



GROUP 2

# **THE CAMPUS EXPENSE MANAGER MOBILE APPLICATION**

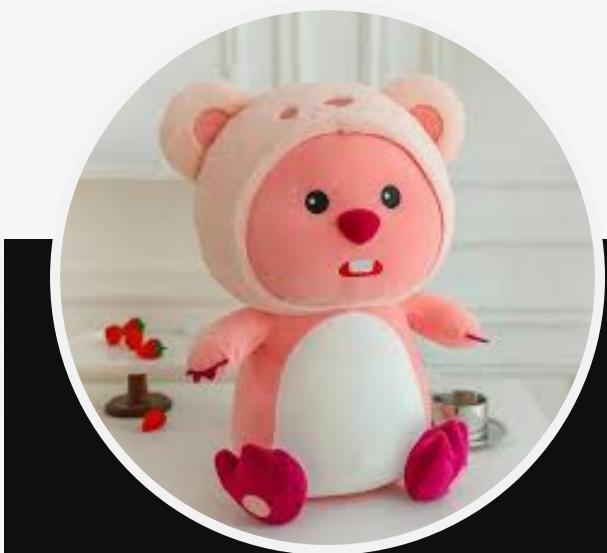
**APPLICATION DEVELOPMENT  
INSTRUCTOR: MR.DONG**

# OUR TEAM



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# CONTENT

**01**

INTRODUCTION & PROBLEM STATEMENT

**02**

STAKEHOLDERS AND CHALLENGES

**03**

ISSUES & SOLUTION COMPARISON

**04**

RISK MANAGEMENT

**05**

CONCLUSION

# INTRODUCTION

## *Overview of BudgetWise Solutions*



- BudgetWise Solutions is a dedicated development team focused on creating innovative financial management tools tailored specifically for university students. With limited experience in mobile app development, the team aims to leverage their skills to deliver a user-friendly solution that addresses the unique financial challenges faced by students.

- The aim of the CampusExpense Manager project is to develop an intuitive mobile application that helps students effectively manage their finances. The app will enable users to track expenses, set budgets, and gain insights into their spending habits, ultimately promoting financial literacy and reducing financial stress during their academic journey. By providing essential tools for expense tracking and budgeting, the project seeks to empower students to take control of their financial well-being.

## *Purpose of the CampusExpense Manager App*



# PROBLEM STATEMENT



## 1. Define the Problem

University students often face significant challenges in managing their expenses, which can lead to financial strain and stress. Many students lack the tools and knowledge necessary to effectively track their spending, set budgets, and make informed financial decisions.



## 2. Key Requirements for the App

To address these challenges, the CampusExpense Manager app must fulfill the following key requirements:

- User-Friendly Interface: The app should be intuitive and easy to navigate, ensuring that students can quickly log and manage their expenses.
- Secure Data Management: User data must be stored securely, with robust encryption and privacy measures in place to protect sensitive financial information.
- Budget Tracking: The app should allow users to set and adjust budgets for various expense categories, providing insights into their spending habits and helping them stay within their financial limits.



# PROBLEM STATEMENT



## 3. User Types and Their Needs

- **Students:** As the primary users, students need a reliable tool to track their expenses, set budgets, and receive notifications about their spending. They seek a solution that is straightforward and accessible, even for those with limited financial literacy.
- **Development Team Members:** The team responsible for creating the app requires clear requirements and feedback mechanisms to ensure that the app meets user expectations and functions smoothly. They also need resources for training and skill development to enhance their mobile app development capabilities.



# SYSTEM REQUIREMENTS AND KEY FEATURES

01

02

03

04

05

## USER REGISTRATION

- Allows users to create accounts securely.
- Supports email verification for enhanced security.

## EXPENSE TRACKING

- Users can log expenses easily with categories.
- Provides options for recurring expenses.

## BUDGET SETTING

- Users can set monthly budgets for different categories.
- Visual representation of budget limits and spending.

## NOTIFICATIONS

- Alerts users when they exceed budget limits.
- Reminders for bill payments and savings goals.

## EXPENSE REPORTS

- Generates detailed reports on spending patterns.
- Allows users to view expenses over specified periods.

## Security Requirements

- Secure Data Management: Implementation of encryption to protect user data.
- User Authentication: Multi-factor authentication to ensure account security.

