

LAB 2 - Setting up a Development Environment

Mobile Apps Development - LIS4012-1

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Problem Statement

Managing personal finances effectively is a challenge for many individuals, especially with the increasing complexity of financial products, varying income streams, and expenses. People often struggle to track their spending, save for future goals, and make informed financial decisions due to a lack of organization, visibility, and financial literacy. Existing finance management tools may be either too complex, lack user-friendly interfaces, or fail to provide personalized insights tailored to individual financial situations.

Target Audience

The principal audience are the young people, specifically the audience between 18 and 35 years old, like college students, young professionals, freelancers.

Young people are at a critical stage in their financial lives, where developing good money habits can have a significant long-term impact. However, they often face unique challenges, such as student debt, low initial earnings, and limited financial literacy. By providing an intuitive, engaging, and educational finance management app tailored to their needs, the app can help them build a strong financial foundation for the future.

Key Features

Debt Tracking

- Creation of personalized budgets by category (e.g., entertainment, transportation, savings).

- Real-time alerts when users are close to exceeding their budget limits.
- Suggestions for adjusting expenses to stay within budget.

Budgeting Tools

- Creation of personalized budgets by category (e.g., entertainment, transportation, savings).
- Real-time alerts when users are close to exceeding their budget limits.
- Suggestions for adjusting expenses to stay within budget.

Goal Setting

- Ability to define short-term and long-term financial goals (e.g., saving for a trip, paying off debt, buying a car).
- Progress tracking with visual indicators (progress bars, notifications).
- Personalized recommendations to achieve goals faster.

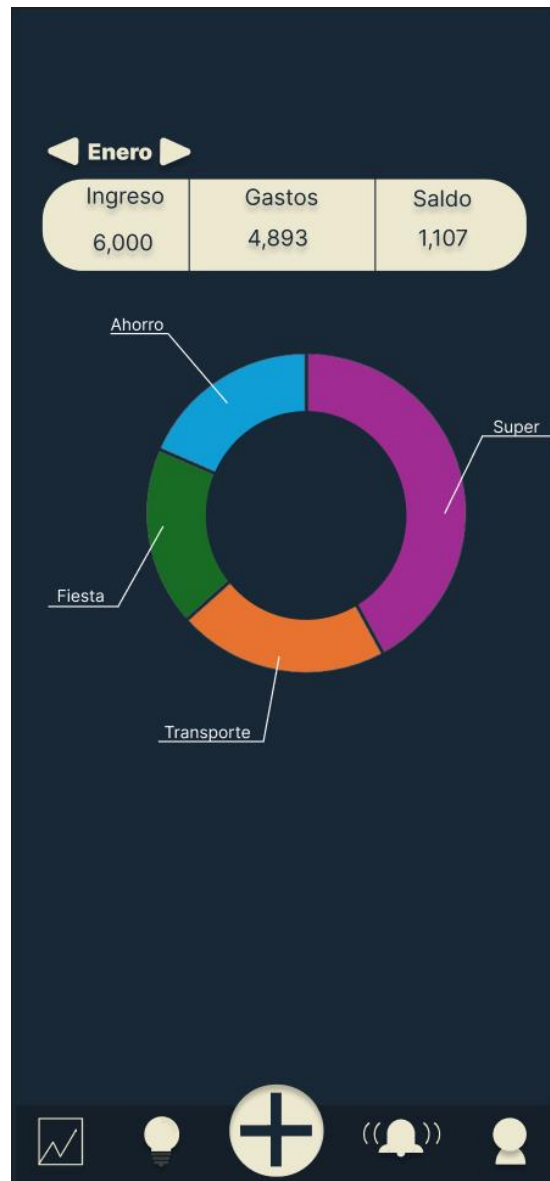
Technical Approach

We will develop an Android application using the Jetpack Compose library, with Kotlin as the primary programming language. Jetpack Compose allows us to build a modern, dynamic, and highly responsive user interface (UI) while simplifying the development process. By adopting this declarative approach to UI design, we can create a more intuitive and visually appealing experience for users, ensuring consistency across different devices and screen sizes. This methodology aligns with current best practices in Android development, enabling faster iteration and maintainability of the codebase.

