IN2901 – Software Development Project

Project Proposal

Level 2

Expense Tracker System

TODO

Faculty of Information Technology

University of Moratuwa

2023

Group Name	TODO
Project Name	Expense Tracker System
Client's Name and Address	Pahan Gunathilake BISTEC Global

	Index No	Name
Group Members	214228B	Wickramasingha W.U.M
	214235T	Wijesinghe W.D.A.C
	214189E	Senarathna G.G.P.C
	214162P	Priyashan H.M.L.S
	214101F	Karunarathna W.M.W.G.M.S

Supervisor's Names	1. Ms. R.G.C. Upeksha

Contents

1. Introduction

Expense tracking is a crucial part of financial management, helping you understand your spending habits and make informed decisions. Common methods for tracking expenses include manual methods like pen and paper or spreadsheet software, as well as digital solutions such as mobile apps, online platforms, and dedicated software. Key elements to record include the date, description, category, amount, payment method, and receipts.

By consistently tracking your expenses, you can gain insights into where your money goes, allowing you to create a budget, cut unnecessary expenses, and work towards your financial goals. Whether you prefer traditional methods or modern digital tools, finding a tracking method that suits your lifestyle is essential for effective financial management...

2. Problem in brief

1.1. Problem Statement:

The problem with expense tracking lies in incomplete data, forgotten transactions, and inconsistent categorization. Manual methods are time-consuming, while relying solely on bank statements lacks detail. Privacy concerns and the risk of overspending through mobile apps further complicate the process.

1.2. Background:

Expense tracking is vital for financial management. However, it can be challenging due to various factors. Manual tracking with pen and paper or spreadsheets often results in incomplete records and forgotten expenses. Bank statements offer convenience but lack transaction details and categorization.

Additionally, the increasing use of mobile apps raises privacy concerns, as these apps may access sensitive financial information. Furthermore, some individuals find it easier to overspend when using digital tracking methods. Balancing convenience with accuracy and privacy is essential for effective expense tracking.

3. Aim and Objectives

3.1. Aim

- The aim of this project is to develop an expense tracking system using ASP.NET, React, and MS SQL for effective financial management.

3.2. Objectives

- Explore and analyze technologies, including ASP.NET, React, and MS SQL, suitable for building an expense tracker.
- Design and develop a user-friendly and secure expense tracking system that allows users to manage their finances efficiently.
- -Evaluate the proposed solution's usability, accuracy, and security to ensure it meets the project's goals and user expectations.
- -Prepare comprehensive documentation that includes system architecture, user guides, and technical specifications for future reference and maintenance.

4. Proposed Solution

The proposed solution is to use digital expense tracking apps, which streamline expense monitoring with features like automatic categorization, customizable categories, and budget alerts. Regularly reviewing and reconciling transactions within the app ensures completeness and accuracy. Prioritizing apps with strong security measures safeguards your financial data and privacy. Additionally, enabling regular data backups prevents data loss and allows easy access for reference or device changes. This solution simplifies expense tracking, enhances data accuracy, protects privacy, and provides better financial control.

4.1. Nature of the Solution:

4.1.1. Digital Expense Tracking Apps: Utilize reputable expense tracking apps like Mint, YNAB, or PocketGuard. These apps offer automatic categorization, receipt scanning, and bank account synchronization, ensuring accurate and convenient expense monitoring.

4.1.2. Regular Check-Ins: Set aside time regularly, such as weekly or monthly, to review and reconcile your expenses within the app. This habit helps prevent forgotten transactions and ensures completeness.

4.1.3. Customized Categories: Personalize expense categories in the app to match your spending habits precisely. This reduces inconsistencies in categorization and provides a clearer overview of your financial behavior.

4.1.4. Privacy Protection: Prioritize apps with strong security measures, including encryption and multi-factor authentication, to safeguard your financial data. Read privacy policies carefully and grant app permissions selectively.

4.1.5. Budget Alerts: Enable budget alerts within the app to receive notifications when you approach or exceed spending limits in specific categories. This helps control overspending.

4.1.6. Regular Backups: Ensure your expense tracking data is regularly backed up to prevent data loss and enable easy access in case of app issues or device changes.

