ARDENT COMPUTECH PVT. LTD.

HYBRID MOBILE APPLICATION DEVELOPMENT WITH REACT NATIVE

Name of the Supervisor: **Subhojit Santra**

Internship Duration: **4 WEEKS (09 July 2025 – 16 Aug 2025)**

Title: KartNest – ONLINE BROWSING AND SHOPPING APP

SUBMITTED BY:

SL NO	NAME	COLLEGE	DEPT
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ACKNOWLEDGEMENT

It is with great pleasure that we express our heartfelt gratitude to **Mr. Subhojit Santra**, our project guide, and **Ardent Computech Pvt. Ltd.** for providing us with the invaluable opportunity to work on the development of an e-commerce mobile application. Their constant guidance, encouragement, and insightful suggestions were instrumental in the successful completion of this project.

We are also thankful to our **respective college,** and the **Training & Placement (TPO) Cell** for facilitating this training program and creating an environment conducive to learning and skill development.

Finally, we would like to acknowledge the importance of **teamwork** in this journey. The collaborative spirit, shared problem-solving, and mutual support within our team played a key role in shaping this project into its present form.

Introduction

With the rapid growth of technology and the increasing demand for convenience, e-commerce has emerged as one of the most influential sectors in the global market. Mobile applications have further accelerated this trend by enabling users to shop anytime, anywhere.

In this context, our project, **KartNest**, was conceptualized and developed using **React Native** to provide a seamless and engaging online shopping experience. The application serves as a one-stop platform where users can browse products, explore detailed descriptions, and enjoy a modern, user-friendly interface.

The goal of **KartNest** is not just to display products but to enhance the overall shopping experience by combining aesthetic design with functional efficiency. This foundation also allows for future enhancements, such as integrating secure payment gateways, backend databases, and real-time order tracking, ensuring scalability and relevance in the evolving digital marketplace.

Company Profile

Ardent Pvt. Ltd. is a learning and software development company established in 2002 with a vision to bridge the gap between academia and industry. The company focuses on delivering high-quality services at an affordable cost, shaping numerous careers and providing productive resources to the industry.

The company's core strength in technical training and internships lies in its **live project–centric approach**, ensuring learners gain practical, hands-on experience. Furthermore, Ardent encourages students to pursue global certifications after the completion of their training or internship, fostering professional growth and industry readiness.

Objectives

The primary objectives of developing KartNest are:

- To create a seamless and engaging online shopping experience by using React Native for a responsive and cross-platform application.
- To design a user-friendly interface that enables customers to easily browse products, view detailed descriptions, and make informed purchasing decisions.
- To establish a scalable architecture that supports future integration of backend functionalities such as secure payment gateways, product databases, and real-time order tracking.
- To combine aesthetic design with functional efficiency to enhance user satisfaction and encourage repeat engagement.
- To provide a one-stop shopping platform that meets the needs of diverse users while adapting to evolving trends in the digital marketplace.

Scopes of the Project

The scope of KartNest covers the design and development of a front-end mobile application for a general-purpose e-commerce platform using React Native. The current implementation focuses on:

- Product Browsing: Enabling users to view a catalog of items with images, descriptions, and prices.
- Responsive UI/UX: Delivering a visually appealing, user-friendly, and mobile-optimized interface.
- Cross-Platform Support: Ensuring the application runs smoothly on both Android and iOS devices.

While the present version of KartNest is primarily focused on the front-end experience, the project is designed with scalability in mind. Future enhancements will include:

- Integration of secure payment gateways.
- Connection to backend databases for dynamic product management.
- Real-time order tracking and inventory updates.
- Personalized recommendations based on user preferences and purchase history.

The project scope is limited to the application's user interface and core navigation flows for this phase, with backend functionalities to be implemented in subsequent stages. For testing and demo purposes static data is used to design & validate the UI components. Once integration done, the application will transition to using dynamic data.

Tools & Technologies Used

Development Tools

- React Native CLI: For building a cross-platform mobile application with native performance.
- JavaScript (ES6) – Core programming language for implementing application logic.
- Node.js & npm – For managing dependencies and running React Native commands.
- Android Studio – For Android app development, testing, and emulation.
- Visual Studio Code – As the primary code editor with extensions for syntax highlighting, debugging, and version control.

Testing & Debugging Tools

- Android Emulator & Physical Device Testing – To ensure performance across different environments.

Version Control

- Git & GitHub – For source code management, collaboration, and version tracking.

