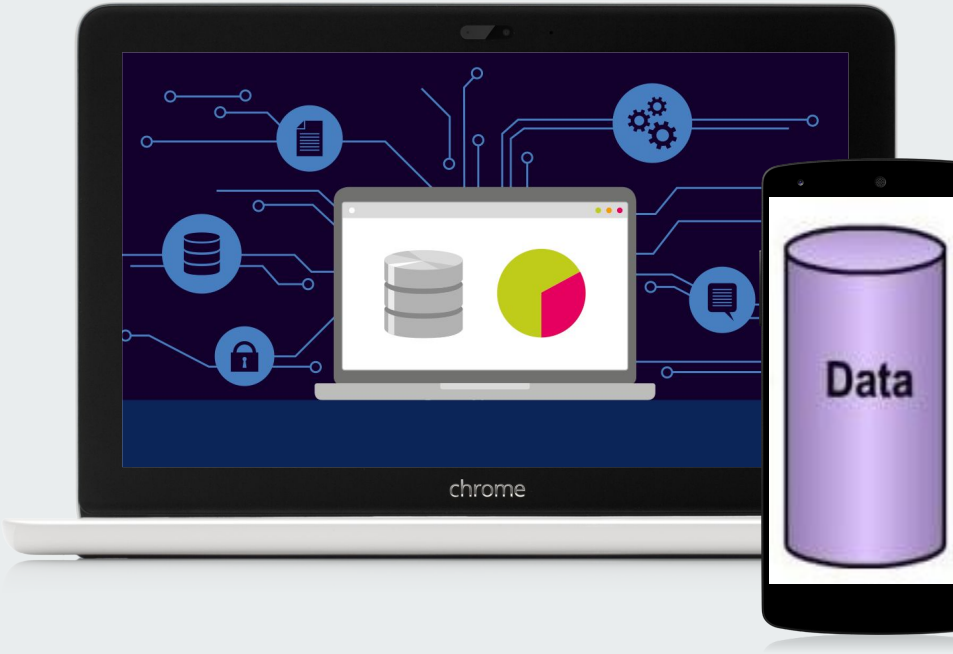
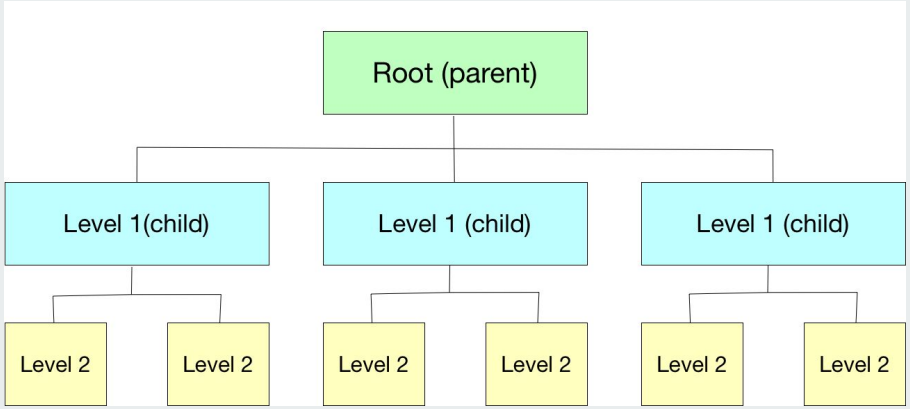
Types of Databases



Outline

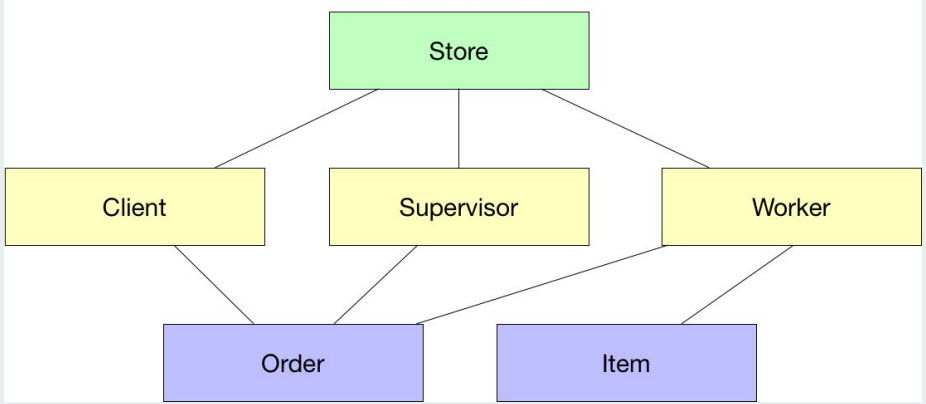
- Hierarchical databases
- Network databases
- Object-oriented databases
- Relational databases

