**SYNOPSIS**

**Report on**

# SPLIT NEXUS

**by**

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# ABSTRACT

In our ever-evolving world, staying on top of personal finances can be a daunting task. That's why we're thrilled to introduce an innovative expense-sharing web-based app tailored for guest users. Our platform is designed to empower explorers like you to effortlessly manage expenses and stay on budget, all while fostering financial flexibility and enabling seamless group expense splitting.

At the heart of our web-based app are two key features. First, we've implemented intuitive manual input functionality, allowing users to easily log expenses with a few taps. This hands-on approach streamlines the process, minimizing errors and speeding up expense tracking for explorers on the go. Secondly, our app harnesses the power of location-based services, enabling real-time tracking of spending within predefined areas. As you explore new destinations, our app automatically calculates your expenses within each location.

If you're nearing your preset spending limit in a specific zone, we'll send you a friendly reminder, helping you stay within budget and make informed financial decisions. But that's not all. In financial flex mode, our app goes beyond basic expense tracking to offer personalized budget updates. If your spending falls below your allocated budget, we'll suggest adjustments to help you meet your financial goals and make the most of your resources.

And when it comes to splitting group expenses, our app has you covered. Whether you're traveling with friends or sharing costs with family, our splitting group mode makes it easy to divide expenses equitably, ensuring everyone pays their fair share without the hassle.

With our app, managing finances as an explorer has never been easier. By combining user-friendly features with cutting-edge technology, we're revolutionizing the way you track and control your expenses, empowering you to explore with confidence while maintaining financial peace of mind. Join us on this journey towards financial freedom and flexibility – one expense at a time.

**Keywords**: Communal, Joint, Shared, Pooled, Unified, Divided, Cooperatives

# TABLE OF CONTENTS

Page Number

1. Introduction 4
2. Literature Review 5-6
3. Different Modules 7-14
4. Project / Research Objective 15-16
5. Research Methodology 17-18
6. Project / Research Outcome 19-20
7. Proposed Time Duration 21-23

References 24

# INTRODUCTION

In today's fast-paced and interconnected world, managing personal finances has become increasingly intricate, especially for explorers navigating through diverse landscapes and experiences. Balancing budgets, tracking expenses, and adhering to financial goals often demand meticulous attention and can be prone to errors, hindering the exploration journey.

To address these challenges and usher in a new era of personal finance management tailored for explorers, we introduce an innovative web-based application—an intelligent fusion of intuitive manual input and GPS technology.

Our groundbreaking project aims to redefine how individuals monitor and control their expenses within geographical areas, specifically catering to the unique needs of explorers. By harnessing the power of intuitive manual input, users can effortlessly record their expenses with natural ease, bypassing the need for tedious manual data entry.

Whether it's jotting down expenses on the go or quickly logging purchases during exploratory ventures, our app simplifies the process, enabling explorers to focus more on their adventures and less on administrative tasks.

In parallel, our application leverages GPS technology to provide real-time expense tracking within predefined zones, aligning with the dynamic nature of exploration. Explorers can set personalized spending limits for specific locations or categories, ensuring financial prudence while indulging in new experiences.

Should expenses exceed these limits, the app promptly alerts users, serving as a digital companion to guide them towards responsible spending behaviour and preventing budget overruns that could dampen their exploration journey.

Furthermore, our application transcends mere expense tracking; it actively assists explorers in achieving their financial aspirations. In financial flex mode, when expenses fall below allocated limits, the app offers detailed budget updates tailored to the explorer's unique spending patterns and goals.

Whether it's suggesting optimal budget allocations to fulfil unmet financial needs or recommending savings strategies to fuel future adventures, our app empowers explorers to make informed financial decisions that align with their exploration aspirations.

This project embodies our unwavering commitment to user-centric design and leverages cutting-edge technology to simplify and enhance personal finance management for explorers. It represents the vision of a future where financial empowerment seamlessly integrates with exploration, allowing adventurers to navigate their financial landscapes with confidence and embark on transformative journeys with ease.

