

Introduction to Database

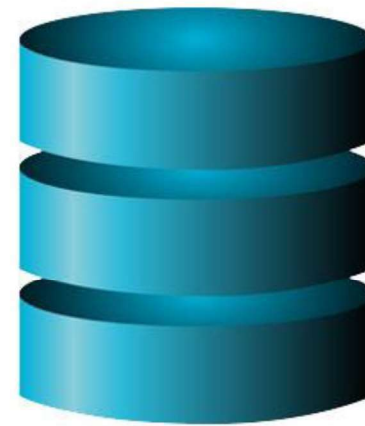
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What is Database?

Database is a collection of information organized for easy access, management and maintenance.

Examples:

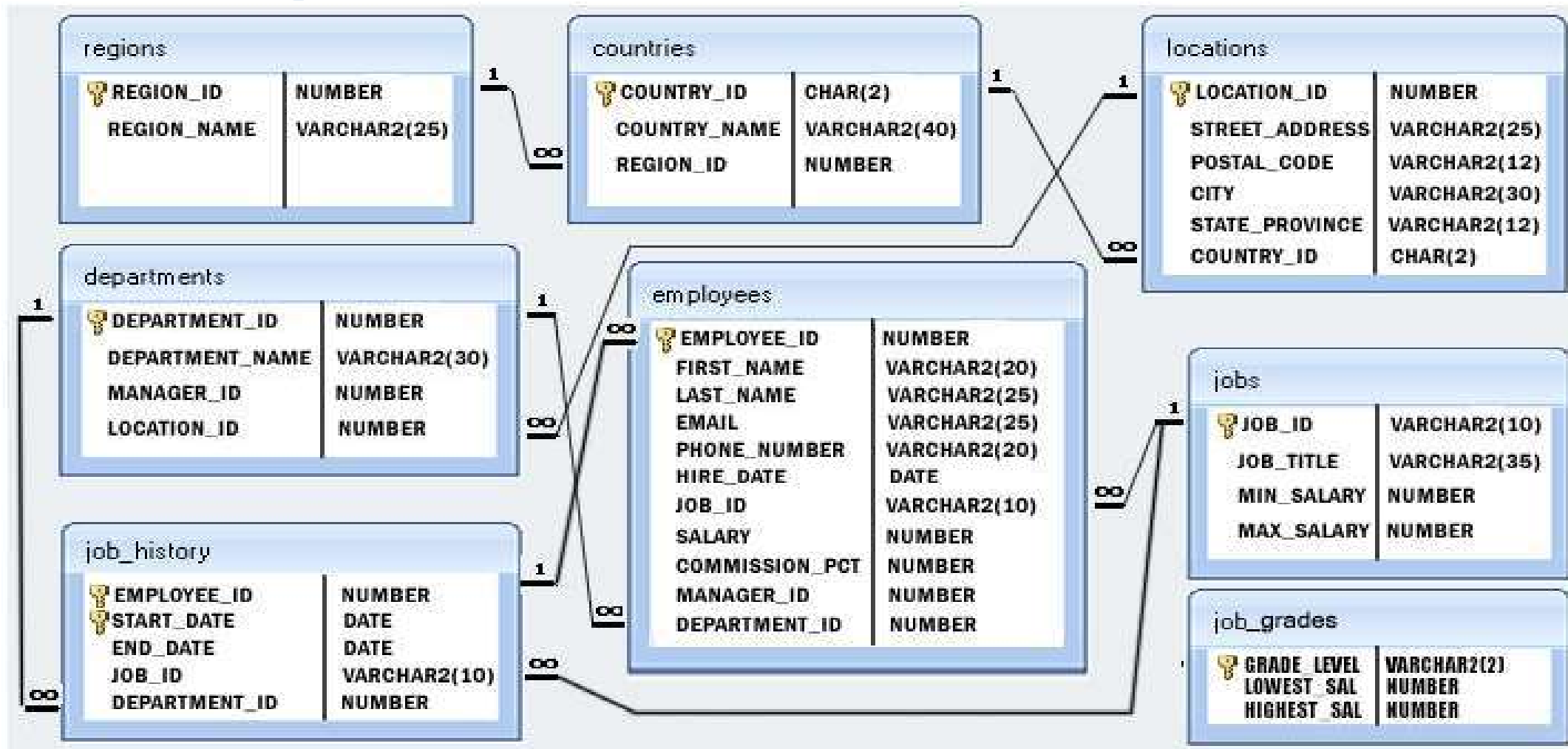
- Telephone directory
- Customer data
- Product inventory
- Visitors' register
- Weather records