## Offline Capability

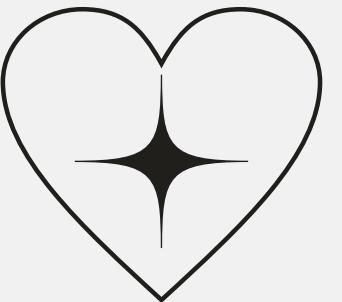
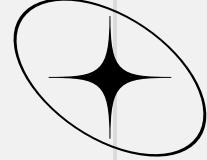
- The app must function offline, allowing users to log expenses and access budgets without an internet connection. Data will sync automatically when connectivity is restored.

# Stakeholders Overview

- **Primary Stakeholders: Students**
  - Desire a simple, effective tool for tracking and budgeting.
- **BudgetWise Solutions Team**
  - Aim for success in delivering a valuable app within budget and time constraints.
- **University Administrators**
  - Promote responsible financial habits among students.



# STAKEHOLDERS

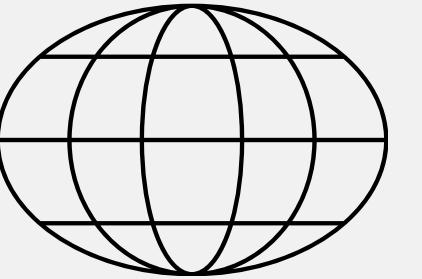


## STUDENTS

**Role:** Primary users of the CampusExpense Manager app.

**Needs:**

- An intuitive interface for easy expense tracking.
- Tools for setting and managing budgets.
- Insights into spending habits to promote financial literacy.

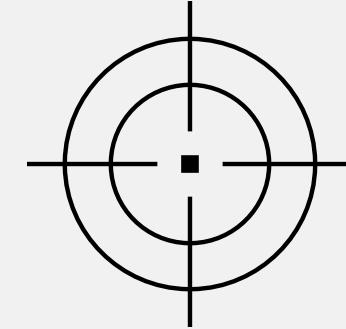


## BUDGETWISE SOLUTIONS TEAM

**Role:** Development team responsible for designing, building, and maintaining the app.

**Needs:**

- Clear requirements and feedback from users.
- Resources for training in mobile app development.
- Collaboration with stakeholders to ensure the app meets user expectations.



## UNIVERSITY ADMINISTRATORS

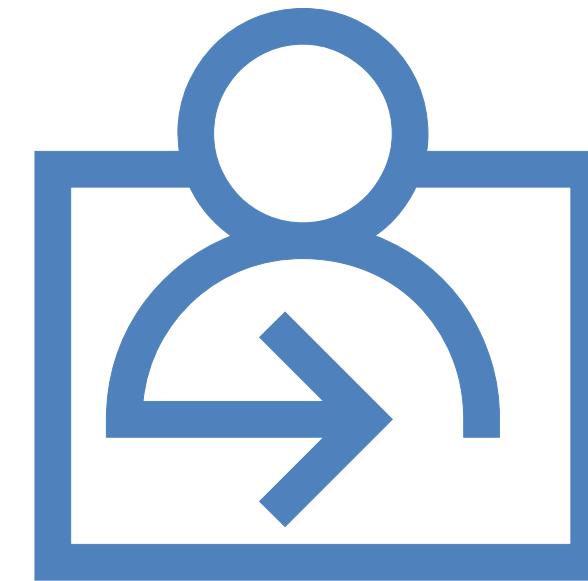
**Role:** Stakeholders interested in promoting financial literacy among students.

**Needs:**

- Tools to facilitate responsible spending and budgeting among students.
- Reports on student engagement with the app to assess its effectiveness.
- Support for initiatives that enhance student financial well-being.

# Students' Needs

- **Students' Needs**
  - Want a user-friendly experience that meets their budgeting needs.
- **BudgetWise Team**
  - Expect timely project completion and adherence to budget limits.
- **University Admins**
  - Look for positive outcomes, including enhanced financial literacy among students.



# BudgetWise Team Needs

- **Achievable Project Goals**
  - Clearly defined milestones to track progress.
- **User Feedback**
  - Regular input from students for iterative improvements.