Fig: **Android Architecture**

System Design & Architecture

The KartNest application is designed with a modular architecture to ensure scalability, maintainability, and a smooth user experience. The architecture separates concerns into distinct layers, allowing independent development and future upgrades without disrupting the entire system.

ARCHITECHURAL **LAYERS**

- *User Interface Layer (UI)*

  - Built using React Native components for a responsive and consistent look across Android and iOS.
  - Handles visual presentation, product display, and user interaction.

- *Application Logic Layer*

  - Manages navigation using React Navigation.
  - Controls state management, product filtering, and search functionalities.

- *Backend Layer (Planned)*

  - Will handle user authentication, payment gateway integration, and order processing.
  - Will use APIs to communicate with the mobile app for data transfer.

- *Database Layer (Planned)*

  - Will handle user authentication, payment gateway integration, and order processing.
  - Will use APIs to communicate with the mobile app for data transfer.

System Design & Architecture

USER INTERFACE LAYER (UI)

APPLICATION LOGIC LAYER

BACKEND LAYER (PLANNED)

DATABASE LAYER (PLANNED)
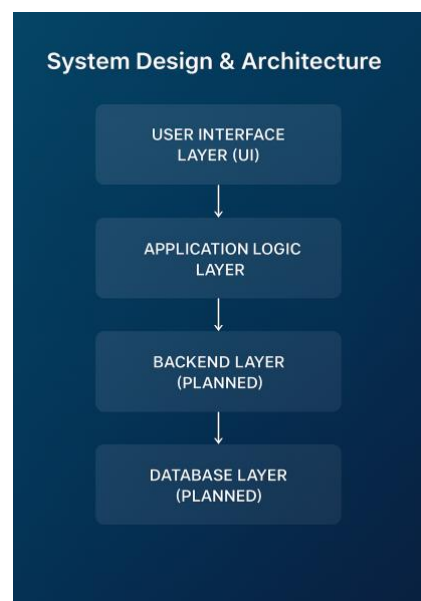
Challenges Faced

During the development of **KartNest**, the following challenges were encountered:

1. **React Native Environment Setup**

   o Initially faced issues in configuring React Native CLI and setting up Android Studio due to dependency conflicts and emulator configuration errors.

   o Solution: Followed official documentation and community forums to resolve environment path issues and updated dependencies to stable versions.

2. **Cross-Platform UI Consistency**

   o The app displayed slight layout differences between Android and iOS during testing, especially in padding, font rendering, and shadow effects.

   o Solution: Used platform-specific styling and React Native components that ensure consistent rendering on both platforms.

3. **Navigation & State Management**

   o Implementing smooth navigation between screens while maintaining state across components was challenging.

   o Solution: Integrated React Navigation and used React Hooks for efficient state handling.

4. **Image Optimization**

- High-resolution product images affected load times and overall performance.

- Solution: Optimized images by reducing file sizes and using appropriate resolution for mobile devices.

## Contribution

Team Member 1: **Bhavya Prasad**

- Built reusable components for product cards, buttons, and bottom navigation bars.

- Designed and implemented Login and Signup screens with user authentication functionality.

- Created the Category-wise Listing screen, displaying two product cards per row for better visual organization.
- Implemented Add to Cart functionality using useState to dynamically increase or decrease product quantities.

Team Member 2: **Okaish Alam**

- Worked on designing the Home Screen layout including banners, search bar, and category navigation.
- Developed the Cart Screen UI with product summary and checkout option.
- Assisted in resolving cross-platform UI issues between Android and iOS.
- Contributed to testing, debugging, and optimizing image rendering for better performance.

Result

1) Login Screen - The Login Screen of *KartNest* is designed using **React Native**. At this stage, the authentication process is implemented on the **frontend only**, allowing users to input credentials and navigate within the app. Backend services for actual user authentication and secure data handling are planned for future integration.
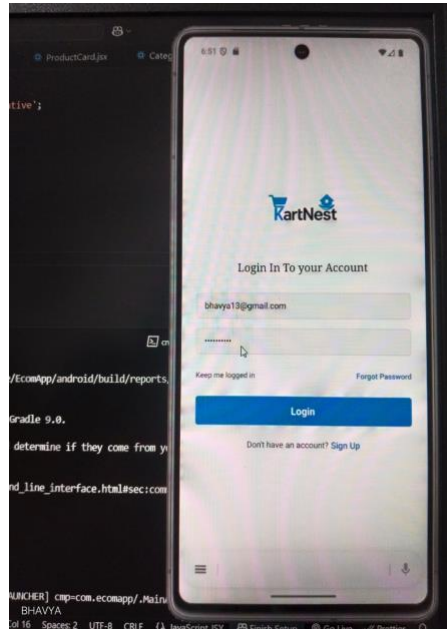

