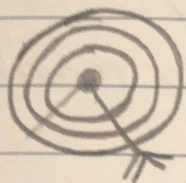


Databases:-

~.

Objectives ⇒



- * What a database is.
- * Flat-File / Relational Database structures
- * Primary & Foreign key
- * Advantages & Dis for each structure
- * Data Types & sub types

What is a database ??

!?

organized collection of data stores data using a system of files, records & fields.

Database program is software which stores & retrieves data in a structured way, links between the data items.

Field ⇒ Single item of data such as Forename, surname and each field contains one type of data.
Text, number, date ---

Record ⇒ collection of fields, all info about one person or one item.

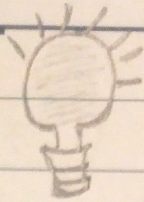
File ⇒ organized collection of records. A file can have one or more tables within it.

* There are two types of databases

Flat File Database

Relational Database.

Before we compare Think
Why do we store data on
a Computerized database??



- data can be searched / sorted very quickly
- data can be easily edited by searching for a record then changing / adding / deleting.
- data can be backed up easily
- More secure as we can add passwords to protect data
- Re-writing the data each time could take a lot of time and would cause errors.

[Flat-File Database:-] • Stores data in one table
• organized by rows and columns

[Relational Database:-] • Stores data in more than one linked table stored in a file.
• tables are linked with relationships
• each table will have a primary & foreign key

Important

Primary key ⇒ it is a field that holds unique data and is used to identify a record

Foreign key ⇒ a foreign key field in one data table stores value from a primary key field in another table

- Some tables will have one or more foreign key fields -

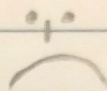
* Advantages and Disadvantages of using Flat-File & Relational Database *

Flat-File (Advantages)



- All records are stored in one place.
- Easier to understand / use.
- Sorting is simpler / Filtering is simpler too.
- Can be used with a spreadsheet / small databases.

(Disadvantages)



- Flat-File is harder to update.
- Harder to change data format.
- poor database in terms of complex queries.
- Increase redundancy & inconsistency.

Relational (Advantages)



- Less data entry - no duplication - / data stored only once.
- Less inconsistency of data.
- Easier to edit data / easier to edit data format.
- Easier to add / delete data.
- Better security.
- More complex queries can be carried out.

(Disadvantages)



- Takes more time to set up.
- More complex as more tables are required.
- More expensive to create.
- More developer expertise to run the database.

Data Types and Sub-Types:-

when creating a new database we need to set a data type for each field.

Three main data Types are:

{Alphanumeric}



Text- field store characters (text) or numeric data (numbers) that won't be used for calculations

{Numeric}



stores numeric values that may be used for calculations

Integer
Long Integer
→ NO Decimals

Single
Double

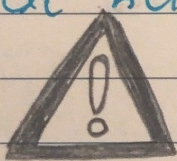
→ when the number contains decimal places

{Boolean}



known as logical boo stores data as 0/-1 but can be displayed as Yes/No True/False 0/1

Note Telephone numbers are stored as text-fields



Attention Please

Currency / Date & Time are considered as sub-types from Numeric but we can find them as a data type

What does a well-designed form look like??

- ① Keep the form simple with clear questions
(use closed questions to limit the answers which will be stored in the database to make it easier to search)
- ② Similar fields grouped with white space between boxes
- ③ The form has a title
- ④ There are instructions on filling the form.
- ⑤ Each field has appropriate space for the data that will be added
- ⑥ The Form could contain:-

• Text-box

• Radio Buttons

☒ Male

☐ Female

• Check boxes

☒ bus

☒ car

☐ Train

• Drop down menu

- combo box,

• Navigation Buttons



Submit

Reset

Buttons

⑦ Labels right-aligned

