Some Extra Slides

DBMS is a Package

Database Management System (DBMS)

- DBMS is a software package that enables user to create and maintain databases. It facilitates:
  - Defining a database that involves specifying the data types, structures, and constraints for the data to be stored in the database.
  - Constructing a database which is the process of storing the data.
  - Manipulating a database such as functions of querying and sharing the database objects, updating the database, and generating reports from the data.
- Database and DBMS software together constitute a database system.

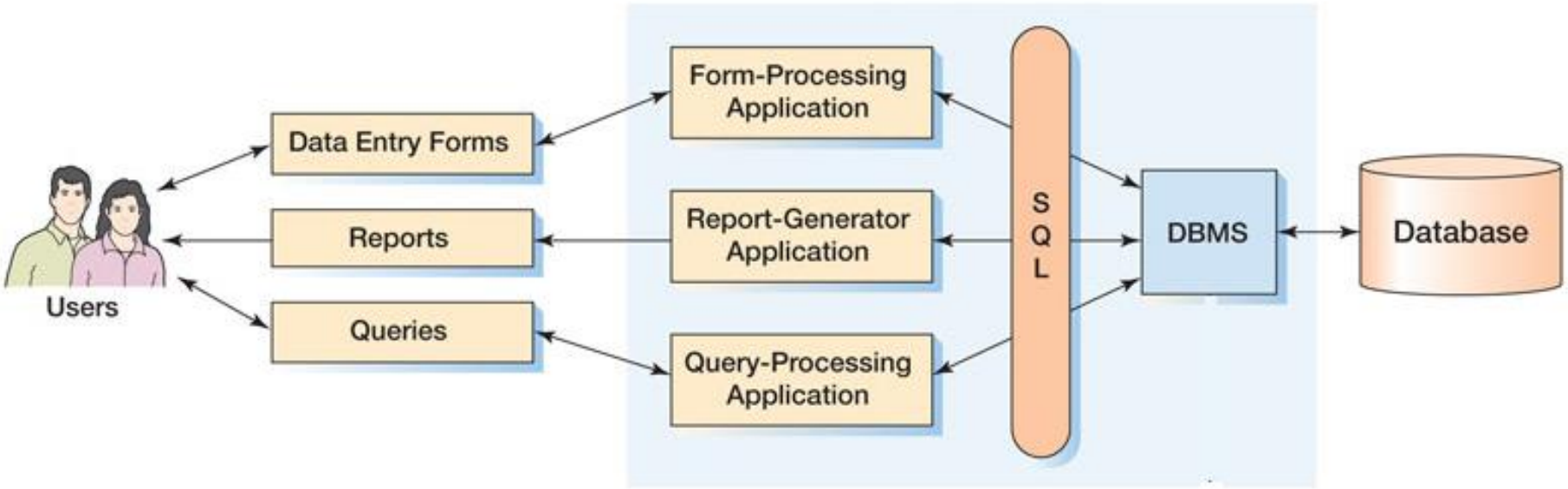
Examples DBMS

- Oracle
- IBM DB2
- Ingress
- Teradata
- MS SQL Server
- MySQL
- MS Access

Database Management System (DBMS) Features

