Project Title

FYP-I

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Outline

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6. Gap/Competitive Analysis
7. Dataset
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   Database Design/ERD
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This Slide is not Require but just to inform the sequence of require Slides.

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Problem Statement

Current e-commerce platforms limit interactions with fixed pricing, reducing opportunities for buyers and sellers. The Online Auction App transforms this by offering a dynamic, real-time bidding system, enhancing engagement and maximizing value for both parties.

Project **Scope**

- The Online Auction App is designed to create a modern, interactive platform for buying and selling items through real-time bidding. It allows users to register, create profiles, and post items for auction while providing a secure and user-friendly environment. Buyers can browse auctions, place bids, and receive instant updates about their bid status. Sellers benefit from reaching a wider audience and maximizing profits through competitive bidding.
- The app includes built-in chat features, enabling buyers and sellers to communicate directly, making negotiations and transactions smoother. It is optimized for mobile devices, ensuring that users can participate in auctions anytime and anywhere. Additionally, the app incorporates strong security measures to protect user data and transactions, such as encrypted communication and secure login processes. Powered by Firebase, the app ensures real-time updates and scalability, allowing it to handle a growing number of users and auctions seamlessly.
- The scope of this project focuses on delivering a reliable, accessible, and engaging online auction experience, bridging the gaps in traditional e-commerce platforms and empowering both buyers and sellers with innovative tools and features.

Project **Milestones**

Here are the project milestones for the Online Auction App in simple terms:

- **Initial Setup and Planning**: Set up the development environment and outline the project's goals and requirements.
- **User Registration and Login**: Build the basic functionality allowing users to create accounts, log in, and manage their profiles.
- **Auction Listing Feature**: Enable users to post items for auction with details like start/end times and minimum bids.
- **Bidding System**: Implement real-time bidding, where users can place and track bids on auction items.
- **Chat System**: Develop a feature allowing buyers and sellers to communicate directly through the app.
- **Admin Panel Development**: Create an admin interface for managing users, auctions, and handling disputes.
- **Notification System**: Add real-time alerts to inform users about bid updates and auction status changes.
- **Testing and Quality Assurance**: Test the app thoroughly to ensure it works well and fixes any issues found.
- **Launch and Deployment**: Release the app to users, ensuring it's accessible and functioning as expected.
- **Feedback and Improvements**: Collect user feedback and make necessary updates to enhance the app's functionality and user experience.

Project **Deliverables**

FYP-I Evaluation

Project Plan

Project Budget Document Project

SRS Document

Project User Interface Design

Dataset
(for research, and AI/ML/DL based projects)

Project Report - I

Big Picture

ER Diagram

Algorithm/Finding/model

Survey Paper

(for research, and AI/ML/DL based projects)(optional)

FYP-II Evaluation

Functional Front-end

Functional Back-end

Running Project

Source Code CD

Project Report - II

Research Paper
(for research, and AI/ML/DL based projects)

Literature/Product/Service**Review**

The **Online Auction App** seeks to innovate the traditional auction process by leveraging modern technology to enhance user experience, security, and engagement. Below is a review of related literature, existing products, and services in the field.

1. Literature Review

- **Evolution of Online Auctions**: Research has shown that online auction platforms, such as eBay, have significantly transformed traditional auctions by allowing global participation. Studies emphasize the importance of user experience and real-time bidding as key factors in user satisfaction.
- **User Engagement**: Literature highlights the role of gamification and real-time notifications in keeping users engaged. Features like bidding updates and personalized messages can improve user retention and activity.
- **Security Concerns**: Numerous studies have focused on the critical need for secure transactions and data protection in online platforms. Strong authentication, encryption, and fraud detection mechanisms are crucial for maintaining user trust.

2. Product Review

- **eBay**: One of the pioneers in online auctions, eBay offers a vast marketplace with auction and fixed-price options. Its strengths include a wide user base and advanced bidding features, but it can be complex for new users.

