

# Essential Data Retrieval & Filtering

## Retrieving Data with SELECT

-- Part 1

-- Retrieving all expenses

```
SELECT * FROM expenses;
```

#	expense_id	amount	date	category
1	26.00	2021-09-08	Entertainment	
2	109.00	2020-12-05	Transportation	
3	63.00	2021-12-21	Other	
4	32.00	2020-07-26	Groceries	
5	51.00	2020-07-16	Entertainment	
6	91.00	2020-08-25	Transportation	
7	84.00	2022-12-30	Other	
8	97.00	2022-07-06	Groceries	
9	98.00	2024-03-25	Entertainment	
10	109.00	2021-04-01	Transportation	
11	104.00	2021-02-24	Other	
12	107.00	2022-02-07	Groceries	
13	16.00	2021-01-31	Entertainment	
14	62.00	2021-03-08	Transportation	
15	38.00	2024-03-18	Other	
16	87.00	2020-11-01	Groceries	

17	19.00	2021-06-28	Entertainment
18	103.00	2024-04-14	Transportation
19	101.00	2023-06-19	Other
20	105.00	2022-09-25	Groceries

# -- Specific Columns

SELECT date, category, amount FROM expenses;

#	date	category	amount
	2021-09-08	Entertainment	26.00
	2020-12-05	Transportation	109.00
	2021-12-21	Other	63.00
	2020-07-26	Groceries	32.00
	2020-07-16	Entertainment	51.00
	2020-08-25	Transportation	91.00
	2022-12-30	Other	84.00
	2022-07-06	Groceries	97.00
	2024-03-25	Entertainment	98.00
	2021-04-01	Transportation	109.00
	2021-02-24	Other	104.00
	2022-02-07	Groceries	107.00
	2021-01-31	Entertainment	16.00
	2021-03-08	Transportation	62.00
	2024-03-18	Other	38.00
	2020-11-01	Groceries	87.00

2021-06-28 Entertainment 19.00

2024-04-14 Transportation 103.00

2023-06-19 Other 101.00

2022-09-25 Groceries 105.00

**-- Filtering by Date Range**

SELECT \* FROM expenses

WHERE date BETWEEN '2021-01-01' AND '2024-12-15';

#	expense_id	amount	date	category
1	26.00	2021-09-08	Entertainment	
3	63.00	2021-12-21	Other	
7	84.00	2022-12-30	Other	
8	97.00	2022-07-06	Groceries	
9	98.00	2024-03-25	Entertainment	
10	109.00	2021-04-01	Transportation	
11	104.00	2021-02-24	Other	
12	107.00	2022-02-07	Groceries	
13	16.00	2021-01-31	Entertainment	
14	62.00	2021-03-08	Transportation	
15	38.00	2024-03-18	Other	
17	19.00	2021-06-28	Entertainment	
18	103.00	2024-04-14	Transportation	
19	101.00	2023-06-19	Other	
20	105.00	2022-09-25	Groceries	

# Filtering with WHERE Clause

## -- Part 2

### -- Filtering by category

```
SELECT * FROM expenses
```

```
WHERE category = 'Entertainment'
```

#	expense_id	amount	date	category
1	26.00	2021-09-08	Entertainment	
5	51.00	2020-07-16	Entertainment	
9	98.00	2024-03-25	Entertainment	
13	16.00	2021-01-31	Entertainment	
17	19.00	2021-06-28	Entertainment	

### -- Filtering with comparison operators

```
SELECT * FROM expenses
```

```
WHERE amount > 50;
```

#	expense_id	amount	date	category
2	109.00	2020-12-05	Transportation	
3	63.00	2021-12-21	Other	
5	51.00	2020-07-16	Entertainment	
6	91.00	2020-08-25	Transportation	
7	84.00	2022-12-30	Other	
8	97.00	2022-07-06	Groceries	
9	98.00	2024-03-25	Entertainment	

10	109.00	2021-04-01	Transportation
11	104.00	2021-02-24	Other
12	107.00	2022-02-07	Groceries
14	62.00	2021-03-08	Transportation
16	87.00	2020-11-01	Groceries
18	103.00	2024-04-14	Transportation
19	101.00	2023-06-19	Other
20	105.00	2022-09-25	Groceries

