to their relationships. Also, we developed a logical data model and physical data model to implement the design effectively.

For this project, we will extend the benefits of relational databases to have a wider impact on people's lives. The students will reflect on possible ways in which they can solve issues using effective databases and will present their products and reflections in front of the class. The teacher will provide language help during the drafting process and will guide students to think about practical solutions.

1. Make a group of 3-4 people. Read the following text.

Poverty, disease, hunger, climate change, war, existential risks, and inequality: The world faces many great and terrifying problems. It is these large problems that our work at Our World in Data focuses on.

Thanks to the work of thousands of researchers around the world who dedicate their lives to it, we often have a good understanding of how it is possible to make progress against the large problems we are facing. The world has the resources to do much better and reduce the suffering in the world.

We believe that a key reason why we fail to achieve the progress we are capable of is that we do not make enough use of this existing research and data: the important knowledge is often stored in inaccessible databases, locked away behind paywalls, and buried under jargon in academic papers.

Taken from: *About.* Our World in Data.
https://ourworldindata.org/about.

2. Answer the questions with your group:

a) Do you agree with the statements of Our World in Data? Why?

b) In what areas do you think we could progress as a society thanks to data?

c) Reflect on the impact of an efficient database within a certain topic or issue.

Then, share your answers with the class, so there is a wider range of issues to tackle. Your teacher might ask you to dive into any of your responses, so be ready to complement your ideas as a group.

3. Design a physical database model in which you tackle an issue using a RDBMS.

A Relational Database Management System (RDBM) should include:

- Entities
- At least 3 attributes per entity (subject to the project's idea)
- Designated PKs and FKs
- Data type
- Cardinalities

4. Make a draft of your work on paper before you create the physical model for the presentation. Present it to your teacher so they can give you feedback about your writing.

5. Present in front of your class emphasizing the issue your group is tackling through this relational database. Be prepared for questions from either your classmates or your teacher.

The presentation must have the following slides:

- Cover slide (Team members and title referencing their solution).
- Brainstorming slide (What you discussed before jumping into one option).
- Main social issue (Explain why you chose that topic and how solving it would be socially beneficial).
- Explanation of the database (what data is needed and what elements were considered).
- Physical database model (Picture of the model and its explanation).
- Conclusions (How databases can make a social impact).

Unit II: Object-Oriented Programming (OOP)

Object-oriented programming

CLASS	OBJECTS
Human	Name

PROPERTIES	METHODS
Email	Verify
Address	Send mail
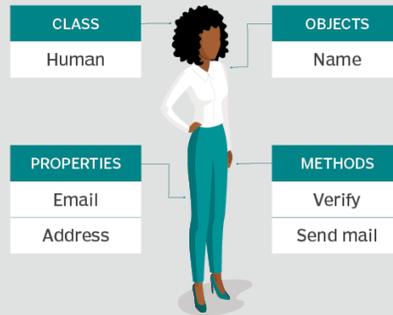
Goal: -To understand relevant information from a video related to object-oriented programming to show relationships among objects.

-To use knowledge of English in the comprehension of a short written text related to the principles of object-oriented programming to summarize its key information into a poster.

-To produce and understand a dialogue based on a coding interview to present information related to the professional field.

-To produce and understand the algorithms within a program related to the use of methods in object-oriented programming.

Skills: Listening, Reading, Speaking, and Writing.

Project: Online Community

-To produce a video explanation to present information related to object-oriented programming.

☆ 32 KEY WORDS

Abstraction (n.)	Encapsulation (n.)	Object-oriented	Subclass (n.)
Behavioral (adj.)	Execute (v.)	programming (OOP) (n.)	Superclass (n.)
Boundary (n)	Function (n.)	Parameter (n.)	Technical (adj.)
Buit-in (adj.)	Hierarchy (n.)	Perform (v.)	Thought process (n.)
C++ (n.)	Inherit (v.)	Polymorphism (n.)	Unstructured
Call (v.)	Inheritance (n.)	Reusability (n.)	programming
Class (n.)	Interview (n.)	Run (v.)	language (n.)
Coding (v.)	Java (n.)	Soft (adj.)	
Derive (v.)	Method (n.)	Structured programming	
Development (n.)	Object (n.)	language (n.)	

Lesson I: Listening Comprehension
Object-oriented programming

I. Discuss with your partner.

A. What type of programming paradigms do you know?

B. What are their main characteristics?

▷ Watch a video

II. Watch the following video "OOPs Concepts on Java" and check your answers in Activity I.

WHILE YOU LISTEN

III. Look at the box and place these statements in the correct column as you hear them in the audio.

Statements	Unstructured Programming language	Structured Programming language	OOP language
A) "(…) throughout the program we are dealing with data or performing certain actions on the data."			
B) "Such repetition is a waste of programming efforts and increases coding costs and possibility of coding errors."			
C) "(…) abstraction, encapsulation, inheritance, and polymorphism."			
D) "(…) common lines of your code were put in a structure called functions or methods, and wherever required, a simple call to their function was made."			
E) "The same code (…) will have some data and the actions to be performed on that data."			

```
                                          void showData(){
                                          printf("Account Number = %d",account_number)
                                          printf("Account Balance = %d",account_balance)
                                          }
int account_number = 20;
int account_balance = 100;

account_balance = account_balance+100
showData();


account_balance = account_balance-50
showData();
```

A. _____

```
int account_number = 20;
int account_balance = 100;

account_balance = account_balance+100

printf("Account Number = %d",account_number)
printf("Account Balance = %d",account_balance)

account_balance = account_balance-50

printf("Account Number = %d",account_number)
printf("Account Balance = %d",account_balance)
```

B. _____

```
class Account{
    int account_number;
    int account_balance;

    public void showData(){
    system.out.println("Account Number"+account_number)
    system.out.println("Account Balance"+account_balance)
    }
}
```

C. _____

"OOPs Concepts in Java" Images taken from **https://www.guru99.com/java-oops-concept.html**

V. Look at the following class hierarchy that helps us understand the Inheritance advantage mentioned in the video. Place the words from the box into the blank spaces according to their relationships. Bear in mind that these relationships can be read upwards as: _____ is a _____

Snake / Animal / Dog / Reptiles / Cat / Alligator / Mammals

SUPERCLASS
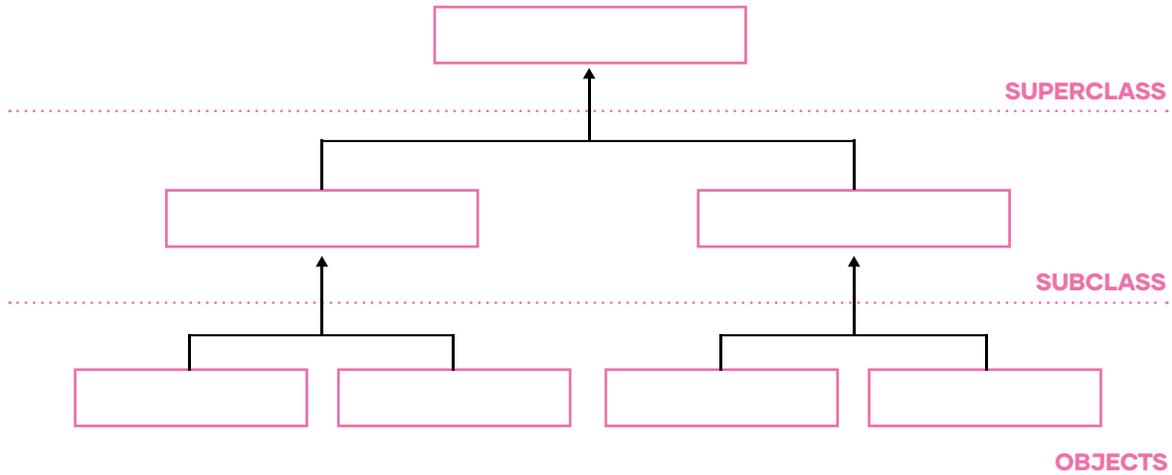
SUBCLASS

OBJECTS

VI. Discuss with a partner. How would you describe superclasses, subclasses, and objects?

VII. With a classmate, create 2 more examples of relationships between classes and objects in your notebooks. Use the following sample as a model.

Sports

Individual Sports   Team Sports

Boxing   Swimming   Basketball   Volleyball
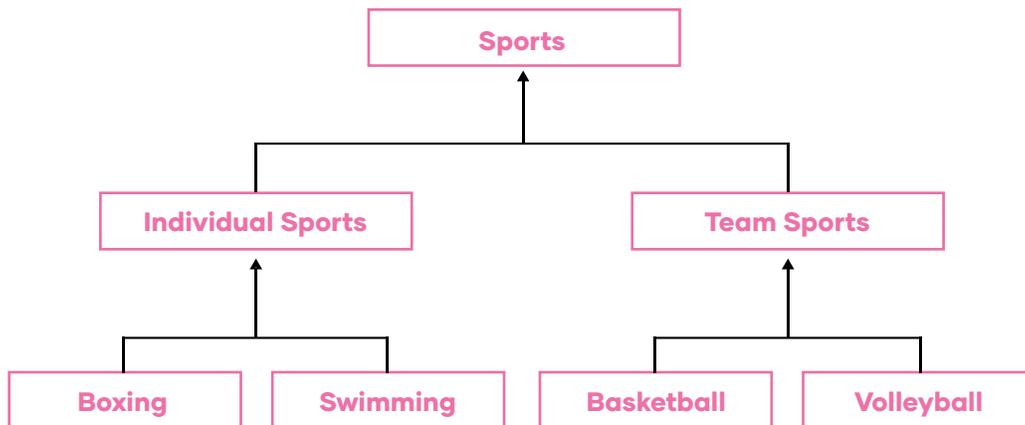
VIII. Share with the class.