Hierarchical Database



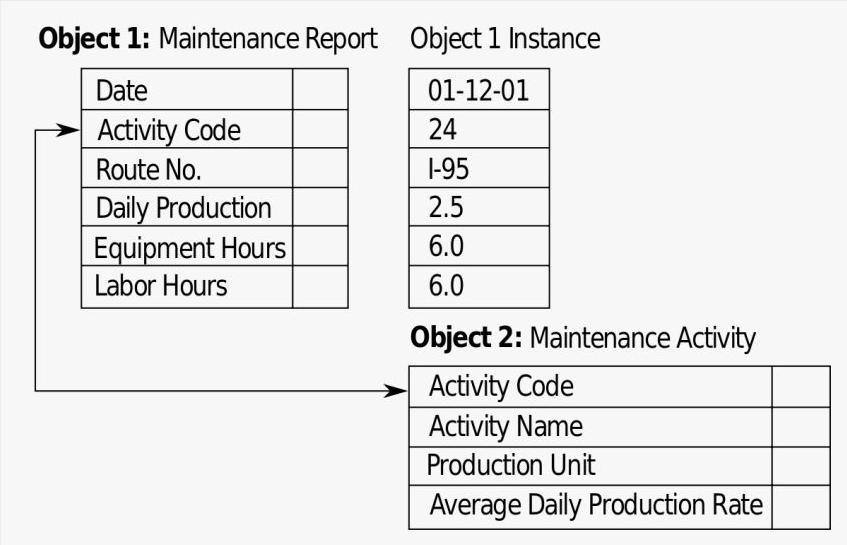
- It stores data in the form of parent-children relationship nodes.
- It organizes data in a tree-like structure.
- Data get stored in the form of records that are connected via links. Each child record in the tree will contain only one parent. On the other hand, each parent record can have multiple child records.
- The addition of data elements requires a lengthy traversal through the database.
- **Examples:** IBM Information Management System (IMS), Windows Registry.

Network Database



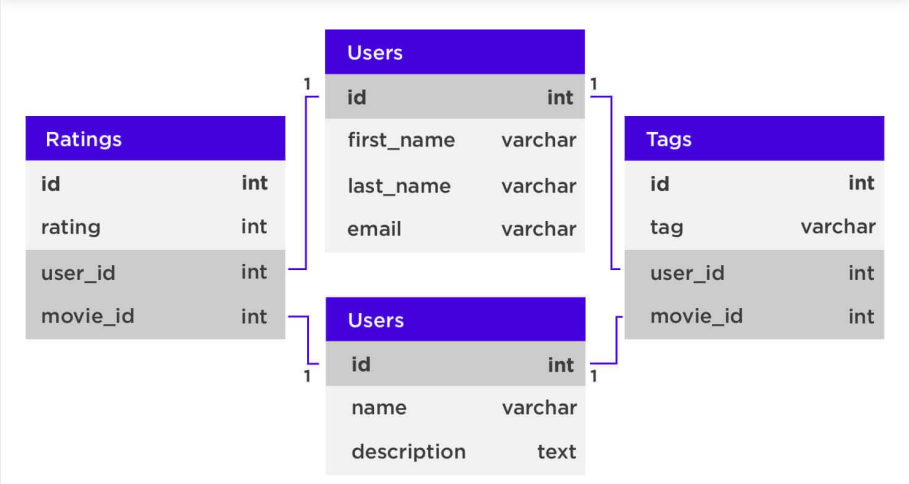
- The representation of data is in the form of nodes connected via links between them.
- It organizes data in a generalized graph structure.
- Unlike the hierarchical database, it allows each record to have multiple children and parent nodes.
- Unable to alter the structure due to its complexity and also in it being highly structurally dependent.
- **Example:** RDM Server.

Object - oriented Database



- The data is represented and stored as objects which are similar to the objects used in the object-oriented programming language.
- Data and all of its attributes, are tied together as an object.
- The objects to be held in the database have attributes and methods that define what to do with the data.
- **Example:** PostgreSQL.

Relational Database



- In this database, every piece of information has a relationship with every other piece of information.
- Stores data in the form of rows(tuple) and columns(attributes), and together forms a table(relation).
- The Structured Query Language (SQL) is the standard user and application program interface for a relational database.
- **Example:**MySQL, Microsoft SQL Server, Oracle