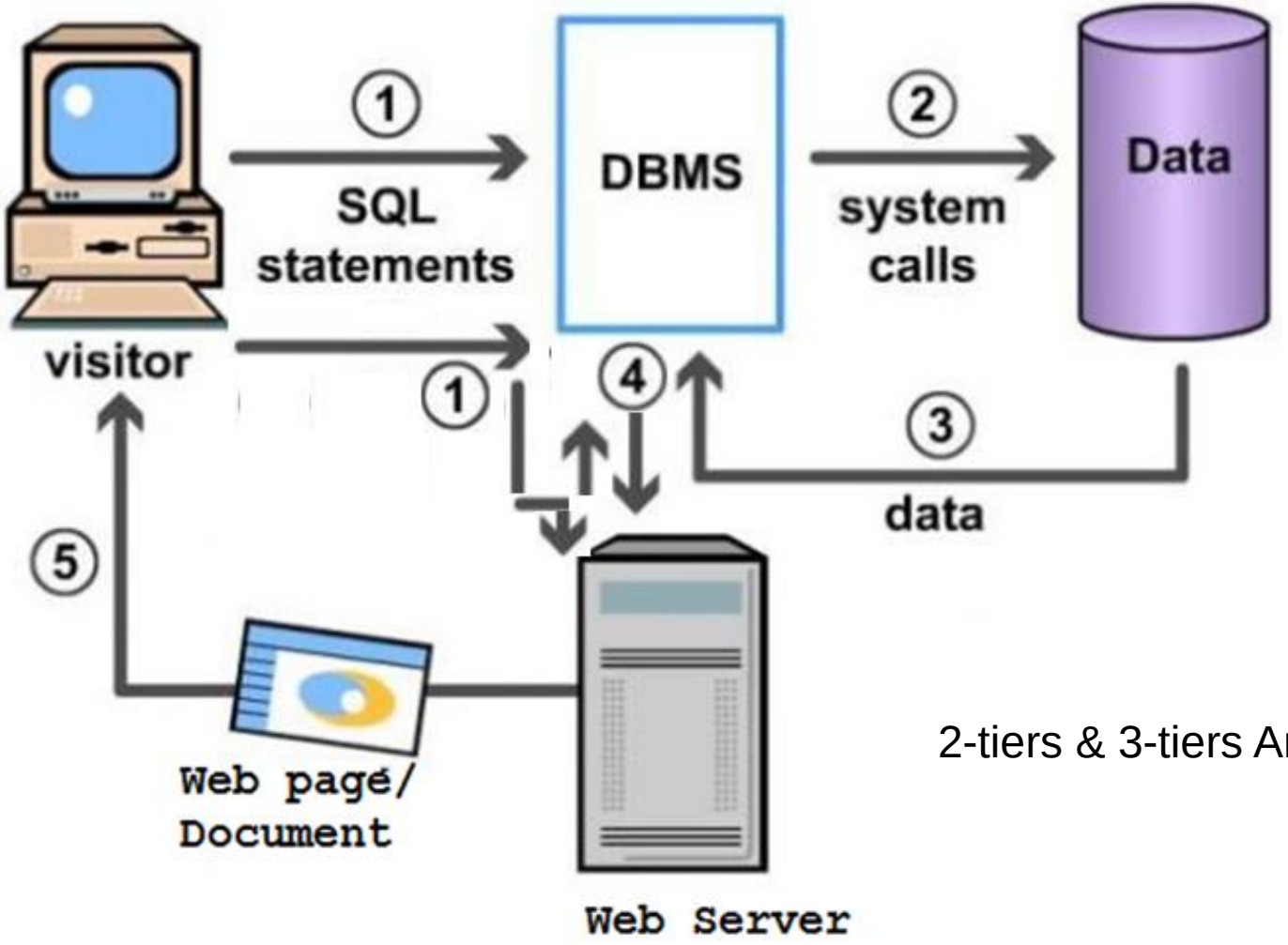
- A Software Package that enables users to define, create, maintain, and control access to the database.
  - Data Definition Language (DDL)
  - Data Manipulation Language (DML)
  - Control access:
    - Security, integrity, concurrent access, recovery, support for data communication, etc.
  - Utility services
    - File import/export, monitoring facilities, code generator, report writer, etc.
- Support Ad Hoc queries

DBMS Architecture



Form Processing & Report Processing Applications are build by using VB, DOT Net or PHP programming. Reports can be developed using Crystal Reports tool.
Query Processing can be managed by using vendors SQL tool or 3rd party tools such As TOAD, SQL Developer