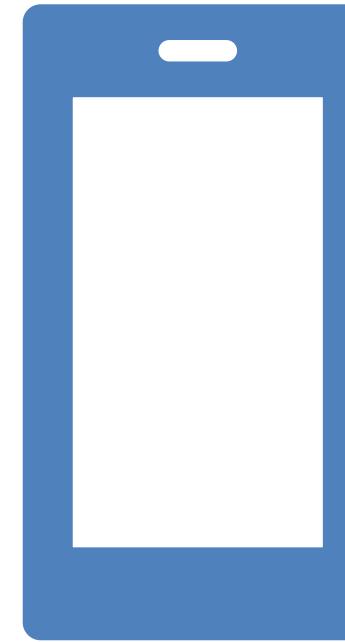
# University Admin Needs

- **Positive Feedback**
  - Evidence of improved financial habits among students.
- **Engagement with Financial Tools**
  - Increased usage and acceptance of budgeting applications.



# Challenges for BudgetWise Solutions

- **Mobile Development Experience**
  - The team has limited prior experience in mobile app development.
- **Timeline and Budget**
  - **Strict 12-Week Timeline**
    - Need to deliver within a limited timeframe.
  - **Budget Limitations**
    - Constraints on resources necessitate cost-effective solutions.
- Data Security
  - **Data Security Concerns**
    - Requirement for careful design to comply with regulations.
  - **User Trust**
    - Essential to ensure users feel secure sharing their financial information.



# ISSUES OVERVIEW

- **Technical:** Limited experience, platform compatibility, data security, performance.
- **UX:** Intuitive design, feature prioritization, accessibility.
- **Project Management:** Scope creep, time management, testing.
- **Market/Business:** User adoption, monetization, competition.

# DATA PRIVACY ISSUE

CampusExpense Manager handles sensitive financial data, making data privacy a paramount concern. To protect user data, BudgetWise Solutions must implement robust security measures, such as:

- Encryption: Sensitive data, including passwords and transaction details, should be encrypted both at rest and in transit.
- Secure Authentication: Strong authentication mechanisms like multi-factor authentication should be used to prevent unauthorized access.
- Regular Security Audits: Regular security audits and vulnerability assessments should be conducted to identify and address potential security weaknesses.
- Transparent Data Practices: BudgetWise Solutions should have a clear data privacy policy that outlines how user data is collected, stored, used, and shared. This policy should be easily accessible to users, and their consent should be obtained before collecting any personal information.
- Compliance with Regulations: BudgetWise Solutions must comply with relevant data privacy regulations, such as GDPR and CCPA, which impose strict requirements on data handling and user rights.

# PLATFORM COMPATIBILITY

To reach the widest possible audience, CampusExpense Manager needs to be available on both Android and iOS platforms. This presents challenges in terms of design and development. BudgetWise Solutions must consider different development approaches, such as native app development for each platform or cross-platform frameworks like React Native.

- Native App Development:
  - Pros: Optimal performance, access to all device features, and a better user experience.
  - Cons: Higher development costs and longer development time due to the need to maintain separate codebases for each platform.
- Cross-Platform Frameworks:
  - Pros: Faster development time, lower development costs, and the ability to share code between platforms.
  - Cons: Potential performance compromises, limited access to device features, and a slightly less native-like user experience.

BudgetWise Solutions should carefully evaluate the trade-offs between these approaches based on their specific needs and resources. They also need to address varying design guidelines, screen sizes, and operating system versions, ensuring a consistent and seamless user experience across both platforms.



# USER EXPERIENCE CHALLENGE



A user-friendly interface is crucial for the success of CampusExpense Manager. Key UX design principles include simplicity, consistency, clear navigation, accessibility, and visual appeal. A well-designed interface will make it easy for students to track expenses, set budgets, and analyze spending habits.



BudgetWise Solutions should conduct thorough usability testing with target users to identify and address any UX issues early in the development process. This iterative feedback loop will ensure the app is intuitive and enjoyable to use. Additionally, incorporating elements of gamification, such as progress bars or rewards, can motivate users to engage with the app regularly.

# Solution Options

- Technology Stack:
  - Select a robust stack that ensures performance, security, and ease of development.
- Security Measures:
  - Implement multi-layered security: encryption, secure login, and regular audits.
- Performance & Scalability:
  - Optimize performance through efficient coding and minimized network requests.
  - Ensure scalability to accommodate more users and data, utilizing cloud infrastructure.
- UX Solutions: Overview
  - Research & Design:
    - Conduct user research to tailor design to user needs and preferences.
    - Iterative design with user testing to refine usability and aesthetics.
  - Accessibility & Personalization:
    - Enhance accessibility following guidelines for diverse user abilities.
    - Create an intuitive interface and consider personalization to boost user satisfaction.

