

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

## Part 1: Retrieving Data with SELECT

### 1.1 Retrieving All Expenses

```
SELECT * FROM Expenses;
```

### 1.2 Specific Columns

```
SELECT date, category, amount FROM Expenses;
```

### 1.3 Filtering by Date Range

```
SELECT * FROM Expenses  
WHERE date BETWEEN '2021-01-01' AND '2024-12-15';
```

## Part 2: Filtering with WHERE Clause

### 2.1 Filtering by Category

```
SELECT * FROM Expenses  
WHERE category = 'Entertainment';
```

### 2.2 Filtering with Comparison Operators

```
SELECT * FROM Expenses  
WHERE amount > 50;
```

### **2.3 Combining Filters (AND)**

```
SELECT * FROM Expenses  
WHERE amount > 75 AND category = 'Food';
```

### **2.4 Combining Filters (OR)**

```
SELECT * FROM Expenses  
WHERE category = 'Transportation' OR category = 'Groceries';
```

### **2.5 Filtering with NOT**

```
SELECT * FROM Expenses  
WHERE category != 'Rent';
```

## **Part 3: Sorting Retrieved Data**

### **3.1 Sorting by Amount**

```
SELECT * FROM Expenses  
ORDER BY amount DESC;
```

### **3.2 Sorting by Date and Category**

```
SELECT * FROM Expenses  
ORDER BY date DESC, category ASC;
```

## **Part 4: Database Upgrade**

#### 4.1 Create the "Income" Table

```
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 Add the "category" Column

```
ALTER TABLE Income  
ADD category VARCHAR(50);
```

#### 4.3 Remove the "source" Column

```
ALTER TABLE Income  
DROP COLUMN source;
```

#### 4.4 Drop the "Income" Table

```
DROP TABLE Income;
```