- **Amazon Auctions**: This platform provides auction services but lacks the comprehensive auction-specific features found in dedicated auction platforms. Its integration with Amazon's vast marketplace is a significant advantage.
- **BidSpotter**: Specializing in industrial auctions, BidSpotter offers live auction streaming and bidding. Its niche focus is its strength, though it may not cater to general consumer needs.

3. Service Review

- **Mobile Auction Apps**: Many platforms now offer mobile apps to facilitate on-the-go bidding. These apps are often praised for their convenience but can suffer from performance issues if not well-optimized.
- **Real-time Notifications and Chat**: Services that provide real-time updates and communication between buyers and sellers have been well-received. They enhance transparency and user satisfaction by facilitating direct negotiations and timely updates.

Gap/Competitive **Analysis**

Category	Online Auction System	Competitors (e.g., eBay, Amazon Auctions)	Competitive Advantage
Feature Set			
Real-time Bidding	Offers live updates and bid placement, enhancing user engagement.	Standard feature in most online auction platforms.	Enhanced user engagement through live updates.
User Profile Management	Secure registration and profile management with email verification.	Typically includes secure login and profile customization.	Focused on security and ease of use.
Integrated Chat System	Direct communication between buyers and sellers.	Often limited to post-sale communication; some may lack integrated chat.	Interactive communication boosts negotiation efficiency.
Mobile Compatibility	Optimized for mobile devices, ensuring accessibility on-the-go.	Available, but quality of experience can vary, especially in real-time updates and responsiveness.	Superior mobile experience with optimized performance.
Admin Tools	Robust tools for managing auctions, user accounts, and resolving disputes.	Basic tools for managing listings; advanced features may be restricted to enterprise users.	Comprehensive admin capabilities for efficient management.
Notifications	Real-time alerts for bid updates and auction status changes.	Provided, but the immediacy and relevance of notifications can vary.	More immediate and relevant notifications enhance user experience.
Technology Stack			
Framework	Flutter & Dart: Allows for a highly responsive and aesthetically pleasing cross-platform mobile experience.	Varied tech stacks: Competitors may use different combinations of web and mobile technologies.	Fast, scalable, and secure mobile experience.

Category	Online Auction System	Competitors (e.g., eBay, Amazon Auctions)	Competitive Advantage
Backend Services	Firebase: Ensures real-time database updates, secure authentication, and effective notification handling.	Often rely on proprietary or third-party backend solutions for data handling and real-time interactions.	Reliable and real-time data handling with Firebase.
User Experience			
User-Centric Design	Focus on easy navigation, responsive design, and real-time interactions.	Quality varies; some platforms may not prioritize user experience, leading to complex or outdated interfaces.	Superior user-friendly interface with real-time interactions.
Personalized Notifications	Alerts users to important events in a timely manner.	Can be less immediate, potentially missing critical moments for users.	More engaging through timely notifications.
Real-Time Chat	Enhances negotiation and communication between users.	Often lacks integrated, real-time communication features.	Direct, real-time chat improves user negotiation experience.
Market Positioning			
Target Market	Individual buyers and sellers, small businesses, and niche collectors.	Larger platforms may have a broader reach but can be less personalized.	Niche focus on dynamic, flexible auction experiences tailored to mobile users.
Unique Selling Proposition (USP)	Combines traditional auction features with modern tech, offering a more interactive, mobile-friendly experience.	Established players like eBay have strong brand recognition and extensive user bases.	Carving out a niche in markets seeking more engaging and personalized auction experiences.