Types of Data Models

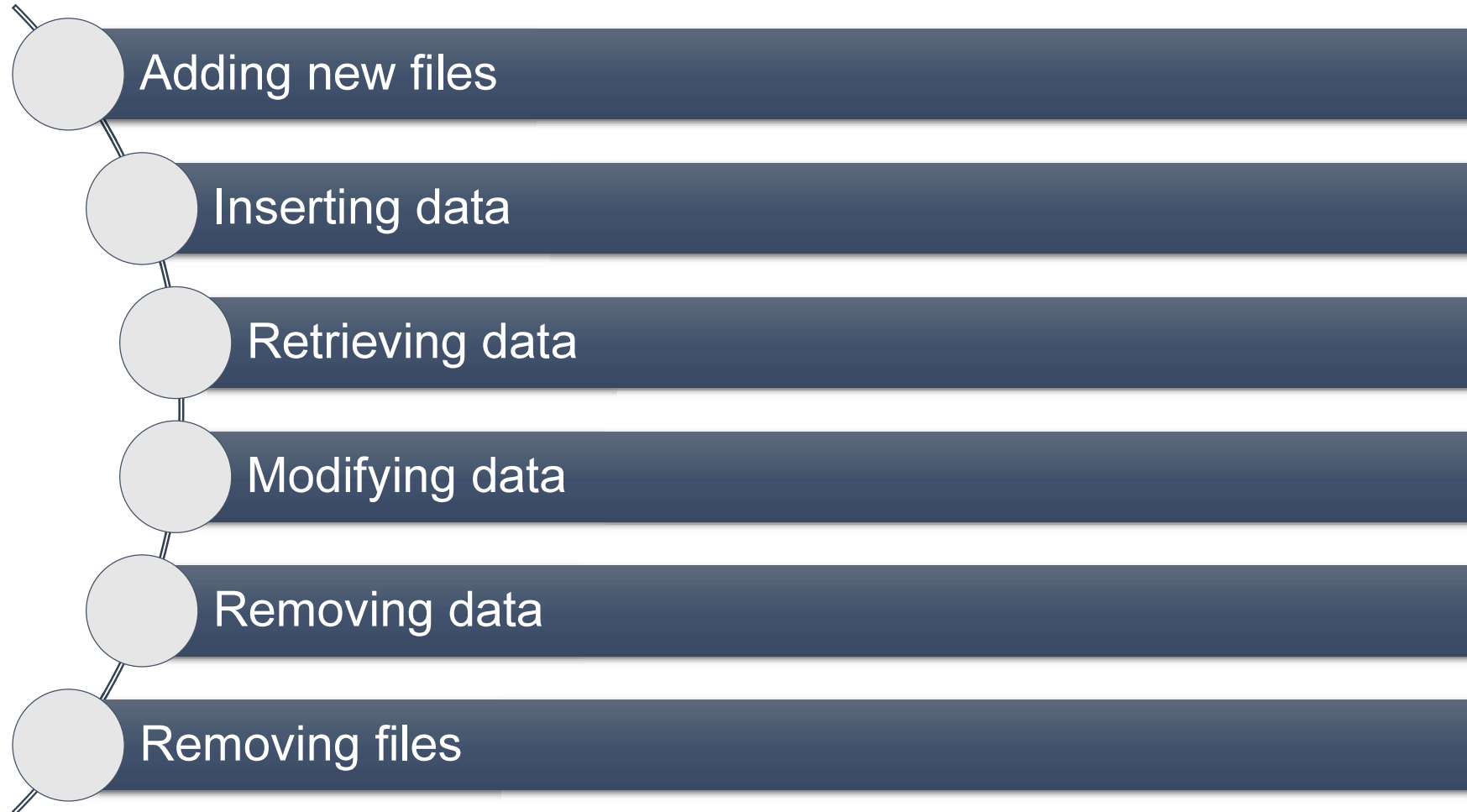
- **Record based logical model**
 - Hierarchical data model
 - Network data model
 - Relational data model
- **Object based logical model**
 - Entity relationship model

E/R Diagram



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DBMS Operations



Advantages of DBMS

- Sharing of data across applications
- Reduced data redundancy
- Enhanced security mechanism
- Data independence
- Better flexibility
- Enforce integrity constraints
- Better transaction support
- Enforce standards
- Backup and recovery features

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Introduction to RDBMS

- A relational database refers to a database that stores data in a structured format, using rows and columns.
- This makes it easier to locate and access specific values within the database.
- It is "relational" because the values within each table are related to each other.
Tables may also be related to other tables.
- The relational structure makes it possible to run queries across multiple tables at once.

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Features of RDBMS

Every piece of information is stored in the form of tables

Has primary keys for unique identification of rows

Has foreign keys to ensure data integrity

Provides SQL for data access

Uses indexes for faster data retrieval

Gives access privileges to ensure data security



RDBMS VS TRADITIONAL APPROACH

- The key difference is that RDBMS (relational database management system) applications store data in a tabular form, whereas in tradition approach, applications store data as files.
- There can be, but there will be no “relation” between the tables, like in a RDBMS. In traditional approach, data is generally stored in either a hierarchical form or a navigational form. This means that a single data unit will have one parent node and zero, one or more children nodes.