CAIE Computer Science IGCSE
9 Databases

Flashcards

What is a database?

What is a database?

A structured collection of data that can be stored, searched, and updated.

What is a table in a database?

What is a table in a database?

A structure that holds related data in rows and columns, like a spreadsheet.

What is a field?

What is a field?

A column in a table - stores one type of data (e.g. name, ID).

What is a record?

What is a record?

A row in a table - represents one complete set of data about a single item.

What is validation?

What is validation?

The process of ensuring data within fields and records adheres to predefined rules to maintain data integrity.

Which data type should be used for storing names, addresses, and emails?

Which data type should be used for storing names, addresses, and emails?

Text / Alphanumeric.

Which data type stores a single letter, digit, or symbol?

Which data type stores a single letter, digit, or symbol?

Character.

Which data type should be used for representing Yes/No answers (e.g. “Subscribed to newsletter?”)?

Which data type should be used for representing Yes/No answers (e.g. “Subscribed to newsletter?”)?

Boolean.

Give examples of fields that the integer data type can be used for.

Give examples of fields that the integer data type can be used for.

Storing quantities (e.g. stock levels, number of tickets), ages, or ID numbers.

Name the data type that represents numbers that may include a decimal/fractional part.

Name the data type that represents numbers that may include a decimal/fractional part.

Real.

Name the data type that stores calendar dates and/or times in a standard format.

Name the data type that stores calendar dates and/or times in a standard format.

Date/Time.

What is a primary key?

What is a primary key?

A field that uniquely identifies each record in a table.

Why are primary keys important?

Why are primary keys important?

They ensure each record is unique and help link tables.

How should you select a primary key?

How should you select a primary key?

Look for the field that uniquely identifies every record, and that it wouldn't make sense to have duplicated across records, such as an ID number.

What does SQL stand for?

What does SQL stand for?

Structured Query Language.

What is SQL used for?

What is SQL used for?

To search for, manage, and manipulate data in a relational database.

What does the SELECT keyword do?

What does the SELECT keyword do?

It specifies which columns of data (fields) to retrieve.

What does the FROM keyword do?

What does the FROM keyword do?

It specifies which table to get the data from.

What does the WHERE clause do?

What does the WHERE clause do?

It filters records that meet a specific condition or set of conditions (linked using Boolean AND and OR).

What does the AND keyword do in SQL?

What does the AND keyword do in SQL?

It combines multiple conditions in a WHERE clause.

What does * mean in an SQL query?

What does * mean in an SQL query?

It selects and returns the data in all columns from the table.

Write an SQL query to select all data from a table called Students.

Write an SQL query to select all data from a table called Students.

```
SELECT * FROM Students
```

Write an SQL query to show only the FirstName and LastName fields from the Students table.

Write an SQL query to show only the FirstName and LastName fields from the Students table.

```
SELECT FirstName, LastName
FROM Students
```

Write an SQL query to select students aged over 16, given that there is a field titled age.

Write an SQL query to select students aged over 16, given that there is a field titled age.

```
SELECT * FROM Students WHERE
age > 16
```

Write an SQL query to select female students aged over 16, given that there is also a field titled sex which is either "female" or "male".

Write an SQL query to select female students aged over 16, given that there is also a field titled sex which is either "female" or "male".

```
SELECT * FROM Students WHERE
age > 16 AND sex = "female"
```

Write an SQL command that would return “2010” from this database table.

Table: Vehicles		
Registration	**Age**	**YearManufactured**
BN61 YCZ	6	2011
ED10 XBL	7	2010
LN62 ERR	5	2012

Write an SQL command that would return “2010” from this database table.

Table: Vehicles		
Registration 🔑	**Age**	**YearManufactured**
BN61 YCZ	6	2011
ED10 XBL	7	2010
LN62 ERR	5	2012

```
SELECT YearManufactured FROM Vehicles WHERE Registration = “ED10 XBL”
```

Which of the following commands would return all information from the database?

A: `SELECT ALL FROM Vehicles`

B: `FROM Vehicles SELECT EVERYTHING`

C: `SELECT * FROM Vehicles`

Which of the commands would return all information from the database?

C

What's the difference between SUM and COUNT?

What's the difference between SUM and COUNT?

SUM adds up all the values in a numeric field. COUNT counts the number of rows that meet a condition (or all rows if no condition is given).

Write an SQL command that would find the total cost of all tickets in this table.

Table: Vehicles		
TicketNo	**FlightNo**	**Price**
T001	ESY8876	85
T002	ESY8876	90
T003	ESY1225	70

Write an SQL command that would find the total cost of all tickets in this table.

Table: Vehicles		
TicketNo	**FlightNo**	**Price**
T001	ESY8876	85
T002	ESY8876	90
T003	ESY1225	70

```
SELECT SUM(Price) FROM Tickets
```

Write an SQL command that would count how many tickets are for flight ESY8876.

Table: Vehicles

TicketNo	FlightNo	Price
T001	ESY8876	85
T002	ESY8876	90
T003	ESY1225	70

Write an SQL command that would count how many tickets are for flight ESY8876.

Table: Vehicles		
TicketNo	**FlightNo**	**Price**
T001	ESY8876	85
T002	ESY8876	90
T003	ESY1225	70

```
SELECT COUNT(TicketNo) FROM Tickets WHERE FlightNo = 'ESY8876'
```