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Assignment 2

# Part 1: Identify the Problem

## Problem 1: Personal Finance Tracker

**Description:** One of the common local computing problems that I’d like to solve is managing personal finances by keeping track of income, expenses, and overall budget. A Personal Budget Tracker can be built in Python to help me, and others better track their finances by providing a clear, easy-to-read view of their expenses and income over time. This solution can also help users avoid overspending by showing them where their money is going and if they are staying within their budget.

**The solution I am proposing will enable users to:**

* Add, view, and delete expenses.
* Visualize expenses over time using a plot.
* Ensure the data is stored in a structured CSV format that can be later reviewed or manipulated.

**Why this problem is useful:**

* **Financial awareness**: Helps individuals keep track of where their money is going.
* **Budgeting**: Assists in setting up and adhering to financial goals by seeing where funds are being allocated.
* **Easy visualization**: The graphing feature allows users to visualize their spending patterns and potentially adjust accordingly.

**Complexity**: The problem is simple but is a great learning experience as it involves using essential Python libraries like **csv** and **matplotlib** for handling data and visualization. It also touches on data validation and file handling, which are core skills for Python developers.

## Problem 2: To-Do List with Prioritization

#### **Description:** Many individuals struggle to manage and prioritize tasks, leading to procrastination, missed deadlines, and overall inefficiency. With the fast-paced nature of daily life and the increasing number of responsibilities, it can be difficult to track all the tasks, know which ones need immediate attention, and stay on top of deadlines. Traditional methods, such as pen-and-paper lists, often fail to offer the flexibility, clarity, and convenience needed to manage tasks effectively.

#### **The solution I am proposing is a To-Do List application with task prioritization, where users can:**

#### Add tasks to their list.

#### Set priorities (low, medium, high) for each task.

#### View tasks in order of priority.

#### Edit, delete, or mark tasks as complete.

#### Sort tasks by their due dates or priority levels.

#### The problem of task management is ubiquitous, whether in personal life, education, or work environments. A digital solution can streamline task management, helping users stay organized and on top of their to-do list. By incorporating prioritization, the application ensures that the most urgent and important tasks are always given attention first.

#### **Why this problem is useful:**

#### Increased Productivity: Helps users focus on what matters the most, reducing stress and increasing output.

#### Task Management: It allows users to organize their workload effectively, avoiding missed deadlines and forgotten tasks.

#### Time Efficiency: With a clear view of what needs to be done and when, users can allocate time wisely and ensure tasks are completed on schedule.

#### Prioritization Skills: Encourages users to distinguish between tasks of varying importance, fostering better decision-making in day-to-day life.

**Complexity**: This is a moderately easy problem, but the main challenge will be implementing the prioritization system effectively, and possibly adding functionality to mark tasks as completed or filter by priority. The program will use **json** or **csv** to store the list of tasks and time for handling timestamps or deadlines.