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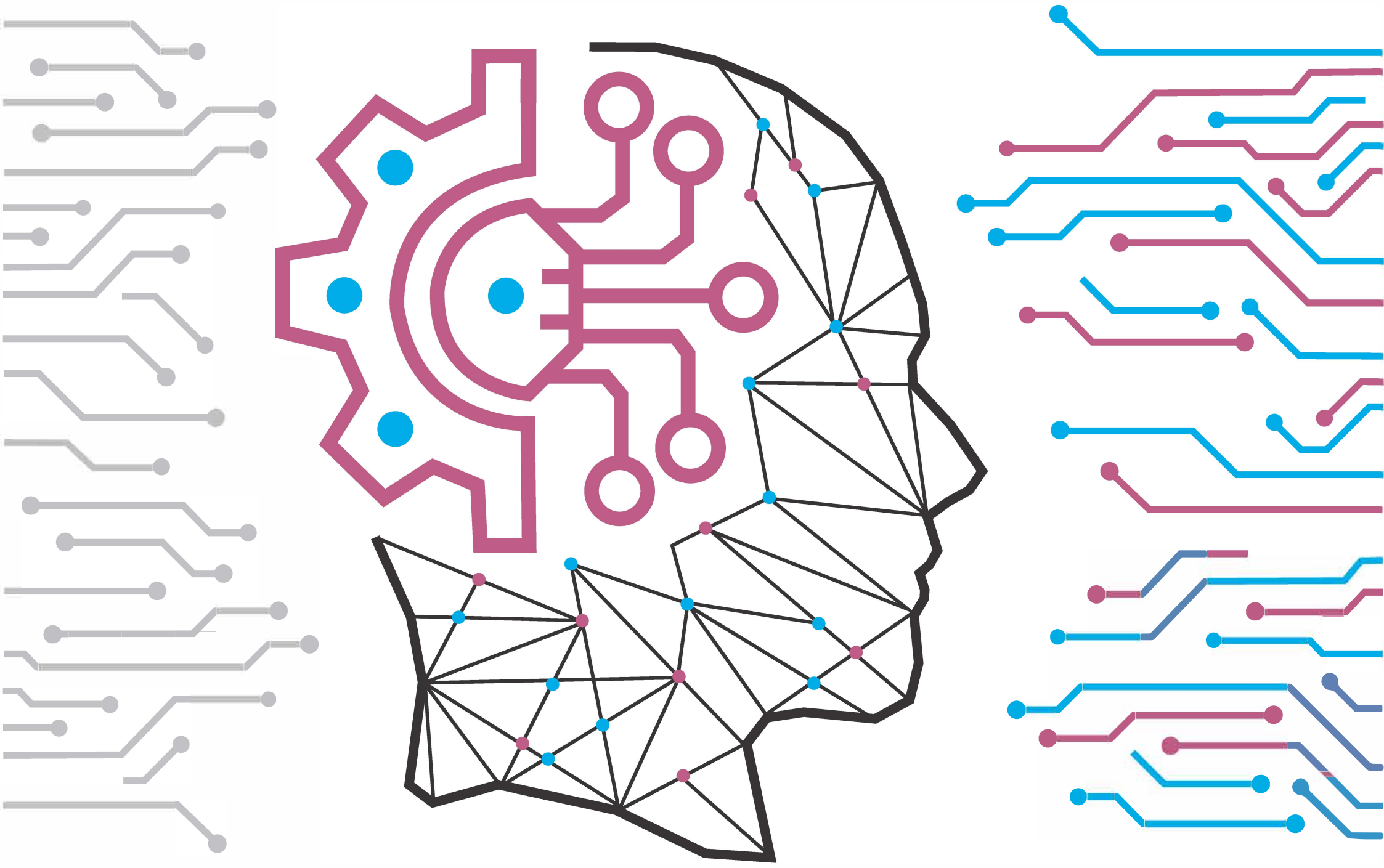

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EXTENDED ABSTRACTS

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VISUALISING STUDENT FINANCES: A DATA-DRIVEN APPROACH

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ABSTRACT

This project employs data visualization techniques to aid university students in managing their finances effectively, addressing prevalent challenges such as financial stress and poor decision-making stemming from a lack of resources and personalized planning tools. Through intuitive visualization, the app simplifies complex financial data, empowering students to make informed choices. Following the Waterfall Model, the project progresses through planning, designing, developing, testing, and deploying phases. Its significance lies in enhancing financial management skills, alleviating stress, and fostering healthy financial habits among students. By tailoring a personalized tool, the research contributes to financial planning, aiming to meet the unique needs and objectives of university students. An experiment done with a sample size of 30 students demonstrates favorable responses, validating the efficacy of the selected visualization methods. However, limitations include reliance on Android and internet access, and targeting solely university students. Future enhancements entail expanding to iOS for broader accessibility and integrating artificial intelligence for expense forecasting, aiming to accommodate diverse user demographics.

Keyword: data visualization, finance management, financial planner apps

1. INTRODUCTION

This project gives priority to providing essential financial management skills to university students, recognizing the typical issues they face when managing finances with limited resources. Using budgeting tools, spending limitations are defined across various consumption categories, allowing students to track expenses and make necessary adjustments if budgets are exceeded or underutilized. Research indicates that financial education positively influences subsequent financial behavior, underscoring the importance of financial planning for students (Zhang, Sussman, Wang-Ly, & Lyu, 2022; Lusardi & Mitchell, 2014; Mandell & Klein, 2009). By integrating data visualization into a financial planner app, the project aims to enhance students' financial planning capabilities,

addressing usability concerns identified in existing apps and tailoring the solution specifically to the needs of university students (Chang et al., 2018). This approach ensures that students can easily track their expenditures and make wise financial decisions, allowing them to better manage their finances.

