Sukkur IBA University

Department of Computer Science

FYP PROPOSAL

The Student Assistant: AI-Enabled Academic and Financial Management

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BATCH FALL-2020

Abstract

Students presently face numerous difficulties in focusing on the academics in complement to other dubious financial and daily life inconveniences. Hence, proposed final year project entails the creation of an integrated student utility app enriched with artificial intelligence (AI) capabilities. This comprehensive app is designed to significantly improve students' academic management and financial control within the university environment. The project's primary focus includes the development of a robust finance/budget tracking feature, enabling students to efficiently manage their expenses and enhance financial literacy. Leveraging AI, the application will also automate the extraction of timetable information from university emails, streamlining schedule organization. Furthermore, the integration of a virtual AI assistant will provide personalized guidance to users. This project aims to create a practical solution that empowers students to navigate their academic journey more effectively and underscore the value of AI integration in educational technology.

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1.0 Introduction

Our proposed final year project involves developing an integrated student utility app enhanced with the capabilities of artificial intelligence (AI). This endeavor seeks to bridge the gap between academic and financial management, offering students a multifunctional tool that not only eases the complexities of university life but also harnesses the potential of AI to provide intelligent assistance.

This project is fueled by the recognition that today's students face multifaceted challenges beyond the academic sphere, particularly in the domains of finance management and time organization. Through the integration of cutting-edge technologies, such as AI and data analysis, we endeavor to create an application that serves as a digital companion for students, assisting them in these crucial aspects of their university experience. By focusing on financial budgeting, timetable organization, and AI-driven personalized assistance, our project aspires to empower students to optimize their academic pursuits and make informed financial decisions.

In the subsequent sections of this proposal, we will outline the detailed components of our envisioned student utility app, the methodologies we plan to employ, and the anticipated outcomes. As technology continues to reshape education, this project stands as a testament to the potential of innovative solutions in enhancing the quality of students' lives within the academic realm.

2.0 Background and Problem Identification

In the modern educational landscape, technology has revolutionized the way students interact with their academic environment. The proliferation of smartphones and mobile applications has presented new avenues to streamline various aspects of student life. However, despite the abundance of applications catering to specific needs, there remains a distinct lack of a comprehensive platform that seamlessly integrates academic, financial, and personal management for university students. Recognizing this gap, our proposed final year project seeks to develop an innovative solution that

combines advanced technologies, such as artificial intelligence (AI) and data analysis, to address the multifaceted challenges faced by students.

Within the university ecosystem and outside as well, students often encounter challenges that extend beyond the classroom. Chief among these challenges are effective financial management and efficient organization of academic schedules. Many students struggle with creating and maintaining budgets, leading to financial stress and mismanagement of resources. Additionally, the process of manually organizing and managing academic timetables obtained from university emails can be time-consuming and error-prone.

The absence of a unified platform that seamlessly integrates financial tracking, timetable management, and personalized assistance exacerbates these challenges. Existing solutions tend to offer singular functionalities, creating a disjointed user experience and requiring students to juggle multiple applications. This results in inefficiencies, missed opportunities, and undue stress.

Moreover, while AI has made significant strides in various domains, its potential in enhancing student experiences remains largely untapped. Integrating AI-driven features, such as intelligent timetable extraction and personalized assistance, into a single application can offer a transformative solution to these problems.

Addressing these challenges through a comprehensive student utility app not only simplifies students' lives but also lays the foundation for a more productive and fulfilling academic journey. In the subsequent sections, we will delve into the details of our proposed solution, its components, and the methodologies we intend to employ to create an application that empowers students to navigate their academic and financial responsibilities with ease and confidence.

3.0 Proposed Work and its Methodology

Phase 1: Requirement Analysis and System Design

- Requirement Gathering:
  - Conduct surveys and interviews. Gather insights from university faculty

- System Design:
  - Design the UI and flow of the app.
  - Define the architecture for integrating AI components and data management.

Phase 2: Development of Core Functionalities

- Finance/Budget Tracker:
  - Implement a user-friendly interface for expense tracking and budget creation.
  - Integrate data visualization tools for users to analyze their financial trends.