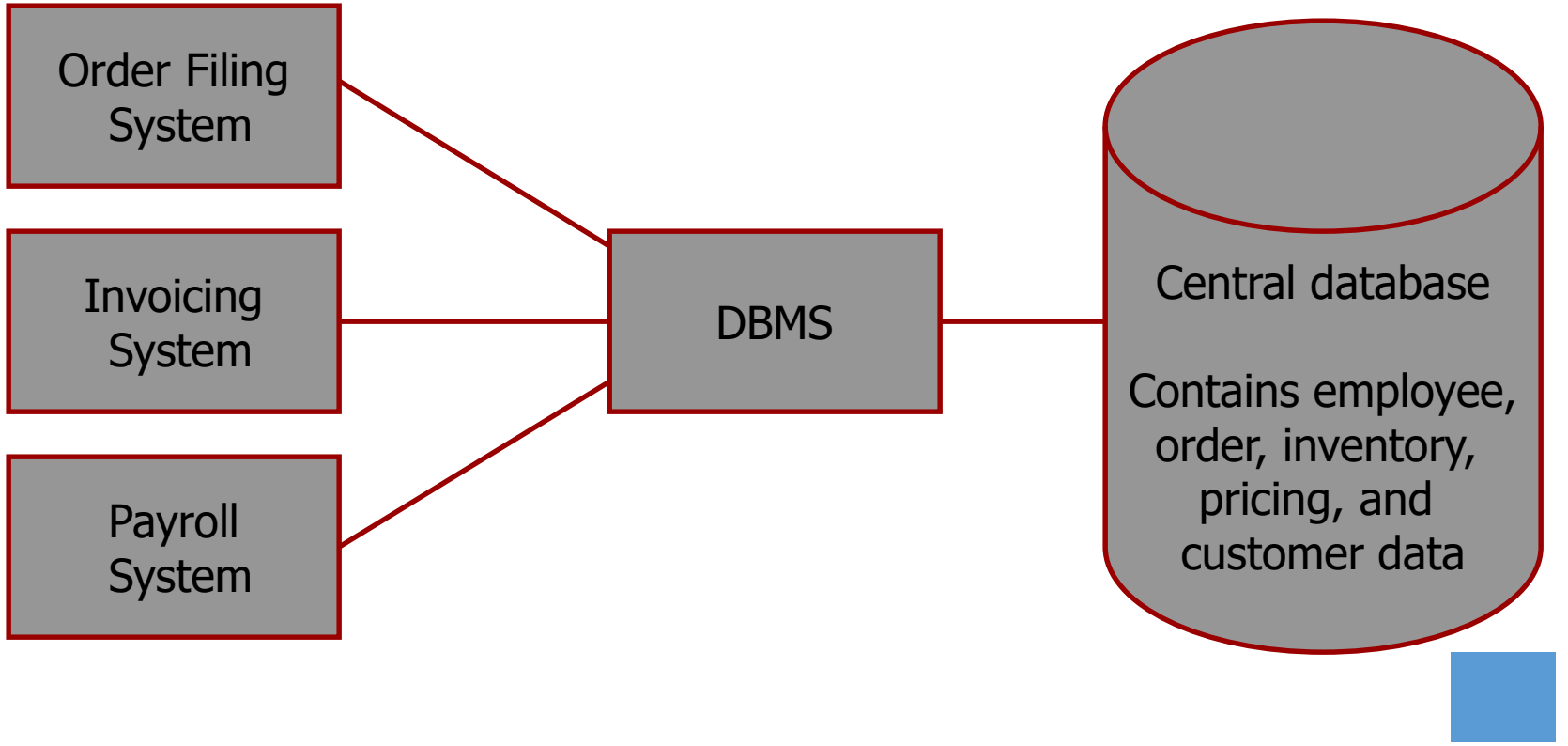
Data Accessing using DBMS



2-tiers & 3-tiers Architectures

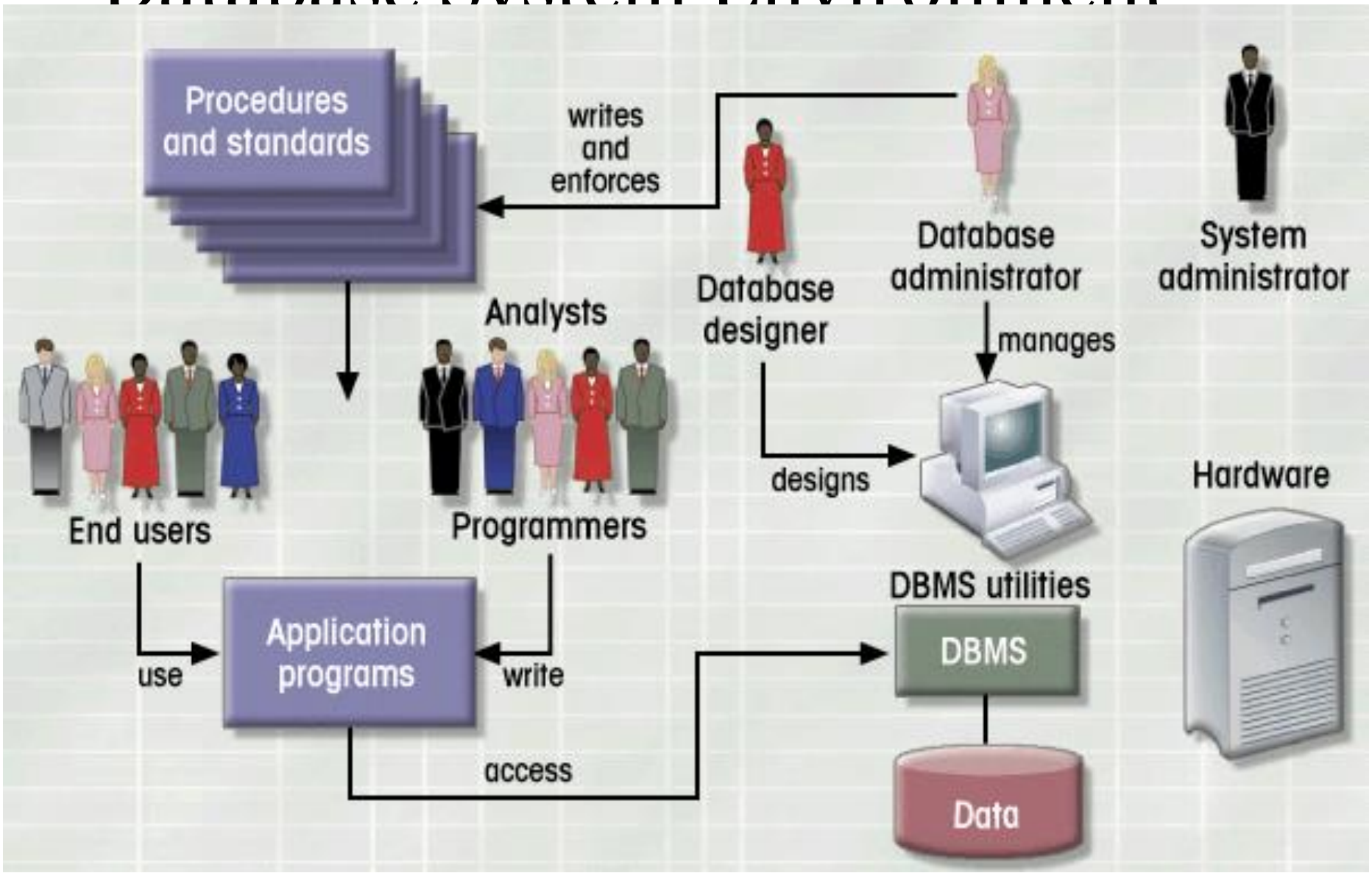
Database Management System

- A software system that is used to create, maintain, and provide controlled access to user databases