Welcome to a new chapter of personal finance empowerment tailored for explorers—a journey where every expense becomes a stepping stone towards new discoveries and enriching experiences.

# LITERATURE REVIEW

# Certainly, here’s a brief literature review for your project on a voice-activated expense tracking and geographical limit enforcement web-based app:

# Introduction:

Efficiently managing personal expenses is crucial for maintaining financial health, and numerous web-based apps aim to facilitate this task. However, the integration of manual input and GPS technology for enforcing geographical spending limits represents a novel approach to personal finance management, particularly suited for explorer users seeking flexibility and collaborative budgeting.

1. **Existing Expense Tracking Apps:** Established expense tracking apps like Mint and Expensify have garnered popularity for their features such as categorization and budgeting tools.

However, they lack real-time geographical expense control and the collaborative elements required for group expense management, essential for explorer users seeking a more dynamic approach to budgeting.

1. **Manual Input and User Engagement:** While voice recognition technology has made strides, manual input remains a preferred method for many users, offering a more tactile and customizable experience. Studies by Li et al. (2018) indicate that manual input fosters user engagement and accuracy, particularly in finance-related tasks where precision is crucial.
2. **Financial Decision-Making and Collaborative Budgeting:** Behavioural economics principles, such as those highlighted in Thaler and Sunstein's "Nudge," underscore the significance of systems that promote responsible financial behaviour. For explorer users, real-time alerts for exceeding geographical spending limits not only encourage individual accountability but also facilitate collaborative budgeting efforts, aligning with the collaborative nature of explorer mode.
3. **GPS-Based Expense Tracking:** Research by Chen et al. (2016) explores the potential of GPS-based expense tracking systems, emphasizing the contextual relevance of location data in expense monitoring. For explorer users, GPS technology offers the opportunity to track expenses in diverse geographical regions, enabling more accurate budgeting and expense control tailored to their adventurous lifestyle.
4. **User Experience and Adoption:** User-centric design principles, as advocated by Deterding et al. (2011), are paramount in driving app adoption and retention. For explorer users, features such as collaborative budgeting tools and intuitive manual input mechanisms are essential for creating a seamless and engaging user experience, fostering long-term app usage and financial empowerment.

***Conclusion*:** While existing expense tracking apps offer valuable features, there exists an untapped opportunity to develop a web-based app tailored for explorer users, integrating manual input with GPS technology to enforce geographical spending limits and facilitate collaborative budgeting through features like financial flex mode and splitting group mode. Such an app has the potential to revolutionize personal finance management for explorers, empowering them to navigate their financial landscapes with confidence and flexibility.

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# DIFFERENT MODULES

**In the Split Nexus Web-based App, guest users explore with ease through manual input mode, while administrators efficiently manage finances using financial flex and splitting group modes.**

* **Admin Rights:**
* **User Management:** Admins can create, edit, and delete user accounts, reset passwords, assign roles, and view activity logs.
* **Content Management:** Admins control app content, including announcements, news, FAQs, and media files.
* **Data Management:** Admins access, export, import, backup, and restore data as needed.
* **System Configuration:** Admins configure app settings and system-wide parameters such as email notifications and default currency.
* **Security Management:** Admins monitor security logs, implement policies, and manage certificates and encryption settings.
* **Analytical and Reporting:** Admins access advanced analytics and reporting tools for user activity and system performance.
* **Support and Helpdesk:** Admins respond to inquiries, provide technical assistance, and maintain a knowledge base.
* **Bug and Issue Tracking:** Admins track, prioritize, and assign tasks for resolving reported bugs and issues.
* **Software Updates:** Admins manage app updates and maintenance schedules.
* **Role-Based Access Control (RBAC):** Admins define roles and permissions, assigning them based on user responsibilities.
* **Financial Management (if applicable):** Admins oversee financial transactions, monitor revenue and expenses if applicable**.**
* **Users Feedback and Suggestions:** Admins collect and prioritize user feedback and feature requests for app improvements.

