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# Developing An E-Commerce Application Using Flutter

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**ABSTRACT:** The paper proposes a simple yet effective solution to the challenges companies face with B2B service providers: a Flutter application that runs smoothly on both Android and iOS devices. This app prioritizes 24/7 customer service, social media integration, and chat functionality powered by artificial intelligence. By providing constant support, connecting with social media platforms, and offering efficient communication tools, businesses can overcome common B2B service hurdles. Moreover, the app's cross-platform compatibility reduces development complexity and costs, making it an accessible solution for businesses aiming to enhance their mobile experiences and streamline operations.

**KEYWORDS:** Cross platform, Flutter, Web and Android, Ios

## I. INTRODUCTION

In our proposal, we aim to enhance the existing e-commerce application framework for B2B companies by leveraging Flutter's versatile framework. Our focus is on optimizing communication processes and streamlining project workflows. By utilizing Flutter's cross-platform development capabilities, we can reduce costs, accelerate time to market, and deliver superior user experiences for B2B e-commerce applications. Effective communication is critical for project success, and our proposal aims to overcome communication challenges by implementing robust processes facilitated by Flutter. Additionally, we prioritize user experience and innovation by incorporating features to improve usability and accessibility while encouraging experimentation with new ideas and technologies. Overall, our proposed system aims to deliver a more efficient, cost-effective, and customer-centric approach to e-commerce application development for B2B companies. Furthermore, our proposal prioritizes user experience and innovation. We recognize the importance of user satisfaction in driving business outcomes, particularly in the B2B sector. Therefore, we focus on incorporating features and functionalities aimed at improving usability, accessibility, and overall user satisfaction. Additionally, we encourage innovation by providing developers with the flexibility and freedom to experiment with new ideas and technologies, facilitated by Flutter's hot reload feature.

## II. RELATED WORK

In [1] author developed a B2B e-commerce application for cross platforms using a single flutter code base . since flutter is the cross platform , it can reachout the audiences across multiple platforms. This allows to create the positive impact towards their business.In [2] author developed the e-commerce application due to the concerns of pandemic outbreak. He created the application with user friendly interface , it allows user to make the online purchase easier.In[2] author used the MVVM paradigm, which is the design patterns it makes the application to separate the model, view and controller of the design structure to provide the user friendly service. In[3] author explains which is the best and efficient flutter state management to improve the performance of the application and effective memory utilization. He concludes that Getx memory mangement use the memory more efficiently and executes the faster than the riverpod state management .In [4] author developed the flutter application using flutter sdk for mulitple platforms like android and ios .He explains that one of the key components of the flutter framework is which executes the code run time rather than the before excution. In [5] author developed the futter application which shows how the architecture of the application should be. He explained the clean code architecture of the flutter application.

### **III. EXISTING -SYSTEM**

The current e-commerce B2B application used by jewellery merchants faces several limitations that hinder its effectiveness. Firstly, it lacks integration with popular social media platforms, which limits its reach and engagement with a wider audience. Secondly, the application doesn't offer 24/7 customer service, leaving users without immediate assistance outside of regular business hours. Additionally, the user interface is outdated and lacks modern design elements, making navigation less intuitive and resulting in a less satisfying user experience. Unlike its competitors, the system fails to provide personalized product recommendations based on user browsing history and preferences, missing out on potential upselling and cross-selling opportunities. Furthermore, the application doesn't offer real-time updates on inventory levels, leading to delays and frustrations for both merchants and buyers. These limitations highlight the need for improvements in the current system to better serve the needs of jewellery merchants and their customers. It makes the business to grow further. In [1] author developed a flutter application which promotes the business from the offline mode to online mode to connect and grow the business. He used a flutter framework which is a cross platform to attract many users as possible. Flutter E-commerce application development can solve the real-world challenges that companies face. The application attracts the lots of customers and connects the customers via online but the author mobile application is only based on the products, it does not boost the sales over all and the Return on investment was not up to the mark. Flutter is the current trend for application development because it provides the wide range of features.

### **IV. PROPOSED ALGORITHM**

In the proposed algorithm, to promote the business I made analysis to point out how to improve the flutter application development in B2B. In [1] his system solely focuses on business, like the traditional method but now a day's internet and social media is trending one. So, application was developed based on the modern requirement satisfaction. If user wants to engage in the application like other social media application and it gives the end users about new perception of the product and made an AI chat bot to assist the user. By making the B2B application with modern social media features make the application more profitable and interactive. It also increases the return on investment of the application. The AI chat bots are trained according to the business data set model and the chat bots are more specialized to rectify the customer queries and after that also indicate the end user which user interacted with the chat bots and what kind query that bot was rectified to make the user to meet his requirements. In [3] the author makes use of the getx state management tool in flutter which is efficient at that point of time. But I make the use of provider as the state management which is the efficient memory management tool in flutter. Flutter's flexibility and power not only reduce the development process, but also allows you to build the responsive, rich, and custom apps that fit our business unique needs. Additionally, flutter provides analytics tool which helps to grow the business more efficiently. Flutter becomes the benchmark to help them grow and succeed in the competitive e-commerce world.