Lesson II: Reading Comprehension
OOPs Principles

I. Match the following terms with their definition. Look at the example and complete the rest.

A) Object ___4___

B) Superclass _____

C) Method _____

D) Subclass _____

E) Attribute _____

1. A characteristic of a class that helps to distinguish it from other classes

2. A class that derives from another class. Also known as derived, heir or child class.

3. Class from which other classes inherit code. Also known as parent class.

4. An instance of a class.

5. A procedure associated with a class.

II. With a partner, look at the title of the reading below and answer:

A. Have you heard about these principles? Which ones?

B. How would you describe each?

PRINCIPLES OF OOP

Object-oriented programming is based on the following principles:

Encapsulation. The implementation and state of each object are privately held inside a defined boundary, or class. Other objects do not have access to this class or the authority to make changes but are only able to call a list of public functions, or methods. This characteristic of data hiding provides greater program security and avoids unintended data corruption.
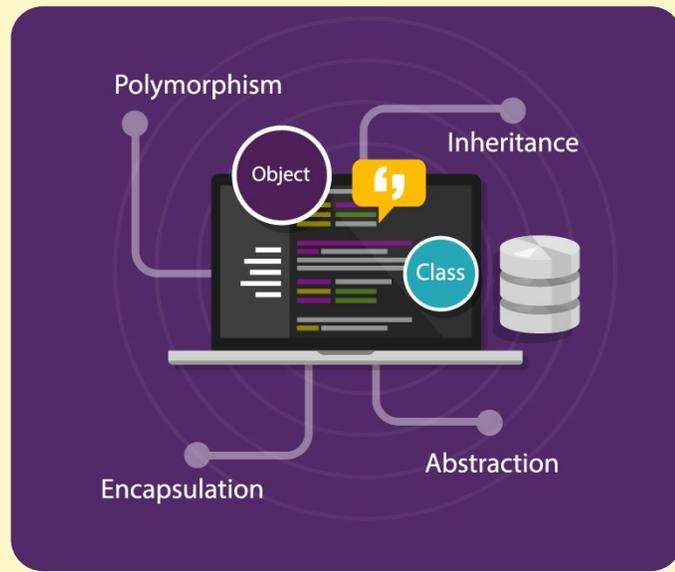
Abstraction. Objects only reveal internal mechanisms that are relevant for the use of other objects, hiding any unnecessary implementation code. This concept helps developers more easily make changes and additions over time.

Inheritance. Relationships and subclasses between objects can be assigned, allowing developers to reuse a common logic while still maintaining a unique hierarchy. This property of OOP forces a more thorough data analysis, reduces development time, and ensures a higher level of accuracy.

Polymorphism. Objects can take on more than one form depending on the context. The program will determine which meaning or usage is necessary for each execution of that object, cutting down the need to duplicate code.

Text taken from: *What is object-oriented programming (OOP)?*. SearchAppArchitecture. (2020).
https://searchapparchitecture.techtarget.com/definition/object-oriented-programming-OOP.
Image taken from: *What is OOP (Object-Oriented Programming)?*. Computerhope.com. (2020).
https://www.computerhope.com/jargon/o/oop.htm

IV. Mark the ideas true (T) or false (F).

A) Inheritance prevents unintended data corruption. _____

B) The higher the level of abstraction, the lower the level of details. _____

C) Code reusability is a major benefit of encapsulation. _____

D) Polymorphism refers to something having many forms, including both objects and methods. _____

E) Encapsulation, substraction, inheritance and polymorphism are some principles of OOPs. _____

V. Read the following statements. Place an E (encapsulation), A (abstraction), I (inheritance), or P (polymorphism) next to the matching OOP principle description.

A) Principle that seeks to hide the implementation complexity from the user. ___A___

B) Ability for a message/data to be processed in more than one form. _____

C) Procedure in which one class receives the attributes and methods of another class. _____

D) Mechanism for restricting direct access to some of an object's components. _____

AFTER YOU READ

VI. Watch the following explanation and create a poster. Group up in teams of 3 or 4 students. Explain any of the four basic principles for OOP (encapsulation, abstraction, inheritance, or polymorphism) using everyday examples as in the video.

Did we...	√ or X	Expressions for your poster
Clearly identify the chosen principle in the poster?		"Inheritance" could be exemplified by...
Add cuttings/drawings to provide visual aid?		Think of "abstraction" as...
Use an everyday life example?		"Polymorphism" is like...
Check grammar and punctuation?		This principle talks about...

VII. Share with the class.

Lesson III: Speaking
Coding Interview

I. Discuss with the class.

A. Is it enough for a programmer to know how to code?

B. What other skills might be needed in the field?
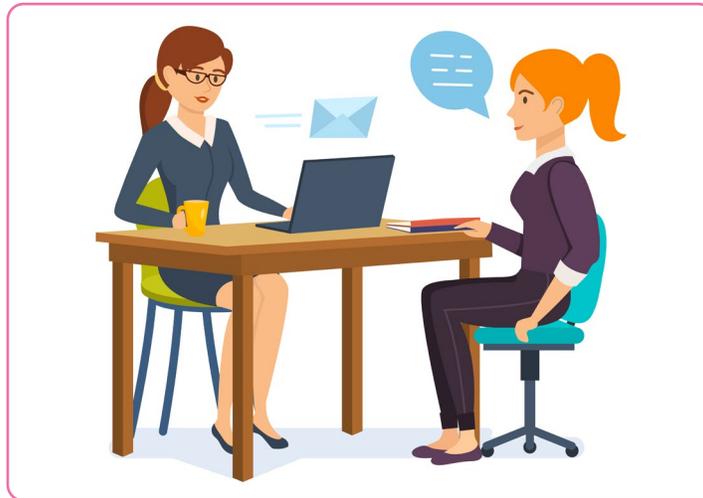
▷ Watch a video

II. Watch this video on "How to Prepare for Coding Bootcamp Interviews" and answer the questions:

A. Is it enough for a programmer to know how to code?

B. What other skills might be needed in the field?

III. Place the words from the box in the correct place. Then, listen to the audio and check your answers.

Interview - Soft - Java - Development - Technical - Thought process

Interviewer: Please, come in. Welcome to Coding Company. My name is Rachel. You must be Greg, right?

Candidate: Hello. Yes, that is me. Thank you for having me.

Interviewer: Thank you for your punctuality. This interview is made up of 2 sections: a behavioral and a **A)** _technical_ part. The process should last an hour.

Candidate: I understand. I prepared myself for 3 months for this **B)** _____.

Interviewer: Oh, I see. We will begin with the first part in which I get to know you. Tell me about yourself.

Candidate: I have been 5 years in the programming field, working with different languages like **C)** _____ and C++ to offer solutions for a food company.

Interviewer: Thank you for sharing that. Also, communication is key in our team. Tell me about a time when you disagreed with someone from the **D)** _____ team? What did you do about it?

Candidate: We disagreed on the approach to a solution because we were not listening to each other. At first, I didn't understand his **E)** _____ but thanks to the comments on his code we were back on the same page.

Interviewer: Great. I think I have a clear picture of your **F)** _____ skills. Now we can move on to the technical section in which we test your understanding of algorithms and programming skills.

CONTROLLED PRACTICE

III. Work with a partner and practice the dialogue.

IV. Change the underlined words using your own ideas to simulate a new interview or provide an ending for this candidate in the technical section. Think about these questions to guide your work.

    A. What questions should an interviewer ask to choose the perfect candidate?

    B. What type of answers would a successful/unsuccessful candidate give?
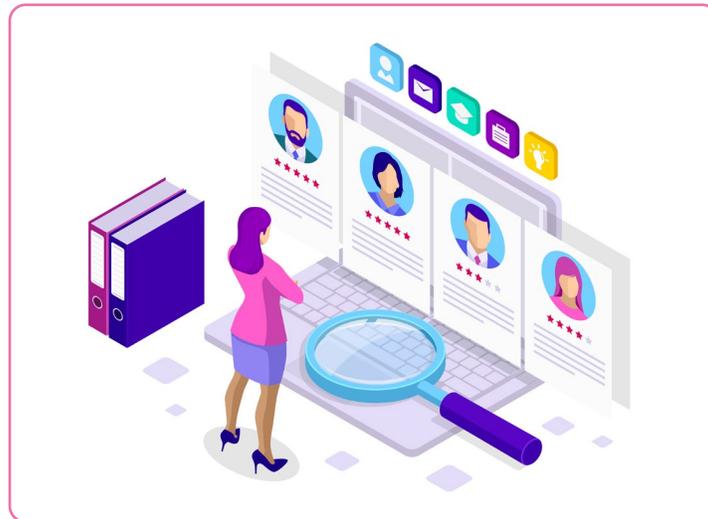
V. Read your dialogue to the class.

VI. Discuss. What final tips would you give to candidates applying for a programming position?
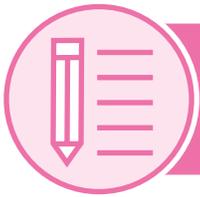
I. Order the following steps (1-8) so that they reflect the code shown on the left column:


```java
/ Create a Main class
public class Main {

  // Create a fullThrottle() method
  public void fullThrottle() {
    System.out.println("The car is going as fast as it can!");
  }

  // Create a speed() method and add a parameter
  public void speed(int maxSpeed) {
    System.out.println("Max speed is: " + maxSpeed);
  }

  // Inside main, call the methods on the myCar object
  public static void main(String[] args) {
    Main myCar = new Main();   // Create a myCar object
    myCar.fullThrottle();      // Call the fullThrottle() method
    myCar.speed(200);          // Call the speed() method
  }
}

// The car is going as fast as it can!
// Max speed is: 200
```

Text taken from: *Java Class Methods.* W3schools.com.
https://www.w3schools.com/java/java_class_methods.asp

a) _____ We created a custom **Main** class with the **class** keyword.

b) _____ Then, we called the **fullThrottle()** and **speed()** methods on the **myCar** object, and ran the program using the name of the object (**myCar**), followed by a dot (.), followed by the name of the method (**fullThrottle();** and **speed(200);**). Notice that we added an **int** parameter of **200** inside the **speed()** method.

c) _____ We created the **fullThrottle()** and **speed()** methods in the **Main** class.

d) _____ The **speed()** method accepted an **int** parameter called **maxSpeed** - we will use this in **8).**

e) _____ The **fullThrottle()** method and the **speed()** method will print out some text, when they are called.

f) _____ In order to use the **Main** class and its methods, we needed to create an **object** of the **Main** Class.

g) _____ By using the **new** keyword, we created an object with the name **myCar**.

h) _____ Then, go to the **main()** method, which you know now is a built-in Java method that runs your program (any code inside main is executed).

DRAFTING

II. Discuss.

A. What aspects are important when coding?

B. What role do comments play in a code? Is it relevant to leave comments in the code?

III. Work on a computer with a classmate and create a program using the concepts of class and object as you access the methods. Take the previous example as a model.

EDITING

IV. Check your work using the table below:

Did we...	√
Use elements such as class, objects, and methods?	
Use comments within the code to help the reader understand?	
Check spelling and grammar when necessary?	
Ask another classmate to double check our code?	

