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### **Overview of Databases**

**Task 1: Understanding Databases**

1. **Research and Write:** Write a short essay on what a database is. Explain the concept in your own words.
2. **SQL Basics:** Write a brief explanation of what SQL is and its importance in managing databases.

**Task 2: Types of Databases**

1. **Comparison Chart:** Create a comparison chart between Relational and Non-relational databases. Include at least three differences and three examples of each.
2. **Research:** Write a summary on what MySQL is, including its features and typical use cases.

**Understanding Data Types in SQL**

**Task 3: Numeric Data Types**

1. **Research and List:** List and describe the different numeric data types available in MySQL. Provide examples for each.

**Task 4: String Data Types**

1. **Research and List:** List and describe the different string data types in MySQL. Provide examples for each.

**Task 5: Date and Time Data Types**

1. **Research and List:** List and describe the date and time data types in MySQL. Provide examples for each.

**Table Structures**

**Task 6: Primary Keys**

1. **Explanation:** Write a short explanation of what a primary key is and why it is important.

**Task 7: Null and Not Null Constraints**

1. **Explanation:** Describe the difference between NULL and NOT NULL constraints with examples.

**Task 8: Auto-Increment**

1. **Explanation:** Explain what AUTO\_INCREMENT is and provide an example of how to use it.

**Basic SQL Commands**

**Task 9: Creating a Database**

**SQL Command Practice:** Write the SQL command to create a new database named StudentDB.

**Task 10: Creating a Table**

**SQL Command Practice:** Write the SQL command to create a table named Students with the following columns:

* + id (INT, primary key, auto-increment)
  + name (VARCHAR(100), not null)
  + email (VARCHAR(100))
  + enrollment\_date (DATE)

**Task 11: Insert, Update, Delete**

1. **Insert Data:** Write the SQL command to insert a new student record into the Students table.
2. **Update Data:** Write the SQL command to update the email of the student with id = 1.
3. **Delete Data:** Write the SQL command to delete the student record with id = 1

**Task 12: Using a Database**

**SQL Command Practice:** Write the SQL command to select and use the StudentDB database.

**Task 13: Creating a Database and Table**

1. **Hands-On:** Using phpMyAdmin, create a new database named PracticeDB.
2. **Create Table:** In PracticeDB, create a table named Employees with the following structure:
   * emp\_id (INT, primary key, auto-increment)
   * emp\_name (VARCHAR(100), not null)
   * emp\_position (VARCHAR(100))
   * hire\_date (DATE)

**Task 14: Working with Different Data Types**

1. **Create Tables:** Create additional tables in PracticeDB with columns that use various data types (numeric, string, date/time).

**Task 15: Data Manipulation**

1. **Insert Data:** Insert at least three records into the Employees table.
2. **Update Data:** Update the emp\_position of one of the employees.
3. **Delete Data:** Delete one of the employee records from the table.