Database Systems

Database applications are an intermediary between users and DBMS

DBMS processes application requests against database
- create definitions, write, read, update

Relational Database Systems

Relational database systems are currently the most common used in industry
- Access, SQL Server, Oracle, Ingres, DB2, Sybase, MySQL, Informix...
- Organises the database as groups of related tables
- Tables are organised by business 'themes'
  - reflect practices and policies of organisation
- Tables can be 'joined' to discover related information occurring across 'themes'

Database

DBC

Database

Relational Database Terminology

Record
- unit within a table, normally a row of the table
- contains related data about the entity
  - a single transaction’s details, summary details,...
- like a sheet of paper in a folder

Field
- a smaller unit within a record, a column in the table
- contains a single fact about the entity
- like a field on a sheet of paper in a folder
Secondary Key
- defined from one or more other fields of a table
- used to arrange database in some other order
- can be multiple occurrences in a database

Foreign Key (FK)
- one or more fields of a table that appear as a PK in another table
- can be multiple occurrences in a database
- used to join tables based on common information

Table Structure
- metadata definitions
- instructions regarding arrangement and format of data in record
- keys, data type, length
- formats, masks, validation rules
- constraints, rules

Forms
- alternative method to datasheet for entering and accessing data
- screen-based form appears similar to paper-based equivalent of the record
- can be used to both capture and display data
- allow entry, editing, viewing and deletion of records in one or more table

Reports
- provide the ability to arrange data from one or more tables, and view and print the data for later use
- can also be used to perform calculations, summarise, and group information before viewing
- screen-based report can appear similar to paper-based equivalent of the report
- primarily a display mechanism only

Queries
- allow you to answer specific questions about data in the database
- can be used to display records based on criteria, perform calculations, summarise information, sort and group information, or delete data from one or more tables in database
- can be regular or ad hoc

Creating Access Tables
Creating Access Tables - Design View

- Primary key
- Properties
- Data description
- Data type

Access Tables - Datasheet View

- Field names
- Datasheet

Sorting Tables

- Unsorted data
- Sort filters
- Field to sort on
- Data sorted by Member_No

Relationships Between Tables

- Related fields
- Relationship

Subdatasheets

- Click '+' to open subdatasheet

Access - Forms

- Datasheet
- Form
Access - Forms and Sub-forms

Access - Queries

Access - Reports

Access - Switchboard
References