#### -- Combining Filters (AND)

```
SELECT * FROM expenses
```

```
WHERE amount > 75 AND category = 'Groceries';
```

#	expense_id	amount	date	category
8	97.00	2022-07-06	Groceries	
12	107.00	2022-02-07	Groceries	
16	87.00	2020-11-01	Groceries	
20	105.00	2022-09-25	Groceries	

#### -- Combining Filters (OR)

```
SELECT * FROM expenses
```

```
WHERE category = 'Transportation' OR category = 'Groceries';
```

#	expense_id	amount	date	category
2	109.00	2020-12-05	Transportation	
4	32.00	2020-07-26	Groceries	
6	91.00	2020-08-25	Transportation	

8	97.00	2022-07-06	Groceries
10	109.00	2021-04-01	Transportation
12	107.00	2022-02-07	Groceries
14	62.00	2021-03-08	Transportation
16	87.00	2020-11-01	Groceries
18	103.00	2024-04-14	Transportation
20	105.00	2022-09-25	Groceries

### -- Filtering with NOT

```
SELECT * FROM expenses
```

```
WHERE category NOT LIKE '%Other%';
```

#	expense_id	amount	date	category
1	26.00	2021-09-08	Entertainment	
2	109.00	2020-12-05	Transportation	
4	32.00	2020-07-26	Groceries	
5	51.00	2020-07-16	Entertainment	
6	91.00	2020-08-25	Transportation	
8	97.00	2022-07-06	Groceries	
9	98.00	2024-03-25	Entertainment	
10	109.00	2021-04-01	Transportation	
12	107.00	2022-02-07	Groceries	
13	16.00	2021-01-31	Entertainment	
14	62.00	2021-03-08	Transportation	
16	87.00	2020-11-01	Groceries	

17	19.00	2021-06-28	Entertainment
18	103.00	2024-04-14	Transportation
20	105.00	2022-09-25	Groceries

## Sorting Retrieved Data

-- Part 3

-- Sorting by Amount

```
SELECT * FROM expenses
```

```
ORDER BY amount DESC;
```

#	expense_id	amount	date	category
2	109.00	2020-12-05	Transportation	
10	109.00	2021-04-01	Transportation	
12	107.00	2022-02-07	Groceries	
20	105.00	2022-09-25	Groceries	
11	104.00	2021-02-24	Other	
18	103.00	2024-04-14	Transportation	
19	101.00	2023-06-19	Other	
9	98.00	2024-03-25	Entertainment	
8	97.00	2022-07-06	Groceries	
6	91.00	2020-08-25	Transportation	
16	87.00	2020-11-01	Groceries	
7	84.00	2022-12-30	Other	
3	63.00	2021-12-21	Other	

14	62.00	2021-03-08	Transportation
5	51.00	2020-07-16	Entertainment
15	38.00	2024-03-18	Other
4	32.00	2020-07-26	Groceries
1	26.00	2021-09-08	Entertainment
17	19.00	2021-06-28	Entertainment
13	16.00	2021-01-31	Entertainment

**-- Sorting by Date and Category**

SELECT \* FROM expenses

ORDER BY date DESC, category ASC;

#	expense_id	amount	date	category
18	103.00	2024-04-14	Transportation	
9	98.00	2024-03-25	Entertainment	
15	38.00	2024-03-18	Other	
19	101.00	2023-06-19	Other	
7	84.00	2022-12-30	Other	
20	105.00	2022-09-25	Groceries	
8	97.00	2022-07-06	Groceries	
12	107.00	2022-02-07	Groceries	
3	63.00	2021-12-21	Other	
1	26.00	2021-09-08	Entertainment	
17	19.00	2021-06-28	Entertainment	
10	109.00	2021-04-01	Transportation	



14	62.00	2021-03-08	Transportation
11	104.00	2021-02-24	Other
13	16.00	2021-01-31	Entertainment
2	109.00	2020-12-05	Transportation
16	87.00	2020-11-01	Groceries
6	91.00	2020-08-25	Transportation
4	32.00	2020-07-26	Groceries
5	51.00	2020-07-16	Entertainment

## Database Upgrade

**-- Part 4**

**-- Creating the "Income" table**

```
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  
);
```

**-- Adding a new Column "category"**

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

**-- Removing the column "source"**

```
ALTER TABLE income
```

```
DROP COLUMN source;
```

```
-- Dropping the "income" Table
```

```
DROP TABLE income;
```