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Chapter II: Databases

→ Limitations of file based approach

→ Data-integrity problem
  → No validation technique
  → Duplicate entries
  → Re-entry done without deletion of old record.

→ Data-privacy issue
  → no restrictions on who can view the file

→ Data-redundancy
  → There is data duplication accross files because, to solve the privacy problem, different files were made for different departments of the organisation
  → unfortunately data-redundancy cannot be avoided in file based systems.
  → this can lead to data inconsistency

→ Data-dependency
  → a programmer wrote a program and at the same time defined the data files the program would need
  → when a programmer creates a program for a department in an agency, the programmer has to know how the data is organised in these files. This is an example of data-dependency

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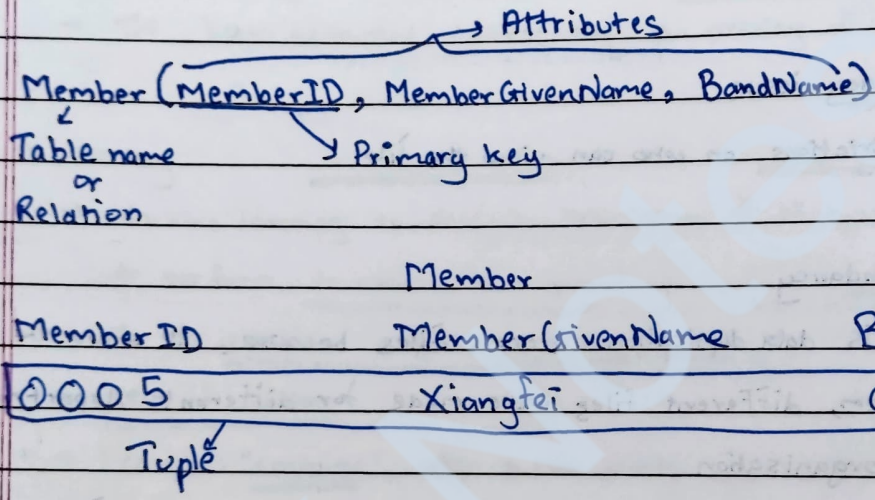
→ Relational Database

→ Relation - the special type of table which is used in a relational database

→ Attribute - a column in a relation that contains values

→ Tuple - a row in a relation storing data for one instance of the relation



→ Primary key - an attribute for which there is a value in each tuple and that value is unique.

→ Candidate key - a key that could be chosen as primary key

→ Secondary key - a candidate key that has not been chosen as the primary key.

→ Foreign key - an attribute in one table that refers to the primary key in another table.

→ Referential integrity - the use of a foreign key to ensure that a value can only be entered in one table when the same value already exists in the refrenced table.

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→ facilities provided by DBMS

→ Developer interface - gives access to software tools provided by DBMS for creating tables

→ Query processor - software tools provided by a DBMS to allow creation and execution of a query

→ Query - used to select data from a database subject to defined conditions

→ Index - a small secondary table used for rapid searching which contains one attribute from the table being searched and pointers to the tuples in that table