Introduction to SQL Basics and Querying Homework Sheet

Student Name: _____

Class: _____

Due Date: _____

Introduction and Instructions

Welcome to the Introduction to SQL Basics and Querying homework sheet. This worksheet is designed to help you understand the fundamental concepts of SQL and its application in database management. Please read the instructions carefully and complete the activities to the best of your ability.

Instructions:

- Read each question carefully and complete the activities as instructed.
- Use a database management system such as MySQL or PostgreSQL to complete the activities.
- Submit your completed work as a single document or file.
- Time management: This assignment is estimated to take 45-60 minutes to complete.

SQL Basics and Data Types

1. What are the basic data types in SQL? Provide examples of each.

2. How do you declare variables in SQL? Provide an example.

3. What are the basic syntax elements in SQL (e.g. SELECT, FROM, WHERE)? Provide examples of each.
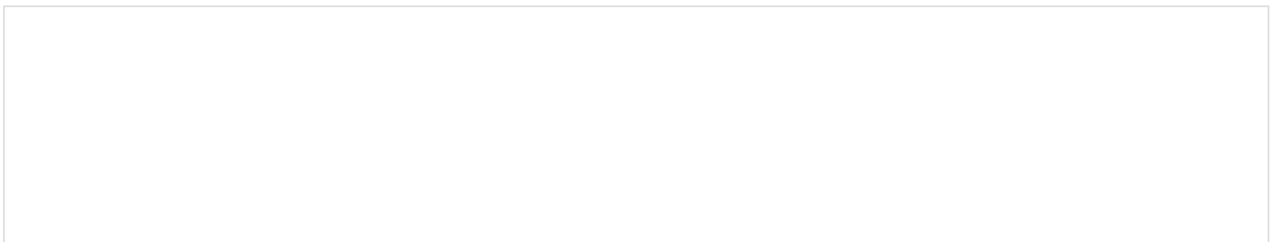
Creating and Manipulating Databases

Create a simple database using a database management system such as MySQL or PostgreSQL. Complete the following tasks:
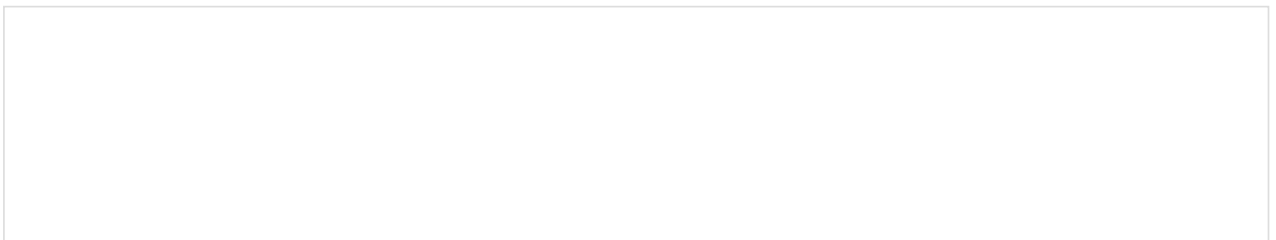
1. Create a new database called "students".

2. Create a table called "student_info" with the following columns: id, name, age, major.

3. Insert 5 rows of sample data into the table.

Provide a screenshot or output of the created database and table.

Write SQL queries to retrieve and manipulate data from the "student_info" table. Complete the following tasks:

1. Write a query to retrieve all rows from the table.

2. Write a query to retrieve only the names and ages of students majoring in Computer Science.

3. Write a query to update the age of a student with a specific id.

Provide the SQL queries and their output.

Write SQL queries to perform more complex operations on the "student_info" table. Complete the following tasks:

1. Write a query to retrieve the average age of students majoring in Computer Science.

2. Write a query to retrieve the names of students who are older than 20.

3. Write a query to delete a row from the table.

Provide the SQL queries and their output.

Real-World Application

Research and write a short essay (approx. 250-300 words) on a real-world application of SQL in database management. Consider the following questions:

- What are some common use cases for SQL in industry?
- How is SQL used in data analysis and business intelligence?
- What are some best practices for using SQL in a real-world setting?

Conclusion and Submission

Congratulations on completing the Introduction to SQL Basics and Querying homework sheet! Please review your work carefully and submit it as a single document or file. Make sure to include all the required deliverables and output.