Visualization is widely acknowledged as an important tool for university students in financial planning, and it has demonstrated its effectiveness in a variety of situations. According to a study conducted by Chang et al. (2018), the use of data visualization approaches greatly helped the Centre for Educational Performance and Information (CEPI) understand local education data in Michigan. This technique not only facilitated school district improvement planning but also improved the clarity and openness of the state's education and workforce. It ensured that data was provided in a way that was easy for stakeholders to understand and access. This project aims to visualize students' financial data in order to generate customized financial reports. These reports will be based on user input and will help users track their spending records and understand their financial condition more effectively. The app offers students a simple and useful tool for financial planning, enabling them to attain their financial objectives and nurture healthy financial habits.

2. METHODOLOGY

The project employed the Waterfall model, which is a systematic and organized approach to software development. It provides precise milestones and well-defined deliverables. The phases encompassed in the process are the original needs of planning, development, testing, and deployment (Naga, Kumar, Sathvika, 2018).

2.1 Planning

The planning phase was pivotal in developing a data visualization for a student financial planner as it established the fundamental concepts required for a successful and efficient execution. The document included most of the project prerequisites for addressing the problem statement, defining the scope, and accomplishing the initial project objectives.

2.2 Development

The technical implementation of data visualization in a financial application was a crucial step in the project development process. It involved designing data visualization for the Student Financial Planner application and utilizing programming languages and frameworks that were suitable for developing data visualization. This phase focused on converting the design specification into functional code. Key aspects included data production using the chosen data visualization technique. We conducted thorough testing and debugging to ensure that the data visualization for Student Financial Planner operated accurately and effectively in managing user interactions. During the development process, it was important to adhere to software development best practices and coding standards to ensure that the Student Financial Planner application was modular, scalable, and maintainable.

2.3 Testing

A group of 30 university students evaluated the application through face-to-face interactions. Participants utilized the application and offered feedback by filling out the given questionnaire. This

process allowed for the collection of valuable feedback and insights from intended users, helping in the identification of any usability issues, areas for improvement, or features that might have required enhancement.

2.3 Deployment

The deployment phase signifies the point at which the data visualization technique was fully prepared and accessible for students to evaluate and experiment with. This phase encompasses a range of tasks aimed at ensuring a successful deployment. Initially, the project team established the necessary infrastructure to host the Student Financial Planner. The code and resources for the Student Financial Planner were then distributed on an Android smart device for the purpose of simulating real-life testing.

3. FINDINGS

Figure 1 displays a pie chart that illustrates feedback from users regarding the most beneficial and pleasant elements of the Student Financial Planner programmed. The feature of 'Set Savings' was identified as the most valued, with 27.6% of people specifically recognizing it as exceptional. The 'Progress Bar' was highly acclaimed and accounted for 20.7% of the overall preference share. Additional functionalities such as 'Insert Income', 'Insert Expenses', 'Pie Chart', and 'Bar Chart' were also well-received, with each receiving approximately 10–14% of user choice.

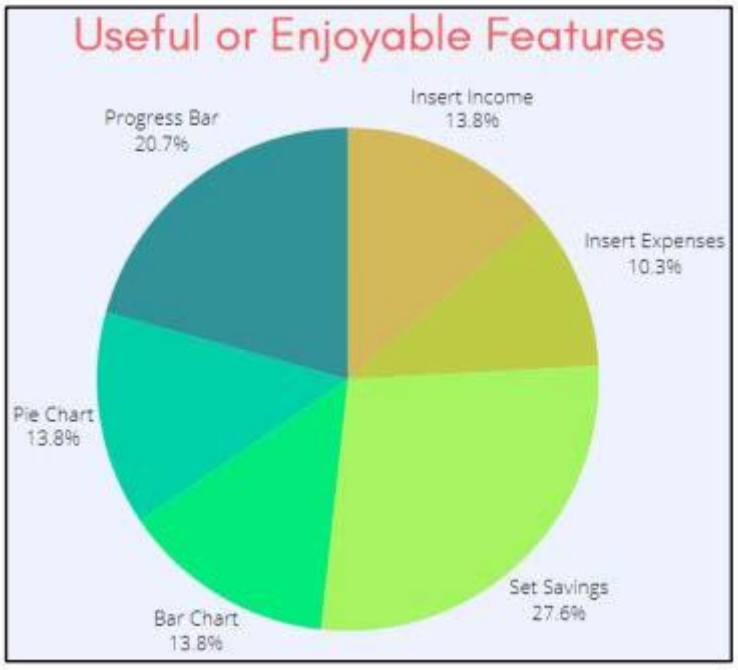

Figure 1 Overall useful enjoyable features.

4. CONCLUSION

The study participants expressed overwhelmingly positive feedback for the Student Financial Planner application, often describing it as "excellent and highly informative". The users appreciated the application for its ease of use and intuitive interface, highlighting that it offers effective capabilities without any needless complications. Therefore, we are able to conclude that the visualization technique employed in the Student's Financial Planner in this project is effective and aids students in managing their finances efficiently.

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