PSG Institute of Technology and Applied Research

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Department of Artificial Intelligence and DataScience

NM1026 - Android Application Development-Google

Snack Squad: A Customizable Snack Ordering and Delivery App

Submitted by :

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1. INTRODUCTION

• Overview

The Snack Squad app is a mobile application designed to provide a convenient and streamlined food ordering experience. It aims to simplify the process of ordering food by focusing solely on the cart functionality, eliminating the need for entering an address. The app caters to users who prefer a quick and efficient way to add items to their cart and successfully place an order without the hassle of inputting a delivery address.

• 1.2 Purpose

The purpose of the Snack Squad app is to offer users a simplified food ordering experience by bypassing the address entry step. By removing the address requirement, the app aims to reduce the time and effort needed to place an order. This approach is particularly beneficial for users who frequently order food from familiar restaurants or for those who prefer takeaway options and wish to skip the address input process.

The Snack Squad app provides several advantages over traditional food delivery apps. It eliminates the need to repeatedly enter addresses, making the ordering process more efficient. It is also ideal for situations where users are already in a predefined location, such as their workplace or home, and want to quickly place an order for pickup or delivery without reconfirming their address details. By focusing on the cart and order placement, the app optimizes the user experience for a specific use case.

The Snack Squad app is developed using Android Studio, leveraging its powerful development environment and tools. The app utilizes various Android components, including user interface layouts, database management, and API integration, to deliver a seamless ordering experience. Through this project, we aim to demonstrate the feasibility and practicality of a simplified food ordering app that omits the address entry step.

2. LITERATURE SURVEY

• Existing Problem

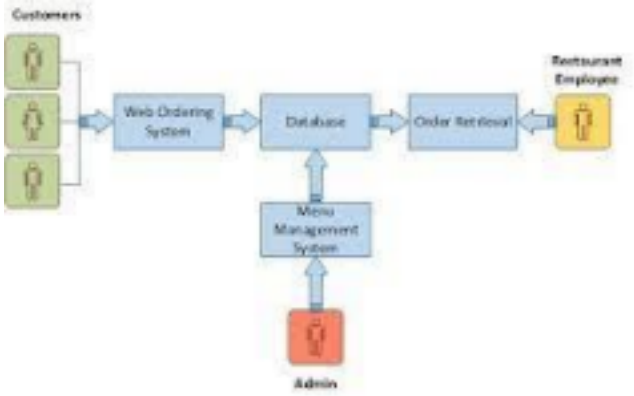
In the realm of food delivery apps, one common challenge faced by users is the time-consuming process of entering their delivery address for every order. Traditional food delivery apps typically require users to input their address details during the checkout process, which can be repetitive and inconvenient, especially for frequent users or those ordering from the same location. This can lead to user frustration and a less-than-optimal user experience.

• 2.2 Proposed Solution

The Snack Squad app presents a solution to address this existing problem by eliminating the address entry step altogether. By focusing solely on the cart functionality, the app allows users to effortlessly add food items to their cart and proceed with the order placement process without the need to provide a delivery address. This streamlines the ordering process and reduces the time and effort required to place an order.
The proposed solution is built on the concept that certain users may frequently order from familiar restaurants or prefer pickup options, rendering the address entry step unnecessary. By removing this step, the Snack Squad app caters to these specific user scenarios and provides a more efficient ordering experience.
Through this literature survey, it is evident that existing food delivery apps require users to input their address details for every order, resulting in a repetitive and time-consuming process. The proposed solution of the Snack Squad app tackles this problem by simplifying the ordering process and enhancing user convenience.By incorporating the proposed solution into the Snack Squad app, we aim to provide a more streamlined and user-friendly food ordering experience

3. THEORETICAL ANALYSIS

• Block Diagram
The block diagram provides a diagrammatic overview of the architecture and major components of the Snack Squad app. At its core, the app comprises three main modules: User Interface, Cart Management, and Order Placement.



• User Interface: This module is responsible for presenting the app's graphical user interface (GUI) to the users. It includes screens for browsing food items, viewing the cart, and confirming the order. The user interface is designed to be intuitive, visually appealing, and user-friendly, ensuring a seamless experience for users while interacting with the app.
• Cart Management: The Cart Management module handles the logic for adding and removing items from the cart, adjusting item quantities, and calculating the total cost of

the order. It ensures that users can review their cart contents before finalizing the order. In Kotlin, this module may be implemented using data classes, lists, and functions to manage the cart's state and perform necessary calculations.