By implementing these solutions, you can streamline expense tracking, maintain data accuracy, protect your privacy, and gain better control over your finances. Remember to choose an app that aligns with your preferences and needs to maximize the effectiveness of your expense tracking efforts.

4.2. Technologies to be Adapted:

4.2.1. Front-end Technologies: ReactJs

4.2.2. Backend Technologies: ASP .net

4.2.4. Database: MS SQL

4.3. Feasibility of Implementation:

4.3.1.   ASP.NET:

4.3.1.1. Mature Framework: ASP.NET is a well-established and mature framework developed by Microsoft. It offers robust features for building scalable and secure web applications.

4.3.1.2. Security: ASP.NET provides built-in security mechanisms and libraries to protect against common web application vulnerabilities, making it a reliable choice for managing sensitive financial data.

4.3.1.3. Scalability: ASP.NET applications can easily scale both vertically and horizontally, ensuring that your expense tracker can handle increased user loads as it grows.

4.3.2.   4.3.2 React:

4.3.2.1. Rich User Interface: React is known for creating dynamic and responsive user interfaces. This is essential for providing users with an interactive and enjoyable experience while tracking expenses.

4.3.2.2. Modularity: React's component-based architecture promotes code reusability and maintainability, making it easier to develop and extend your application over time.

4.3.2.3. Community and Resources: React has a large and active community, which means you can find ample documentation, libraries, and resources to help with development.

4.3.3. MS SQL (Microsoft SQL Server):

4.3.3.1. Reliability: MS SQL is a highly reliable relational database management system. It is used in many mission-critical applications, including financial systems.

4.3.3.2. Data Integrity: MS SQL offers robust data integrity features, ensuring that your financial data remains consistent and accurate.

4.3.3.3. Scalability: MS SQL can scale both vertically and horizontally to accommodate increasing data loads.

4.4. Capability to Solve the Problem:

4.4.1. Technical Proficiency: The development team's expertise in ASP.NET, React, and MS SQL is essential. Skilled developers with knowledge of these technologies can efficiently design, build, and maintain the expense tracker.

4.4.2. Project Planning: Effective project planning, including defining requirements, timelines, and milestones, is crucial for problem-solving. A well-structured project plan helps manage complexity and ensures that the solution aligns with the problem statement.

4.4.3. Problem Analysis: Understanding the specific requirements and constraints of the expense tracker project is vital. Clear problem analysis enables the team to identify potential challenges and devise effective solutions.

4.4.4. Communication: Effective communication among team members, stakeholders, and end-users is key to resolving issues promptly. It ensures that everyone involved in the project is on the same page and can collaborate effectively.
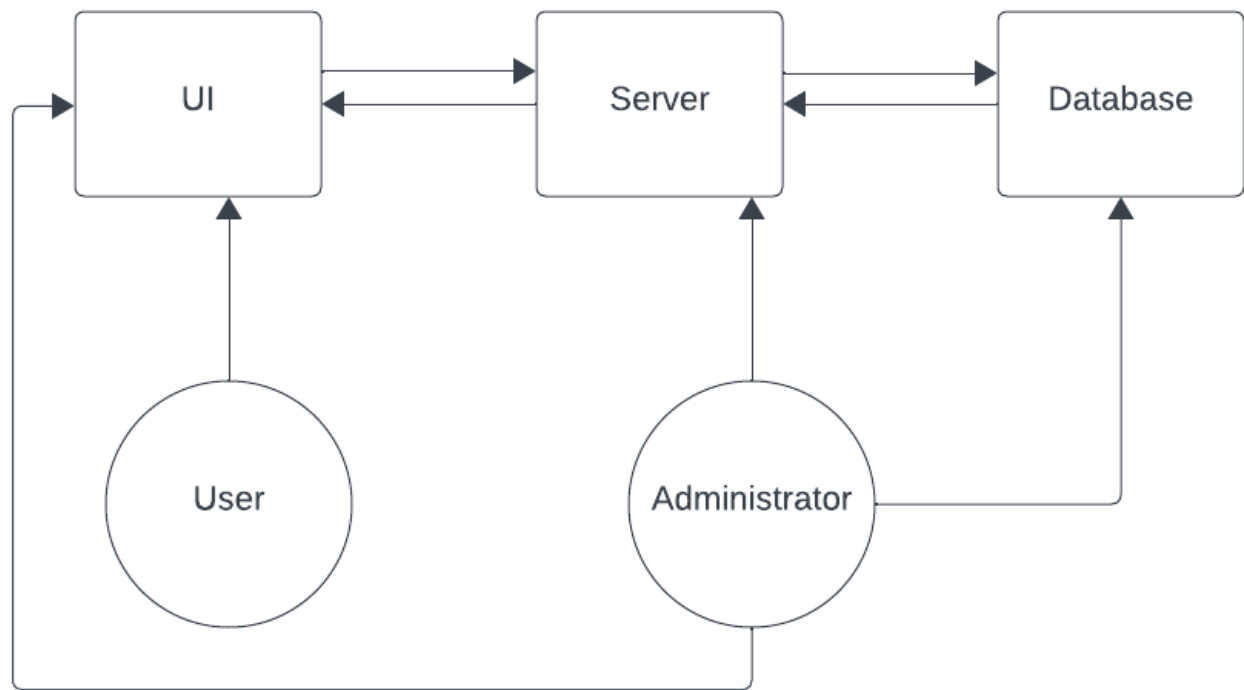
4.4.5. Resource Management: Proper allocation of resources, including human resources, time, and budget, is essential for successful problem-solving. Adequate resources enable the team to address challenges as they arise.

