PROJECT DOCUMENATION

PROBLEM ASSIGNED:

Create a program that allows users to log their daily expenses and save them to a file. The program should have the following functionalities:

1. Prompt the user to enter an expense description and amount.
2. Append each expense entry to a file with the current date and time.
3. Provide an option to display all recorded expenses by reading from the file.
4. Ensure that the amount entered is a valid numeric value and not negative.
5. Add a feature to summarize total expenses from the file, displaying the cumulative amount spent.

INSTRUCTIONS

- Setup Your Project:
- Create a new folder named ExpenseTracker.
- Inside this folder, create a Python script file named expense_tracker.py.
- Program Design:
- Define functions for logging expenses, displaying expenses, and summarizing expenses.
- Implement file operations to open a text file in append mode for logging and in read mode for displaying and summarizing.
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INSTRUCTIONS

- Use the datetime module to record the current date and time for each expense entry.
- Implementing Validations:
- Validate that the amount entered for expenses is a valid numeric value and not negative using a try-except block and conditional checks.
- Enhancing the Application:
- Add a feature to summarize total expenses from the file, displaying the cumulative amount spent.

Challenges Faced and Their Solutions

Input Validation for Amount

- Users might enter non-numeric values or negative numbers for the expense amount, leading to errors.
- Solution: Implement input validation to ensure that the entered amount is a valid non-negative number. Prompt the user to re-enter the value if the validation fails.

2. Parsing Amount from File

- Problem: Extracting and converting the expense amount from a string in the file can lead to errors, especially if the format is inconsistent.
- Solution: Ensure the format of each line in the file is consistent. Use robust string parsing techniques and add error handling to manage invalid formats or conversion errors.

3. Challenge: Handling File Operations

- Problem: Issues might arise while reading from or writing to the file, such as file not found, permissions issues, or file corruption.
- Solution: Add error handling for file operations.

Challenges Faced and Their Solutions

4. **Managing Large Number of Entries**
   - Problem: As the number of recorded expenses grows, reading and processing the file might become slow.
   - Solution: Optimize file reading operations by using efficient data structures or consider using a database for larger applications. Summarize expenses incrementally rather than reading the entire file each time if feasible.
5. **User Experience and Interface**
   - Problem: Users might find it difficult to navigate the interface or understand how to use the application.
   - Solution: Design a simple and intuitive user interface. Provide clear instructions and feedback for each operation. Implement a menu-driven interface with distinct options for adding, displaying, and summarizing expenses.

Solution Overview

The solution involves creating a dynamic and responsive e-commerce product page using HTML, CSS, and JavaScript. Here's a high-level overview of how each part of the solution addresses the requirements and functionalities:

HTML Structure

Semantic HTML5: Uses semantic tags to create a well-structured and accessible page.
Layout: Defines the main sections of the page, including the image gallery, product details, and cart summary popup

CSS Styling

- Responsive Design: Uses Flexbox for a flexible and responsive layout that adjusts to different screen sizes.
- Clean Design: Ensures a visually appealing design with clear product details and images.

JavaScript Interactions

- Dynamic Image Gallery: Updates the main product image based on the clicked thumbnail.
- Dynamic Price Update: Adjusts the product price based on the selected size and color.
- Add to Cart Functionality: Handles adding the selected product to the cart and displaying the cart summary popup.

LinkedIn Post Link:
https://www.linkedin.com/feed/update/urn:li:activity:7214011679758553090/

GitHub Post Link:
https://github.com/Arubakhan-22/Handling-Data-Types-and-Variables