PUBLISHING

V. After you finish, save the file you and your teammate were working on and send it to your teacher. The teacher will print it and place it on a wall of the classroom for everyone to see.
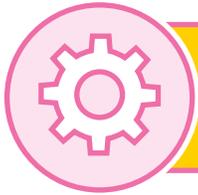
Project: Online Community
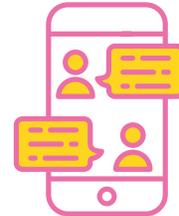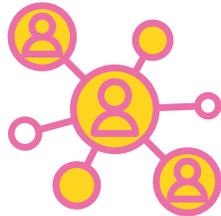
Learning to program requires practice and dedication. Sometimes, however, we need help grasping concepts and ideas embedded in programming. Actually, a big number of programmers are self-taught, which means they learnt watching tutorials and applying their knowledge. The online programming community is one of the most prolific fields in terms of online materials created for independent users.

In this project, we will collaborate with future generations of coders by giving video explanations of concepts related to OOP. In groups, students will decide what ideas or concepts they can help others understand. Then, they will record a video that will be presented in class. Do not forget to show your script to your teacher to receive feedback along the process!

▷ Watch a video

I. Watch the following video explanation Discuss as a class.

A. What elements were effective in helping you understand her ideas?

B. What elements were distracting?

C. Do you think this is a well-designed video?

II. Make a group of 4 people and discuss:

A. What OOP concepts were the hardest to understand? And the easiest?

B. What ideas do you feel most comfortable explaining?

III. **Choose one of the following concepts from the box and design a video tutorial/explanation no longer than 1 minute and 30 seconds.**

> **Class – Object – OOP – Inheritance – Polymorphism – Encapsulation - Abstraction**

Bear in mind to include in your video:

- A title at the beginning of the video.
- Sections speaking to the camera.
- Sections using a slide/screen recording.
- A short description of the concept.
- An everyday example to ensure understanding.
- Pictures to support the meaning of the message.
- Credits at the end of the lesson.
- A description of the video's content and the team behind the scenes.

If you need help thinking of innovative and creative ways to explain an idea, ask your teacher for some guidance. Remember, teachers are trained to make learning easy for people!

IV. **Draft your ideas.** Write down the script of your video guided by some of these expressions. Also, you can create a basic video sequence in which you draw the moments of your video. See the following sample.

> **Useful expressions**
>
> Welcome to this video tutorial/explanation
> Today we will be talking about...
> In today's capsule/video we will dive into...
> As you can see,... can be explained as...
> If you find it difficult to understand, remember that...
> I hope you liked this video about...
> Please, subscribe to our class channel where you will find explanations about...

Bear in mind to show your script to the teacher so they can help you spot unclear ideas or spelling issues.

V. **Use your cell phone or a digital camera to make the video.**

VI. **Share with your teacher so that the class can have an OOP Concepts video channel.**

Goals: To understand relevant information from a video related to database administrators to characterize their job.

To use knowledge of English in the comprehension of a description of common mistakes in database design to revise database tables.

To produce and understand a dialogue based on a conversation of a Database Administrator and a customer related to data failure situations.

To use knowledge of English in the comprehension of a description of programming routines to design a mind map with its main aspects.

Skills: Listening, Reading, Speaking, Writing

Project: "Data Administration in a Nutshell".

To produce a clear written text in the shape of an infographic related to the characteristics and main goals of a database administrator.

☆ 19 KEY WORDS

Administrate (v.)	Embed (v.)	Malfunction (n.)	Sequence (n.)
Backup (n.)	Failure (n.)	Package (n.)	Storage (n.)
Constraint (n.)	Features (n.)	Procedure (n.)	Store (v.)
Documentation (n.)	Fix (v.)	Routine (n.)	Subprogram (n.)
Domain (n.)	Integrity (n.)	Secure (v.)	

BEFORE YOU LISTEN

I. Read and answer the questions:

A. What are the roles of a database administrator (DBA)?

B. How important are they? Why?

Watch a video ▷

II. Watch the video "Database Administrators Career Video" Check your answers in Exercise I.

WHILE YOU LISTEN

III. Fill in the blanks with the words you hear from the video. Listen again and check your answers.

Database administrators are experts in storing and organizing **A)** __data__ so that users can access the information they need, while keeping out unwelcome visitors.
These IT professionals play a vital role in many industries—finance, shipping, healthcare, and others— that obtain and store sensitive, private data.

Database administrators oversee the **B)** _____ of new databases, by analyzing the need for the database, clarifying the goals it's intended to fulfill, and identifying its users. Once the database is established, they monitor its performance and make improvements.

Since many users rely on databases to accomplish their daily work, database administrators regularly back up **C)** _____ to prevent data loss and establish steps to ensure the integrity of data that enters the system. When issues occur, they also find and fix sometimes deeply complex problems.

Most database administrators work in **D)** _____ systems design, data hosting, and data processing companies. There are also positions at insurance companies, banks and retailers, **E)** _____ services, and healthcare organizations. (...)

IV. Read the statements below. Tick (√) the correct options.

A	Database Administrator is in charge of...	√
A	Storing and organizing data.	
B	Creating website layout/user interfaces.	
C	Backing-up systems to prevent data loss.	
D	Working with clients.	
E	Fixing complex data problems.	

V. Discuss with a partner.

A. How important is it to keep databases organized? Why?

B. How can database failures affect us?

C. Would you be interested in becoming a database administrator? Why?

BEFORE YOU READ

I. Write the number of the action in bold from the text next to its synonym.

A	5	Permit
B		Testing
C		Deposited
D		Offer
E		Lost

II. Write the number of the action in bold from the text next to its synonym.

Common Mistakes in Database Design.

Bad database design leads to many problems down the line, such as poor performance, inability to make changes to **1) provide** new features, and low-quality data that can cost both time and money as the application evolves. The following are some common mistakes:

- **2) Missing** documentation for database(s) in production: Documentation for databases usually falls into three categories: incomplete, inaccurate, or none at all.

- Improper storage of reference data: It is either **3) stored** in many places or, even worse, embedded in the application code.

- Not using foreign keys or **4. checking** constraints: Lack of referential integrity (RI) or validation checks defined in the database.

- Not using domains and naming standards: It will not **5. allow** you to clearly identify attributes consistently.

- Not choosing primary keys properly: The simplest principle to remember when picking a primary key is SUM: Static, Unique, Minimal.

Adapted from: Howard, J., 2009. *Seven Deadly Sins of Database Design*. [online]
Available at: **https://edn.embarcadero.com/article/40466**

III. Pay attention to these database tables and find 4 mistakes. Check with a classmate.

Customer	Order	Store
*customer_id first_name last_name email street	*order_id store_id email order status	phone street zip_code

1. _____

2. _____

3. _____

4. _____

AFTER YOU READ

IV. Work with a partner. Create your own database tables making common mistakes. Ask a partner to find them.

V. Discuss with a partner: Was it difficult to plan the database? What about finding mistakes?

Lesson III: Speaking
"Data Safety"

WARM-UP

I. Discuss the following questions with a classmate.

A. Have you ever forgotten to save a file while doing homework on your computer?

B. What did you have to do to find the lost data?

C. Why is it important to keep your data safe and secure?

CONTROLLED PRACTICE

Click here to listen 🔊

II. Listen to the audio and circle the word you hear. Listen again and check.

DBA:	Good morning, Sir! **A) (Yesterday/ Today)** I was analyzing the <u>restaurant</u> database, and I found some data failure.
Owner:	Oh, no! Could you **B) (tell/sell)** me about it?
DBA:	Sure. First, I found that primary keys are not included in some **C) (bandages/packages)**. Also, there is <u>incomplete information</u> and malfunctioning **programming routines**.
Owner:	I see, could you please **D) (mix/fix) them**?
DBA:	Sure thing! You can count on me. I will ask the development **E) (team/teen)** to help as well.
Owner:	I really appreciate it.

III. Change the underlined words in the previous conversation using your own ideas or the pictures below.

Library Database

Pet Store Database

Hospital Database

School Database

Bank Database

WRAP UP

IV. Act out the conversation in front of the class.

## PRE WRITING

I. Read the text below and answer.

PROGRAMMING ROUTINE

Routine is a term for any sequence of code that is intended to be called and used repeatedly during the executable of a program. This makes the program shorter and easier to write (and also to read when necessary). It is also referred to as a function, procedure, and subprogram. A routine may also be useful in more than one program and save other programmers from having to write code, because it can be shared. Examples:
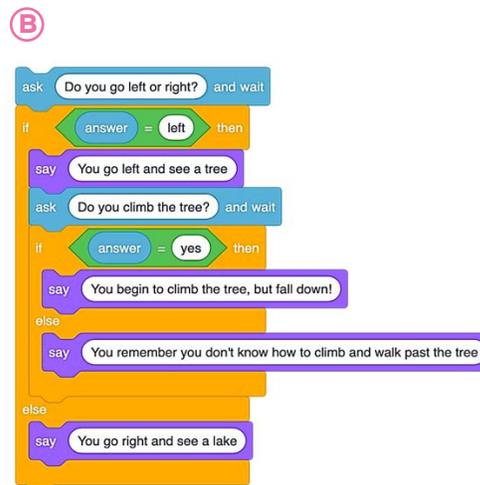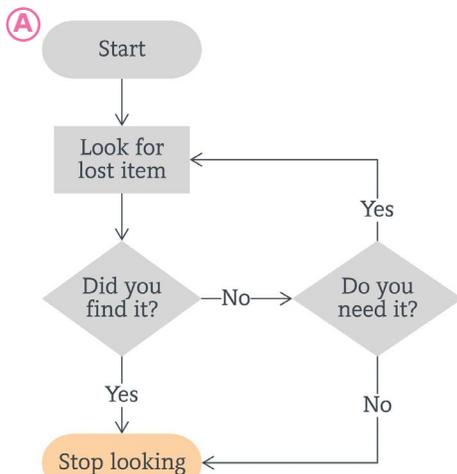
```
1  def addNum(num1, num2):
2      total = num1 + num2
3      print (total)
4
5
6  num1 = int(input("Please enter a number to be added: "))
7  num2 = int(input("Please enter another number to be added: "))
8  addNum(num1, num2)
```

Adapted and taken from: *WhatIs.com. 2005. What is routine? - Definition from WhatIs.com.* [online]
https://whatis.techtarget.com/definition/routine