Dataset

Bid Details Table

Auction ID	Item Name	Category	Start Price	Current Bid	Auction Start Time	Auction End Time
1	Vintage Watch	Watches	100	150	2025-01-10 12:00:00	2025-01-17 12:00:00
2	Antique Vase	Art	200	250	2025-01-12 08:00:00	2025-01-19 08:00:00
3	Old Comic Book	Collectibles	50	80	2025-01-14 17:00:00	2025-01-21 17:00:00

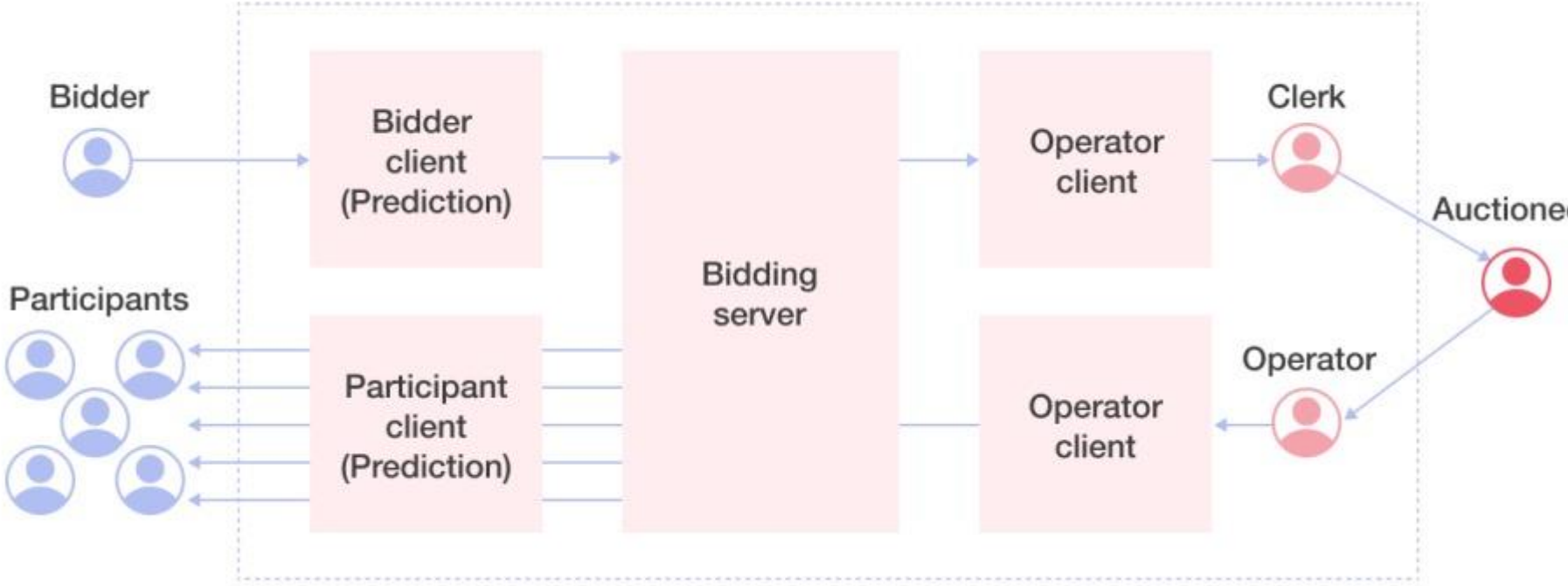
Bid Details Table

Bid ID	Auction ID	Bidder ID	Bid Amount	Bid Time
1	1	101	120	2025-01-10 14:00:00
2	1	102	150	2025-01-16 10:00:00
3	2	103	220	2025-01-13 09:30:00