**Admin Responsibilities:**

* **Maintaining System Integrity:** Admins ensure smooth operation, monitor for unauthorized activities, and address any issues promptly.
* **User Support:** Admins assist with inquiries, technical problems, and content management.
* **Content Management:** Admins keep app content updated and relevant.
* **Data Management:** Admins safeguard user data, perform backups, and ensure privacy and security.
* **Security:** Admins enforce security measures to protect user accounts and data.
* **Performance Monitoring:** Admins monitor system performance for responsiveness and reliability.
* **System Update:** Admins manage software updates and maintenance schedules.
* **Compliance:** Admins ensure app compliance with regulations and legal requirements.
* **Reporting:** Admins generate reports on app usage, user behaviour, and system performance
* **User Rights:**
* **Account Creation:** Users create their accounts on the app**.**
* **Expense Entry:** Users log and manage their expenses using manual or voice-recognition mode.
* **Access to Data:** Users access their own expense data for tracking and analysis.
* **Expense Monitoring**: Users monitor expenses in real-time within defined zones.
* **Notifications:** Users receive alerts if expenses exceed predefined limits.
* **User Profile Management:** Users update their profiles and app mode preferences.
* **User Support:** Users seek assistance from the app's support team.
* **Data Privacy:** Users expect their personal and financial data to be kept secure and private.

**User Responsibilities:**

* **Account Security:** Users maintain account security and confidentiality.
* **Accurate Expense Entry:** Users enter expenses accurately for reliable financial tracking.
* **Responsible Spending:** Users manage spending and stay within predefined limits.
* **Feedback and Suggestion:** Users provide feedback and suggestions for app improvements.
* **Privacy Awareness:** Users understand privacy settings and control their data sharing.
* **Compliance:** Users adhere to app terms of service and legal regulations.
* **Reporting Issues:** Users report technical issues or bugs encountered.
* **Data Backup:** Users may consider periodic data backups for their records.
* **User Guidelines:** Users follow app guidelines and best practices**.**
* **Respectful Behaviour:** Users engage respectfully with others users and admins.

**By upholding these rights and responsibilities, users and admins contribute to the effective and secure operation of the Expense Sharing Web-based app while benefiting from its features for personal finance management.**

# PROJECT OBJECTIVE

The project objective for your web-based voice-activated expense tracking and geo-limit enforcement app is to develop a robust and user-friendly application that addresses specific challenges in personal finance management. Here's a detailed project objective with new requirements integrated:

To create a web-based Voice-Activated Expense Tracking and Geo-Limit Enforcement App with the following key objectives:

**1. Seamless Expense Tracking:** Develop an intuitive and efficient system for users to effortlessly record their expenses using voice recognition technology, reducing the need for manual data entry while incorporating manual input mode for guest users.

**2. Real-Time Geo-Limit Enforcement**: Implement GPS tracking capabilities to enable users to set geographical spending limits for specific areas. When expenses in a designated area exceed the limit, the app will trigger immediate alerts to promote responsible spending, with the additional feature of group expense splitting for collaborative spending management.

**3. Financial Goal Fulfilment**: Provide users with actionable insights by suggesting optimal budget allocations when expenses in a given area are below the allocated limit. This feature will assist users in meeting their financial goals and savings objectives, with the capability to dynamically update budgets for group expenses.

**4. User-Centric Design**: Design the application with a focus on user-friendliness and accessibility, ensuring that users of varying technological proficiency can navigate and utilize the app effectively. Explore mode for guest users will provide a simplified interface for easy exploration and usage.

**5. Accuracy and Reliability**: Ensure that the voice recognition and GPS tracking functionalities are accurate, reliable, and responsive to user commands and geographical data. Financial flex mode will offer flexibility in budget adjustments and expense categorization.

