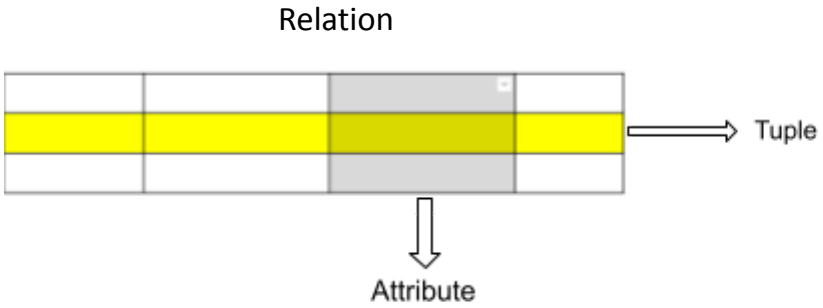
Types of Databases:

There are four type of databases based on the data models-

- Relational Database
- Object-Oriented Database (OODBMS)
- Hierarchical Database
- Network Database

Relational Database:

A RDBMS is a type of database that stores and provides access to data points that are related to one another. RDBMS stores data in **tables or relations**. It is based on a relational model i.e. each row is a unique record that is called **tuple**. Column of the table stores attributes. Oracle, MySQL etc are some examples of RDBMS software.



- **Relation:** In relational Model relations are saved in the format of tables. This table stores relations among entities. Rows of tables represent records and columns of table represent attributes.
- **Tuple:** A single row or record of the table is known as tuple.
- **Relation Instance:** A row or tuple of a table is called a relationship instance.
- **Relation schema:** Relational schema defines design and structure of the relation and also the variable declarations in tables. It consists of the relation name, set of attributes, column name.

Important properties of table

- The values have to be atomic (they can't be broken down any further).
- The values in each column have to be of the same data types.
- Each row has to be unique in a table to avoid redundancy, otherwise it will go against the concepts of RDBMS.
- The sequence of column and row is insignificant.
- Each attribute must be unique.

Relational Database Management Systems maintains data integrity by applying some constraints that are Entity Constraints, Referential Constraints, Domain Constraints.

Advantages:

- Simple to handle, every relation can be manipulated without affecting another one.
- Highly Secure.
- It supports client-side architecture storing multiple users together.
- Data Handling is quite simple
- Replication of databases helps to recover the system incase of any failure.

Disadvantages:

- Scalability is not handy.
- Requires expensive hardware and software support.
- As the data gets huge, complexity increases.
- Data loss can happen.

Some examples of Relational databases are Microsoft SQL Server, Oracle Database, MySQL and IBM DB2.