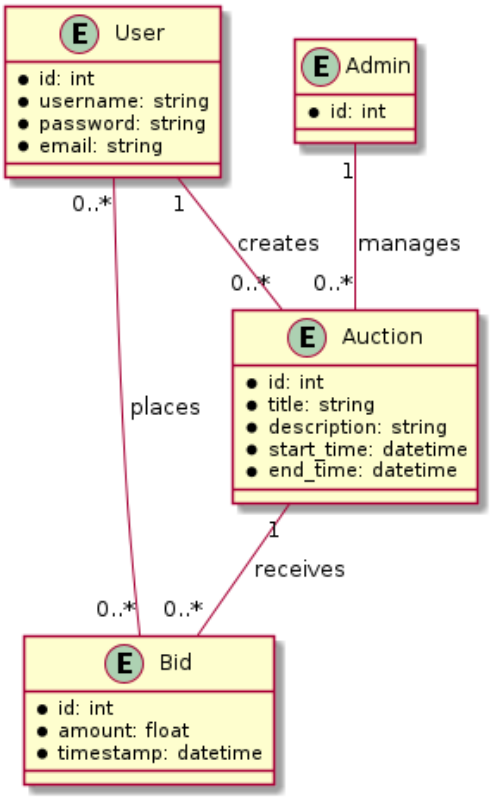
Bidder Details Table

Bidder ID	Bidder Name	Email	Phone Number
101	M.Umair Khan	Umairuk2018@gmail.com	03162630187
102	Bisma Imran	mirzamaham412@gmail.com	0335 1303023
103	Maham Mirza	bismahimran31@gmail.com	0316 0231819

Big Picture


Bidder
Bidder client (Prediction)
Bidding server
Operator client
Clerk
Auctione
Participants
Participant client (Prediction)
Operator client
Operator

ER Diagram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username: string
password: string
email: string
Admin
id: int
1
0..*
1
creates
manages
0..*
0..*
Auction
id: int
title: string
description: string
start_time: datetime
end_time: datetime
places
1
receives
0..*
0..*
Bid
id: int
amount: float
timestamp: datetime

Algorithm/Model/Findings

a) Auction Lifecycle Management

- This algorithm manages the creation, running, and conclusion of auctions.
  Steps:
- Initialize auction with start and end times.
- Validate item details (name, category, starting price).
- Continuously monitor for incoming bids during the auction.
- Automatically close auction after the end time and determine the winner.

b) Bid Validation Algorithm

- This ensures that bids are valid (higher than the current bid and within the auction period).
  Steps:
- Check if the auction is active.
- Compare the new bid to the current highest bid.
- If valid, update the current bid and notify participants.

c) Winner Selection Algorithm

- At the end of an auction, this determines the highest bidder as the winner.
  Steps:
- Sort all bids for the auction by bid amount in descending order.
- Select the highest bid.

- Notify the winner and seller.

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2. Model

- The system can be modeled using the **MVC (Model-View-Controller)** pattern for clarity and scalability:
- **Model:**
  Handles the business logic and data storage, including auctions, users, and bids.
  - Tables: Users, Auction Items, Bids, Transactions.
- **View:**
  User interfaces for bidders and sellers to interact with the system (e.g., bidding pages, dashboards).
- **Controller:**
  Coordinates user actions (placing bids, listing items) and updates the model or view as necessary.