DBMS manages data resources like an operating system manages hardware resources

Database System Environment



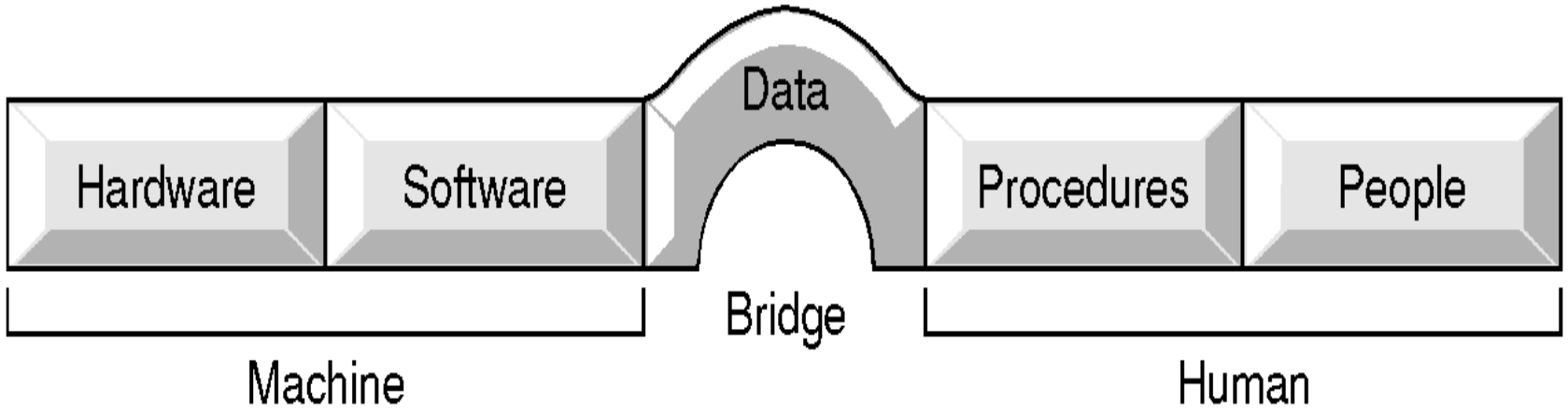
DBMS Benefits

- Minimal data redundancy
- Consistency of data
- Integration of data
- Sharing of data
- Ease of application development
- Uniform security, privacy and integrity controls
- Data accessibility and responsiveness
- Reduced program maintenance
- Data independence

DBMS related Applications

- SQL
- Forms/ Reports
- Web/ Portal
- GUI Client-Server (VB, C++, Java, Mobile)
- SAP/ OracleApps
- BI Applications (SAS, OracleWarehousing)
- Case Tools (Toad Modeler, Enterprise Architect, VISIO etc)

Components of DBMS Environment



Components of DBMS Environment

- Hardware
  - Can range from a PC to a network of computers
- Software
  - DBMS, operating system, network software (if necessary) and also the application programs
- Data
  - Used by the organization and a description of this data called schema

Components of DB Environment …

- Procedures
  - Instructions and rules that should be applied to the design and use of the database and DBMS
- People