4.4.6. Testing and Quality Assurance: Rigorous testing and quality assurance processes help identify and rectify issues early in the development lifecycle. This ensures that the final solution is reliable and free from critical defects.

4.4.7. Flexibility and Adaptability: Problem-solving often involves adapting to changing requirements or unexpected challenges. A team's ability to adjust the project plan and technology stack as needed is essential for success.

4.4.8. Security and Compliance: When handling financial data, ensuring security and compliance with relevant regulations is paramount. The capability to implement robust security measures and adhere to compliance standards is critical.

4.4.9. Documentation: Comprehensive documentation of the solution's architecture, codebase, and deployment procedures aids in problem-solving and maintenance, as it provides a clear reference for the development team.

4.4.10. User Feedback: Listening to user feedback and incorporating user preferences into the solution can enhance problem-solving capabilities. A user-centric approach helps address usability issues and improve the overall experience.

4.4.11. Continuous Learning: Staying updated with the latest developments in ASP.NET, React, MS SQL, and best practices in software development is crucial. Continuous learning enables the team to adapt and solve evolving challenges effectively.

4.5. Availability of Resources:

The availability of resources is a critical factor in the successful execution of any project. Resources encompass a wide range of elements, including financial, human, technological, and physical assets. Having adequate resources ensures that a project can be completed on time and within budget while meeting its objectives. This availability extends to financial funding, skilled personnel, necessary equipment and technology, and physical infrastructure. Effective resource allocation and management are essential to optimize efficiency and productivity, allowing organizations to deliver high-quality outcomes and achieve their strategic goals. Therefore, careful planning and allocation of resources are fundamental aspects of project management and organizational success.

Possible access level for each user level
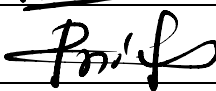
References

1. ReactJS documentation (https://react.dev/blog/2023/03/16/introducing-react-dev)

2. Version control with GitHub (https://docs.github.com/en)

3. ASP.NET (ASP.NET | Open-source web framework for .NET (microsoft.com)

5. Timeline

Time duration	Oct				Nov				Dec				Jan				Feb				Mar				Apr				May				Ju	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
Project proposal submission	█	█	█																															
Requirement gathering					█	█	█																											
Document uml diagrams								█																										
Desing UI and UX									█																									
Study and develop frontend										█	█	█	█	█	█	█	█	█	█	█														
Develop backend																	█	█	█	█	█	█	█	█	█									
Integrate backend with frontend																										█	█	█						
System testing																														█	█			
Deployment																																█		
Project Clouser																																	█	█

Signatures of the Group Members

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Supervisors' Declaration

I hereby declare that I have checked this project, and, in my opinion, this project is adequate in terms of scope and quality.

1. Name of Supervisor   :   Ms. R.G.C. Upeksha

    Designation   :   Lecture, Department of Information Technology

    Date   :   /   / 2023

    Signature   :

    Any further comments :