**Expense Analyzer**

**Name:** Bryan Yadiel Caban Rodriguez

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**Program Description:**

A program that collects and analyzes user expenses. It allows users to input multiple expenses with their types and amounts, then performs analysis using the reduce function to calculate the total expenses and identify the highest and lowest expenses. The program provides a summary of the analysis including total expense amount and details about the highest and lowest expenditures.

**Functions used in the Program:**

1. Function Name: get\_expenses()

Description: Collects expense information from the user through interactive input, allowing multiple entries until the user indicates completion.

**Parameters:** None

**Variables:**

- expenses (list) - List to store tuples of expense types and amounts

- expense\_type (str) - Stores the user-input type of expense

- amount (float) - Stores the user-input expense amount

**Logical Steps:**

1. Initialize empty expenses list

2. Enter loop for expense collection:

- Prompt for expense type

- Check if user wants to finish ('done')

- If not done:

- Try to get and convert amount to float

- Add expense tuple to list

- Handle invalid numeric inputs with error message

3. Return collected expenses list

**Returns:** list - List of tuples containing (expense\_type, amount)

2. Function Name: analyze\_expenses(expenses)

**Description:** Analyzes the collected expenses using reduce function to calculate totals and find extremes.

**Parameters:**

- expenses (list) - List of expense tuples to analyze

Variables:

- total (float) - Sum of all expenses

- highest (tuple) - Expense tuple with highest amount

- lowest (tuple) - Expense tuple with lowest amount

**Logical Steps:**

1. Check if expenses list is empty

2. Use reduce to:

- Calculate total expenses

- Find highest expense

- Find lowest expense

3. Display formatted results:

- Total expense amount

- Highest expense details

- Lowest expense details

Returns: None

3. Function Name: main()

Description: Main function that coordinates the expense collection and analysis process.

**Parameters:** None

**Variables:**

- expenses (list) - Stores the collected expense data

**Logical Steps:**

1. Call get\_expenses() to collect user input

2. Pass collected expenses to analyze\_expenses() for analysis and display

**Returns**: None

**Overall Program Logical Flow:**

1. Program starts by running main()

2. User is prompted to enter expenses:

- Enter expense type

- Enter corresponding amount

- Continue until 'done' is entered

3. Collected expenses are analyzed using reduce function:

- Calculate total sum

- Find highest expense

- Find lowest expense

4. Results are displayed to user:

- Total expenses

- Highest expense details

- Lowest expense details

Link to your repository: https://github.com/xXTeinsXx/COP2373