II. Choose an example of a programming routine and briefly explain it in your own words.

III. With a partner, design a mind map using the information from the text. Look at the following sample as a model for your mind map structure.
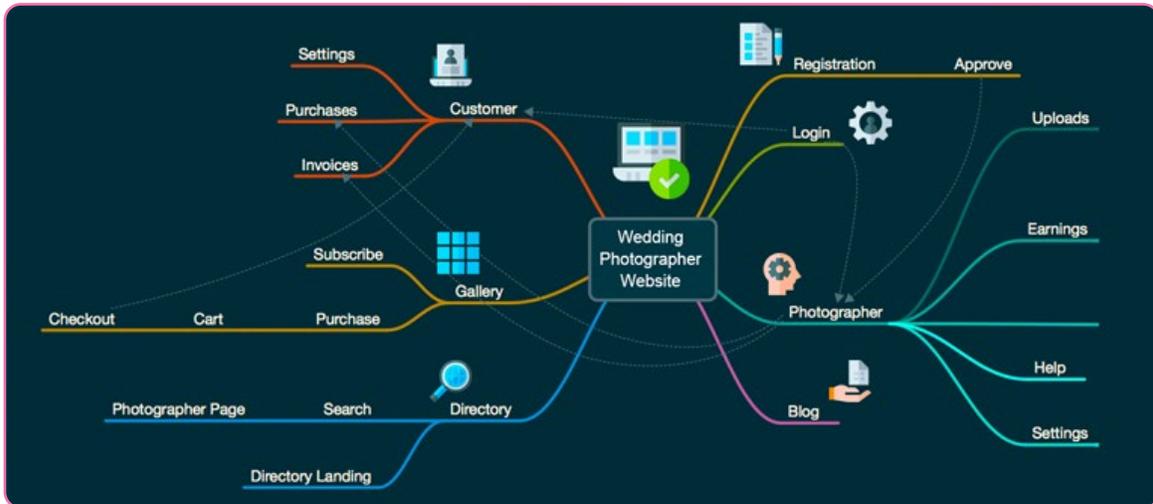
Image taken from: MindMapping.com. n.d. *How To Make A Mind Map | MindMapping.com*. [online] **<https://www.mindmapping.com/>.**

REVISING

IV. Use the chart below to check if your mind map is complete.

Did I...?	
Add a main concept?	
Include information and terms read in the text?	
Use a clear structure?	
Add examples?	
Use clear language?	

PUBLISHING

V. Email a picture of your mind map to your teacher. The teacher will post the pictures online and the rest of the class can vote for the best mind maps.
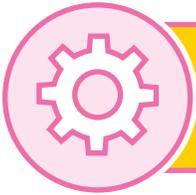
Project: "Data Administration in a Nutshell"
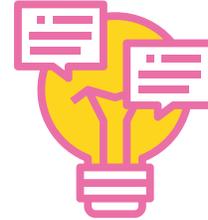
Now that you understand the concepts of data administration, it is time for you to share your knowledge. Help other people understand what data administration is and who are the people who work in that area by using an infographic.

What is an infographic?
An infographic (information graphic) is a representation of information in a graphic format designed to make the data easily understandable.

Look at the following example:

Importance of a good Website Design for Small Businesses/Startups

75% Judgements on a company's credibility based on the company's creative website design.

70% small business websites lack a call to Action (CTA) on their homepage and across their website design

88% online visitors/ shoppers are less probably to come back to a website after a bad user experience.

47% website visitors take a look at a company's products/services page before viewing any other sections of the site.

38% individuals will stop engaging with a website if the content or layout design is unattractive

44% website visitors will leave a company's website if there's no contact information or number.

I. Watch the video "7 Common Types of Infographics" Make a group of 4 and discuss.

A. What information are you going to present?

B. What type of infographic is most suitable? Why?

C. How will the group divide the tasks?

Since the teacher will be helping groups develop their ideas, remember to write down any decision made within the group.

II. Create an infographic using the information about database administration. The presentation of the infographic should have:

INFOGRAPHIC
A suitable title according to the information.
Pictures supporting your ideas.
Accurate information.
Examples.
Concept and terms related to the topic.

Make sure to check the drafts of your infographic in terms of spelling, visual support, and the use of language with your teacher before you start working on your final product.

III. Present and explain your work to the class.

Unit IV: Web Application Development

Goals: To understand relevant information from a video related to the differences between a website and a web app to classify concepts into these categories.

To use knowledge of English in the comprehension of a web hosting characterization with the purpose of designing an advertisement for online services.

To produce and understand a dialogue based on a conversation of a business owner and a development team related to the addition of a new member.

To produce a clear written response for a customer with the purpose of providing advise related to the customers' needs.

Skills: Listening, Reading, Speaking, Writing

Project: "Problem-solvers".

To produce and understand fluently oral and clear written texts in relation to global situations to propose a solution through a website or web app.

☆ 22 KEY WORDS

Browser (n.)	Host (v.)	Owner (n.)	Server (n.)
Business (n.)	Interactivity (n.)	Performance (n.)	Set up (v.)
Content (n.)	Invest (v.)	Provider (n.)	Traffic (n.)
Customer (n.)	Layout (n)	Publish (v.)	Upload (v.)
Digital platform (n.)	Manage (v.)	Quality (n.)	
Ensure (v.)	Market (n.)	Role (n.)	

Lesson I: Listening Comprehension
Website vs Web App

I. Work with a partner. Read and answer the questions:
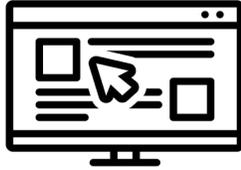
A. What do you think the difference between website and web app is?

B. What do they have in common?

WHILE YOU LISTEN

Watch a video

II. Watch the video 'What's the difference between a website and a web app?' and check your answers in Exercise I.

III. Match the statements with the corresponding concept. Watch the video again and check your answers.

WEBSITE

WEB APP

A. It is a set of web pages.

B. It allows users to have interactivity.

C. You can view it in a browser.

D. It is about content and information.

E. You can upload photos and make reservations.

AFTER YOU LISTEN

IV. Read the concepts below and classify them into website (WS), web app (WA) or both (B). Check with a classmate.

A	WA	Facebook		E		Online Biography
B		Blogs		F		Book Review
C		Netflix		G		eBay
D		Gmail		H		Online Newspaper

V. Choose a concept from Exercise IV. In your notebook, write three reasons why you classify it as a website or a web app.

1. _____
_____
_____

2. _____
_____
_____

3. _____
_____
_____

VI. Discuss with a partner.

WEBSITE   **WEB APPLICATION**

VS

A. How important is it to choose between a website and a web app when sharing information?

_____
_____
_____
_____

B. Which one do you usually visit the most? Why?

_____
_____
_____
_____

Lesson II: Reading Comprehension "Web Hosting"

BEFORE YOU READ

I. Match the words and their synonyms.

A	Access	
B	Running	
C	Recommend	
D	Security	
E	Purchase	

1		Ongoing
2		Safety
3		Buy
4		Admittance
5		Suggest

BEFORE YOU READ

II. Read the following text and mark the statements true (T) or false (F) in the space provided. Then, check with a classmate.

1		Web hosting allows you to create a website.
2		There are free web hosting services.
3		ISPs are the most commonly used type because they are cheap and easy.
4		In VPS, the whole server is allocated to a single website.
5		Domain hosting is preferred by small businesses.

WHAT IS WEB HOSTING?

Web hosting is an online service that allows you to publish your website on the Internet. So, anyone who has access to the Internet has access to your website. Your web host is responsible for making sure your server is running and keeping safe all your files and databases. Your website hosting cost will vary depending on the provider. There are free web hosting services; though, we do not recommend them.

What types of Web Hosting are there?

- Internet Service Providers (ISPs): Most people choose this hosting as it is cheap and easy. The limitation is that it can be used only for small websites which expect low traffic.

- Shared Hosting: The Web host company puts several websites into a single physical server. For that reason, if one website is experiencing heavy traffic, it will affect the performance of other websites on the server.

- Virtual Private Servers (VPS): Each website has its own server. It does not share the memory or processor between the websites, so one website doesn't affect the performance of others.

- Dedicated Server Hosting: Unlike VPS, the whole server is allocated to a single website. This hosting is preferred by businesses that require power and security for their websites.

- Domain Hosting: Small businesses prefer this hosting. The domain name can be purchased, and it can be sent to the actual website location.

Adapted from: Bhagchandani, Y., n.d. *What Is Web Hosting? - Webpothi.com*. [online] Webpothi. **<https://www.webpothi.com/what-is-web-hosting/>.**

III. Imagine you are a web host company. Create an advertisement offering your services. Follow the example of the TOP 10 host web company Bluehost.

| What is the name? What do you offer? How much does it cost? What benefits do you have?	

IV. Share your host company with the rest of the class.

Lesson III: Speaking
"Development Team"

WARM UP

I. Look at the picture and talk with a partner. Do you know the role of any of these people?

Project manager

Project architect

UI/UX designers

WEB DEVELOPMENT TEAM

Web developers

QA and testing specialists
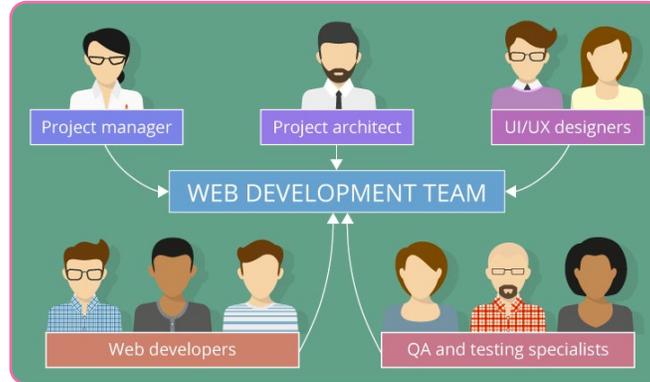
CONTROLLED PRACTICE

Click here to listen 🔊))

II. Complete the dialogue below with the words from the box. Listen to the audio and check.

> UI/UX designer - Web developer - QA - Project architect - Project manager

Business owner: Good morning everyone! We have a new team member. He's the new **A)** _____. As you know, he's responsible for delivering the best online user experience.

Team member 1: Nice to meet you! I'm the **B)** _____, responsible for planning, organizing, and directing projects while ensuring they are on time.

Team member 2: Thanks for joining our team! I'm responsible for the coding, design, and layout of a website, a **C)**_____.

Team member 3: Hey! I'm the **D)**_____. I manage the creation of projects from the conceptual design through construction.