# Why Choose Mobile?

A mobile app offers significant advantages for expense tracking:

- Accessibility and Convenience: Students can track expenses anytime, anywhere, making it easier to stay on top of their finances.
- Ease of Use: A mobile interface is optimized for quick expense entry and budget checks.
- Instant Notifications: The app can send timely reminders and alerts about budget limits, helping students avoid overspending.

# Advantages of Mobile Solution

CampusExpense Manager provides a targeted solution for university students facing unique financial challenges. The app helps students:

- Track Spending: Gain a clear understanding of where their money is going.
- Stick to Budgets: Set and maintain budgets, reducing financial stress.
- Achieve Financial Goals: Save money for future needs like tuition, books, or travel.
- Increase Engagement: A mobile app offers a more engaging and interactive approach to budgeting compared to traditional methods.
- Improve Financial Literacy: The app can provide educational resources and tips on budgeting, saving, and investing, empowering students to make informed financial decisions.

# Issues & Solution Summary

- Summarize issues and why mobile was selected.

# Project Risks Overview

Data security

Time constraints

Budget limits.

Data Privacy Compliance

Offline Capability

Platform Compatibility



## Data Security Risks

- The app must adhere to data privacy regulations
  - Ensuring the security and privacy of user data
  - This requirement may impact the project's development and compliance costs.
- 
- Encryption: "We'll secure all user data with end-to-end encryption."
  - Security Audits: "Regular security audits will help us stay ahead of potential vulnerabilities."
  - Access Controls: "Strict access controls will ensure that only authorized personnel can access sensitive data."
  - Compliance: "Our app complies with major regulations like GDPR for maximum data protection."

## Solution

# Timeline Pressure

Phase	Timeline	Tasks	Deliverables
<b>Phase 1: Planning</b>	Weeks 1-2	<ul style="list-style-type: none"><li>- Conduct a project kickoff meeting to align team members.</li><li>- Gather requirements from stakeholders (students, university admins).</li><li>- Define app features and functionalities.</li><li>- Create wireframes and initial UI design.</li></ul>	<ul style="list-style-type: none"><li>- Project plan document</li><li>- Initial wireframes</li><li>- Feature list</li></ul>
<b>Phase 2: Design</b>	Weeks 3-4	<ul style="list-style-type: none"><li>- Finalize UI/UX designs based on feedback.</li><li>- Create detailed mockups for all main screens.</li><li>- Develop user journey maps.</li><li>- Prepare database schema and API documentation.</li></ul>	<ul style="list-style-type: none"><li>- Final UI/UX designs</li><li>- User journey maps</li><li>- Database schema</li></ul>
<b>Phase 3: Development</b>	Weeks 5-6	<ul style="list-style-type: none"><li>- Begin coding core functionalities (user registration, expense tracking).</li><li>- Implement database integration.</li><li>- Develop the budget-setting feature.</li><li>- Start working on recurring expenses.</li></ul>	<ul style="list-style-type: none"><li>- Core functionalities coded</li><li>- Database integrated</li></ul>

# Timeline Pressure

Phase	Timeline	Tasks	Deliverables
<b>Phase 4: Testing</b>	Weeks 7-8	<ul style="list-style-type: none"><li>- Conduct unit testing for each feature.</li><li>- Perform integration testing to ensure features work together.</li><li>- Test offline capabilities and data synchronization.</li><li>- Gather feedback for improvements.</li></ul>	<ul style="list-style-type: none"><li>- Testing reports</li><li>- List of bugs and improvements needed</li></ul>
<b>Phase 5: Refinement</b>	Weeks 9-10	<ul style="list-style-type: none"><li>- Address feedback and bugs identified during testing.</li><li>- Optimize app performance and security measures.</li><li>- Finalize expense reporting features.</li><li>- Prepare for beta testing.</li></ul>	<ul style="list-style-type: none"><li>- Refined app version</li><li>- Beta testing plan</li></ul>
<b>Phase 6: Launch</b>	Weeks 11-12	<ul style="list-style-type: none"><li>- Conduct beta testing with a select group of users.</li><li>- Gather final feedback and make necessary adjustments.</li><li>- Prepare marketing materials and app store listings.</li><li>- Launch the app on Android and iOS.</li></ul>	<ul style="list-style-type: none"><li>- Launch-ready app</li><li>- Marketing materials</li><li>- Post-launch support plan</li></ul>

# Budget Constraints

## Constrained Budget:

- Development Costs: Includes expenses related to personnel, tools, and technology.
- Marketing Costs: Covers costs associated with promotional activities and strategies.