**6. Enhanced Financial Awareness**: Enable users to gain a deeper understanding of their spending patterns, financial habits, and areas for potential improvement through data visualization and analysis, with additional features for exploring financial insights as a group.

**7. Promotion of Responsible Financial Behaviour**: Encourage responsible financial behavior by promptly notifying users when they exceed predefined spending limits in specific geographic areas, with features to facilitate collaborative decision-making among group members.

**8. Comprehensive Documentation**: Thoroughly document the development process, research findings, and user testing results to provide transparency and support future enhancements, with additional resources tailored for guest users' ease of understanding and adoption.

**9. User Feedback and Iterative Development**: Continuously gather user feedback and consider it for iterative development, aiming to refine and enhance the application based on real-world user experience and needs. Prioritize user feedback channels for guest users to encourage engagement and participation.

**10. User Adoption**: Promote user adoption and engagement through effective marketing and user education strategies, emphasizing the benefits and ease of use for guest users in explore mode and financial flex mode.

**11. Sustainability and Scalability**: Ensure that the application is sustainable and scalable, allowing for potential growth in the user base and features in the future, with provisions for accommodating increasing usage and expanding functionalities for guest users and administrators alike.

The primary objective is to deliver a web-based application that empowers users to manage their finances more effectively, promotes responsible spending, and simplifies the often-challenging task of personal finance management in today’s dynamic and digitized world, catering to the diverse needs and preferences of both guest users and administrators.

# RESEARCH METHODOLOGY

# Certainly, let's adapt the research methodology to fit the Handitech mode (manual mode) for guest users, Explorer mode for budget update, and Splitting group mode for group expense management:

# 1. Literature Review: Review existing literature on manual expense tracking methods, voice recognition technology, and basic financial management principles tailored for manual entry and exploration by guest users.

# 2. Data Collection: Collect user preferences and pain points related to manual expense tracking through surveys, interviews, or feedback from users accustomed to traditional expense management methods. Gather insights on voice recognition technology's applicability and usability in a manual mode setting.

# 3. Prototype Development: Develop a prototype of the web-based app focusing on intuitive manual input methods and basic expense exploration features for guest users. Implement basic budget update features suitable for users in Explorer mode to manually adjust their financial allocations.

# 4. Usability Testing: Conduct usability testing with guest users to evaluate the app's ease of manual expense entry and exploration features. Gather feedback on the simplicity and effectiveness of budget update functionalities for users in Explorer mode.

# 5. Behavioural Economics Analysis: Collaborate with behavioural economics experts to design manual expense management features that align with basic financial principles for guest users. Evaluate the impact of manual budget update features on user spending behaviour and financial decision-making in Explorer mode.

# 6. Data Analysis: Analyse user feedback and usability testing results to identify areas for improvement in manual expense tracking and budget update functionalities. Use qualitative analysis to understand user preferences and behaviours in managing expenses manually.

# 7. App Refinement: Refine the app's design and functionality based on data analysis, focusing on enhancing manual expense tracking and budget update features for guest users and users in Explorer mode.

# 8. Security and Privacy Assessment: Conduct a security and privacy assessment of the app to ensure user data protection and compliance with relevant regulations, particularly in manual mode.

# 9. User Acquisition Strategy: Develop a user acquisition strategy that emphasizes the simplicity and accessibility of manual expense tracking and budget update features for guest users and users in Explorer mode.

# 10. Evaluation and Validation: Perform rigorous testing to validate the accuracy and effectiveness of manual expense tracking and budget update functionalities for users in different modes.

# 11. Documentation and Reporting: Document the research process, methodologies, and findings, with a focus on manual expense management features tailored for guest users and users in Explorer mode.

# 12. Iterative Improvement: Continuously iterate on the app based on user feedback and data analysis, ensuring that manual expense tracking and budget update features meet the evolving needs of users in different modes.