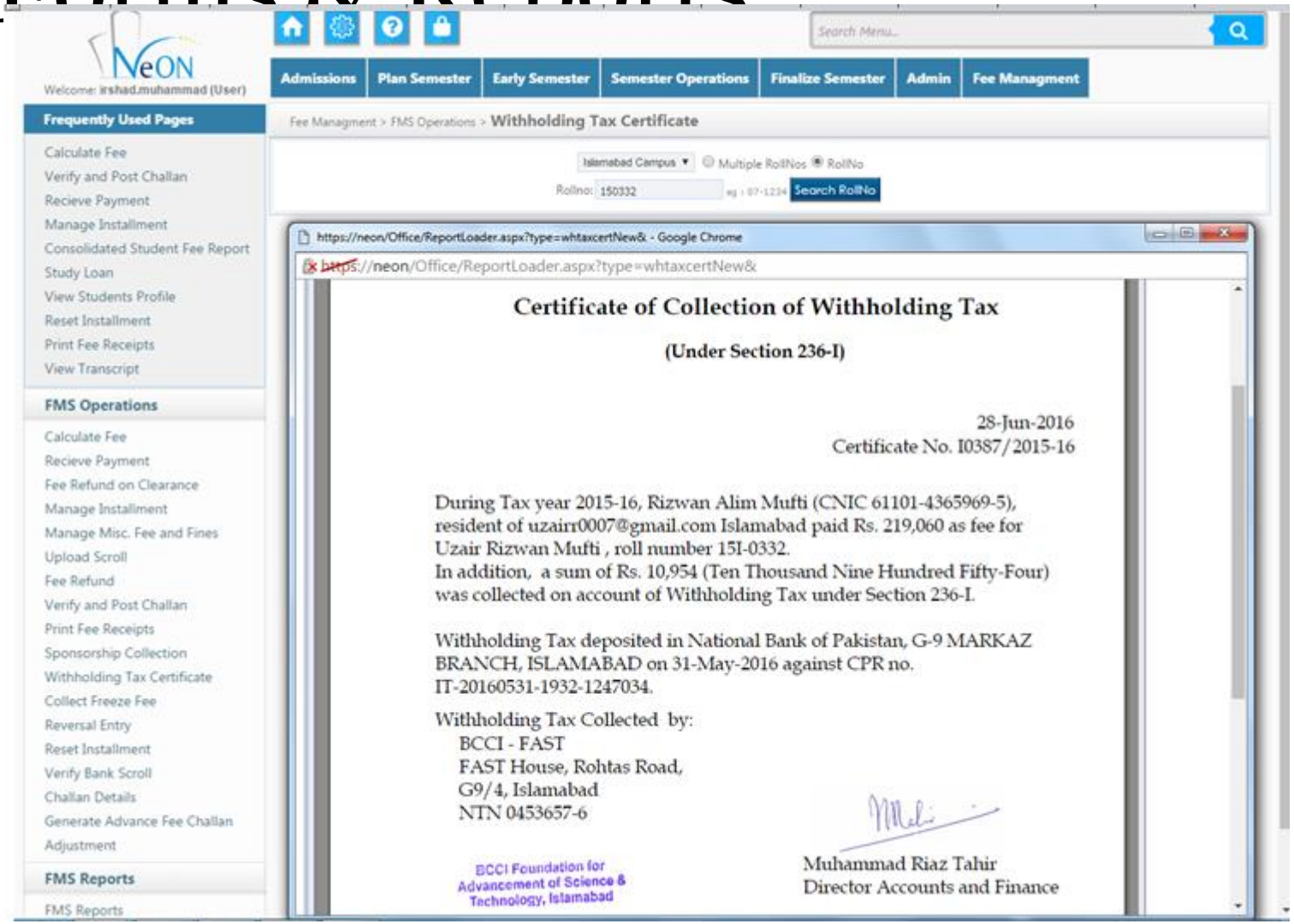
Database Professionals

- **Database implementers**
  - Build modules that go inside the DBMS
- **Database application developers**
  - Build application that run on top of the DBMS, and are used by end-users to interact with their data.
- **Database Administrators**
  - Create database schema
  - Maintain and tune the DBMS engine
  - Maintain and tune the data in the DBMS
  - Corporations need them