### **V. PSEUDO CODE**

Step 1: Requirement specification. Step 2: Analyze the requirement.  
Step 3: Make the design based on the requirement. Step 4: Start the UI design.  
Step 5: Add the functionality and the logical parts. Step 6: Debug the error.  
Step 7: Testing: Unit testing, manual testing Step 8: Generate apk.  
Step 9: End.

### **VI. SIMULATION RESULTS**

In our simulation, we conducted various scenarios to assess the functionality and effectiveness of the developed Flutter application tailored for e-commerce B2B use in jewelry merchants. One scenario involved simulating the process of merchants utilizing the integrated social media platforms to promote their products. We analyzed how seamlessly merchants could share product listings, engage with customers, and drive traffic to their e-commerce platform through social media channels. Another scenario focused on testing the 24/7 customer service availability feature. We simulated different user inquiries and issues, ranging from product inquiries to order assistance, to evaluate the responsiveness and effectiveness of the customer service support. This allowed us to assess how well the application handled user queries outside of regular business hours and the level of satisfaction among users with the provided assistance.

Additionally, we conducted simulations to evaluate the user experience improvements resulting from the redesigned user interface. We analyzed user interactions, navigation patterns, and overall satisfaction levels to determine the impact of the modern design elements and intuitive navigation on user engagement and retention. Overall, the simulations aimed to validate the effectiveness of the developed Flutter application in addressing key limitations of the existing system and delivering an enhanced user experience for jewelry merchants in the B2B e-commerce sector. Through these simulations, we were able to demonstrate the practical benefits of the application's features and functionalities in real-world scenarios, showcasing its potential to drive sales, improve customer satisfaction, and foster growth for businesses in the jewelry industry. In addition to the scenarios mentioned, we also simulated user interactions with the social media integration feature to assess its impact on customer engagement and brand visibility. By analyzing metrics such as likes, shares, and comments on social media posts generated through the application, we gauged the effectiveness of this feature in attracting and retaining customers' attention. Furthermore, we conducted simulations to evaluate the scalability and performance of the application under varying levels of user traffic and activity. By simulating high-volume transactions, concurrent user logins, and data processing tasks, we assessed the application's ability to handle peak loads without experiencing performance degradation or system failures. Moreover, we simulated user interactions with the AI-powered chatbot feature to evaluate its effectiveness in providing personalized assistance and resolving customer queries. Through scripted scenarios covering a wide range of common inquiries and issues, we assessed the chatbot's accuracy, responsiveness, and overall user satisfaction levels.