# By following this research methodology tailored for different user modes, you can systematically develop and refine your web-based expense tracking app to meet the specific requirements and preferences of guest users and users in Explorer mode.

# PROJECT OUTCOME

The anticipated outcomes of our project, which revolves around crafting a web-based expense tracking application with voice activation and geographical spending limits, encompass:

1. **Effortless Expense Input**: Users will seamlessly log their expenses by simply speaking into the app, leveraging the advanced voice recognition feature. This innovative approach transforms the often-cumbersome task of data entry into a smooth and intuitive process, significantly enhancing usability and efficiency.
2. **Real-Time Expense Tracking:** The app will monitor expenses in real-time within designated geographic zones, allowing for precise tracking of individual and group expenditures. This feature facilitates proactive spending management, ensuring users stay within budgetary constraints and maintain financial discipline while also enabling the effortless splitting of expenses among groups.
3. **Customized Spending Alerts:** Users will receive timely notifications if their expenses surpass predetermined limits within specific geographical zones, encouraging prudent financial decisions and fostering a culture of responsible spending. These alerts serve as gentle reminders to help users stay on track with their financial goals and maintain control over their expenditure patterns.
4. **Goal-Oriented Budgeting Assistance:** The app will offer personalized budget recommendations to help users achieve their savings objectives whenever their expenses fall below designated limits. By proactively suggesting optimal budget allocations, the app empowers users to make informed financial decisions and progress towards their long-term financial goals with confidence.
5. **Enhanced Financial Insight:** Users will develop a deeper understanding of their spending patterns across various locations, equipping them with valuable insights to make well-informed financial decisions. This heightened awareness enables users to adapt their spending behaviour according to their preferences and financial goals, ultimately fostering greater financial independence and control.
6. **Enhanced User Engagement:** The app will be tailored to cater to guest users in explorer mode, providing intuitive manual input features and dynamic visualization of expenses within geographical areas. These enhancements will foster deeper engagement and satisfaction among explorer users, facilitating a seamless and enjoyable expense tracking experience.
7. **Contribution to Behavioural Economics Research:** By incorporating nudges and alerts for financial decision-making based on geographical spending limits, the project will contribute valuable insights into explorer behaviour and preferences. This data will be instrumental in advancing research in behavioural economics, particularly in the context of exploratory spending patterns.
8. **Research Insights:** The project will yield valuable data on explorer behaviour and preferences regarding manual input and geographical expense tracking. These insights will inform future app development strategies and research endeavours, guiding the creation of more user-centric and effective financial management tools for explorer users.
9. **Financial Well-Being:** The app's focus on promoting responsible spending, savings, and financial goal attainment within the context of exploration will significantly contribute to the financial well-being of explorer users. By empowering them to make informed decisions and achieve their financial aspirations, the app will play a crucial role in enhancing their overall financial health and stability.
10. **Market Potential:** Successfully implementing the new requirements will enhance the app's appeal to explorer users and increase its potential for commercial success in the personal finance app market. The app's ability to cater to the specific needs of explorer users in guest mode, financial flex mode, and splitting group mode will attract a wider user base and potential partnerships, establishing it as a leading solution in the market.

In summary, the project aims to deliver a cutting-edge, user-centric application that harnesses the power of voice recognition and geographical tracking to revolutionize expense management. By seamlessly integrating these advanced technologies, the app seeks to simplify the tracking and logging of expenses, empowering users with greater control over their financial transactions.

Moreover, the app's focus on enhancing financial awareness will provide users with valuable insights into their spending habits, enabling them to make more informed financial decisions. Through personalized alerts and budget recommendations, users will be guided towards responsible spending practices, thereby promoting financial stability and well-being.

Ultimately, the project aspires to not only meet but exceed user expectations, offering a comprehensive solution that addresses the diverse needs of modern consumers. By prioritizing usability, efficiency, and user satisfaction, the app endeavours to carve out a distinctive niche in the market, positioning itself as a trusted companion in users' journey towards financial success and security.