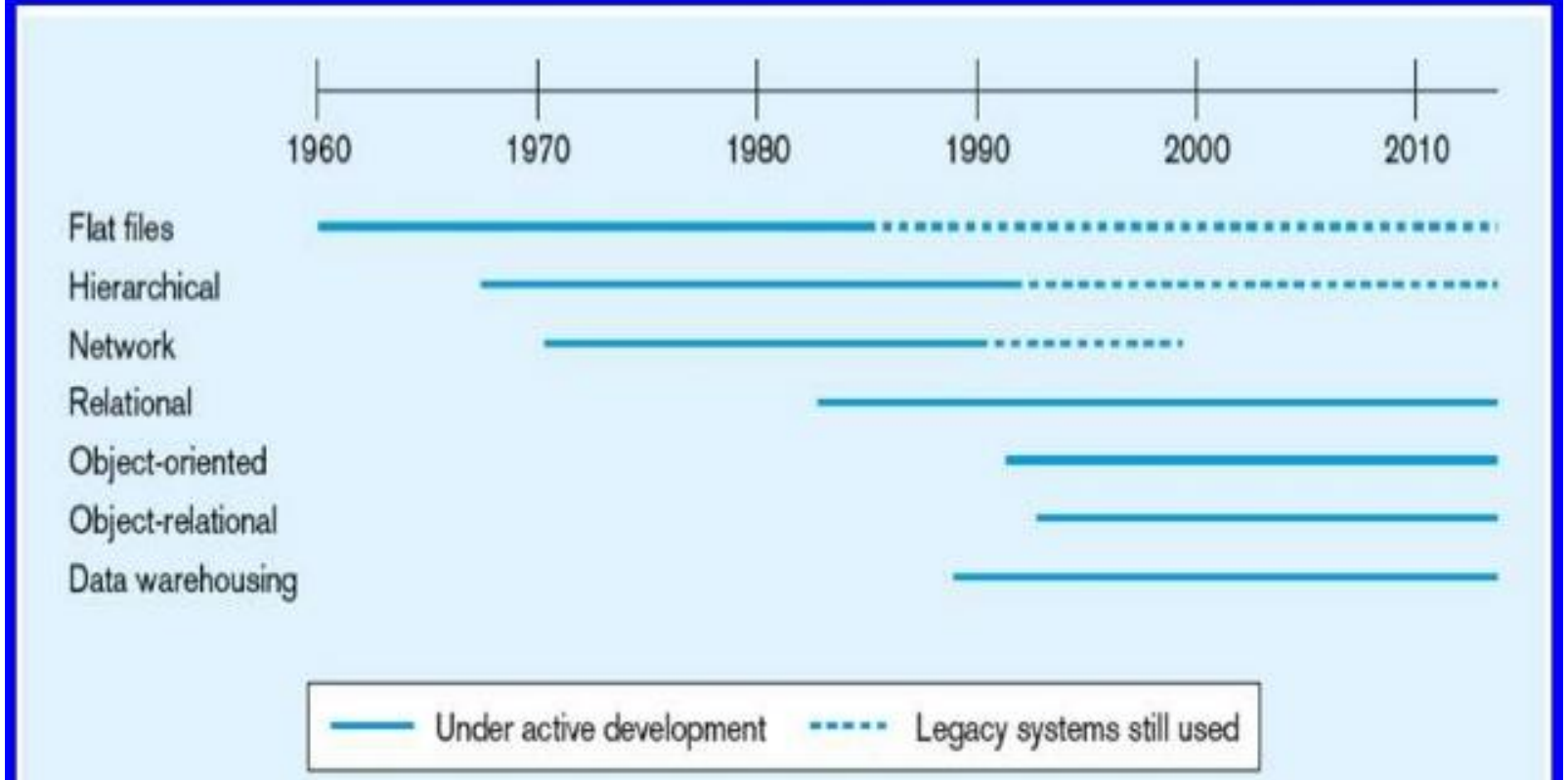
Roles/ Jobs in the Database Environment

- Data Administrator (DA)
- Database Administrator (DBA)
- Database Designers (Logical and Physical)
- Applications Programmer
- Database Developer
- Database Analyst
- End users (Naive and sophisticated)

Forms & Reports



Evolution of Database Systems



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