



CS251

Pre Project Activities



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Pre-Project :

1. Market and Gap analysis

Global Practices

Personal budgeting software isn't a new idea as it can be found in many countries, offering comprehensive features to help people manage their finances. An example of those applications include Mint, PocketGuard, EveryDollar, and GoodBudget. These apps provide different approaches to budgeting, from detailed manual tracking to automated expense management.

- Mint: Automatically syncs with bank accounts and categorizes expenses. It provides visual reports and personalized budgeting recommendations.
- PocketGuard: Offers simple budgeting with a focus on preventing overspending by showing how much disposable income is left after accounting for bills and savings.
- EveryDollar: Provides zero-based budgeting where users assign every dollar of income to a category, promoting careful financial planning.
- GoodBudget: Uses an envelope system where users allocate money to different categories, making it ideal for people who prefer manual control.

Egypt's Market

In the Arab region, personal budgeting apps are less prevalent, but there are some local and regional options that cater to Arabic-speaking users. Popular apps include:

- Masareef: A budgeting app in Arabic that helps users track income and expenses.
- Wally: A widely used app that supports expense tracking and allows users to set financial goals. It supports both English and Arabic languages.
- Tajer: Focuses on expense tracking for small businesses but can be used for personal budgeting.
- Monefy: An easy-to-use app that allows quick expense logging and provides visual insights.

These apps offer basic features such as expense tracking and simple reporting, but advanced features like bank account integration, financial goal setting, and predictive analytics aren't really in there.

Gap Analysis

Local apps tend to focus only on expense tracking without offering deeper financial insights or integration with banking systems, the apps are fine and do their job but they could really go an extra mile to offer more features in their apps that would be very beneficial for the users such as integrating your bank account so you can track your spendings more accurately.

The key gaps in the Arab region market include:

- **Bank Account Integration:** Very few apps automatically sync with bank accounts or e-wallets, making users manually enter transactions.
- **Financial Goal Setting:** Limited functionality for setting and tracking financial goals like savings for vacations or debt repayment.
- **Customizable Budgets:** Lack of flexible budgeting tools that allow users to set limits for different categories and adjust them dynamically.
- **Insights and Analytics:** Minimal reporting features to help users understand spending patterns or predict future expenses.
- **User Education:** Few apps offer financial education content to help users improve their financial literacy.

2. Market Segmentation and Research

Customer Segments (Primary Target Users)

1. Young Adults (20-30 years old)

- University students and fresh graduates managing their first income.
- Early-career professionals trying to build financial discipline.
- Individuals saving for short-term goals like travel, gadgets, or education.
- Users who are new to budgeting and need a simple, automated system.

2. Working Professionals (30-45 years old)

- Mid-career employees looking to track their spending and savings.
- Business owners or self-employed individuals managing personal and business finances.
- Individuals planning for major expenses like home purchases, marriage, or children's education.

3. Parents & Household Managers

- Families managing monthly household budgets (groceries, rent, utilities, children's education).
- Parents who need to track expenses for kids' extracurricular activities and tuition.
- People looking to save for family vacations, medical emergencies, or future investments.

4. Freelancers & Gig Workers

- Workers with irregular income who need better financial planning.
- Freelancers managing multiple income sources and unpredictable cash flow.
- Individuals needing expense tracking for tax deductions and financial planning.

5. Independent Investors & Financially proficient Users

- People actively investing in stocks, real estate, or startups.
- Individuals looking for an all-in-one tool to manage income, savings, and investments.
- Professionals who want financial reports and trend analysis for decision-making.

Demographic

Age Group:

- Primary: 20-45 years old (young adults, professionals, parents).
- Secondary: 45+ years old (investors, retirees managing wealth).

Income Levels:

- Lower Middle Class (10,000 – 20,000 EGP/month): Need tools to track spending, avoid debt.
- Middle Class (20,000 – 50,000 EGP/month): Managing expenses while saving for long-term goals.
- Upper Middle Class (50,000+ EGP/month): More focus on investments and wealth management.

Education Level:

- University students, graduates, and professionals with at least a high school diploma.
- Higher financial literacy among professionals and investors, but young adults may need simpler tools.

Tech Usage Patterns:

- Mobile-First Users: High smartphone penetration in Egypt and Arab countries makes mobile apps essential.
- Frequent Internet Users: Active on digital banking apps and online financial services.
- Preference for Automation: Users prefer auto-tracking of expenses and AI-driven insights.

Why These Groups Would Be Interested?

1. Young Adults (20-30 years old)

- New to financial independence and need structured budgeting.
- Struggle with impulse spending and saving habits.
- Want a simple, gamified, and mobile-friendly solution.

2. Working Professionals (30-45 years old)

- Need tools to track and optimize monthly expenses.
- Have multiple financial commitments (loans, savings, investments).
- Prefer an app with financial goal tracking (e.g., home ownership, vacations).

3. Parents & Household Managers

- Require expense tracking for family budgeting.
- Need a shared budget feature for spouses or household members.
- Want reminders for bill payments, school fees, and savings plans.

4. Freelancers & Gig Workers

- Need income categorization for tax purposes.
- Require insights into spending patterns due to fluctuating income.
- Seek automation in logging and tracking multiple income streams.

