CREATE TABLE IF NOT EXISTS Expenses (

expense\_id INT PRIMARY KEY AUTO\_INCREMENT,

amount DECIMAL(10,2) NOT NULL,

date DATE NOT NULL,

category VARCHAR(50) NOT NULL

);

-- Function to generate random date within a specific range (modify as needed)

DELIMITER //

CREATE FUNCTION GetRandomDate(startDate DATE, endDate DATE)

RETURNS DATE

READS SQL DATA

DETERMINISTIC

BEGIN

DECLARE randomDays INT;

SET randomDays = FLOOR(RAND() \* (DATEDIFF(endDate, startDate) + 1));

RETURN DATE\_ADD(startDate, INTERVAL randomDays DAY);

END; //

DELIMITER ;

-- Stored Procedure to insert sample data with random dates and categories (categories can be modified)

DELIMITER //

CREATE PROCEDURE InsertSampleData()

BEGIN

DECLARE counter INT DEFAULT 1;

WHILE counter <= 20 DO

INSERT INTO Expenses (amount, date, category)

VALUES (FLOOR(10 + RAND() \* 100),

GetRandomDate(DATE\_SUB(CURDATE(), INTERVAL 4 YEAR), CURDATE()), -- Random date within the last 4 years

CASE WHEN counter % 4 = 0 THEN 'Groceries'

WHEN counter % 4 = 1 THEN 'Entertainment'

WHEN counter % 4 = 2 THEN 'Transportation'

ELSE 'Other'

END);

SET counter = counter + 1;

END WHILE;

END; //

DELIMITER ;

-- Call the procedure to insert sample data

CALL InsertSampleData();

-- Drop the functions and procedures if they are no longer needed

DROP PROCEDURE IF EXISTS InsertSampleData;

DROP FUNCTION IF EXISTS GetRandomDate;

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' OR category = 'Groceries';

SELECT \* FROM Expenses

WHERE category != 'Rent';

SELECT \* FROM Expenses

ORDER BY amount DESC;

SELECT \* FROM Expenses

ORDER BY date DESC, category ASC;

CREATE TABLE Income (

income\_id INT AUTO\_INCREMENT PRIMARY KEY,

amount DECIMAL(10,2) NOT NULL,

date DATE NOT NULL,

source VARCHAR(50) NOT NULL

);

ALTER TABLE Income

ADD COLUMN category VARCHAR(50);

ALTER TABLE Income

DROP COLUMN source;

DROP TABLE Income;

SELECT category, SUM(amount) AS total\_spent

FROM Expenses

GROUP BY category;

SELECT category, AVG(amount) AS average\_expense

FROM Expenses

GROUP BY category;

SELECT category, SUM(amount) AS total\_spent

FROM Expenses

GROUP BY category

ORDER BY total\_spent DESC

LIMIT 3;

| **Category** | **Total Spent** |
| --- | --- |
| Groceries | 500.00 |
| Entertainment | 300.00 |
| Utilities | 150.00 |

| **Category** | **Average Expense** |
| --- | --- |

|  |  |
| --- | --- |
| Groceries | 50.00 |

|  |  |
| --- | --- |
| Entertainment | 75.00 |

|  |  |
| --- | --- |
| Utilities | 30.00 |
| | **Category** | **Total Spent** | | --- | --- |  |  |  | | --- | --- | | Groceries | 500.00 |  |  |  | | --- | --- | | Entertainment | 300.00 |  |  |  | | --- | --- | | Utilities | 150.00 | |  |