Logically coherent

• Designed for a purpose, General... with application programs in mind, and A collection of related data, implicit meaning. Users Database Admin (DBA) Database Designers Database Database System Database Management System (DBMS) Protecting Maintaining When not to use a Size of the project, or number of users. embedded systems have storage capacity

Abstraction (Data) -Data Independence Requirements specification and analysis (data and functional).

Program-data independence program-operation independence -CalculateGPA()

Physical Design

Logical Design

Conceptual Design

• Define - data types, structures, etc... of

DCMS

• Construct - selection of a storage medium for our data.

• Manipulate - queries and updates to our database.

• Share - multiuser scenarios, all users have up to date data.

DBA's can enforce

standards.

Flexibility

Scalability

DBMS?

single user systems

Reduce App Dev Time

(YOU!)

Database

Redundancy

• inconsistent data

duplication of effort

wasted space

Metadata

(Database Catalog) Restricting access

Persistent Storage

(RBAC)

Controlled Redundancy

Normalization

Denormalization

(performance)

Searching and Storage Techniques for efficient queries

Backup and Recovery

Multiple User Interfaces

Specify Relationships Among Data

Enforce Integrity Constraints Refferential integrity key constraint, uniqueness constraint

Business rules - We will implement in the API's. inherent rules - defined by the data model.

On the scene

End Users -Concerned with querying the database, updating database, etc..

Naive

Casual Standalone

Sophisticated

DBMS

Behind the scene

