***DATABASE WEEK 2 ASSIGNMENT***

**Part 1: Retrieving Data with SELECT**

Based on the Expense Tracker table you designed in Week 1, which likely includes columns like "expense\_id," "amount," "date," and "category," complete the following tasks:

* 1. **Retrieving All Expenses:**

Write an SQL query to retrieve all data points (columns) from the "Expenses" table.

- USE expense\_tracker;

SELECT \* FROM expenses;

**1.2 Specific Columns:**

Modify your query to select only specific columns relevant to your analysis. For example, you might choose "date," "category," and "amount" to analyze spending patterns by category and date.

- USE expense\_tracker;

-- SELECT \* FROM expenses;

SELECT date, category, amount FROM expenses;

**1.3 Filtering by Date Range:** ```````````````````````````````````````````````````.

- USE expense\_tracker;

-- SELECT \* FROM expenses;

-- SELECT date, category, amount FROM expenses;

SELECT \* FROM expenses WHERE date BETWEEN 2021-01-01 AND 2024-12-15;

**Part 2: Filtering with WHERE Clause**

**2.1 Filtering by Category:** Write a query to find all expenses belonging to a specific category (e.g., "Entertainment").

- USE expense\_tracker;

-- SELECT \* FROM expenses;

-- SELECT date, category, amount FROM expenses;

-- SELECT \* FROM expenses WHERE date BETWEEN 2021-01-01 AND 2024-12-15;

SELECT \* from expenses WHERE category = 'Entertainment';

**2.2 Filtering with Comparison Operators:** Find expenses with an amount greater than a certain value (e.g., $50).

USE expense\_tracker;

-- SELECT \* FROM expenses;

-- SELECT date, category, amount FROM expenses;

-- SELECT \* FROM expenses WHERE date BETWEEN 2021-01-01 AND 2024-12-15;

-- SELECT \* from expenses WHERE category = 'Entertainment';

SELECT \* FROM expenses WHERE amount > 50;

**2.3 Combining Filters (AND):**  
Refine your query to find expenses that meet multiple criteria. For example, you might search for expenses greater than $75 AND belonging to the "Food" category.

- USE expense\_tracker;

-- SELECT \* FROM expenses;

-- SELECT date, category, amount FROM expenses;

-- SELECT \* FROM expenses WHERE date BETWEEN 2021-01-01 AND 2024-12-15;

-- SELECT \* from expenses WHERE category = 'Entertainment';

-- SELECT \* FROM expenses WHERE amount > 50;

SELECT \* FROM expenses WHERE amount > 75 AND category = 'food';

**2.4 Combining Filters (OR):** Modify your query to find expenses belonging to one category or another (e.g., "Transportation" OR "Groceries").

- USE expense\_tracker;

-- SELECT \* FROM expenses;

-- SELECT date, category, amount FROM expenses;

-- SELECT \* FROM expenses WHERE date BETWEEN 2021-01-01 AND 2024-12-15;

-- SELECT \* from expenses WHERE category = 'Entertainment';

-- SELECT \* FROM expenses WHERE amount > 50;

-- SELECT \* FROM expenses WHERE amount > 75 AND category = 'food';

SELECT \* FROM expenses WHERE category = 'Transportation';

**2.5 Filtering with NOT:** Write a query to display expenses unrelated to a specific category (e.g., "Rent").

-USE expense\_tracker;

-- SELECT \* FROM expenses;

-- SELECT date, category, amount FROM expenses;

-- SELECT \* FROM expenses WHERE date BETWEEN 2021-01-01 AND 2024-12-15;

-- SELECT \* from expenses WHERE category = 'Entertainment';

-- SELECT \* FROM expenses WHERE amount > 50;

-- SELECT \* FROM expenses WHERE amount > 75 AND category = 'food';

-- SELECT \* FROM expenses WHERE category = 'Transportation';

SELECT \* FROM expenses WHERE category= 'Rent';

**Part 3: Sorting Retrieved Data**

**3.1 Sorting by Amount:** Write a query to display all expenses sorted by amount in a specific order (e.g., descending order for highest to lowest spending).

- USE expense\_tracker;

-- SELECT \* FROM expenses;

-- SELECT date, category, amount FROM expenses;

-- SELECT \* FROM expenses WHERE date BETWEEN 2021-01-01 AND 2024-12-15;

-- SELECT \* from expenses WHERE category = 'Entertainment';

-- SELECT \* FROM expenses WHERE amount > 50;

-- SELECT \* FROM expenses WHERE amount > 75 AND category = 'food';

-- SELECT \* FROM expenses WHERE category = 'Transportation';

SELECT \* FROM expenses WHERE category= 'Rent';

SELECT \* FROM expenses ORDER BY amount DESC

**3.2 Sorting by Date and Category:**  
Modify your query to sort expenses based on multiple columns. For example, you might sort first by date (descending order) and then by category (ascending order) to see recent spending trends by category.

- USE expense\_tracker;

-- SELECT \* FROM expenses;

-- SELECT date, category, amount FROM expenses;

-- SELECT \* FROM expenses WHERE date BETWEEN 2021-01-01 AND 2024-12-15;

-- SELECT \* from expenses WHERE category = 'Entertainment';

-- SELECT \* FROM expenses WHERE amount > 50;

-- SELECT \* FROM expenses WHERE amount > 75 AND category = 'food';

-- SELECT \* FROM expenses WHERE category = 'Transportation';

-- SELECT \* FROM expenses WHERE category= 'Rent';

-- SELECT \* FROM expenses ORDER BY amount DESC

SELECT \* FROM expenses ORDER BY date, category ASC;

**Part 4: Database Upgrade**

Imagine you're tasked by the CIO to expand your Expense Tracker database. Practice creating, modifying, and removing a table to manage spending habits.

**4.1 Write SQL commands to achieve the following:**

* We don't have a table for income yet. Create a table named "Income" with columns for:
* CREATE TABLE Income (

income\_id INT PRIMARY KEY AUTO\_INCREMENT,

amount DECIMAL(10,2) NOT NULL,

date DATE NOT NULL,

source VARCHAR(50) NOT NULL

);

**4.2 After creating the "Income" table, you realize you also want to track the income category "source" (e.g., "Salary," "Freelance Work").**

* Use ALTER TABLE to add a new column named "category" of type VARCHAR(50).

- ALTER TABLE icome ADD COLUMN category VARCHAR(50);

**4.3 Let's say you decide tracking the income source isn't necessary for now.**

* Use ALTER TABLE again to remove the "source" column from the "Income" table.
* -- ALTER TABLE Income DROP COLUMN SOURCE;

Imagine you no longer need the "Income" table entirely. Experiment how to Use DROP TABLE to permanently remove it from your database.

Ensure to save all your queries in a document and upload onto this repo.