Team member 4: Last but not least, I'm the **E)**_____. I ensure that the final product achieves quality standards by giving feedback and problem-solving solutions. Welcome aboard!

III. Each team member chooses one of the roles and its responsibilities. Create a   dialogue discussing a project development as seen in the dialogue above.

> **Example:**
> **Project: Designing a library website**
>
> **Project manager:** Set up the time to start and finish the project.
>
> **Project Architect:** Set up a draft of the design of the website, selecting photos, info...
>
> **UI/UX Designer:** Revise the design to make it user-friendly.
>
> **Web developer:** Decide digital platform and hosting.
>
> **QA:** Give feedback and advice to the other team members.

WRAP UP

IV. Act out your conversation in front of the class.
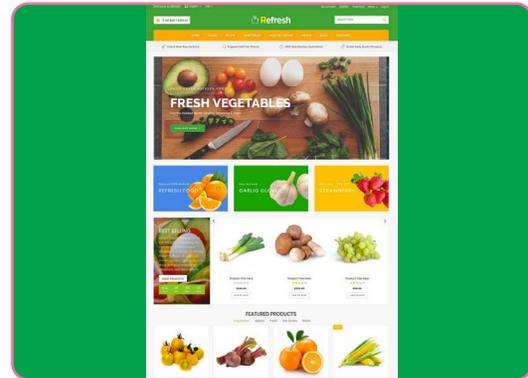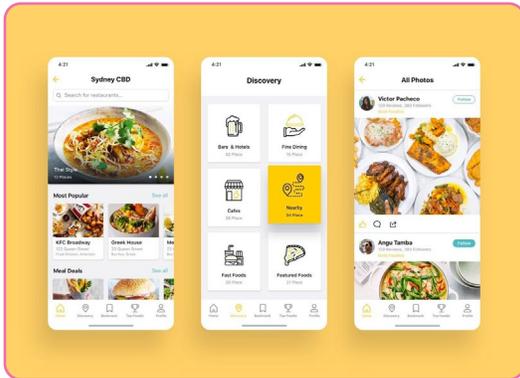
PRE WRITING

I. Read Phillip's email about his restaurant. Answer the questions.

Contact info:
Name: Phillip Young
Email: phillip.bo@openlibrary.com
Subject: Digital Platform for Restaurant

Good morning,
I have been the business owner of a well-known Chinese restaurant here, in my city, for many years. My restaurant is recognized in the business market, but I do not have any digital platform.

Now, I'm working with a food delivery service team. However, since I only have one telephone number which customers use to order their food, sales have decreased a lot.

For that reason, I was thinking of creating a website or a web application for my business, but I'm not sure which one is more suitable. Could you please give me some advice about which one I should invest in? What are the steps and considerations? How much would it cost?

Regards,
Phillip Young

A. What does Phillip want?

B. What are the pros/cons of having a website or a web app?

II. Write an email to Phillip answering his questions. Use the information from the text and include the vocabulary you have learnt in past lessons.

REVISING

Did I...?	√
Add my contact info?	
Include information and terms learnt in this unit?	
Use information from the email to create an answer?	
Write a greeting and closing in my email/letter	
Use correct spelling and punctuation?	
Share my writing with a classmate for them to check?	

III. Use the box to the right to check if your email is complete.

PUBLISHING

IV. Send this email to your teacher as if they were Phillip Young. The teacher will show some emails on the board using the projector. Give your opinion on other emails' solutions to Phillip's questions.
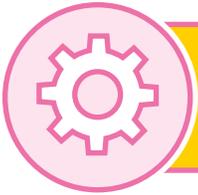
Project: "Problem-solvers"
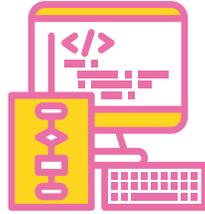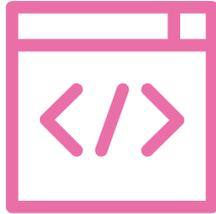
Can you find a solution to these global issues?

In previous units, we have learnt and applied programming-related concepts and ideas to solve everyday issues. This time you will go global by promoting a solution to one of these issues around the world. You can reflect on these situations and propose a web app/website that could help prevent or reduce these problems from happening.

1 Pollution	2 Lost people and animals	3 Online Identity Theft
"The world produces over 2 billion tons of municipal solid waste every year."	"An estimated 8 million people go missing each year, and close to 10 million dogs and cats are lost or stolen."	"It is estimated that as many as 9 million people have had their identities stolen each year."

I. Work in groups of four. Read the information above and discuss these situations. As a team, identify the problem in each picture. Be prepared to share your opinions with the rest of the class.

Topic 1

_____
_____
_____
_____

Topic 2

_____
_____
_____
_____

Topic 3

_____
_____
_____
_____

II. Choose one of the situations above or another global issue. Think of a possible solution. Answer these questions.

A. How many possible solutions to the same problem can you think of?

_____
_____
_____
_____
_____

B. Is it possible to solve the problem using a website or a web app? Why?

_____
_____
_____
_____
_____

III. As a group, set up roles and design a website or web app to solve the chosen problem.

| Take into account: |
| :---: |
| Is it a website or a web app? |
| Does it need web hosting? |
| What kind of information does it show? |
| What kind of information does it need? |
| How do users have access to it? |
| What are the technical requirements? |

As you work on your draft, share your ideas with your teacher so that you can receive help expanding them or providing feedback on words and expressions.

IV. Create a poster/slide of your project. Present it to the class.

During the presentations, the class will turn into an expert board that will suggest improvements or congratulate their classmates' work. The teacher will make sure all contributions are constructive instead of just criticism.

Appendix
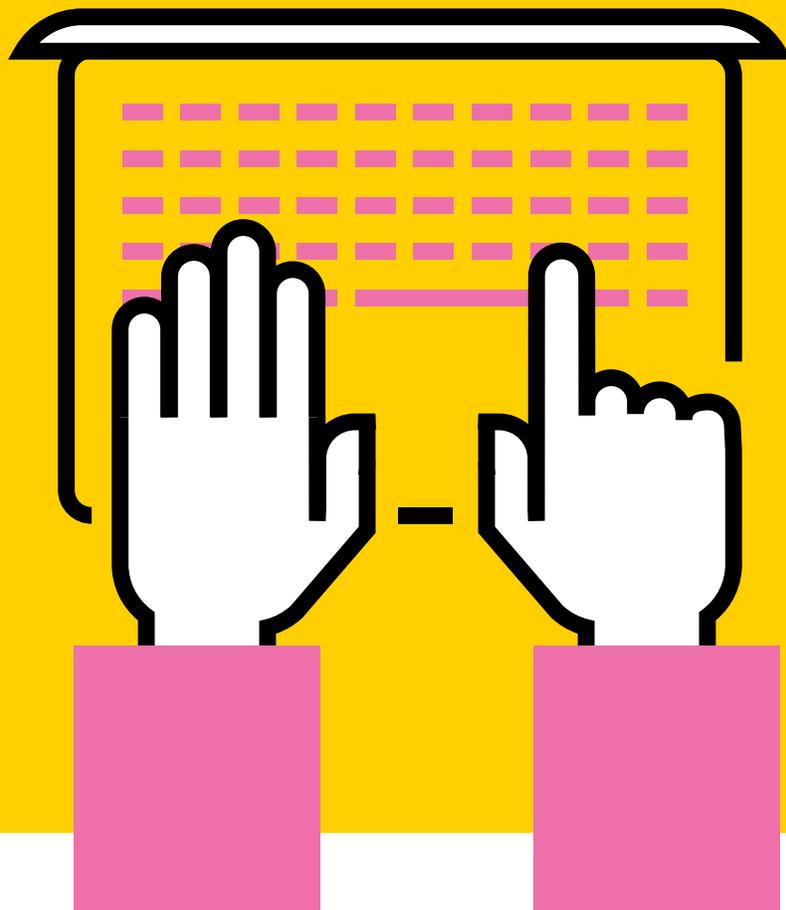
RUBRICS - UNIT 1: RELATIONAL DATABASE DESIGN

Team members: _____

Date: _____ **Infographic:** _____

CRITERIA	EXCELLENT (1)	PROFICIENT (2)	SATISFACTORY (3)	UNSATISFACTORY (4)
Data impact	The presentation shows an effective and innovative way to organize specific data with a solid social impact.	The presentation shows an effective way to organize specific data with a clear social impact.	The presentation shows a way to organize data with no clear impact.	The solution does not promote social impact whatsoever.
Components	All required elements are present.	Most of the requirements are present.	Some of the requirements are present	Requirements are poorly present or absent.
Volume	The voices of all the speakers are loud and clear.	The voices of most of the speakers are loud and clear.	The voice of at least one of the speakers is hard to hear.	The voices of all the speakers are quiet. They are hard to hear.
Comprehension	All the ideas are clearly stated.	Most of the ideas are clear, but there are minor issues.	There are some clear ideas, but parts of the text are not clear.	No ideas are comprehensible. The text is not clear at all.
Mechanics	The ideas are well written, capitalization is correct and there are no spelling issues.	The ideas are mostly well written, but capitalization and spelling have minor issues.	The ideas are barely well written, and there are many capitalization and spelling issues.	The text does not follow basic rules of punctuation and capitalization. The text has many spelling issues.
Teamwork & classwork	All students work equally to finish the task during class time.	Most of the students work to finish the task during class time.	Some of the students work on the task. One or two members don't work.	Only one of the members stays on task during class time. The rest of the team is not contributing.
TOTAL:_____out of 24 pts.			**Overall grade:**	

COMMENTS:

