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**Experiment 5:**

**Data Modeling and Database**

CPE106L (Software Design Laboratory)

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## **PreLab**



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| **Readings, Insights, and Reflection**  **A Guide to SQL**  **9780357419830**  Alipio, Sarmiento, Macaro  In "A Guide to SQL," we learn about databases in Chapter 1, understanding how they store organized data for different jobs. Then, in Chapter 2, we learn more about databases, like what entities and attributes are, and how to design them well. With easy explanations and examples, we get better at making and using databases effectively. This book helps beginners like us learn important SQL commands and manage data in our projects confidently.  **Python Projects**  **9781118908891**  Alipio, Sarmiento, Macaro  In "Python Projects," we get practical insights into applying Python programming in real-world scenarios, complementing the database focus of another book. Chapter 3 delves into relational databases and SQL essentials, covering topics like tabular data representation and SQL commands for managing data effectively. Understanding these concepts is crucial for database design and management. Additionally, "Core Python Programming" introduces us to various database types commonly used with Python, focusing on MySQL integration. This chapter guides us through connecting to MySQL databases, executing SQL queries, and handling transactions, empowering us to build robust database-driven applications seamlessly. Together, these resources offer valuable guidance for developers at all levels, equipping us with the knowledge and skills to succeed in our Python programming endeavors.  **Websites**  Alipio, Sarmiento, Macaro  The website provides guidance on installing an SQL database, assisting with downloading and initiating the database setup for our project. Meanwhile, SQLite stands out as a powerful C-language library, offering a small, fast, and reliable SQL database engine. It's widely used, built into most mobile phones and computers, and integrated into numerous daily applications. Notably, SQLite databases serve as common containers for transferring content between systems and as long-term archival formats. Additionally, there's an article discussing SQLite's popularity and its inclusion in mobile phones and computers, while another article provides insights into downloading and connecting to a sample SQLite database called Chinook. This sample database, ideal for SQL practice, comprises eleven tables and offers a comprehensive learning opportunity.  **Questions and Answers**  1. What are DML and DDL statements in Structured Query Language? Give examples of each.  DML or Data Manipulation Language statements are used in Structured Query Language (SQL) to create changes in the tables and records in a database. The main types of commands in DML are: Insert, Delete, and Update. DDL or Data Definition Language statements are used in SQL to help define/create a database structure. The types of commands in DDLs are: Create, Alter, Rename, Drop, and Truncate.  2. What are the categories of SQLite Functions? Give 3 examples of each category  The categories in SQLite Functions are: Aggregate Functions such as “COUNT”, “SUM”, and “AVG”; Math Functions such as “POWER”, “SQRT”, and “RANDOM”; Date and Time Functions such as “DATE”, “TIME”, and “STRFTIME”; Control Flow Functions such as “CASE”, “IFNULL”, and “NULLIF”; and lastly, String Functions such as “UPPER”, “LOWER”, and “LENGTH”.    3. How do you check if you have SQLite installed in system using the Linux terminal  To check if you have SQLite installed in the system using a Linux terminal, you can run the command “sqlite3”. If SQLite is installed in your system, it will show you what version is installed, if it isn’t, a notice indicating that the command wasn’t found will be displayed. |