Database Users

- **Application programmers** – write applications that interact with the DB

- **Sophisticated users** – Use query language, e.g., SQL

- **Specialized users** – write specialized database applications

- **Naïve users** – use an application written previously

  - Users accessing database over the web, bank tellers, clerical staff

  - Forms & reports

Database Administrator

- Coordinates all activities of the database system

- Database administrator's duties include:

  - Schema definition

  - Storage structure and access method definition

  - Specifying integrity constraints

  - Granting user authority to access the database

  - Monitoring performance and responding to changes in requirements

History of Database Systems

- 1950s and early 1960s:

    - Data processing using **magnetic tapes** for storage

        - Tapes provide only sequential access

    - **Punched cards** for input

- Late 1960s and 1970s:

    - Hard disks allow direct access to data

    - Network and hierarchical data models in widespread use

    - Ted Codd defines the relational data model

History (cont.)

- 1980s:

    - Research relational prototypes evolve into commercial systems

        - SQL becomes industrial standard

    - Parallel and distributed database systems

    - Object-oriented database systems

- 1990s:

    - Large decision support and data-mining applications

    - Large multi-terabyte data warehouses

    - Emergence of Web commerce

- 2000s:

    - XML and XQuery standards

    - Automated database administration