_____
_____
_____
_____
_____

Team members: _____

Date: _____ **Infographic:** _____

CRITERIA	EXCELLENT (1)	PROFICIENT (2)	SATISFACTORY (3)	UNSATISFACTORY (4)
Delivery of meaning	The video demonstrates deep understanding of the theme and promotes learning.	The video demonstrates a proper understanding of the topic and promotes learning.	The video's main message is somehow unclear and does not demonstrate understanding.	The video shows a lack of understanding of the topic and may confuse viewers.
Visual component	The video is well structured and uses diverse elements positively.	The video is well structured and uses a limited pool of elements to catch the attention of the viewer.	The video's structure is not clear and does not draw the viewers' attention.	The video's structure is messy and is not appealing to the viewers.
Volume	The voices of all the speakers are loud and clear.	The voices of most of the speakers are loud and clear.	The voice of at least one of the speakers is hard to hear.	The voices of all the speakers are quiet. They are hard to hear.
Comprehension	All the ideas are clearly stated.	Most of the ideas are clear but there are minor issues.	There are some clear ideas, but parts of the text are not clear.	No ideas are comprehensible. The text is not clear at all.
Mechanics	The ideas are well written, capitalization is correct and there are no spelling issues.	The ideas are mostly well written, but capitalization and spelling have minor issues.	The ideas are barely well written, and there are many capitalization and spelling issues.	The text does not follow basic rules of punctuation and capitalization. The text has many spelling issues.
Teamwork & classwork	All students work equally to finish the task during class time.	Most of the students work to finish the task during class time.	Some of the students work on the task. One or two members don't work.	Only one of the members stays on task during class time. The rest of the team is not contributing.
TOTAL:_____out of 24 pts.			**Overall grade:**	

COMMENTS:

_____

_____

_____

_____

RUBRICS - UNIT 3: DATABASE ADMINISTRATION

Team members: _____

Date: _____ **Infographic:** _____

CRITERIA	EXCELLENT (1)	PROFICIENT (2)	SATISFACTORY (3)	UNSATISFACTORY (4)
Structure	The infographic has all the aspects required.	There is one missing aspect in the infographic.	The infographic lacks two aspects from the instructions.	The infographic lacks more than two aspects from the instructions.
Visual support	The visual support was helpful.	The visual support has minor issues.	The visual support has major issues.	There is no visual support whatsoever.
Volume	The voices of all the speakers are loud and clear	The voices of most of the speakers are loud and clear.	The voice of at least one of the speakers is hard to hear.	The voices of all the speakers are quiet. They are hard to listen to.
Comprehension	All the ideas are clearly stated.	Most of the ideas are clear but there are minor issues.	There are some clear ideas, but parts of the text are not clear.	No ideas are comprehensible. The text is not clear at all.
Mechanics	The ideas are well written, capitalization is correct and there are no spelling issues.	The ideas are mostly well written, but capitalization and spelling have minor issues.	The ideas are barely well written, and there are many capitalization and spelling issues.	The text does not follow basic rules of punctuation and capitalization. The text has many spelling issues.
Teamwork & classwork	All students work equally to finish the task during class time.	Most of the students work to finish the task during class time.	Some of the students work on the task. One or two members don't work.	Only one of the members stays on task during class time. The rest of the team is not contributing.
TOTAL:_____out of 24 pts.			**Overall grade:**	

COMMENTS:

_____
_____
_____
_____
_____
_____

Team members: _____

Date: _____ **Problem chosen:** _____

CRITERIA	EXCELLENT (1)	PROFICIENT (2)	SATISFACTORY (3)	UNSATISFACTORY (4)
Problem-solving	There is a clear solution to the chosen problem.	There is a clear solution to the problem, but it is incomplete.	The possible solution does not fix the problem completely.	The infographic lacks more than two aspects from the instructions.
Visual support	The visual support was helpful.	The visual support has minor issues.	The visual support has major issues.	There is no visual support whatsoever.
Volume	The voices of all the speakers are loud and clear.	The voices of most of the speakers are loud and clear.	The voice of at least one of the speakers is hard to hear.	The voices of all the speakers are quiet. They are hard to hear.
Comprehension	All the ideas are clearly stated.	Most of the ideas are clear, but there are minor issues.	There are some clear ideas, but parts of the text are not clear.	No ideas are comprehensible. The text is not clear at all.
Mechanics	The ideas are well written, capitalization is correct and there are no spelling issues.	The ideas are mostly well written, but capitalization and spelling have minor issues.	The ideas are barely well written, and there are many capitalization and spelling issues.	The text does not follow basic rules of punctuation and capitalization. The text has many spelling issues.
Teamwork & classwork	All students work equally to finish the task during class time.	Most of the students work to finish the task during class time.	Some of the students work on the task. One or two members don't work.	Only one of the members stays on task during class time. The rest of the team is not contributing.
TOTAL:_____out of 24 pts.			**Overall grade:**	

COMMENTS:

_____
_____
_____
_____
_____
_____

Our team:
Assessed team:

Questions	X o √
Would the solution help people overcome a specific social problem?	
Did the physical model include all elements?	
Did all team members speak loudly enough?	
Did all team members work equally?	

Our team:
Assessed team:

Questions	X o √
Would the solution help people overcome a specific social problem?	
Did the physical model include all elements?	
Did all team members speak loudly enough?	
Did all team members work equally?	

Our team:
Assessed team:

Questions	X o √
Would the solution help people overcome a specific social problem?	
Did the physical model include all elements?	
Did all team members speak loudly enough?	
Did all team members work equally?	

Our team:
Assessed team:

Questions	X o √
Would the solution help people overcome a specific social problem?	
Did the physical model include all elements?	
Did all team members speak loudly enough?	
Did all team members work equally?	

Our team:
Assessed team:

Questions	X o √
Did the video include the required aspects?	
Did the video help you understand the concept?	
Did the video have good audio quality?	
Was the video both creative and informative?	

Our team:
Assessed team:

Questions	X o √
Did the video include the required aspects?	
Did the video help you understand the concept?	
Did the video have good audio quality?	
Was the video both creative and informative?	

Our team:
Assessed team:

Questions	X o √
Did the video include the required aspects?	
Did the video help you understand the concept?	
Did the video have good audio quality?	
Was the video both creative and informative?	

Our team:
Assessed team:

Questions	X o √
Did the video include the required aspects?	
Did the video help you understand the concept?	
Did the video have good audio quality?	
Was the video both creative and informative?	

Our team:
Assessed team:

Questions	X o √
Did the infographic include all the required aspects?	
Did the infographic look creative and appealing?	
Did all team members speak loudly enough?	
Did all team members work equally?	

Our team:
Assessed team:

Questions	X o √
Did the infographic include all the required aspects?	
Did the infographic look creative and appealing?	
Did all team members speak loudly enough?	
Did all team members work equally?	

Our team:
Assessed team:

Questions	X o √
Did the infographic include all the required aspects?	
Did the infographic look creative and appealing?	
Did all team members speak loudly enough?	
Did all team members work equally?	

Our team:
Assessed team:

Questions	X o √
Did the infographic include all the required aspects?	
Did the infographic look creative and appealing?	
Did all team members speak loudly enough?	
Did all team members work equally?	

PROJECT 4 PEER EVALUATION

Our team:
Assessed team:

Questions	X o √
Did the solution solve the problem?	
Did the poster include pictures and descriptions?	
Did all team members work equally?	

Our team:
Assessed team:

Questions	X o √
Did the solution solve the problem?	
Did the poster include pictures and descriptions?	
Did all team members work equally?	

Our team:
Assessed team:

Questions	X o √
Did the solution solve the problem?	
Did the poster include pictures and descriptions?	
Did all team members work equally?	

Our team:
Assessed team:

Questions	X o √
Did the solution solve the problem?	
Did the poster include pictures and descriptions?	
Did all team members work equally?	

LESSON I
Relational Database

I
A. A database is a structured set of data, especially one that is accessible in many ways.
B. A school's library database, a streaming service's movie library, a music player's song library, etc.

III

A. 2
B. 5
C. 1
D. 4
E. 3

IV
B

VII
A.- Entities are the main concept while the properties are its characteristics.

LESSON II
Primary and Foreign Keys

I
A. 3
B. 4
C. 5
D. 2
E. 1

III
A. F
B. T
C. T
D. F
E. F

IV
The correct sequence is:
(PK – E) (PK – FK – E)
(FK – FK – E)

V
Primary keys tend to take part of the name and could not be null. Foreign keys can be seen as primary keys in different tables.

LESSON III
Data Type

I
A. Boolean, string, character, floating-point number, integer, etc.
B. Languages have "word" or "data types" such as verbs, nouns, adjectives, etc.

II
1. Conceptual
2. Physical
3. Varchar
4. Date

III
A. Integer
B. Varchar
C. BLOB
D. Varchar
E. Integer
F. Bool

UNIT I
Relational Database Design

Lesson 4: Physical Data Model

A. Conceptual: Overview of the design to understand the entities and their relationships. Logical: More detail to understand the attributes and how they connect the relationships. Physical: The most detailed. Sets how the solution will be built in the RDBM.

B. Physical data model.

C. Cardinalities. One (1) element from a table can be associated to multiple (0..*) from the second table.

F. Bool

UNIT II
Object-Oriented Programming (OOP)

Lesson 1: Object-oriented programming

I
A. Some paradigms listed can be machine code, assembly (unstructured), structured, procedural, and object-oriented.

B.-Machine code: Written in 1's and 0's.
-Unstructured: Written as a single whole block.
-Structured: Use of flow constructs of selection and repetition.
-Procedural: Treats data and procedures as two different entities.
-Object-oriented: Use of objects and methods.

III
A. Structured programming language.
B. Unstructured programming language.
C. OOP language.
D. Structured programming language.
E. OOP language.

IV
A. Structured programming language.
B. Unstructured programming language.
C. OOP language.

V
Superclass: Animal
Subclasses: Reptiles – Mammals
Objects: Alligator – Snake (belonging to Reptiles)
Cat – Dog (belonging to Mammals)

VI
Superclass: Parent class from which other classes inherit characteristics.
Subclass: Class deriving from another class.
Object: An instance of a class.

Lesson 2: OOPs Principles

I
A. 4
B. 3
C. 5
D. 2
E. 1

II
A. Abstraction, polymorphism, inheritance, encapsulation.

B (Answers in the text)

IV
A. False
B. True
C. False
D. True
E. False

V
A. A (abstraction)
B. P (polymorphism)
C. I (inheritance)
D. E (encapsulation)

Lesson 3: Coding Interview

I
A. Not at all. Knowing how to code is only one part.

B. Soft skills such as interpersonal and communication skills.

II
A. 2 parts: a technical and a behavioral part.

B.
Behavioral: Build your own projects and landing pages to show your determination and autonomy.
Technical: Do not jump into coding. Ask questions and explain your thought process.

III
A. technical
B. interview
C. Java
D. development
E. thought-process
F. soft

IV
A. Ask about professional growth opportunities and about the working atmosphere.

B. Provide detailed answers using formal language.

Lesson 4: Writing code

I
A. 1
B. 8
C. 2
D. 4
E. 3
F. 5
G. 7
H. 6

II
A. Precision and spelling are key elements when programming since a different symbol or letter will make the code react differently than expected.