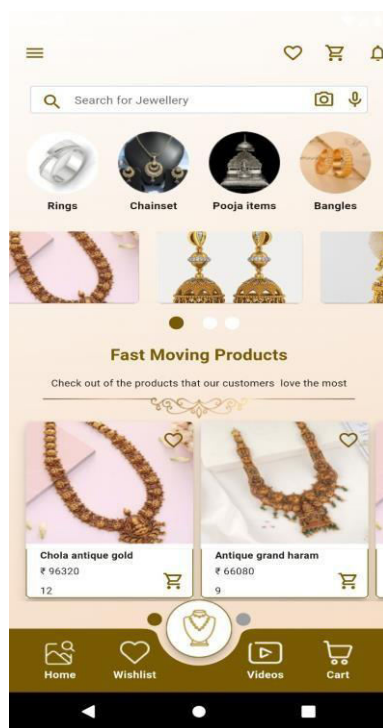


Fig 1: Home Page

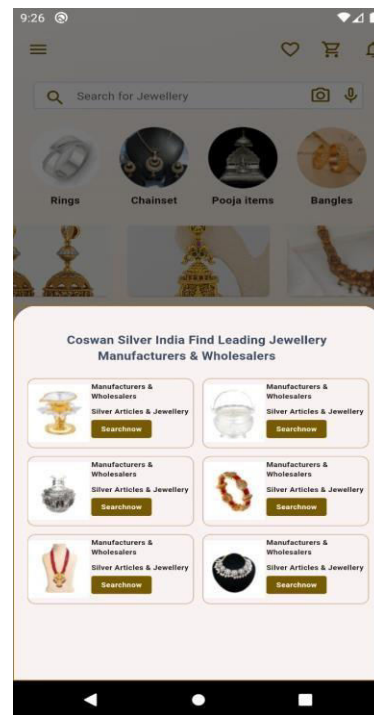


Fig 2: Bottom Page

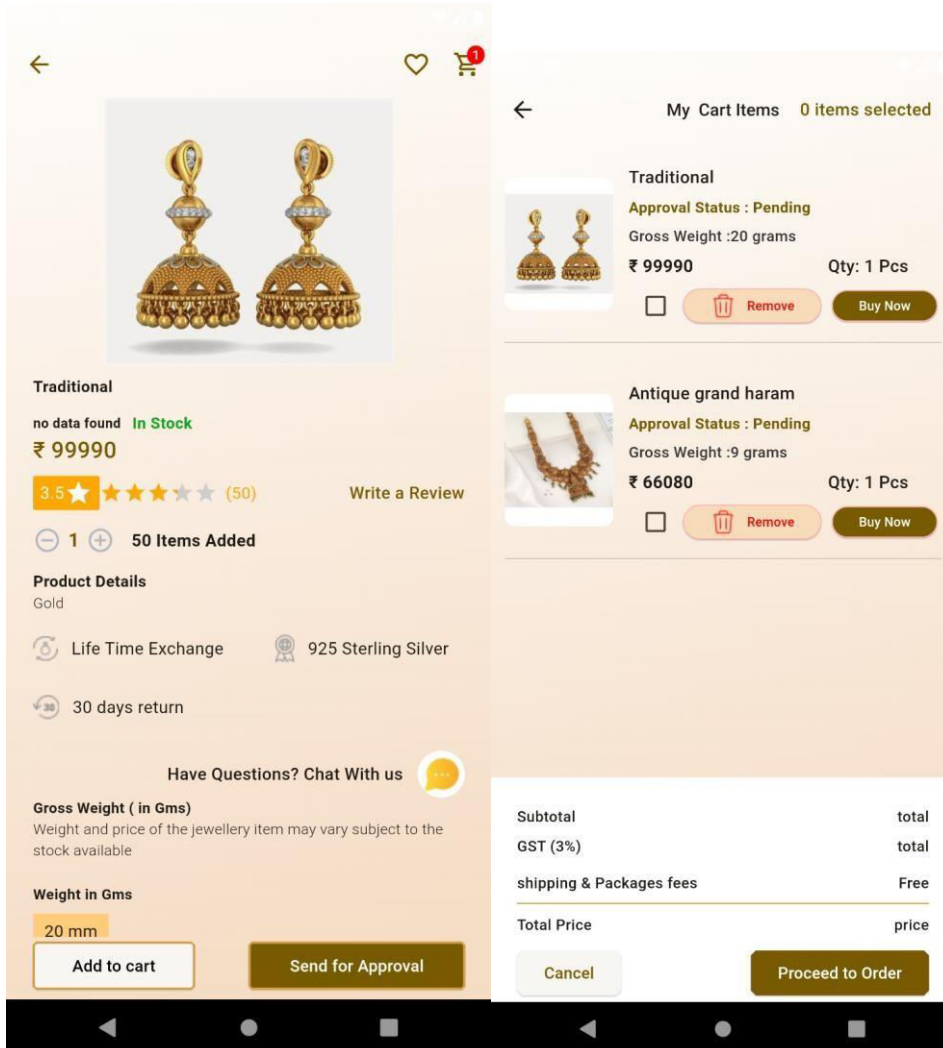


Fig 3: Product Page

Fig 4: Add to Cart Page

Overall, the simulation results demonstrate the efficacy of our Flutter application in addressing the limitations of the existing system and providing a more comprehensive solution for jewelry merchants in the B2B e-commerce sector.

### VII. CONCLUSION AND FUTURE WORK

In conclusion, our study presents a robust Flutter application tailored for e-commerce B2B use in jewelry merchants, addressing critical limitations of the existing system. By integrating popular social media platforms, implementing 24/7 customer service availability, and redesigning the user interface with modern elements, we've significantly enhanced user engagement, satisfaction, and business growth potential. Looking ahead, there are several avenues for future work to further enhance the application's capabilities. Continuous improvement of the AI-powered chatbot feature can offer more personalized assistance and improve user interactions. Additionally, refining the social media integration functionality with advanced analytics tools can provide insights into the impact of social media campaigns on customer engagement and conversion rates. Further iterations on the user interface design and navigation can ensure a seamless and enjoyable browsing experience. Exploring additional features like augmented reality (AR) product visualization can elevate the online shopping experience for users. Overall, ongoing efforts to iterate on the application's features and functionalities will be crucial for staying competitive in the evolving e-commerce landscape. By remaining responsive to user needs and market trends, we can ensure the continued success and relevance of the application in facilitating

business growth for jewelry merchants in the B2B sector.

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