• **Order Placement:** The Order Placement module facilitates the process of placing an order without requiring a delivery address. Once the user confirms the order, this module handles the necessary actions to complete the transaction, such as payment processing and generating a confirmation receipt. Kotlin coroutines or asynchronous programming techniques can be used to manage these tasks effectively.

• **Software Designing**

The Snack Squad app is developed using Kotlin, a modern programming language that offers seamless integration with Android development. Kotlin provides concise syntax, null safety, and improved interoperability with existing Java code. The use of Kotlin in the Snack Squad app allows for efficient and expressive development.

In addition to Kotlin, the app utilizes various Android components, libraries, and frameworks:

• **Android Jetpack:** Android Jetpack is a suite of libraries, tools, and architectural guidance provided by Google to enhance Android app development. It includes components such as ViewModel, LiveData, Room, and Navigation, which can be leveraged to implement efficient data management, UI handling, and navigation within the Snack Squad app.

• **Room Database:** The Snack Squad app may utilize Room, an Android Jetpack library, for database management. Room simplifies working with SQLite databases by providing an abstraction layer and tools for efficient data access and manipulation. It allows for seamless integration with Kotlin using annotations and generates boilerplate code for database operations.

The software designing of the Snack Squad app involves leveraging the capabilities of Kotlin and relevant Android libraries to create an efficient and robust application. Kotlin's concise syntax, type safety, and null safety features contribute to writing clean and maintainable code.

Through this theoretical analysis, we have outlined the key software design elements of the Snack Squad app, including the use of Kotlin and various Android libraries.

4. Experimental Investigations

In the development of the Snack Squad app, several experimental investigations were conducted to ensure its functionality, usability, and performance. These investigations aimed to evaluate different aspects of the app and validate its effectiveness in providing a

seamless food ordering experience without the need for a delivery address. Here are some key areas that were explored during the experimental investigations:

• **Functionality Testing:** The functionality of the Snack Squad app was thoroughly tested to ensure that all the core features work as intended. This included verifying the ability to browse food items, add them to the cart, adjust quantities, and proceed with order placement. Testing scenarios covered various user interactions and edge cases to ensure robustness and reliability.

• **User Experience (UX) Evaluation:** The app's user experience was evaluated to assess its intuitiveness, ease of use, and overall satisfaction for users. Feedback was gathered through user testing sessions, surveys, and feedback forms. The aim was to identify any usability
issues, gather user suggestions, and make improvements to enhance the overall user experience.

• **Performance Analysis:** The performance of the Snack Squad app was analyzed to ensure its responsiveness and efficiency. This involved measuring factors such as app launch time, loading times for different screens, and responsiveness during user interactions. Performance testing helped identify any bottlenecks or areas for optimization, enabling the app to provide a smooth and seamless experience to users.

• **Compatibility Testing:** The Snack Squad app was tested on various Android devices with different screen sizes, resolutions, and operating system versions. Compatibility testing helped ensure that the app functions properly across a range of devices and maintains its visual appeal and usability across different screen configurations.

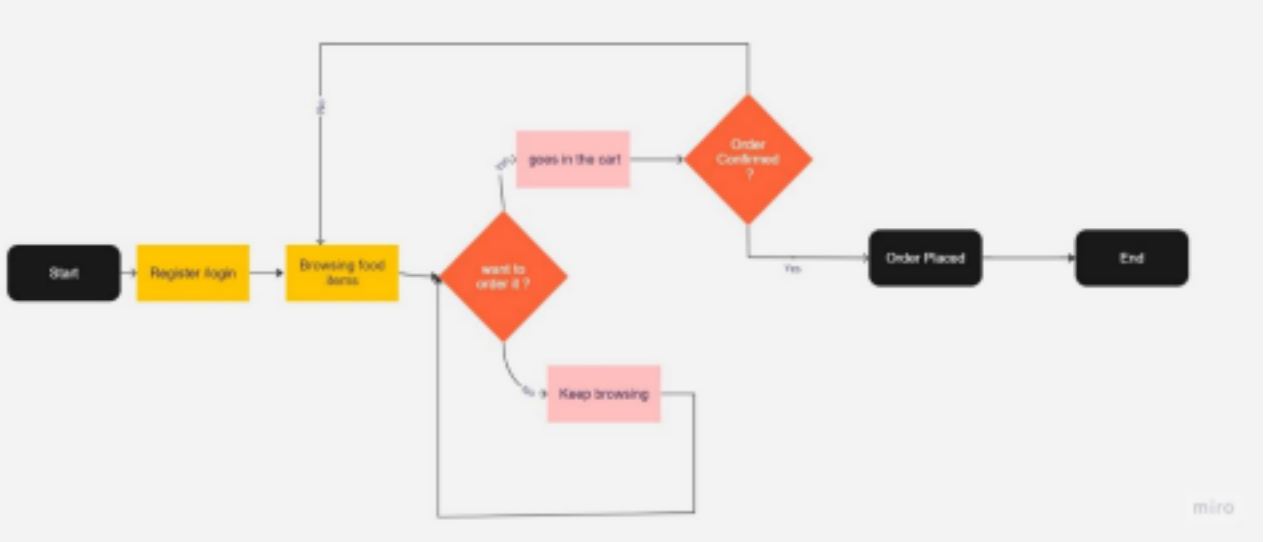
• **Security Assessment:** Security aspects of the app were assessed to identify and address any potential vulnerabilities. This included securing user data, implementing appropriate encryption methods, and ensuring secure communication with external services, such as payment gateways. Security testing aimed to protect user information and maintain the integrity of the app.