- Timetable Extraction using AI:
  - Utilize natural language processing (NLP) techniques to extract and organize timetable information from university emails.
  - Develop algorithms to automatically update and manage the timetable within the app.

Phase 3: AI-Powered Personalized Assistance

- Virtual AI Assistant:
  - Integrate a virtual AI assistant.
  - Customize the AI assistant to provide personalized information, reminders, and assistance.

Phase 4: Testing and Validation

- Functional Testing:
  - Thoroughly test each functionality of the app to ensure seamless operation.
  - Identify and rectify any bugs, glitches, or user experience issues.

- User Acceptance Testing:
  - Conduct usability testing with a sample group of students to gather feedback.
  - Refine the app based on user feedback and suggestions.

Phase 5: Evaluation and Performance Metrics

Phase 6: Documentation

4. 0 Project Management

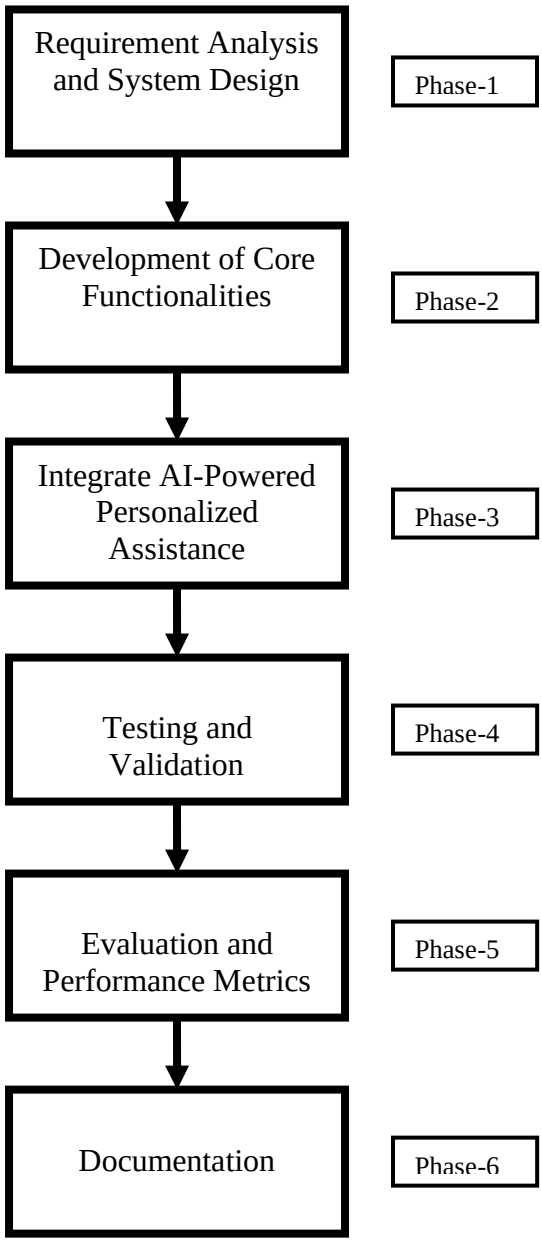
We have adopted an **Agile methodology** for our project due to its suitability for our small team size and the dynamic nature of the development process. This approach will enable us to work collaboratively, accommodate changes, and deliver functional components of the student utility app.

- Roles and Responsibilities
  - Using Agile methodology, we shall be able to exchange the roles but by ground zero:
    - **Product Owner:** Agha Kaleemullah. Define and prioritize app features based on user needs. Provide regular feedback and validation of delivered features.
    - **Scrum Master:** M. Aizaz Ullah Khan. Facilitate Scrum practices and ceremonies. Remove obstacles and ensure the team's productivity and communication.