5. Independent Investors & Financially proficient Users

- Interested in advanced reporting tools (graphs, trends, AI-driven insights).
- Require investment tracking and integration with financial platforms.
- Want security and data privacy for financial transactions.

3. Domain Analysis :

Introduction:

This document describes background information that has been gathered about budgeting and how it is handled. This information is to be used to guide the development of software to automate the process of making people track their expenses.

Glossary:

Term	Definition
Income	Money received from salaries, businesses, investments, or other sources.
Expense	Money spent on necessities (rent, food, utilities) and discretionary spending (entertainment, travel)
Budget	A financial plan that allocates funds to different spending categories
Financial Goal	A target for saving money (e.g., buying a car, going on vacation, repaying loans)
Expense Category	A category for costs like groceries, transportation, schooling, or entertainment
Savings	Money set aside for future use, such as emergency funds or investments
Investment	Assets purchased with the goal of generating future income, like stocks or property
Bank Integration	The ability to sync financial transactions automatically with bank accounts or e-wallets
Zero-Based Budgeting	A method where every dollar is assigned to a specific expense or savings category, leaving no unallocated funds
Cash Flow	The movement of money in and out of a person's finances, tracking income vs. expenses
Net Worth	The total value of a person's assets minus liabilities (debts)

General Knowledge:

- A budget is a financial plan that outlines income sources, expenses, and potential savings goals to support better financial management.
- The budget owner, typically an individual, monitors expenditure and savings. Each budget includes a title, description, and relevant financial details.
- Expenses can be categorized into different groups, allowing for better organization and tracking of spending habits.
- Budgets and financial insights are usually private to the user, but some systems offer options to share reports with financial advisors or family members.

Customers and Users:

- **Potential Clients:** Businesses or organizations that might use the program for their clients, including Budgeting tools as a value-added service provided by banks. Employers provide their staff with financial wellness initiatives. Clients can manage their personal finances with the assistance of financial advising firms.
- **Potential Users:** Individual consumers want to manage their monthly budget and keep tabs on their spending. Employees that want to create financial goals in order to reduce their pay. Young adults or students who are handling their limited resources. Budgets and expenses are planned by families. Self-employed people or freelancers keeping tabs on erratic income and expenses.

The Environment:

The primary users are those maintaining their own finances, with secondary users like financial planners who can see collaborative reports. The software is installable on desktops (Windows, macOS), mobile phones (Android, iOS), or as an internet application, with internet connectivity required for synchronizing transactions but with offline support for manual entry. Integration with bank APIs, e-wallets, and financial data sources enables automated monitoring, and email, SMS, or push notifications notify users. Security measures such as data encryption, and 2FA to ensure data security.

Tasks and procedures currently perform:

Input Expenses:

The system allows users to manually enter their daily, weekly, or monthly expenses. Rent, groceries, entertainment, and other expenses can be grouped together to better monitor spending trends.

Creating a budget plan:

helping the customer create a customized budget plan according to their financial objectives. This includes determining sources of income, classifying spending, establishing savings goals, and making plans for debt payback or future investments.

Setting Financial Goals:

Users choose both short-term and long-term financial goals, like debt repayment, purchasing a car, and vacation savings. The program facilitates progress monitoring and offers information on the monthly savings required to reach the target.

Reporting and Insights:

Financial data, such as spending patterns, budget summaries, and savings progress, are produced by the app. Charts and graphs are examples of visual representations that assist users in analyzing their financial patterns and coming to well-informed conclusions.

Sync with Bank Account:

allowing the program to automatically import transactions by syncing with credit cards, e-wallets, or bank accounts. This guarantees real-time tracking of income and expenses and minimizes human data entering.

4. Proposed Solution

Purpose and Goals:

In order to assist users effectively manage their personal money, the software tracks their income, expenses, and savings. It offers resources for financial goal setting, budgeting, and spending analysis to enhance financial decision-making. Real-time analytics, transaction tracking automation, and safe data management are among the high-level goals.

Key Features and Functionality:

- **Financial Goal Setting:** Users can set short-term and long-term financial goals with progress tracking.
- **Customizable Budgets:** Flexible budgeting tools allowing users to set, adjust, and categorize spending limits dynamically.
- **Expense Categorization:** Automatic and manual categorization of expenses into predefined or custom categories.
- **Insights & Analytics:** Visual reports, and spending trends to help users understand and optimize their financial behavior.
- **Reminders & Notifications:** Alerts for bill payments, savings milestones, and overspending warnings.
- **Gamification Elements:** Reward systems, streaks, and badges to encourage consistent financial habits.
- **Investment Calculator:** Calculate simple and compounded interest.

Target users:

Individual customers wish to monitor their spending and manage their monthly budget. Workers who wish to set financial targets to lower their compensation. Students and young adults managing their limited assets. Families arrange their spending and budgets. freelancers or self-employed individuals monitoring unpredictable revenue and costs.

Technologies:

The Personal Budgeting Software will use a Desktop app with a possible mobile app developing later. The backend will handle secure transactions, data storage, and AI-driven insights.

- Frontend: JavaFx for the GUI.
- Backend: Java classes.
- Database: SQLite for lightweight, easy, and fast database management.

Technical Decisions:

- Cloud-Based Solution: Hosted on AWS or Google Cloud for scalability and real-time syncing.
- Offline Mode: Allows users to log expenses without an internet connection, syncing later.