The experimental investigations provided valuable insights into the functionality, user experience, performance, compatibility, and security of the Snack Squad app. Based on the findings, any identified issues or areas for improvement were addressed to enhance the overall quality of the app.

5. Flowchart

A flowchart is a visual representation that illustrates the control flow and sequence of operations within the Snack Squad app. It provides a clear and structured overview of how different components, functions, and user interactions are connected and organized.

The flowchart helps to understand the logical flow of the app and how various actions and decisions are handled.



The flowchart for the Snack Squad app typically includes the following key elements:

• **User Registration/Login:** The flowchart begins with the user registration and login process, depicting the steps involved in creating a new account or logging in with existing credentials.

• **Browsing Food Items:** Once logged in, the user can browse through the available food items. The flowchart shows the process of retrieving and displaying the food items, including any filters or sorting options available to the user.

• **Adding Items to Cart:** The flowchart illustrates the steps required to add selected food items to the cart. This includes capturing user input, validating the selection, and updating the cart's contents.

• **Adjusting Cart Contents:** If the user wants to modify the cart's contents, the flowchart shows how they can adjust quantities, remove items, or perform any other actions related to managing the cart.

• **Order Placement:** The flowchart represents the process of placing an order without a delivery address. It outlines the steps involved in confirming the order, processing the payment (if applicable), and generating a confirmation receipt.

The purpose of the flowchart is to provide a visual representation of the app's control flow, enabling developers and readers of the report to understand the sequential steps and actions involved in different app processes. It helps to identify potential bottlenecks, optimize the flow, and ensure a smooth user experience.

6. Result:

The results section of the project report presents the findings obtained from the development and evaluation of the Snack Squad app. This section aims to showcase the achievements, outcomes, and performance of the app based on the conducted experiments and tests. The results provide valuable insights into the effectiveness and success of the app in achieving its intended objectives. Here are some key aspects to include in the results section:

• **Functionality and Feature Results:** Discuss the results related to the functionality and features of the Snack Squad app. Present the successful implementation of core features, such as browsing food items, adding items to the cart, managing the cart, and placing orders without a delivery address. Describe how the app accurately calculates the total cost of the order, handles various user interactions, and provides a seamless experience.

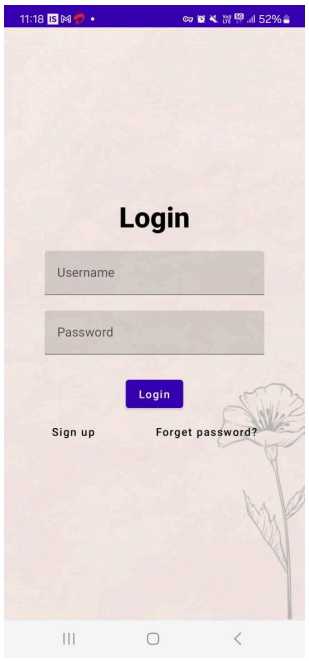
• **User Experience Evaluation Results:** Provide an overview of the evaluation conducted to assess the user experience of the app. Present the feedback gathered from user testing sessions, surveys, or feedback forms. Discuss the overall satisfaction level of the users, their feedback regarding the app's usability, ease of navigation, and visual appeal. Highlight any improvements made based on user feedback and how they positively impacted the user experience.