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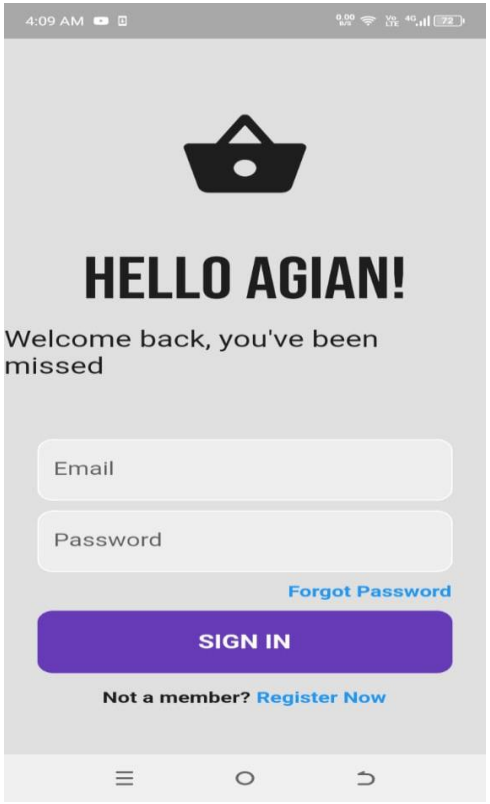
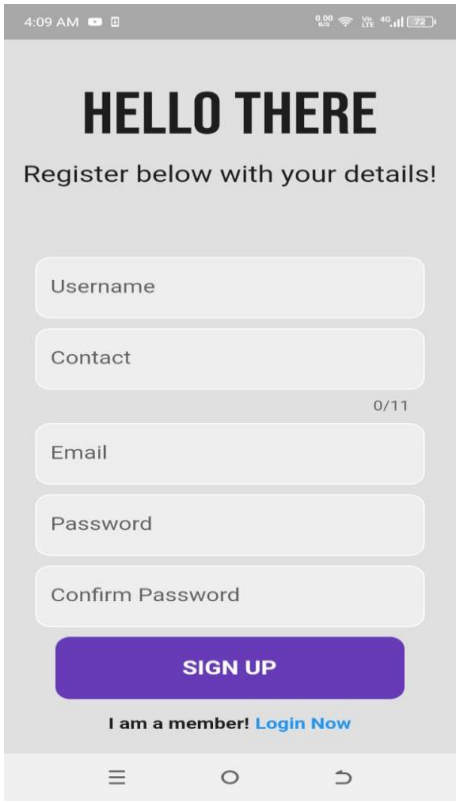
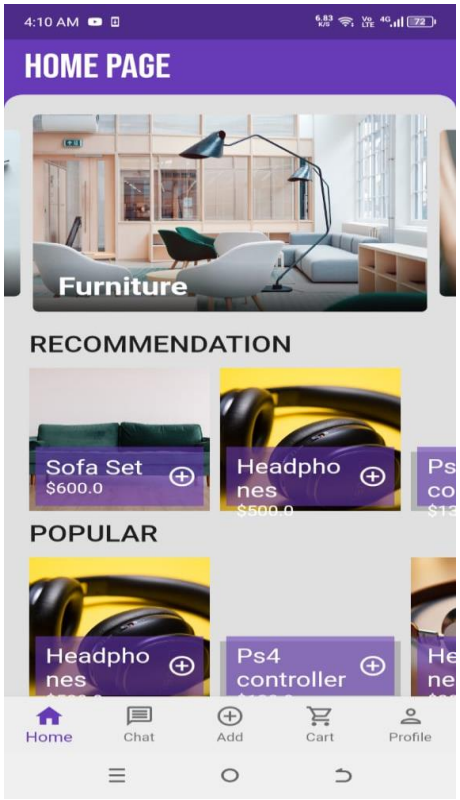
3. Findings

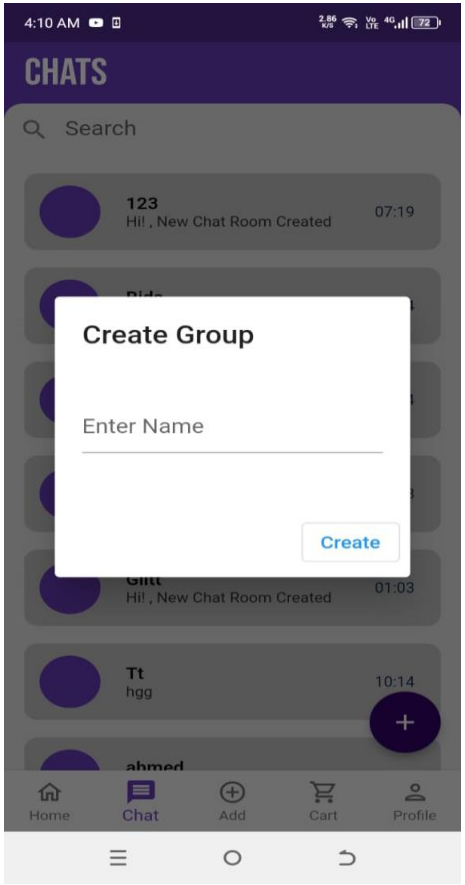
- Using the above algorithms and model structure, the following findings can be observed:
- **User Engagement:**
  - Real-time updates on bids create a competitive environment, increasing user activity.
  - Notifications for outbids and auction results enhance user experience.
- **Efficiency:**
  - Bid validation ensures data integrity, preventing errors like lower bids being accepted.
  - Automated auction management reduces manual intervention.
- **Scalability:**
  - The modular design allows adding features like payment processing or user reviews without major changes to the system.
- **Potential Challenges:**
  - Handling high traffic during popular auctions may require server optimization.
    - Ensuring fair play and detecting fraudulent activities (e.g., fake bids).