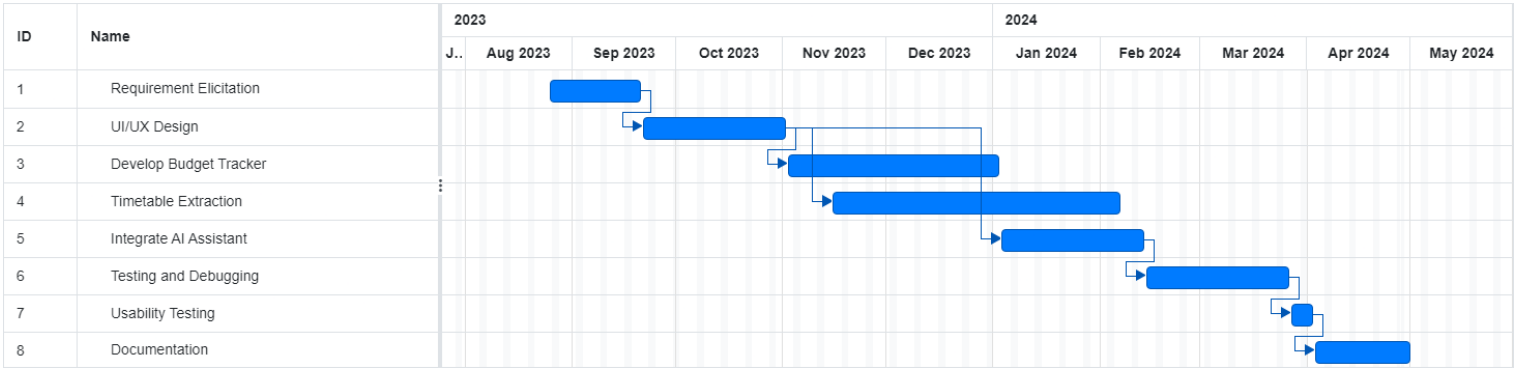
- Development Team:
  - **Asghar Ali Shah:**
    - Design and implement user interfaces.
    - Integrate AI components.
    - Implement AI-driven timetable extraction.

- **M. Aizaz Ullah Khan:**
  - Develop budget tracking feature.
  - Ensure seamless app functionality.
- **Agha Kaleemullah:**
  - Integrate virtual AI assistant.
  - Partner in development tasks.

5.0 Project Breakdown



5.1 Project Timeline



5.2 Tools Required

- Android Studio for Android app development in kotlin.
- XCode for iOS app development in Swift.
- Git for version control
- FireBase OR SQL OR MongoDB for Database Management
- Python tools and Jupyter Notebook for AI Integration and Visualization
- Figma for UI Design
- Jira for project management
- Discord for communication
- Microsoft Word for documentation
- CloudService platform
- Testing platform

5.3 Project Feasibility:

1. Technical Feasibility:

With expertise in Kotlin, swift, and Python and a foundational understanding of AI, the team possesses the necessary skills for app development and AI components incorporation. Access to Android Studio, XCode, and relevant libraries, and resources further support technical feasibility.

2. Financial Feasibility:

A preliminary budget estimate has been formulated, encompassing expenses for software licenses, cloud services, and potential unforeseen costs. While the exact financial viability will depend on funding availability, the initial assessment suggests that the project's financial demands **can be met**.

3. Operational Feasibility:

The project's development timeline and task allocation are aligned with the capabilities of the three-member team. Agile methodology adoption and regular communication strategies enhance operational efficiency, ensuring the project can be executed within the allotted time frame.

4. Market Feasibility:

The proposed app addresses a distinct need for students, offering a consolidated platform for academic and financial management, enhanced by AI features. Given the unique nature of the app and the potential to fill a gap in the market, there is a strong indication of positive user demand and acceptance.

5. Legal and Ethical Feasibility:

The rigorous adherence to data protection regulations will govern the collection and handling of user data. Ethical considerations concerning user privacy and AI interactions will be central to app development, aligning with legal and ethical standards.

6. 0 Conclusion

In conclusion, our proposed final year project envisions a student utility app seamlessly integrating AI for academic and financial enhancement. By addressing the complexities of university life, from budget tracking to timetable management, the app aims to empower students with a user-friendly solution. This initiative not only streamlines daily tasks but also showcases the potential of AI in education. As we embark on this journey, we recognize the challenges and opportunities that await. With determination and collaboration, we strive to create an innovative tool that not only improves student experiences but also paves the way for AI's transformative role in education.