Project Description:

AeroSports is a cutting-edge e-commerce application designed specifically for badminton enthusiasts, developed by LinTech. The app aims to provide a seamless shopping experience, offering a comprehensive range of badminton gear and accessories. AeroSports stands out by delivering superior features compared to other similar applications, ensuring that badminton players of all levels can easily find and purchase the equipment they need to elevate their game. Innovatively designed user interfaces and intuitive navigation pathways ensure a seamless shopping experience, distinguishing AeroSports from its competitors. Advanced search functionalities allow users to quickly locate their desired products, while personalized recommendations based on browsing history and preferences enhance discoverability and user engagement. Additionally, robust security measures safeguard user data and transactions, instilling trust and confidence in the platform.

The application is more than just a marketplace; it is a community hub for badminton enthusiasts to connect, share experiences, and stay updated on the latest trends and developments in the sport. Integrated social features enable users to interact with like-minded individuals, participate in discussions, and access exclusive content, fostering a sense of belonging and camaraderie among the user base. Driven by a commitment to excellence and innovation, AeroSports continues to push the boundaries of what is possible in the realm of badminton e-commerce. With a relentless focus on customer satisfaction and continuous improvement, AeroSports strives to be the ultimate destination for badminton players seeking to elevate their game and unleash their full potential on the court.

Requirements Summary:

MINIMUM REQUIREMENTS	Processor Cores	Single Core
	OS	iOS 9.0 or later
	RAM	2 GB
RECOMMENDED REQUIREMENTS	Processor Cores	Quad Core
	OS	iOS 13.0 or later
	RAM	4 GB
OTHER REQUIREMENTS	Permissions	Location, Notifications, and Storage

Table 1. System Requirements

The application is compatible with a wide range of iOS devices and requires a minimum of a single-core processor, 2 GB of RAM, and iOS 9.0. We recommend a quad-core processor, 4 GB of RAM, and iOS 13.0 for optimal performance. Additionally, the

application relies on permissions for notifications and storage. Our aim is to develop a user-friendly eCommerce platform that accommodates the varying capabilities of different iOS devices.

Overview

The evaluation of the prototype adopts innovative alternatives to traditional methods, utilizing online social media platforms like Microsoft Teams and Discord. This approach ensures real-time observation of the prototype's performance, facilitating effective evaluation regardless of physical constraints. The evaluation plan comprises three distinct parts: Usability Specifications, Heuristics Evaluation, and Participant Survey and Feedback. Each technique is meticulously designed to assess different facets of the app's usability and user experience, providing comprehensive insights for refinement and enhancement.

Technique	Description
Usability Specifications	Usability Specifications is the method employed to assess the usability level of the prototype through tasks performed by participants. Testing will evaluate key functionalities of the e-commerce prototype through three tasks. Task 1 focuses on account creation and authentication, assessing signup, login, and email verification. Task 2 tests the process of adding products to favorites, emphasizing navigation and usability of this feature. Task 3 evaluates the checkout process, including adding items to the shopping bag, entering shipping and payment details, and checking order status.
Heuristics Evaluation	Heuristics Evaluation assesses the UX design of the prototype based on established industrial usability principles. This method is selected for its efficiency in quickly evaluating the design's validity, particularly useful when time or resources are limited. It provides an accessible approach to identifying potential usability issues and ensuring the prototype meets user-centric design standards effectively.
Participant Survey and Feedback	Following the prototype testing, participants will be given a survey comprising quantitative questions measured on a 5-point Likert Scale, along with qualitative feedback prompts. The survey will enable participants to provide structured ratings and detailed feedback, ensuring a balanced evaluation of the prototype's effectiveness and user

	experience. This method is designed to capture both numerical assessments and nuanced qualitative insights to inform iterative improvements to the design.

Table 2. Technique Utilized

For the iOS ecommerce application prototype, we will categorize the tasks into three main sections: Home Screen Tasks, Product View Tasks, and Checkout Tasks. Here's a breakdown of the functions that selected participants will need to complete for each section to demonstrate the functionality of the e-commerce app:

- Enter and Exit the Prototype **(Main Menu Task)**
- How easy will the user be able to navigate while using the Prototype.
- **Home Screen Tasks:**
  - Navigate to different product categories from the home screen.
  - Add a product to favorites directly from the home screen.
  - Track a specific order from the home screen.
- **Product View Tasks:**
  - View detailed information about a product, including price, description, and reviews.
  - Add the product to the cart and proceed to checkout.
  - Save a product to the wish list for future reference.
- **Checkout Tasks:**
  - Proceed to the checkout page from the cart.
  - Edit the quantity of products in the cart.
  - Apply a discount code or promotion before finalizing the purchase.

These tasks were selected to evaluate the following aspects of the e-commerce app:

- **Easy Navigation**: Participants should be able to move smoothly between different app sections.
- **CRUD Functionality**: Users should be able to create, read, update (edit), and delete items from their cart easily.