Project **UI Design**





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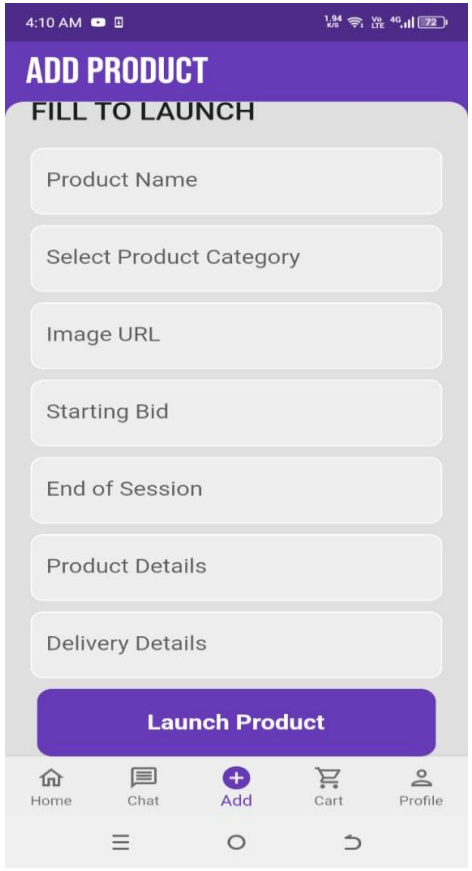
CHATS
Search
123
Hi! , New Chat Room Created
07:19
Create Group
Enter Name
Create
Hi! , New Chat Room Created
01:03
Tt
hgg
10:14
Home
Chat
Add
Cart
Profile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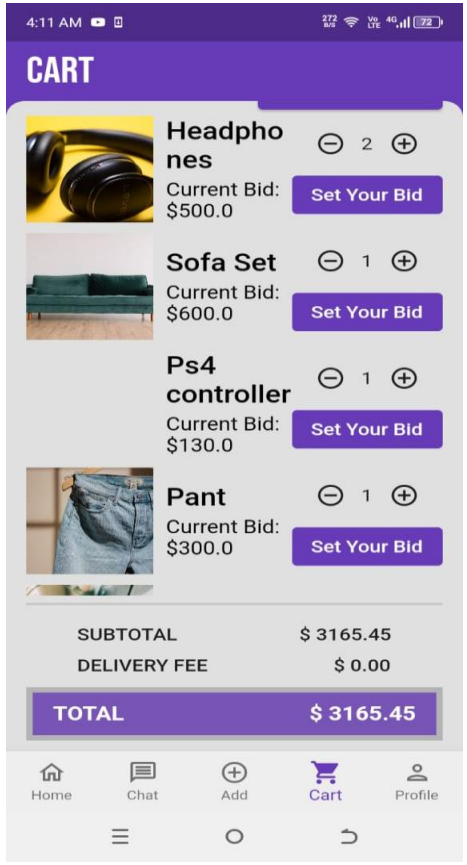
ADD PRODUCT
FILL TO LAUNCH
Product Name
Select Product Category
Image URL
Starting Bid
End of Session
Product Details
Delivery Details
Launch Product
Home
Chat
Add
Cart
Profile