## Solution:

- Key Focus Areas:
  - Prioritize essential app features to streamline development costs.
  - Utilize open-source tools to reduce expenses on software and technologies.
  - Implement cost-effective marketing strategies, such as targeted social media campaigns and community engagement to enhance reach without heavy investment.
- Cost-Effective Strategies:
  - Conduct regular budget reviews to maintain alignment with financial objectives.
  - Monitor spending rigorously to prevent overruns and manage resources efficiently.
- Resource Management:
  - Acknowledge and plan for challenges arising from limited financial resources.
  - Set aside a contingency budget to handle unforeseen expenses effectively.
- Risk Awareness:
  - Maintain continuous awareness of financial risks to make informed decisions and adjust strategies as needed.

# Data Privacy



- Risks:
  - Compliance: Must adhere to data privacy regulations (GDPR, CCPA).
  - Consent: Required user consent for data collection.
  - Costs: Increased development and compliance expenses.
- Solutions:
  - Encryption: Protect sensitive data.
  - Audits: Regular checks on data handling practices.
  - Minimize Data: Collect only necessary data.
  - Budget: Plan for compliance costs.

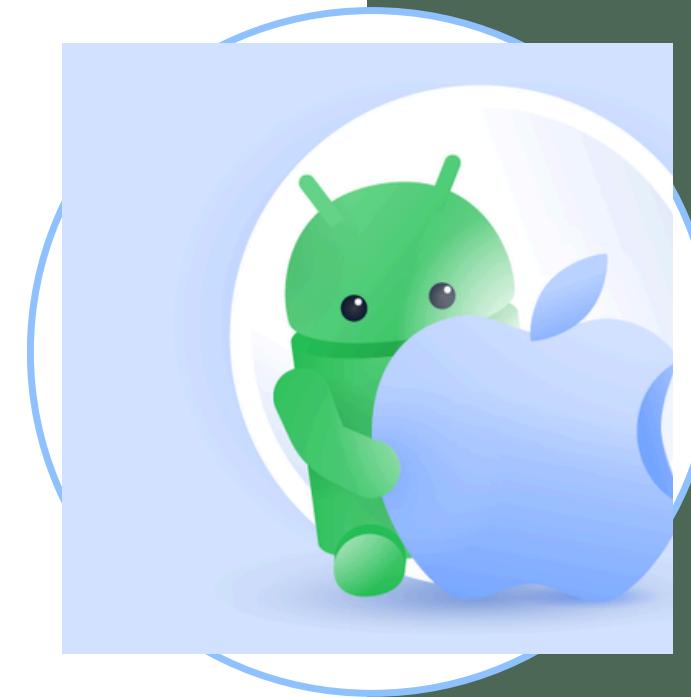
# Offline Capability

- Features:
  - Full Functionality Offline: Users can add, edit, and view expenses without internet access.
  - Local Data Storage: Data is stored on the device until internet connection is restored.
  - Automatic Sync: Once online, the app automatically syncs data with the cloud.
- Benefits:
  - Accessibility: Ensures the app is usable in areas with poor or no internet connectivity.
  - Convenience: Continuous app use, even when offline.



# Platform Compatibility

- Risks:
  - Cross-Platform Challenges: Ensuring compatibility with both Android and iOS.
  - Consistency Issues: Maintaining a uniform user experience across different devices.
- Solutions:
  - Cross-Platform Tools: Utilize tools like Flutter or React Native for efficient development across both platforms.
  - Extensive Testing: Conduct thorough testing on both Android and iOS to ensure functionality and identify any discrepancies.
  - User Reach: This strategy enhances accessibility, broadening potential user engagement.



# Conclusion

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The CampusExpense Manager app will help students manage their expenses effectively.

We prioritize budget adherence and data privacy compliance.

Offline functionality ensures usability in areas with limited connectivity.

Cross-platform compatibility allows us to reach more users.



THANK YOU  
FOR  
LISTENING!