For the login and data storage functionality, we will integrate the Firebase API. Firebase provides a robust and scalable backend solution, offering tools for authentication, real-time database management, and cloud storage. By leveraging Firebase, we can streamline the development process, reduce the need for custom backend infrastructure, and ensure a secure environment for handling sensitive user data. Firebase's authentication system supports multiple login methods (e.g., email/password, Google Sign-In, etc.), enhancing flexibility and user convenience. Additionally, its real-time database capabilities allow for efficient data synchronization and storage, ensuring a seamless experience for both users and developers. This combination of Jetpack Compose and Firebase positions our application to deliver a high-quality, secure, and user-friendly experience.

User Interface Sketches

- Include rough wireframes or UI mockups (can be hand-drawn or created using Figma, Adobe XD, etc.)



Home screen

Suscripciones		
Enero 2025		
Soptify	\$ 199	25 Enero
Xbox Gamepass	\$ 299	4 Enero
Diciembre 2024		
Soptify	\$ 199	25 Diciembre
Xbox Gamepass	\$ 299	4 Diciembre
Noviembre 2024		
Soptify	\$ 199	25 Noviembre
Xbox Gamepass	\$ 299	4 Noviembre

Challenges & Risks

Developing a finance app involves several risks and challenges. On the technical side, real-time data synchronization across devices can lead to conflicts, especially when users edit data offline. Ensuring seamless synchronization and conflict resolution is complex. Security and privacy are critical, as financial data is highly sensitive. Implementing encryption, secure authentication, and complying with regulations like GDPR are essential but challenging. Performance optimization is another concern, as slow loading times or high battery usage can frustrate users. Optimizing database queries and minimizing resource consumption are key. Integrating third-party APIs, such as Firebase or banking APIs, introduces risks like downtime or compatibility issues, requiring robust error handling.

From a development perspective, ensuring cross-platform compatibility across different Android versions and devices requires extensive testing. A poorly designed UI/UX can confuse users, so balancing functionality with simplicity is crucial. Implementing offline functionality adds complexity, as it requires managing local storage and resolving synchronization conflicts. Testing and debugging are resource-intensive but necessary to catch bugs and ensure a smooth user experience.

Project management challenges include scope creep, where adding new features delays the project. Clear requirements and agile methodologies can help manage this. Limited resources (time, budget, or team size) can impact quality, so efficient allocation and realistic timelines are vital. Team collaboration can be difficult, especially in remote teams, making clear communication and collaboration tools essential.

Business risks include low user adoption if the app fails to meet expectations. Usability testing and user feedback can address this. Regulatory compliance is critical, as non-compliance with financial or data protection laws can lead to fines. Staying updated on regulations and consulting legal experts is necessary. The competitive finance app market requires differentiation through unique features. Finally, delayed launch due to technical issues or resource constraints can be mitigated by setting realistic timelines and having contingency plans.

By addressing these risks and challenges proactively, you can ensure a smoother development process and a successful app launch.

Expected Outcome & Impact

Having a financial management application can benefit the users in many ways, from improving financial literacy to helping them achieve long-term financial stability. The users will be able to have a better understanding of their financial situation, helping them by improving their organization, which can lead to having better investment opportunities. Consequently, some of these benefits include the following:

- **Improved financial organization:** Setting financial goals and monitoring progress encourages disciplined spending. Custom alerts warn users when they exceed budget limits.
- **Better Budgeting and Expense Tracking:** Users can categorize expenses, track spending habits, and set limits to prevent overspending. Real-time insights help users make informed financial decisions.
- **Real-time Financial Insights:** Users get an overview of their financial health, including net worth, cash flow, and financial projections. Charts and analytics provide a visual representation of spending habits.

- Automated Bill Payments and Reminders: Prevents late fees and penalties by reminding or automating payments. Reduces stress associated with managing multiple bills manually.
- Increased Savings and Investment Opportunities: Automated savings features encourage users to set aside money for future goals. Some apps offer investment suggestions based on spending patterns.