EPPS 6354: Information Management

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Assignment 1

Questions

- 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)
- Q2: Propose three applications in domain projects (e.g. criminology, economics, brain science, etc.). Be sure you include i. Purpose ii. Functions iii. Simple interface design
- Q5: what are the things current database systems cannot do?
- 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.

Q1: Database Applications

- Bank of America (Online Banking System): Banks utilize database systems to store and manage vast amounts of customer data, including account details, transaction histories, and personal information. This helps customers check their accounts, do transactions, and see past activities securely..
- **Amazon(E-commerce Platform):** Online retail platforms like Amazon uses a database system to store details about products and customers. This makes it easy for users to shop, track orders, and have a personalized experience. The computer system helps manage inventory and process orders efficiently.
- **Planned parenthood(Online Hospital Information System):** Healthcare organizations employ database systems to manage patient records, treatment plans, and billing information. This makes it easy for doctors and other health professionals to access information quickly and ensures that important health data is stored securely. Can also support integration of data for various aspects of patient care.

Q2: Proposed Database Applications

1. Environmental Monitoring App:

Purpose:

- Study and analyze the environment to help ecological research and conservation
- Show real-time info on air quality, temperature, pollution, and more.
- Let users add their data to get a full picture of environmental conditions through crowdsourcing

Functions:

- Show current environmental data with pictures.
- Let users check past trends.
- Warn about important environmental issues.
- Help users share data easily through a simple reporting tool.

Simple Interface Design:

- Simple dashboard with easy-to-understand icons for different environmental details.
- Map that updates in real-time for various places.
- Graphs to see past trends.
- Easy button to report and add data.

Q2: Proposed Database Applications

2. Criminal Activity Prediction Tool/App:

Purpose:

- Study past crime data to predict where crimes might happen.
- Help police decide where to put resources and officers.
- Give ideas to policymakers for focused crime prevention plans.

Functions:

- Show crime hotspots on a map using predictions.
- Let users check how crime trends change over time.
- Give suggestions for the best police patrolling routes.
- Create reports for policymakers using predictive analysis.

Simple Interface Design:

- Map with a good color scheme to show crime hotspots.
- Graph showing how crime changes over time.
- GIS tool to plan the best routes for police patrols.
- Reports that are easy to read and have visual elements

Q2: Proposed Database Applications

3. Disease Monitoring/Prediction Tool:

Purpose:

- Monitor and predict the spread of infectious diseases.
- Provide timely information to healthcare professionals, policymakers, and the public.
- Leverage data analysis and predictive modeling tools to enhance preparedness, response, and proactive measures to mitigate the impact of diseases.

Functions:

- forecast potential disease outbreaks and hotspot locations.
- Implement an alert system for notifying users on current trends
- Assist healthcare providers in resource allocation
- Enable users to input and monitor their health status and provide educational resources for disease prevention and management.

Simple Interface Design:

- Dashboard displaying key statistics (total cases, recovered cases, active cases)
- Map to show disease hotspots
- An alert section for timely notifications on disease trends
- user-friendly health monitoring section
- Dedicated space for educational resources on disease prevention.

Q5: What are the things current database systems cannot do?

- Do complicated calculations or logic that the database can't handle.
- Understand the meaning or context of data, like words or pictures.
- Change automatically as data or user needs evolve without needing a redo.
- Make sure the data is good, correct, and valid, depending on where it comes from and how users input it.
- Stop unauthorized access or changes to data unless we use proper security measures.

Q6: Tables in a social network/ social media system

1. Users Table:

This table stores essential information about users. It enables authentication and authorization and supports user profile customization and display. Possible data in this table may userID, username, email address, etc.

2. Followers/Following Table:

This table manages the relationships between users who follow each other and supports features such as the user's follower/following lists. Possible data in this table may include, followerID, followingID, etc

3. Post Table:

This table stores individual posts created by the users. It facilitates the display of content on the platform and helps track engagement metrics such as likes and comments. Possible data in this table may include postID, userID, content, timestamp, etc.

Thank you