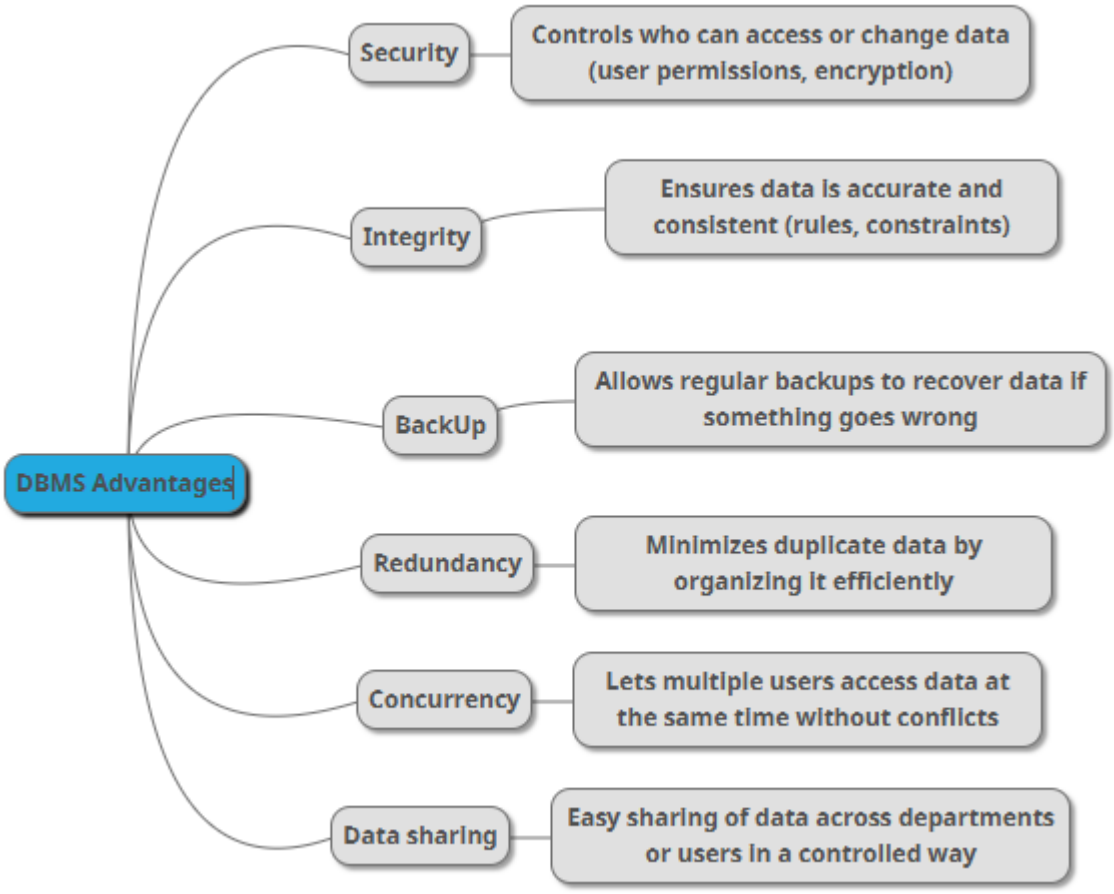
1. Flat File Vs Relational Databases

	Flat File	Relational Databases
Structure	Organizes data in single table.	Organizes data into one or more tables.
Data Redundancy	More repeated data	Less repeated data
Relationship	No Links between Data	There are Tables connected
Example	Sample App, Config Files	Big Systems like Banks
Drawback	Hard to manage, easy to make mistake	More setup needed

2.



3. Roles in a Database System

1. System Analyst

Role: Acts between business needs and technical solutions.

Responsibilities:

Gathers and analyzes business requirements.

Defines system functionalities and data needs.

Works closely with stakeholders and development teams.

2. Database Designer

Role: Design structure of the database system.

Responsibilities:

Creates the conceptual, logical, and physical design of databases.

Determines what data needs to be store and how organize it .

Ensures data integrity, normalization, and optimal data relationships.

3. Database Developer

Role: Implements and maintains the database based on the design.

Responsibilities:

Writes SQL code for data and schema creation.

Develops stored procedures and functions.

Optimize performance.

4. DBA (Database Administrator)

Role: Manage and maintain the database environment.

Responsibilities:

Installs, configures, and upgrades database software.

Performs backup, recovery, and security tasks.

Monitors database performance and implements tuning.

Manages user access and enforces data security policies.

5. App Developer

Role: Develops front-end and back-end applications that interact with the database.

Responsibilities:

Creates user interfaces and application logic.

Ensures proper handling of data input/output.

Collaborates with database developers and system analysts to ensure smooth integration.

6. BI (Business Intelligence) Developer

Role: Transforms data into meaningful insights for business decisions.

Responsibilities:

Designs and develops dashboards and reports.

Writes complex SQL to extract data.