2) HomeScreen - Key features include personalized delivery address display, category-based product navigation, search functionality, promotional banners, curated product sections (Top Deals, New Arrivals, Trending, Best Sellers), flash sale highlights, and a bottom navigation bar for easy access to main screens. The app ensures smooth navigation, quick product discovery, and an engaging shopping experience.
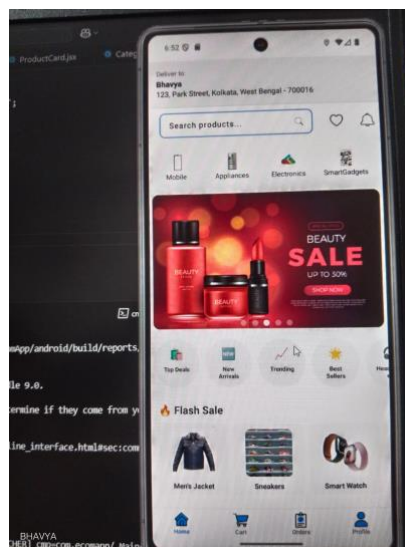
3) CartScreen – Used useState management to add the functionality of adding/subtracting the quantities from the cart .
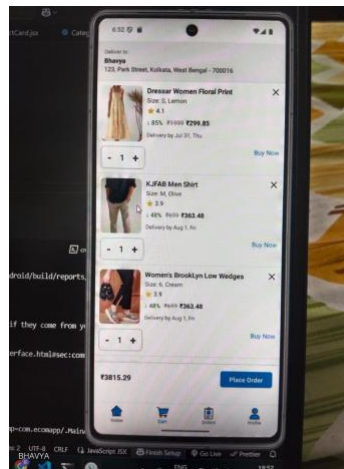
4) Category-wise Listing Screen - The app successfully displays products filtered by the selected category. Each product card includes an image, name, price, and action buttons ("Add to Cart" and "Buy Now"), ensuring a clear and user-friendly browsing experience.
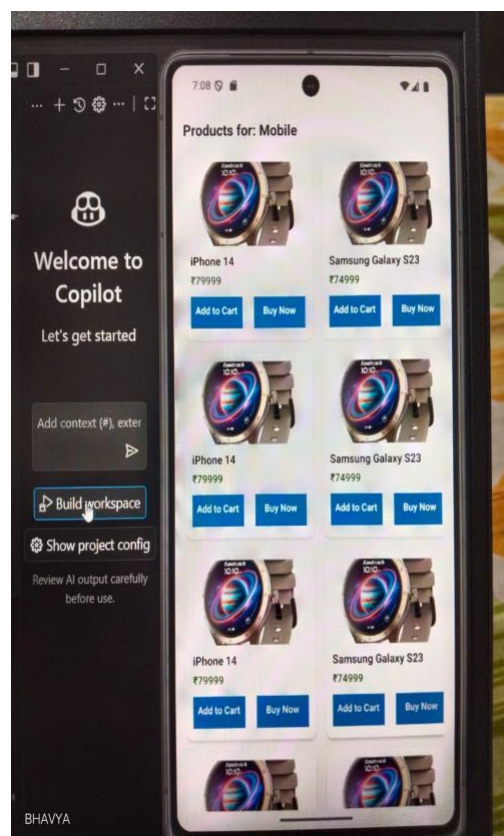
Conclusion

The development of the e-commerce mobile application successfully achieved its primary objectives of providing a seamless shopping experience through a clean interface, efficient navigation, and essential features such as user authentication, category-based product listings, and cart management with quantity control.

Throughout the project, we strengthened our technical skills in **React Native**, **component reusability**, **state management**, and **responsive UI design**. The implementation of reusable components and logical navigation flow ensured scalability and maintainability for future enhancements.

This project not only improved our problem-solving and teamwork abilities but also demonstrated our capacity to design and develop a mobile application that can be extended to include advanced features such as **real-time backend integration with MongoDB**, **secure payment gateways**, and **order tracking systems**.

In conclusion, the application serves as a functional prototype of a scalable e-commerce platform, reflecting both our technical growth and readiness for more complex development challenges.

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