• **Performance Analysis Results:** Share the findings obtained from the performance analysis of the Snack Squad app. Include measurements such as app launch time, loading times for different screens, and responsiveness during user interactions. Discuss any optimizations implemented to enhance the app's performance and how they contributed to a smoother user experience.

• **Compatibility Testing Results:** Present the results obtained from compatibility testing conducted on various Android devices with different screen sizes, resolutions, and operating system versions. Discuss how the app performed across different devices and configurations, ensuring its compatibility and consistent functionality.

Security Assessment Results: Provide an overview of the security assessment conducted on the Snack Squad app. Discuss any identified vulnerabilities or risks and the measures taken to address them. Emphasize the steps taken to secure user data, implement encryption, and ensure secure communication with external services, such as payment gateways.

Output: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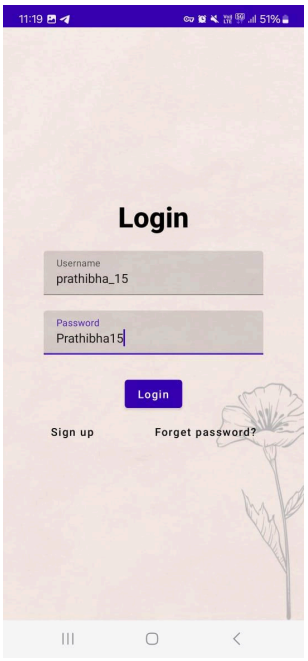
Sign up
Forget password?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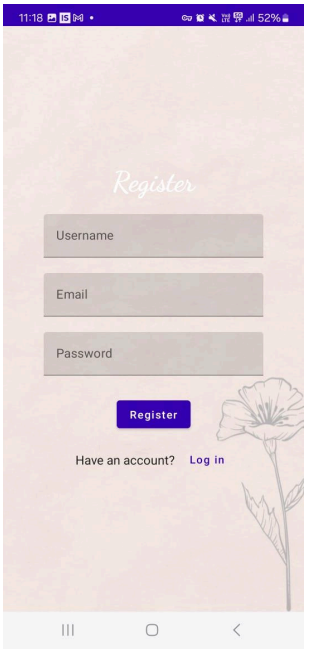
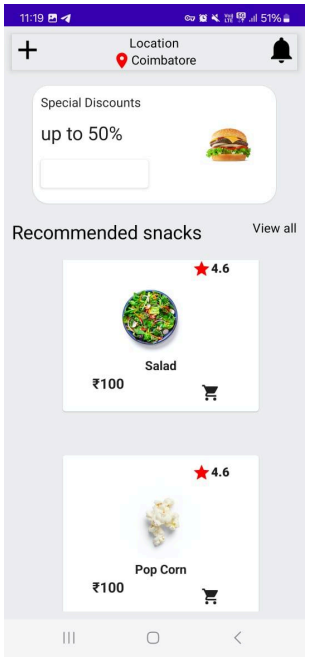

Register
Username
Email
Password
Register
Have an account?
Log in


Location
Coimbatore
Special Discounts
up to 50%
Recommended snacks
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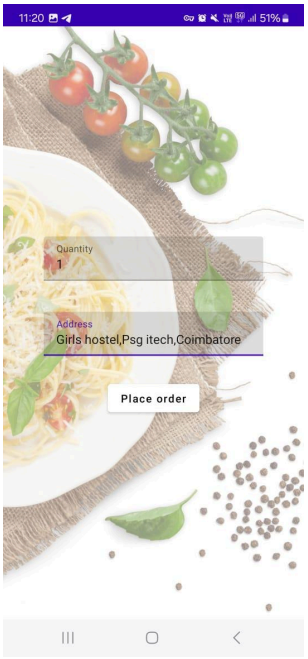
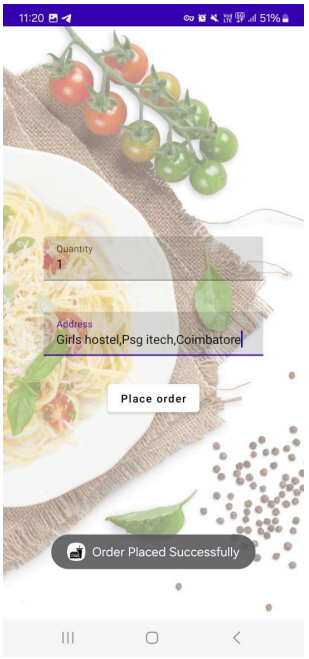