B. Comments play an important role in a code as it makes the code accessible to external readers.

Lesson 5 & 6: Online Community

I
A. The use of an introduction and drawings in motion.

B. Part of the recorded video includes unnecessary elements in the background that might distract some viewers from the message.

C. The video presents diverse effective strategies such as the use of drawings and visuals to reinforce the ideas as well as the introduction appealing directly to the viewers.

Unit III
Database Administration

Lesson 1: Data Administrator

I
A. They make sure data analysts and other users can easily use databases to find information.

B. They are key roles as without them users could not access or find information at all.

III
A. Data
B. Development
C. Systems
D. Computer
E. Education

IV
A. √
B. Blank
C. √
D. Blank
E. √

V
A. A database is like a library where books need to be organized to be found. Likewise, if a database is not properly organized, the information will not be accessed.

B. Data could be incomplete, inaccurate, or duplicated if not properly managed.

Lesson 2: Mistakes in Database design

I
A. 5 allow
B. 4 checking
C. 3 stored
D. 1 provide
E. 2 missing

III
1. More than one customer for an order.
2. Primary key missing on Store.
3. Wrong data store: Email on order.
4. Foreign key missing on Order (customer_id).

Lesson 3: Data Safety

I
B. You can check auto-saved files and other features depending on the software.

C. There are legal implications and critical processes that might be affected if the data is not protected.

II
A. Yesterday
B. Tell
C. Packages
D. Fix
E. Team

Unit IV
Web Application Development

Lesson 1: Website vs Web App

I
A. Website: A collection of static pages with content. Web app: A personalized experience that is responsive to the user.

B. Both are digital solutions designed to provide with data or satisfy needs from the user.

III
1. WEBSITE: A, C, D
2. Web app: B, C, E
3. Website / Web app
4. Website
5. Web app

IV
A. WA
B. B
C. WA
D. B
E. WS
F. WS
G. B
H. WS

VI
Choosing between a website or a web app is a critical decision as the format we use will limit or make the most of the content that will be published or shared.

Lesson 2: Web Hosting

I
A. 4
B. 1
C. 5
D. 2
E. 3

II
A. False
B. True
C. True
D. False
E. True

Lesson 2: Web Hosting

I
A. 4
B. 1
C. 5
D. 2
E. 3

II
A. False
B. True
C. True
D. False
E. True

Lesson 4: Advising Customers

I
1. Phillip needs advice on digital platforms.

2. Pros: Accessible from any user with internet access. Improve customer service.

Cons: Security and data might be affected.
It needs 24/7 attention.

Lesson 3: Development Team

II
A. UI/UX designer
B. Project manager
C. Web developer
D. Project architect
E. QA

UNIT I:
Lesson 1 (Listening): What is a Relational Database?

Find exactly what you're looking for with a relational database.

A relational database is comprised of tables of data that can be reassembled in different ways, as opposed to a hierarchical file format. Each table includes columns of data categories, or attributes, and rows, also called records or tuples.

Each row contains unique data or a key. Each table has a primary key that defines its information. For example, a typical business order entry would include a table that described customers, the primary key, with additional columns for names, addresses, phone numbers, and so forth. Another table within the relational database can describe an order - "order number" being the primary key - with columns for product, customer, sales, sales price, and so forth. Users can manipulate relational databases to find the view that fits their needs. For instance, a manager could obtain a report just for outstanding accounts, or a report from the same table that only shows orders placed within the last week.

Structured query language, or SQL, is a standard user interface for querying relational databases in gathering data for reports. Relational databases enable users to easily categorize and store data that can later be searched and filtered to find specific information for reports. That's the main advantage. Other benefits revolve around accuracy, flexibility, collaboration, trust, and security.

Popular relational databases include Microsoft SQL, Oracle Database, and MySQL.

What's your experience with relational databases?

Lesson 3 (Speaking): Data type
Characters: Trainee & Project Leader

Trainee: Are we ready to start inserting into MySQL?.

Project leader: Not yet. We finished our conceptual model, which defines the entities, attributes, and relationships.

Trainee: I see. Now we need the physical model to describe how the database will be implemented within the DBMS.

Project Leader: Exactly. Let's identify the data type for each column definition.

Trainee: Ok, so the shop sells movies.

Some of the attributes for the entity Movies are: Title, Genre, and Year of release.

Project Leader: You're right. For example, the title is a varchar because you need a random number of letters to complete this field.

Trainee: I get it. Is Year of release a date?

Project leader: Not really. We are using an integer just for the year.

Trainee: Because we need numbers for this one.

Project Leader: Excellent. Keep up the good work!

UNIT II:
Lesson 1 (Listening): OOPs Concepts on Java

Suppose you want to create banking software which will perform deposit and withdraw operations and show the balance. Let's examine how the software was created using different programming languages.

The earliest programming language were unstructured programming language. A very elementary code of the banking application, in unstructured programming language, will have two variables, for one account number and another for account balance.

Suppose a deposit for $100 is made. Next, you will obviously show the latest account balance. Now the amount of $50 is withdrawn. Again, you show the latest account balance. In fact, for any further deposit or withdrawal operations you would program the same steps again and again. Here the code for display of account number and account balance are exactly the same and is repeated throughout the program. Such repetition is a waste of programming efforts and increases coding costs and possibility of coding errors.

With the advent of structured programming, common lines of your code were put in a structure called functions or methods, and wherever required, a simple call to their function was made. Now if you can examine closely throughout the program, we are dealing with data or performing certain actions on the data. In fact, having data and performing operations on the data is the very basic characteristics of any software program. Thought leaders in software development came up with an idea to combine data and actions together. Hence the birth of object-oriented programming, commonly called OOPs. The same code in OOPs will have some data and the actions to be performed on that data. By this combining of data and action, we have several advantages over structured programming -- namely, abstraction, encapsulation, inheritance, and polymorphism. We will learn them in detail in succeeding tutorials.

Lesson 3 (Speaking): Coding interview

Characters:	Interviewer/Rachel (Female) and Candidate/Greg (Male).
Interviewer:	Please, come in. Welcome to Coding Company. My name is Rachel. You must be Greg, right?
Candidate:	Hello. Yes, that is me. Thank you for having me.
Interviewer:	Thank you for your punctuality. This interview is made up of 2 sections: a behavioral and a technical part. The process should last an hour.
Candidate:	I understand. I prepared myself for 3 months for this interview.
Interviewer:	Oh, I see. We will begin with the first part in which I get to know you. Tell me about yourself.
Candidate:	I have been 5 years in the programming field, working with different languages like Java and C++ to offer solutions for a food company.
Interviewer:	Thank you for sharing that. Also, communication is key in our team. Tell me about a time when you disagreed with someone from the development team. What did you do about it?
Candidate:	We disagreed on the approach to a solution because we were not listening to each other. At first, I didn't understand his thought process but thanks to the comments on his code we were back on the same page.
Interviewer:	Great. I think I have a clear picture of your soft skills. Now we can move on to the technical section in which we test your understanding of algorithms and programming skills.

UNIT III:
Lesson 1 (Listening): Database Administrators Career Video

Database administrators are experts in storing and organizing data so that users can access the information they need, while keeping out unwelcome visitors.

These IT professionals play a vital role in many industries—finance, shipping, healthcare, and others— that obtain and store sensitive, private data.

Database administrators oversee the development of new databases, by analyzing the need for the database, clarifying the goals it is intended to fulfill, and identifying its users. Once the database is established, they monitor its performance and make improvements.

Since many users rely on databases to accomplish their daily work, database administrators regularly back up systems to prevent data loss and establish steps to ensure the integrity of data that enters the system. When issues occur, they also find and fix sometimes deeply complex problems.

Most database administrators work in computer systems design, data hosting, and data processing companies. There are also positions at insurance companies, banks and retailers, education services, and healthcare organizations. Almost all work full time. Database administrators usually have a bachelor's degree in management information systems or computer-related field. Firms that manage large databases may prefer candidates with a master's degree in a database-management related field.

Lesson 3 (Speaking): Data Safety
Characters: DBA and Owner

DBA: Good morning, sir! Yesterday I was analyzing the restaurant database, and I found some data failure.

Owner: Oh, no! Could you tell me about it?

DBA: Sure. First, I found that primary keys are not included in some packages. Also, there is incomplete information and malfunctioning programming routines.

Owner: I see, could you please fix them?

DBA: Sure thing! You can count on me. I will ask the development team to help as well.

Owner: I really appreciate it.

Unit IV
Lesson 4 (Listening): What's the Difference between a Website and a Web App?

Presenter: Welcome, everyone. I have Doug CEO and co-founder of Trying development. Doug, what's the difference between web app versus website.

Doug: Website is a set of web pages that are put together to provide content. A web app takes things a step further and allows users to have some sort of interactivity. For instance, they have user accounts or to upload photos. So, for instance, you're a restaurant you could set up a website to provide hours and location. You could then take it a step further and make a web app and allow people to actually book reservations online. Both of these are viewed in a browser, like Safari or Internet Explorer, and shouldn't be confused with a native app which is something that you would download from an app store. So again, website is about content, web app is about interactivity.

Presenter: Great thanks Doug.

Unit 4 (Speaking): Development Team

Characters: Business owner, Team member 1, Team Member 2, Team Member 3 and Team Member 4

Business owner: Good morning everyone! We have a new team member. He's the new UI/UX designer. As you know, he's responsible for delivering the best online user experience.

Team Member 1: Nice to meet you! I'm the project manager responsible for planning, organizing, and directing projects while ensuring they are on time.

Team Member 2: Thanks for joining our team! I'm responsible for the coding, design and layout of a website, a web developer.

Team Member 3: Hey! I'm the project architect; I manage the creation of projects from the conceptual design through construction.

**Team Member 4:** Last but not least, I'm the QA. I ensure that the final product achieves quality standards by giving feedback and problem solving solutions. Welcome aboard!

