Assignment 1

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3 applications employing database system to store & access persistent data

- **Blackboard**
  - Educational Management System
  - *Purpose:* manage student records, course materials, grades, educational resources
  - Used at my school, The University of Texas at Dallas
- **Workday**
  - Human Resources Management System
  - *Purpose:* manage employee information, payroll, attendance, other HR-related processes
  - Used at my work, Halff Associates
- **Instagram**
  - Social Media Platform
  - *Purpose:* storing user profiles, posts, comments, other social interactions
  - Personal use

3 applications in domain projects

- **Task Tracker**
  - *Purpose:* facilitate collaborative project management by allowing teams to organize, track, and complete tasks efficiently
  - *Function:* task creation and assignment, task tracking, file sharing, team chat, dashboard
  - *Simple Interface Design:* clean/intuitive dashboard showing project progress, task list with color-coded status indicators, drag and drop functionality for easy task assignment
- **Budget Tracker**
  - *Purpose:* streamline project financial management by tracking budgets, expenses, and financial metrics
  - *Function:* budget planning, expense tracking, financial reports, vendor management, notifications
  - *Simple Interface Design:* dashboard with visual representation budget status, color-coded expense categories for easy identification, graphical charts showing budget distributions and expenditures
- **Time Tracker**
  - *Purpose:* assist in efficient time tracking for project tasks to ensure accurate billing and resource allocation
  - *Function:* task-based time entry, project timelines, client invoicing, team availability, exportable reports
  - *Simple Interface Design:* visual timeline with color-coded segments for each task, calendar view for team availability, export button for easy report sharing

3 tables used to store information in social-network/social media system (Twitter/Reddit)

- **Comment Table**
  - Stores information about comments made by users on posts
  - Unique identifier, user, post, content, timestamp, like count, etc.
- **User Table**
  - Stores information about individual users on the social media platform
  - Unique identifier, username, email, password, full name, registration date, etc.
- **Post Table**
  - Stores information about the posts created by users on the platform
  - Unique identifier, user, content, timestamp, like count, retweet count, etc.

What are things current database system cannot do?

- **Handling of Unstructured Data**
  - Optimized for structured data
  - Managing and querying unstructured/semi-structured data (documents, images, multimedia content, etc.) can be less efficient
- **Security Challenges**
  - Remains a concern with the increasing number of cyber threats
  - Need to continually evolve to address vulnerabilities and provide robust security features (encryption, access controls, audit trails, etc.)
- **Cost & Licensing**
  - Costs and vendor lock-in can cause concern for organizations
  - Open-source databases help these issues, but managing costs is an ongoing challenge