VITYARTHI:PROJECT

ASSIGNMENT

PERSONAL FINANCE MANAGER

CSE1021 – FACULTY -DR PREETAM SUMAN

SLOT – C14+E11+E12

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1. INTRODUCTION

The **Personal Finance Manager (PFM)** is a console-based application designed to help individuals track their income, expenses, and budgets in a simple, intuitive manner. This tool provides users with real-time insights into their financial health through comprehensive summaries, statistical analysis, and budget monitoring.

Simple, no-frills financial tracking, immediate budget alerts and warnings.

2. PROBLEM STATEMENT

Current Challenges:

- Many individuals struggle with tracking daily expenses manually
- Existing financial apps often require internet connectivity and complex setups
- Privacy concerns with cloud-based financial applications
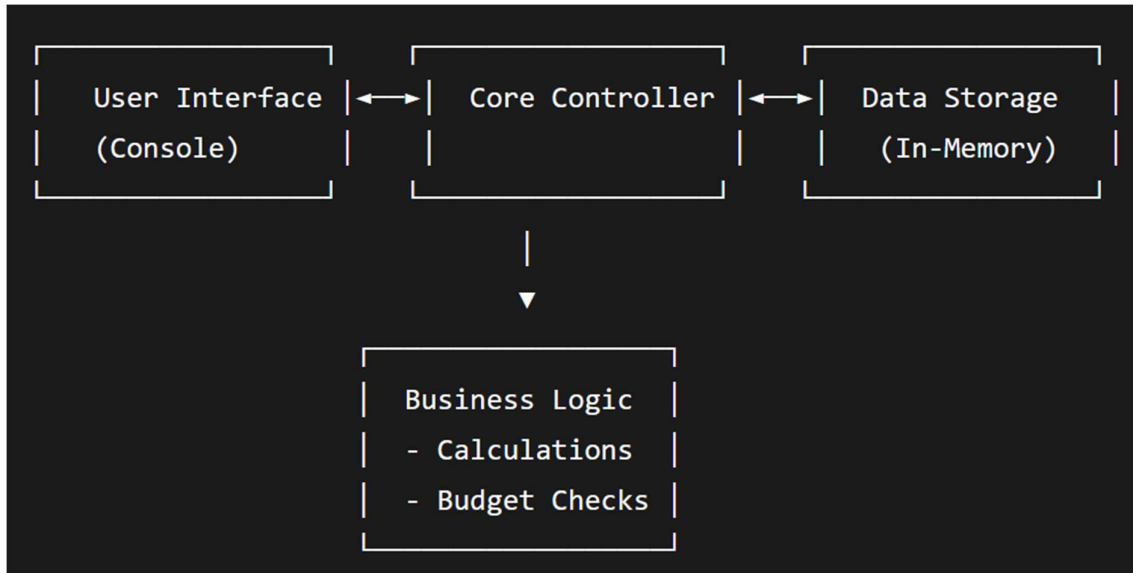- Overwhelming features in commercial finance software

Solution Objectives:

- Provide an offline, private financial tracking solution
- Offer immediate budget monitoring and alerts
- Deliver clear financial insights through summaries and statistics
- Maintain simplicity while covering essential personal finance needs

3. FUNCTIONAL REQUIREMENTS

Lists of every income and expenses of the account ,even total balance as it executes every detail required for the user to take precaution.

4. System Architecture

```
┌─────────────────┐   ┌─────────────────┐   ┌─────────────────┐
│ User Interface  │←→│  Core Controller │←→│  Data Storage   │
│ (Console)       │  │                 │  │  (In-Memory)    │
└─────────────────┘   └─────────────────┘   └─────────────────┘
                              │
                              ▼
                      ┌─────────────────┐
                      │ Business Logic  │
                      │ - Calculations  │
                      │ - Budget Checks │
                      └─────────────────┘
```

User Interface Layer:

- **Handles all user interactions via console**
- **Displays menus, prompts, and results**
- **Formats output for readability**

Core Controller:

- **Orchestrates application flow**
- **Routes user requests to appropriate handlers**
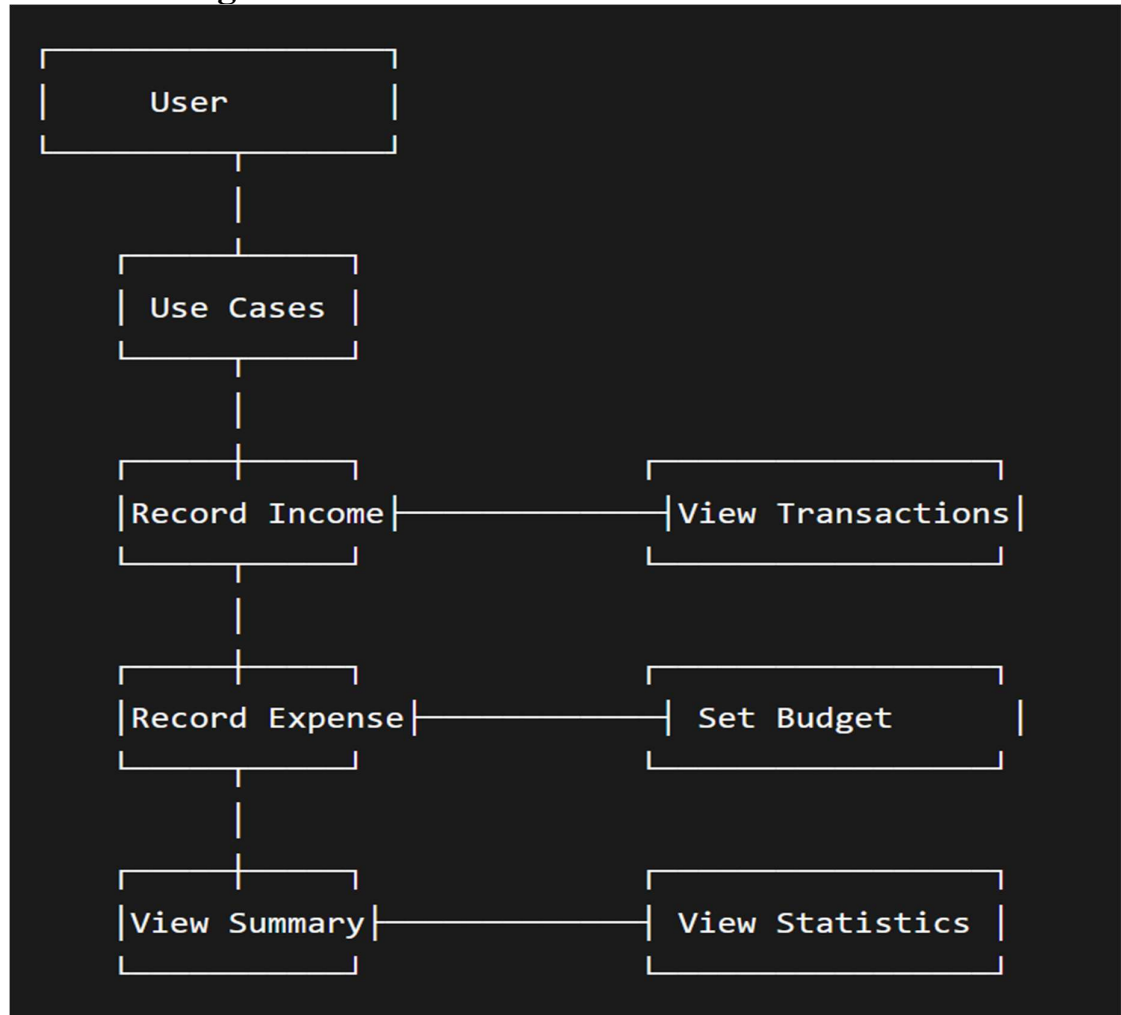- **Manages application state**

Business Logic Layer:

- **Performs financial calculations (totals, averages, statistics)**
- **Implements budget checking logic**
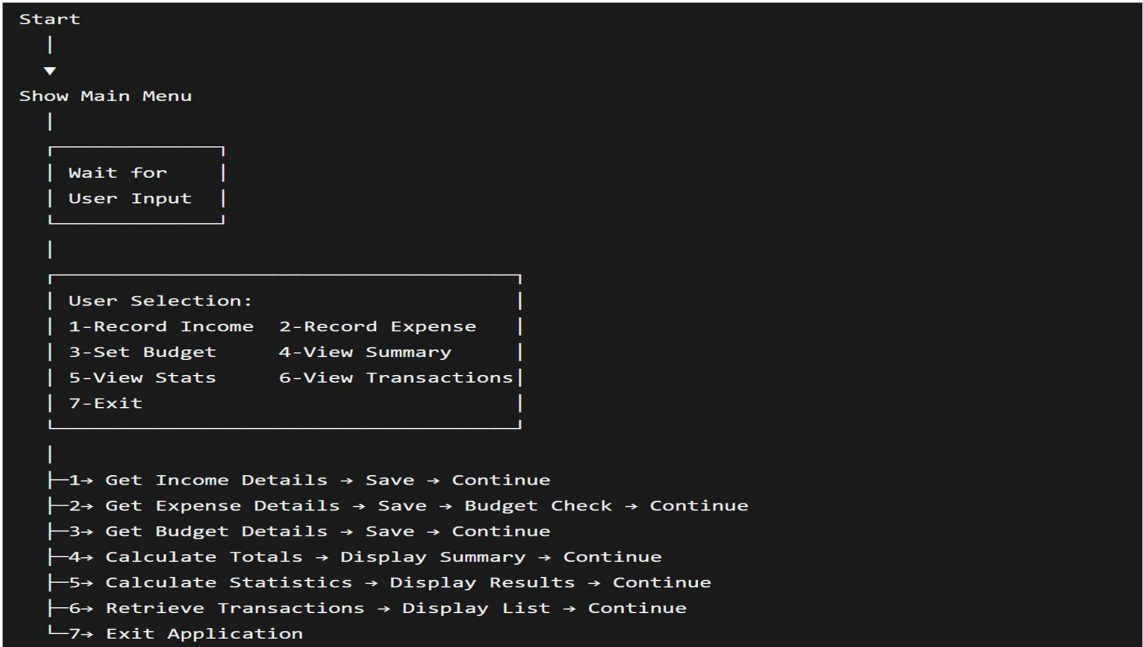- **Handles data validation rules**

Data Storage:

- **Maintains transaction records in memory**
- **Stores budget configurations**
- **Provides data for reporting and analysis**

5. DESIGN DIAGRAM

a. Use case diagram

b.Workflow diagram

```
Start
   |
   ▼
Show Main Menu
   |
   ┌───────────┐
   | Wait for  |
   | User Input|
   └───────────┘
   |
   ┌─────────────────────────────────┐
   | User Selection:                 |
   | 1-Record Income  2-Record Expense |
   | 3-Set Budget     4-View Summary  |
   | 5-View Stats     6-View Transactions|
   | 7-Exit                          |
   └─────────────────────────────────┘
   |
   ├─1→ Get Income Details → Save → Continue
   ├─2→ Get Expense Details → Save → Budget Check → Continue
   ├─3→ Get Budget Details → Save → Continue
   ├─4→ Calculate Totals → Display Summary → Continue
   ├─5→ Calculate Statistics → Display Results → Continue
   ├─6→ Retrieve Transactions → Display List → Continue
   └─7→ Exit Application
```

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