Method of conducting Online Tests (Discord):

Social media platforms were utilized to conduct the online tests for this evaluation. Below are screenshots depicting the evaluation process.
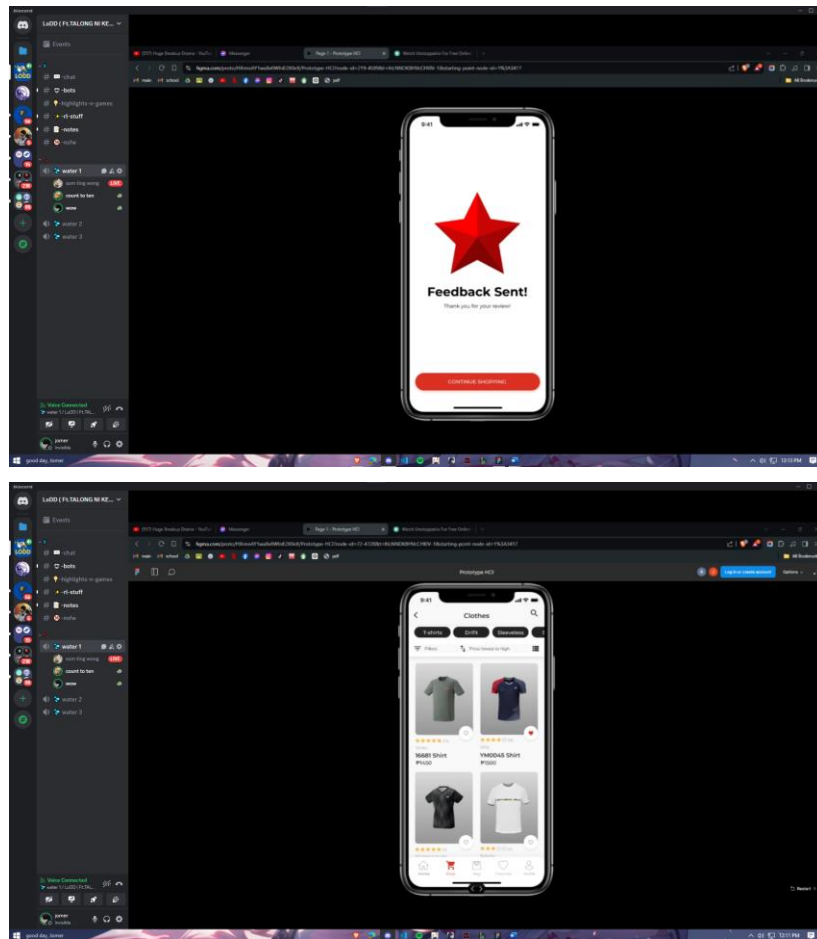
Discord Call

Data Presentation

Data Analysis

Usability Specifications

During the Discord video meeting, Team LinTech conducted a comprehensive test of their prototype. The session revealed a smooth and efficient interaction between the participants and the prototype. Remarkably, all participants managed to accomplish the assigned tasks from Team LinTech members with minimal to no difficulties. This positive outcome indicates the effectiveness and user-friendliness of the prototype, showcasing its potential for seamless integration into practical use.

Task	Mean	Interpretation	Classification
Home Screen Task	1 minute and 12 seconds	Highly Acceptable	Successful
Product View Task	3 minutes and 17 seconds	Highly Acceptable	Successful
Checkout Tasks	3 minutes and 28 seconds	Highly Acceptable	Successful

Table 3. Task Time

Table 3 displays the results of the timed tasks during the online testing. The data indicates that the participants were able to complete each task section remarkably quickly. Based on these results, the prototype is considered successful in all three task sections.

Heuristic Evaluation

The AeroSports prototype will be evaluated within each type of Heuristic Evaluation.

1. *Visibility of System Status*
   - The application design was able to ensure that users are always informed about ongoing actions through timely and clear feedback, such as indicating successful actions like adding products to favorites or cart.

2. *Match Between System and Real World*
   - The app used familiar language and symbols, incorporating badminton-related terminology and intuitive navigation icons throughout the interface.

3. *User Control and Freedom*

- Users were provided with an easy way to undo actions or navigate back without a lengthy process, such as a simple method to remove items from the cart after adding them.

4. *Consistency and Standards*
   - The app was able to align with platform conventions and sports equipment retail standards, preventing user confusion in product categories, filtering options, and the checkout process.

5. *Error Prevention*
   - The app was able to confirm with users before finalizing a purchase, reducing the likelihood of ordering errors by ensuring correct sizes, colors, and quantities.

6. *Recognition Rather Than Recall*
   - Objects, actions, and options were made visible without requiring users to remember information, facilitated by features like recently viewed items or saved searches.