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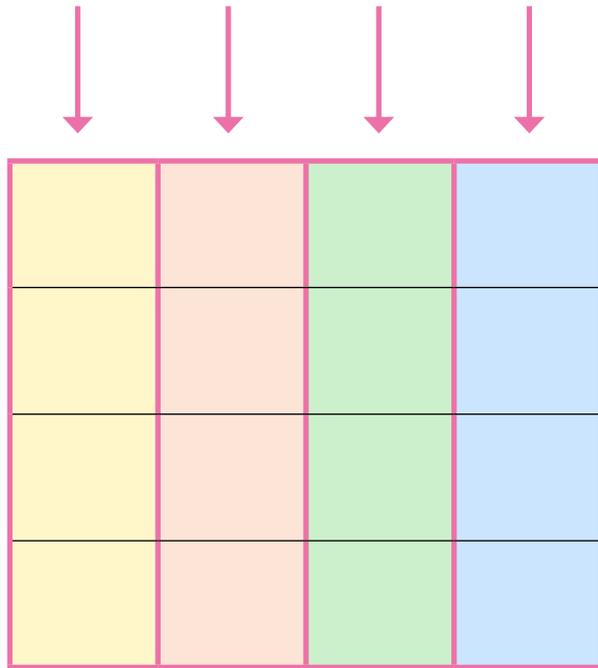
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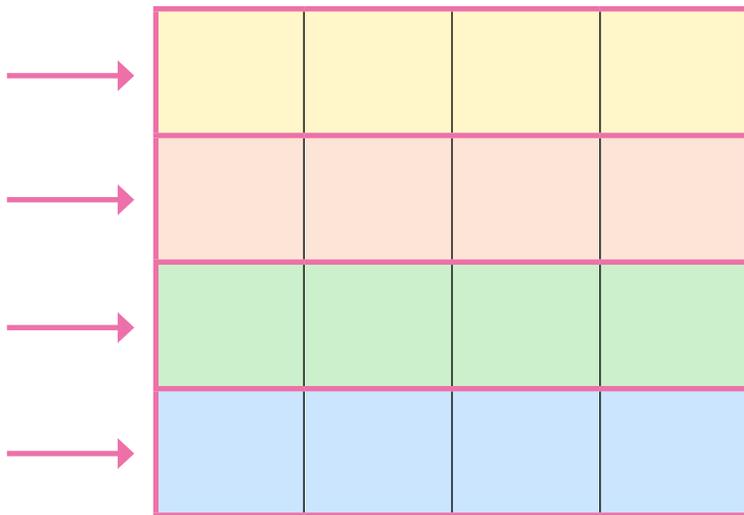
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CARLA	16	CARLA@BOOKLET.TP	555-667788
DAMIÁN	18	DAMIAN@BOOKLET.TP	222-889910

RECORD

NAME	AGE	EMAIL	PHONE Nº
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CARLA	◯	CARLA@BOOKLET.TP	555-667788
◯	18	DAMIAN@BOOKLET.TP	222-889910

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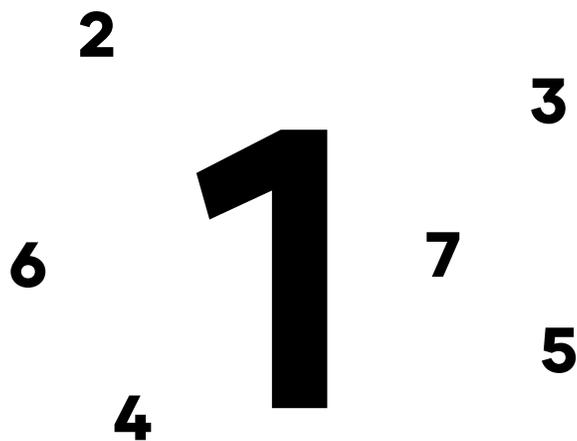
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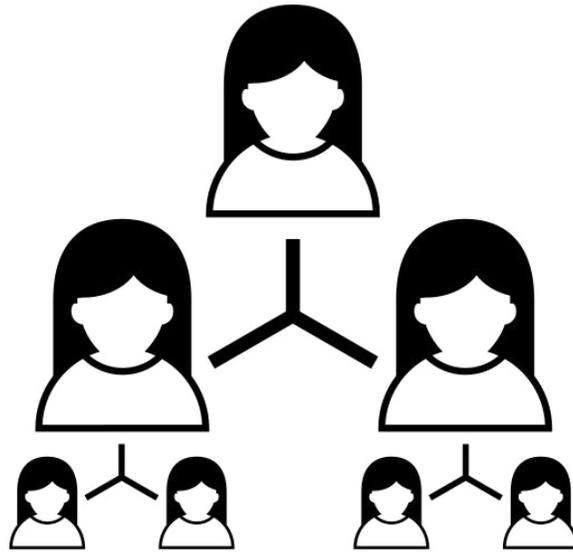
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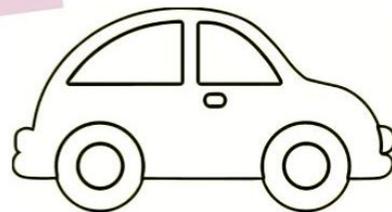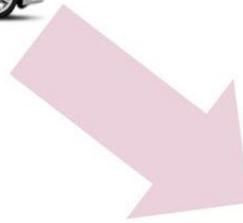
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INHERITANCE

1.

2.

3.

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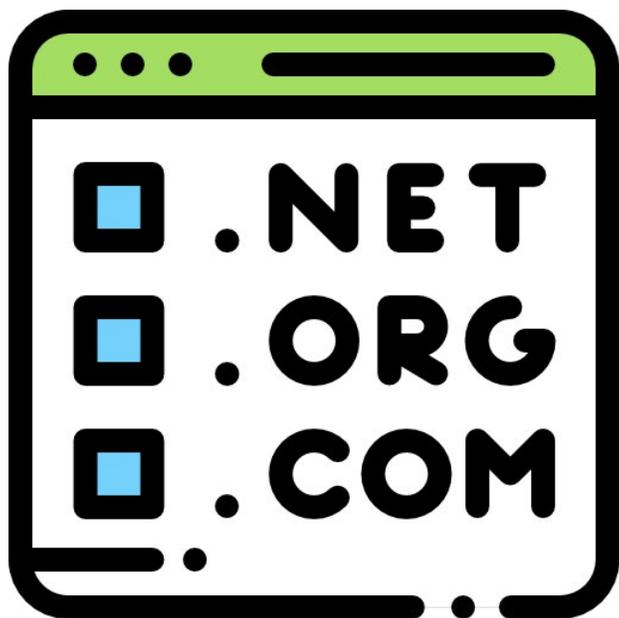
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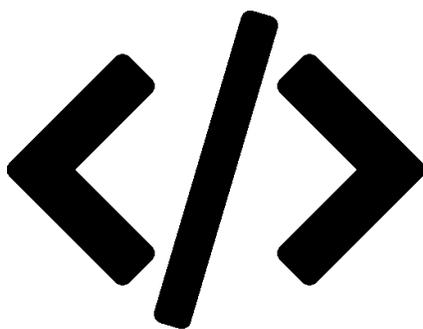
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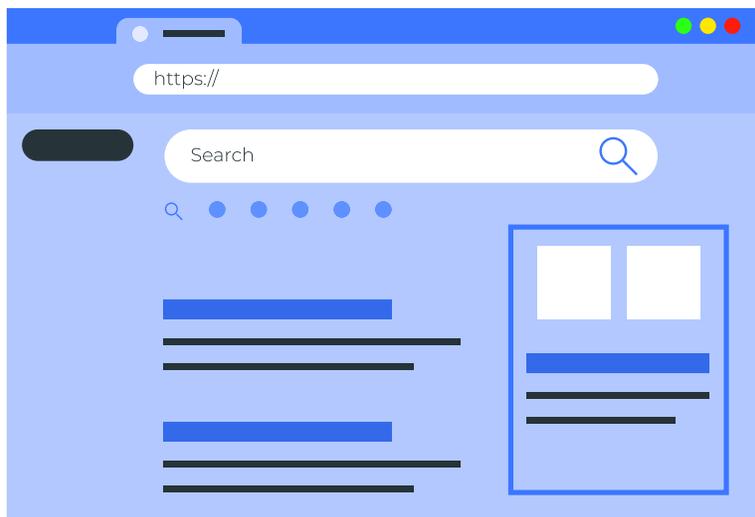
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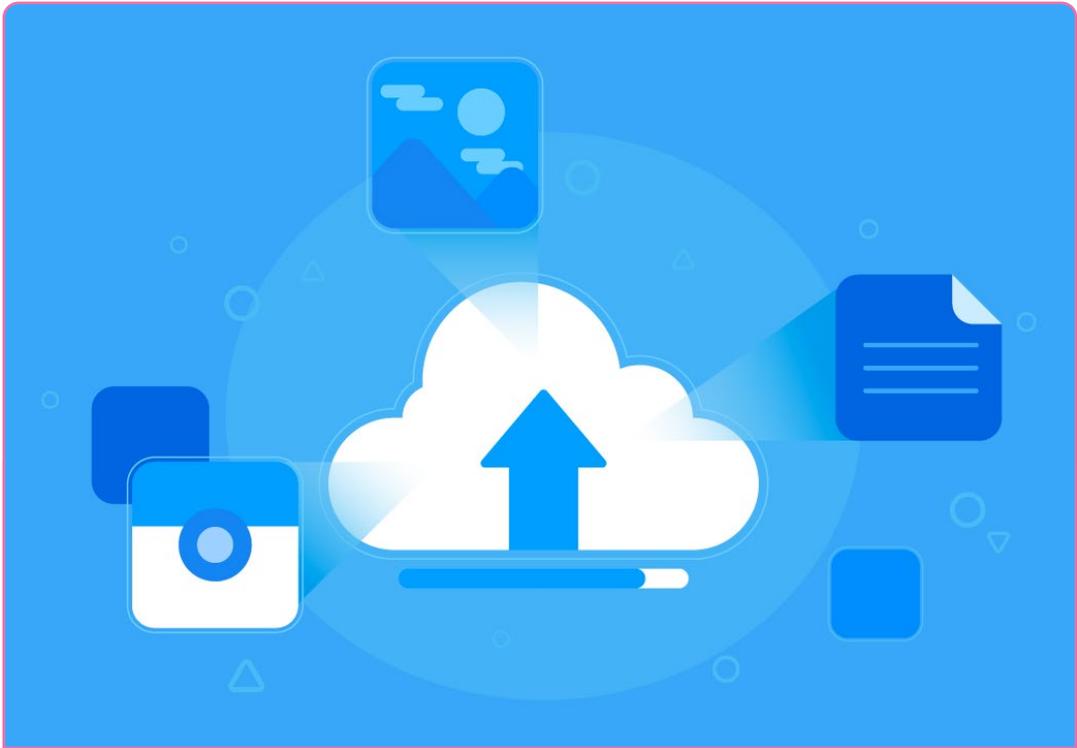
UPLOAD

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