4:11 AM
CART
Headphones
Current Bid: $500.0
Set Your Bid
Sofa Set
Current Bid: $600.0
Set Your Bid
Ps4 controller
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Set Your Bid
Pant
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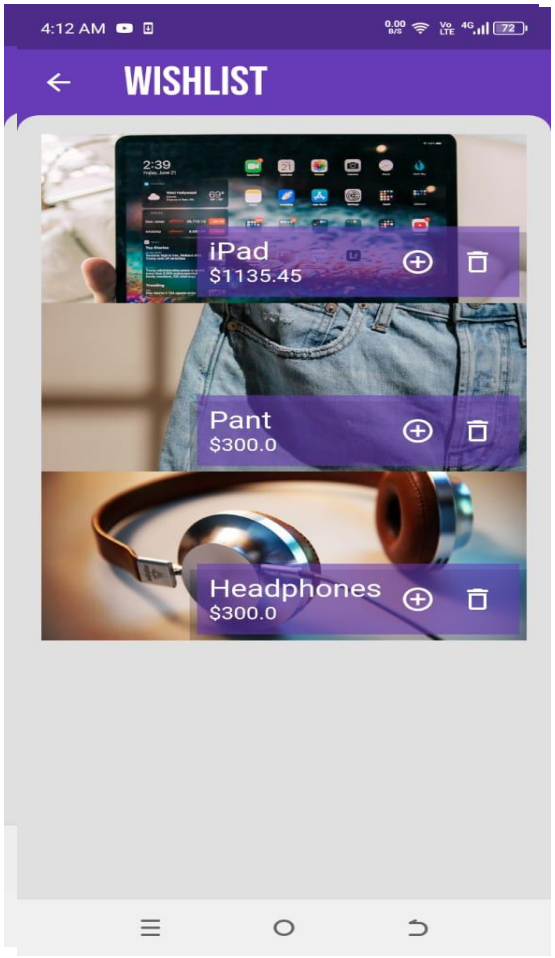
DELIVERY FEE $ 0.00
TOTAL $ 3165.45
Home
Chat
Add
Cart
Profile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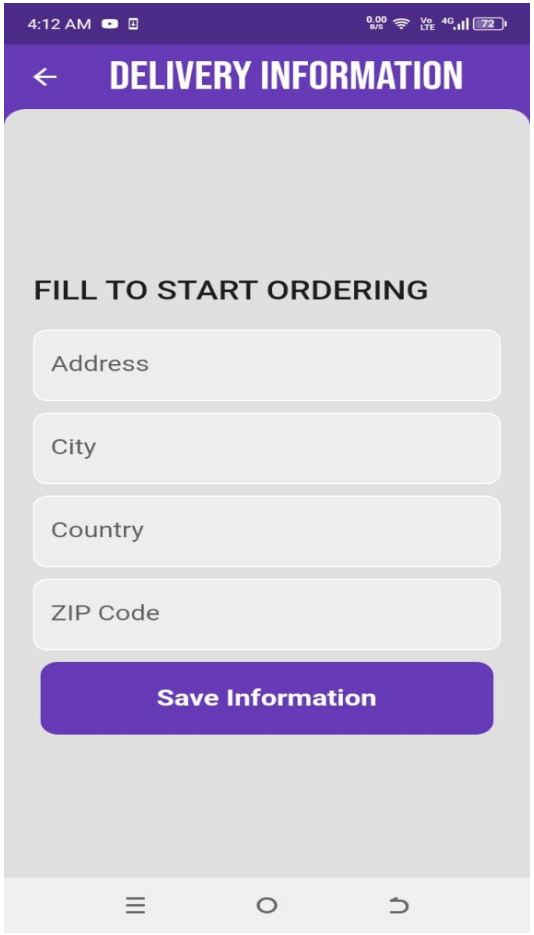
Headphones
$300.0


4:12 AM
DELIVERY INFORMATION
FILL TO START ORDERING
Address
City
Country
ZIP Code
Save Information

References

- D. Gupta, How to Build an Online Auction Application.Benefits, Features, Costs, 2024.
- G. Patil, Online Auction App Development: A Complete Guide, India (Delhi), 2022.
- J. Tiwary, Auction App Development: Unlocking the Future of Online Bidding, India (Mumbai), 30 October, 2023.
- M. Butt, How to Create an Online Real-Time Bidding/Auction App, Mumbai (bendra), 2022.
- Ajay, How to Develop an Application for Online Auctions? Features, Advantages, and Costs, Chennai, 2024.

THANK YOU!