**Week 2: Essential Data Retrieval & Filtering (Focus on Expense Tracker Data)**

## **Part 1: Retrieving Data with SELECT (30 minutes)**

* 1. Retrieving All Expenses:

SQL query to retrieve all data points from the “Expenses” table is SELECT \* FROM expenses;

* 1. Specific Columns:

To select specific columns of the expenses table, specifically date, category, and amount:

SELECT Date, category, amount FROM expenses;

* 1. Filtering by Date Range:

Query to retrieve expenses charged between a specific date range (…March 5 2023, to March 22 2023) is:

SELECT \* FROM expenses

WHERE date BETWEEN '2023-03-05' AND '2023-03-22';

## **Part 2: Filtering with WHERE Clause (45 minutes)**

2.1 Filtering by Category: A query to find all expenses belonging to a specific category is….

SELECT \* FROM expenses

WHERE category = 'alone';

2.2 Filtering with Comparison Operators: Find expenses with an amount greater than a certain value

SELECT \* FROM expenses

WHERE Amount >= 25;

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.

SELECT \* FROM expenses

WHERE Amount >= 25 AND category = 'friend';

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

SELECT \* FROM expenses

WHERE Item = 'pizza' OR Item = 'ice cream';

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

SELECT \* FROM expenses

WHERE Item != 'chai';

## **Part 3: Sorting Retrieved Data (45 minutes)**

**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).

SELECT \* FROM expenses

ORDER BY amount ASC;

**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.

SELECT \* FROM expenses

ORDER BY date DESC, amount ASC;

## **Part 4: Database Upgrade**

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

**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").**

ALTER TABLE Income

ADD COLUMN category VARCHAR(50);

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

**ALTER TABLE Income**

**DROP COLUMN source;**

Once you are done with your income table execute the following query:

DROP TABLE Income;