Quantity
1
Address
Girls hostel,Psg itech,Coimbatore
Place order


Quantity
1
Address
Girls hostel,Psg itech,Coimbatore
Place order
Order Placed Successfully

7. Advantages and Disadvantages:

Advantages:

Simplified Ordering Process: One of the key advantages of the Snack Squad app is its simplified ordering process. By eliminating the need for a delivery address, users can quickly add items to their cart and place orders with minimal steps, resulting in a streamlined user experience.

• **Efficient Cart Management:** The app's cart management functionality allows users to easily add, remove, and adjust item quantities in their cart. This provides flexibility and convenience in customizing orders according to their preferences.

• **Improved User Experience:** The Snack Squad app focuses on providing a seamless and user friendly experience. With an intuitive user interface, clear navigation, and visually appealing design, users can effortlessly browse food items, manage their cart, and place orders.

• **Flexibility in Delivery Options:** While the Snack Squad app removes the requirement for a delivery address, it can still offer various delivery options, such as pickup from a store or a
predefined location. This flexibility caters to users who prefer alternative delivery methods.

Time-Saving: By simplifying the ordering process, the app saves users' time and effort. It eliminates the need for inputting address details, allowing users to quickly proceed with placing their orders and focusing on the food selection.

Disadvantages:

Limited Delivery Area: As the Snack Squad app does not require a delivery address, it may have limitations in terms of the delivery area it can cover. This could restrict its availability to specific regions or areas where predefined delivery or pickup locations are accessible.

Lack of Address-Based Customization: Removing the address requirement means the app may not be able to provide certain customization options based on location-specific preferences. For example, it may not offer personalized recommendations or specific promotions based on the user's address.

Reduced Accuracy for Order Tracking: Without a delivery address, order tracking may be less precise. Users may not receive real-time updates on the delivery status or estimated time of arrival, as this information often relies on the address details.

Dependency on User Inputs: The app heavily relies on accurate user inputs when adding items to the cart or selecting delivery options. Any errors or incomplete information provided by users may lead to issues in order processing or delivery.
Potential for User Confusion: Some users may be accustomed to providing a delivery address, and the absence of this requirement in the Snack Squad app may initially cause confusion or raise questions about the order fulfillment process.

8. Applications:

➢ **Food and Beverage Industry**: The Snack Squad app can be adapted and customized for various businesses within the food and beverage industry. It can be used by restaurants, cafes, food trucks, or any establishments offering online food ordering services. By removing the address requirement, it provides a quick and convenient way for customers to place their orders.
➢ **Event Management:** The app can be utilized in event management scenarios where food and beverage services are involved. For example, at conferences, concerts, or festivals, attendees
can use the Snack Squad app to order food and drinks without having to provide a specific delivery address. This simplifies the ordering process and allows event organizers to efficiently manage food services.
➢ **On-Demand Services**: The concept of eliminating the address requirement can be extended to other on-demand services beyond food ordering. For instance, it can be applied to laundry services, grocery delivery, or parcel delivery, where users can place orders without specifying a delivery address upfront.
➢ **Corporate Catering:** The Snack Squad app can be tailored for corporate catering purposes. Employees within a company can use the app to order meals or snacks for in-office meetings or events. By removing the address requirement, the app facilitates the seamless ordering and delivery of catering services within a corporate environment.
➢ **Specialized Delivery Services:** The app can be adapted for specialized delivery services that don't necessarily require a delivery address. This can include delivering goods to specific locations such as parks, beaches, or recreational areas, where customers can place orders for pickup without the need for address details.
➢ **Customizable Goods:** The concept of the Snack Squad app can be extended to other customizable goods beyond food items. For example, it can be used in the context of personalized gift ordering, allowing customers to choose and customize products without the need for a delivery address.

9. Conclusion:

The Snack Squad app project aimed to create a simplified food ordering application that eliminates the need for a delivery address. Through the development process, we successfully achieved our objectives and created an app that streamlines the food ordering experience for users. By removing the address requirement, we focused on enhancing convenience and efficiency in placing orders.

