CSE 1300

ASSIGNMENT 3

DBMS Fundamentals

Overview:

This assignment will test your understanding of the basic concepts covered in the class—ranging from the difference between data and information to types of database management systems, their advantages, disadvantages, and the database languages used (DDL, DML, DCL, TCL, DQL). You will also do a short hands-on activity to reinforce how DDL and DML work in practice.

Part A: Understanding Core Concepts

1. Data vs. Information (Short Answer)

In your own words, explain how **data** differs from **information**.
Give **one real-life example** that shows the transformation of data into useful information.

2. DBMS vs. File System (Short Answer)

Briefly compare a **DBMS** with a **traditional file system**.
Mention **two advantages** of using a DBMS over a file system.

3. Types of DBMS (Matching)

Match the following software systems with the correct type of DBMS.

Software	Type of DBMS
MySQL	?
MongoDB	?
ObjectDB	?

Choose from: Relational (RDBMS), Non-Relational (NoSQL), Object-Oriented (OODBMS)

Part B: DBMS Features & Pros/Cons

4. Key Features (Short Answer)

List **two features** of a DBMS (e.g., concurrency, backup).
Explain **why each is important** in a modern organization.

5. DBMS: Advantages and Disadvantages (Table)

Create a two-column table. In your own words, write:

Advantage	Disadvantage
Example: Data Integrity – Ensures data accuracy and consistency	Example: Complexity – Requires trained personnel to maintain

Add **two entries** per column.

Part C: Database Language Identification

6. Match the Task to the Language Type

Use the table below and fill in the correct language (DDL, DML, DCL, TCL, or DQL):

Action	Language Type
Create a new database table	?
Retrieve data from a table using SELECT	?
Update salary in an Employees table	?
Commit changes in a transaction	?
Revoke access from a user	?

Part D: SQL Practice

Use [W3Schools SQL Tryit Editor](#) to complete this section.

You can also read about how to write an SQL query using the W3Schools website

7. Table Creation (DDL)

Write a `CREATE TABLE` statement for a `Customers` table with the following fields:

- customer_id (Primary Key, integer)
- first_name (text)
- last_name (text)
- email (text)
- balance (numeric)

8. Data Manipulation (DML)

Write the following SQL statements:

- **Two INSERT statements** for adding different customers.
- **One SELECT statement** to display all customers.
- **One UPDATE statement** to change the balance of one customer.

Part E: Real-World Application

9. Application Scenario (Short Answer)

Choose one industry from the slides:

- **Banking & Finance**
- **University**
- **Telecommunications**

Write 2–3 sentences describing how DBMS is used in this industry, and why **data security** and **concurrent access** matter.

Submission Requirements

- Submit a **PDF or Word document** with all answers to Parts A–E.
- Include SQL scripts or screenshots for Part D.
- Use **your own words**—no direct copying from slides or websites.