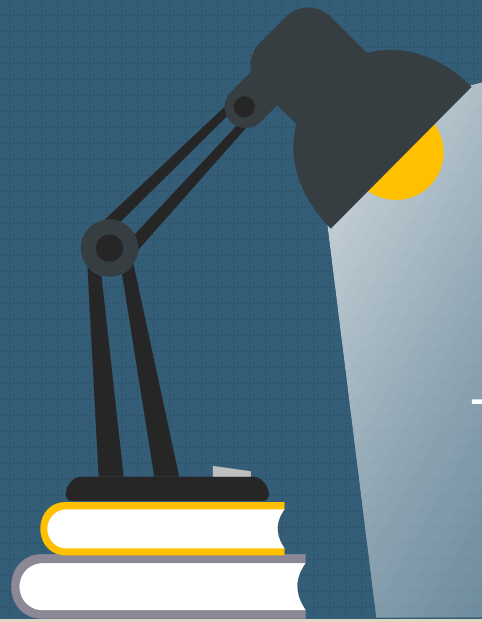

EPPS6354 Information Management

Assignment 1

Dohyo Jeong

University of Texas at Dallas

Assignment 1

Q1

- Name and describe three applications you have used that employed a database system to store and access persistent data. (e.g. airlines, online trade, banking, university system)

a) Medical Record Management System:

- This system is used to store and manage patients' medical records. The purpose is secure storage of patient data and updates by medical professionals. Features include patient information input, viewing diagnostic records, prescription management, and communication among doctors.

b) Library Loan Management System:

- Used by libraries to manage book loans, the purpose is to systematically track book loans and returns. Features include loan tracking, overdue notifications, book search, and member information management.

c) Hotel Reservation System:

- Utilizes a database for hotel reservations and room management. The purpose is efficient management of customer reservations and room allocations. Features include room reservations, room availability checking, payment processing, and reservation history tracking.

Assignment 1

Q2

- Propose three applications in domain projects

Public Health

- Purpose: Manage health records, disease data, and vaccination records.
- Functions: Recording, disease surveillance, vaccination management, reporting, and access control.
- Simple interface design: ntuitive dashboards for records, surveillance, vaccination, and alerts.

Environment

- Purpose: Visualize and analyze environmental data for informed decisions.
- Functions: Data import, analysis, visualization, reports, and sharing.
- Simple interface design: Data upload, analysis tools, visualization workspace, and report generation.

Finance

- Purpose: Support financial research and analysis.
- Functions: Market data retrieval, analysis tools, portfolio management, reports, and educational resources.
- Simple interface design: Data retrieval, analysis tools, portfolio management, research reports, and educational materials.

Assignment 1

Q3

- If data can be retrieved efficiently and effectively, why data mining is needed?

  - Data mining is used to discover hidden patterns, trends, and insights in data.

    Even if data can be retrieved efficiently, data mining provides additional value by:

    1) Uncovering hidden relationships and trends in the data.

    2) Building predictive models and making future predictions.

    3) Supporting decision-making and enhancing business intelligence.

Assignment 1

Q4

- Why NoSQL systems emerged in the 2000s? Briefly contrast their features with traditional database systems.

  - NoSQL systems emerged to handle large-scale and distributed data processing needs. They have the following features in contrast to traditional database systems:

    1) ***Various data formats***: NoSQL databases can store a variety of data formats. It can handle different data types by supporting multiple data models such as document, graph, column-oriented, and key-value stores.

    2) ***Unstructured data support***: NoSQL systems can handle unstructured or semi-structured data, making them ideal for storing and retrieving a variety of data formats from the real world.

Assignment 1

Q5

- What are the things current database system cannot do?

- Current database systems still have limitations in areas such as:

  1) It isn't easy to efficiently process large-scale real-time data streams.
  2) It is limited in handling complex relationships.
  3) It isn't easy to support a wide range of data formats, especially unstructured or semi-structured data.

Assignment 1

Q6

- Describe at least three tables that might be used to store information in a social-network/social media system such as Twitter or Reddit.

  - a) User Profile Table: This table stores users' personal information and profile settings. It includes fields such as user name, profile picture, birthday, interests, etc.

  - b) Connection Relationship Table: This table stores user relationships, representing friend connections or following relationships. It contains information about user IDs, connection IDs, connection dates, and status (accepted, pending, declined).

  - c) Posts and Comments Table: This table stores information related to posts and user comments. It includes fields like post ID, author ID, date and time of posting, post content, and counts of likes and shares.


Thank
you!