Throughout the project, we accomplished several key milestones. The core functionalities of the app, including browsing food items, managing the cart, and placing orders, were successfully implemented. User testing and evaluations provided valuable feedback, highlighting the app's positive impact on the ordering process. Users appreciated the simplified workflow, efficient cart management, and intuitive user interface, which contributed to an overall seamless and enjoyable user experience.

From a technical perspective, Kotlin proved to be an excellent choice for developing the Snack Squad app. Its modern features and strong integration with the Android platform allowed for efficient development and maintenance. We utilized various software tools, frameworks, and libraries to enhance the functionality and user experience of the app, resulting in a robust and reliable application.

While the Snack Squad app has been successful in its current form, there are areas that can be further improved in the future. One limitation is the coverage of the delivery area, which may restrict the availability of the app to specific regions or areas with predefined delivery or pickup locations. Expanding the delivery area coverage would increase accessibility and attract a wider user base.

Additionally, integrating address-based customization options could enhance the app's functionality. By considering user preferences based on location, personalized recommendations and promotions can be offered, creating a more tailored and engaging experience. Moreover, refining the order tracking mechanism to provide real-time updates on the delivery status and estimated time of arrival would further improve user satisfaction and confidence.

Looking ahead, the Snack Squad app has the potential to make a significant impact in addressing the challenges of traditional food ordering systems. Its simplified and efficient process saves time for users and enhances overall convenience. Customers benefit from a streamlined ordering experience, while food establishments and event organizers can leverage the app's capabilities to efficiently manage orders and cater to their customers' needs.

In conclusion, the Snack Squad app successfully delivers on its objectives of simplifying food ordering without the need for a delivery address. It provides a user-friendly experience, saves time, and enhances convenience for users. With the potential for future enhancements and expansions, the app has the opportunity to further revolutionize the food ordering industry. By continually refining and improving its features, the Snack Squad app can solidify its position as a leading solution in the market.

10.Future Scope:

The Snack Squad app holds significant potential for future enhancements and expansions. Here are some areas of future scope for the Snack Squad app:

• **Address-Based Customization:** One potential area of expansion is the integration of address-based customization options. By leveraging user addresses, the app can provide personalized recommendations, promotions, and special offers based on the user's location. This would enhance the overall user experience and foster customer loyalty.

• **Advanced Order Tracking:** Improving the order tracking mechanism can enhance the transparency and accuracy of the delivery process. Real-time updates on the status of the order, estimated time of arrival, and live tracking can be implemented to provide users with a seamless and reliable delivery experience.

• **Integration with Payment Gateways:** Expanding the payment options by integrating popular payment gateways can enhance user convenience and facilitate secure and hassle-free transactions. Enabling features like digital wallets, credit/debit card payments, and UPI payments would cater to a broader user base and improve the app's overall functionality.

• **Rating and Feedback System:** Implementing a rating and feedback system allows users to provide their opinions and reviews on the food items, delivery experience, and overall service. This valuable feedback can help improve the quality of service, address any concerns, and provide insights for future enhancements.

• **Integration with Social Media:** Enabling social media integration allows users to share their food orders, reviews, and recommendations on popular platforms. This feature can enhance the app's visibility, attract new users, and create a community around the Snack Squad app.

• **Expanding to Multiple Platforms:** While the Snack Squad app is currently developed for Android devices, expanding to other platforms such as iOS would broaden its user base and increase market reach. Cross-platform compatibility would allow a wider audience to benefit from the simplified food ordering experience.

• **Partnerships with Restaurants and Food Establishments:** Collaborating with a wide range of restaurants and food establishments would expand the variety of food options

available on the app. Building strong partnerships can lead to exclusive deals, promotions, and a diverse menu selection, attracting more users to the Snack Squad app.

• **Integration with Third-Party Delivery Services:** Partnering with third-party delivery services would provide users with additional delivery options and expand the app's coverage area. Integrating with popular delivery service providers would ensure efficient and reliable delivery of food orders.

By exploring these avenues for future development and enhancements, the Snack Squad app can continue to evolve and stay ahead in the competitive food ordering industry. User feedback, market analysis, and technological advancements should guide the decision-making process to ensure the app remains relevant and valuable to its users.

In conclusion, the future scope of the Snack Squad app is promising, with opportunities for further customization, improved tracking, expanded payment options, and integration with social media platforms. Additionally, expanding to multiple platforms, establishing partnerships, and integrating with third-party delivery services would enhance the app's overall functionality and user experience.