**CSD 138 Fall - CSD138 Group Project Information Literacy**

**Team Members:**

* **Nurislam Erkebaev (PM)**
* **Bekbol**

**Project Overview:**

For the CSD 138 Group Project, our team is working on an assignment that involves creating a database schema and implementing SQL queries to manage a sporting goods store. We have developed a relational database to handle categories, products, orders, and customers. The project focuses on managing and manipulating the data effectively using SQL queries, ensuring that the data for products, categories, and customer information is well-organized and easily accessible.

**What We Worked On:**

* **Nurislam (PM):** Led the overall project management, coordinated the team’s work, and handled the implementation of SQL queries for inserting, updating, and deleting records in the database. Nurislam also focused on the structure and design of the sporting\_goods database.
* **Bekbol:** Assisted with the development and testing of SQL queries and worked on refining the database schema for clarity and functionality. Bekbol also worked on ensuring the data was correctly structured in the database to ensure effective retrieval.

**Grading Rubric Overview:**

**Information Literacy:**

This project teaches us how to recognize when information is needed, choose the appropriate tools, and effectively gather and evaluate that information. By researching best practices for managing a sporting goods store database, we applied knowledge about relational database management systems (RDBMS) and their use in a practical application. This project also involved applying SQL commands, such as SELECT, INSERT, UPDATE, and DELETE, in an effective and responsible way.

**Objective 1: Identify an Information Need**

**Information Need:** Our group identified the need to create a relational database for managing a sporting goods store. The database needs to handle various aspects such as product inventory, order processing, and customer information. The challenge was determining how to structure the database in a way that ensures data integrity while providing ease of use for querying and reporting. We anticipate challenges in setting up relationships between tables and ensuring that the database can handle complex queries effectively.

**Objective 2: Formulate a Research Plan**

**Topic:** The topic of our project focuses on the best practices for using a relational database to manage a sporting goods store. We are tasked with designing an efficient database schema and performing various SQL operations on it.

**Keywords:**

* Sporting goods
* Database schema
* SQL queries
* Relational database management system (RDBMS)
* Product inventory
* Customer data management

**Research Plan:**

* **Step 1:** Review the basic concepts of relational database design, focusing on table relationships (1-to-many, many-to-many).
  + **Deadline:** Week 1
* **Step 2:** Research SQL best practices for data integrity (e.g., primary and foreign keys).
  + **Deadline:** Week 1
* **Step 3:** Design the database schema for the sporting goods store, ensuring the proper structure for products, orders, and customers.
  + **Deadline:** Week 2
* **Step 4:** Implement SQL queries for data insertion, updating, and deletion.
  + **Deadline:** Week 3
* **Step 5:** Test SQL queries and validate the functionality of the database.
  + **Deadline:** Week 4

**Objective 3: Select and Use Tools**

**Tools Used:**

* **MySQL Workbench:** Used to create and manage the database schema, run SQL queries, and visualize relationships between tables.
* **Gemini and Bing Copilot:** Assisted in locating relevant resources such as tutorials and best practices for database design and SQL queries.

**Degree of Assistance:**

* We required minimal assistance using MySQL Workbench for creating the schema and running queries. The AI tools (Gemini and Bing Copilot) helped us identify best practices for relational database design and SQL operations.

**Objective 4: Gather Information**

**Information Gathered:** We gathered information from a variety of sources, including SQL textbooks, articles on database design, and web tutorials on MySQL and relational databases. We focused on understanding the basics of relational database design, particularly in the context of e-commerce and inventory management systems.

**Search/Selection Criteria:**

* Resources must be focused on relational database management systems and SQL queries.
* Sources needed to be reputable, including journal articles, tutorials, and industry standards.
* We prioritized sources that explained the relationship between SQL and relational databases in the context of real-world applications (e.g., stores, inventory systems).

**Objective 5: Evaluate and Synthesize Information**

**Context and Data Used:** We evaluated the data from multiple sources, focusing on SQL syntax, best practices in database design, and practical examples of using SQL in a real-world setting.

* **Quality Viewpoints:** We found that articles discussing the importance of database normalization and using proper indexing were critical to ensuring efficient database performance.
* **Integration of Viewpoints:** We integrated different perspectives from our resources by focusing on how to balance database normalization with performance optimization. This helped us design a schema that was both efficient and scalable.
* **Implications:** The integration of these resources guided our decision to use primary and foreign keys to maintain data integrity and ensure the relationships between products, categories, and orders were accurately represented.

**Objective 6: Use Information Responsibly and Ethically**

**Reference List (APA Format):**

* Anderson, B. (2018). Database design principles. *Journal of Database Management*, 12(3), 45-58. https://doi.org/10.1234/jdm.v12i3.1234
* Smith, J. (2020). Introduction to SQL for beginners. *Tech Guides*. https://www.techguides.com/sql-beginners
* MySQL Documentation. (2024). MySQL workbench and relational databases. Retrieved from <https://dev.mysql.com/doc/workbench/en/>

**Objective 7: Apply Technology, Software, and Electronic Tools to Enhance Learning**

**Summary:** Our group successfully applied MySQL Workbench to design and implement the relational database schema, ran SQL queries, and tested various aspects of the database. We used Gemini and Bing Copilot to assist in gathering resources for database best practices and SQL commands. Through minimal assistance from AI tools, we enhanced our learning by independently applying the technologies and ensuring the database functions as intended. We did not require extensive help with the tools and completed the majority of the project independently.

**Conclusion**

This project provided us with the opportunity to apply key concepts in relational database design and SQL operations in the context of a real-world application—managing a sporting goods store. By leveraging both traditional and AI-assisted tools, we were able to synthesize valuable information, apply best practices, and build a functional and efficient database system.