# PROPOSED TIME DURATION

Certainly, let's update the timeframes for each phase of the project to accommodate the new requirements for Handitech mode (manual mode) for guest users, Explorer mode for budget update, and Splitting group mode for group expense management:

**1. Project Initiation (Week 1):** Formation of the development team, defining project objectives, and developing the project plan with considerations for manual, budget update, and group expense management features. In the Gantt chart, represented by Light Blue.

**2. Requirement Gathering (Week 1-2):** Collecting and documenting the requirements for manual expense tracking, budget update, and group expense management tailored for different user modes (Handitech, Explorer, Splitting group). In the Gantt chart, represented by Light Green.

**3. System Design (Week 2-3):** Creating a detailed plan for structuring the manual input, budget update, and group expense management functionalities in the software, ensuring compatibility with the specified user modes. In the Gantt chart, represented by Light Yellow.

**4. Frontend Development (Week 2-4):** Building user interface components tailored for manual input, budget update, and group expense management features for guest users (Handitech mode) and users in Explorer and Splitting group modes. In the Gantt chart, represented by Light Orange.

**5. Backend Development and Group Divyy (Week 3-5):** Developing the backend logic and integrating voice recognition functionalities, ensuring seamless operation across manual and voice-activated modes for expense tracking and group management. In the Gantt chart, represented by Peach.

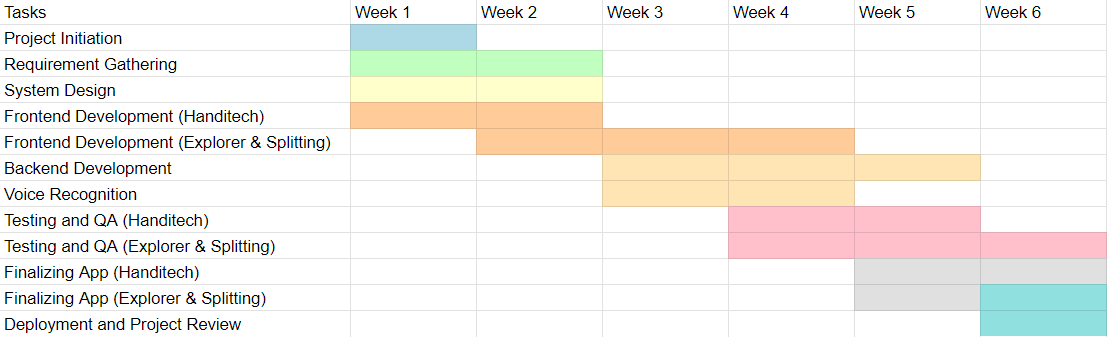
**6. Testing and Quality Assurance and User Testing (Week 4-6):** Conducting thorough testing of the software to ensure usability and functionality across different user modes, including manual expense tracking, budget update, and group expense management. User testing will be conducted to gather feedback and refine the application based on user experiences in each mode. In the Gantt chart, represented by Light Pink.

**7. Finalizing App (Week 5-6):** Making final adjustments and refinements based on user feedback and testing outcomes in Handitech, Explorer, and Splitting group modes to ensure the readiness of the application for deployment. In the Gantt chart, represented by Light Gray.

**8. Deployment and Project Review (Week 6):** Deploying the application for use by guest users and users in Explorer and Splitting group modes, ensuring a smooth transition and addressing any issues that may arise. Conducting a comprehensive project review to assess the overall outcome, document lessons learned, and plan for future enhancements based on the requirements of each mode. In the Gantt chart, represented by Light Teal.

By aligning the project phases with the specific requirements of different user modes, we ensure the successful development and deployment of a web-based expense tracking application tailored to meet diverse user needs.

GANTT CHART



**Figure 1: Gantt chart for developing the Expense Sharing**

**Web based App**

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