Answer to Assignment 2 Database Design.

Part 1: Retrieving Data with SELECT

1.1 Retrieving All Expenses:

SELECT * FROM Expenses;

1.2 Specific Columns:

SELECT Item, Category, Amount FROM Expenses;

1.3 Specific Columns:

SELECT Date, Category, Amount, Item

FROM Expenses

WHERE Date BETWEEN '2023-01-01' AND '2023-12-31';

Part 2: Filtering with WHERE Clause

2.1 Filtering by Category

SELECT Date, Category, Amount, Item

FROM Expenses

WHERE Category = 'Friend';

2.2 Filtering with Comparison Operators

SELECT Date, Item, Amount,

    CASE WHEN Amount <= 50 THEN 'Low Expense'

        WHEN Amount > 50 AND Amount <= 100 THEN 'Medium Expense'

        ELSE 'High Expense'

    END AS expense_category

FROM expenses;

Or

```sql
SELECT date, category, amount, Item

FROM Expenses

WHERE amount > 50;
```

2.3 Combining Filters (AND):

```sql
SELECT date, item, category, amount

FROM Expenses

WHERE amount > 50 AND category = 'Friend';
```

2.4 Combining Filters (OR):

```sql
SELECT date, item, category, amount

FROM Expenses

WHERE amount > 50 AND category IN ('Friend', 'Alone');
```

2.5 Filtering with NOT:

```sql
 SELECT date, item, category, amount

FROM Expenses

WHERE category NOT IN ('chips', 'bugger');
```

Part 3: Sorting Retrieved Data

3.1 Sorting by Amount:

```sql
SELECT date, item, category, amount

FROM Expenses

ORDER BY amount DESC;
```

Or

```sql
SELECT date, item, category, amount

FROM Expenses

ORDER BY amount ASC;
```

3.2 Sorting by Date and Category:

SELECT date, item, category, amount

FROM Expenses

ORDER BY DATE DESC, category ASC;

Part 4: Database Upgrade

4.1 Write SQL commands to achieve the following:

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

);

4.2

ALTER TABLE Income

ADD COLUMN Category VARCHAR(50);

4.3

ALTER TABLE Income

DROP COLUMN source;

And to remove the all table of Income I will just add another command or query to remove the income table and down below is the command to remove the table.

DROP TABLE Income;