7. *Flexibility and Efficiency of Use*
   - The app catered to inexperienced and expert users, allowing customization of frequent actions for convenience, such as advanced filters and search capabilities.

8. *Aesthetic and Minimalist Design*
   - The design focused on essential features, avoiding overwhelming users with irrelevant information and ensuring a clean interface.

9. *Help Users Recognize, Diagnose, and Recover from Errors*
   - Error messages were clear and constructive, explaining problems without codes and suggesting solutions, such as providing explanations and steps for resolving payment failures.

10. *Help and Documentation*
    - The app was able to offer easy-to-search help and documentation focused on user tasks, including FAQs, tutorials, and live chat support for immediate assistance.

Participant Survey and Feedback

Results

SECTION 1			
Question	Mean	Interpretation	Classification
How would you assess your experience with the AeroSports Prototype?	4.1	Acceptable	Successful
How would you evaluate your experience with the prototype's UI design?	4.27	Acceptable	Successful
How easily were you able to navigate the UI?	4.3	Acceptable	Successful
SECTION 2			
Login, Authentication, and Account Creation	4.5	Highly Acceptable	Successful
Home Page and Catalog	4.8	Highly Acceptable	Successful
Navigate by Category and Product Filtering	4.09	Acceptable	Successful
Product Review and Ratings	4.82	Highly Acceptable	Successful
Bag and Checkout	4.55	Highly Acceptable	Successful
Order Logging, Details, Status, and History	4.64	Highly Acceptable	Successful
Profile Section	4.01	Acceptable	Successful
Favorites / Modules	4.45	Acceptable	Successful
AVERAGE	4.41	Acceptable	Successful

Table 4. Survey Data Interpretation

The survey data collected after the testing reveals that the prototype meets acceptable quality standards and is deemed successful. Evaluated against the 10 Usability Heuristics Criteria, the data indicates that the prototype effectively met participant expectations, particularly excelling in its design and clear visibility.

Feedback

The prototype received positive feedback from the survey conducted after the online testing, thus deeming it successful. Participants expressed satisfaction with various design and functionality aspects, indicating that the prototype meets their needs and expectations. The overall positive reception highlights the effectiveness of the prototype's features and its user-friendly interface.

Design Implications:

- Does your prototype need to be altered to address the results of the analysis, or was it completely successful?
    - Based on the results of the prototype, it was deemed successful with minor revisions, which puts it in an acceptable stage. As a result, the team has decided to address user feedback to improve specific parts of the prototype. The areas of the prototype that selected participants critiqued are the Main Page, Featured Products, Selecting Product Color or Size, and Ratings and Reviews.

    - Below are some of the feedback that state their concerns about certain parts of the prototype:

    - **Main Page:**
        - *There is no search box on the main page, so I must navigate to other parts of the application to search for a product.*

    - **Featured Products:**
        - *Why can't I sort or filter the products in this particular section?*

    - **Selecting Product Color or Size**
        - *I prefer the overlay design just like the other parts instead of the dropdown menu. The design will be more unanimous if it's the overlay design.*
   - **Ratings and Reviews**

- *Users who purchased the product must only be the ones who can leave a product review. It must not be accessible to everyone.*

- What improvements could be made to the design to address any shortcomings?

  - In addressing these feedback and suggestions from the selected participants, the team decided to revise the following:

  - **Main Page:**
    - The team added a designated search box at the top of the main menu to allow users to easily search for specific products.
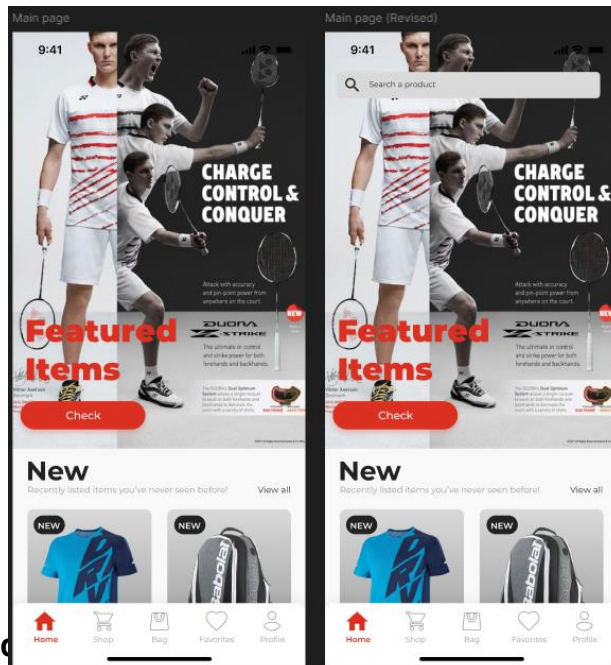

  - **Featured**
    - The team redesigned the product listing by incorporating the sort and filter options, similar to the original design of the product listing.
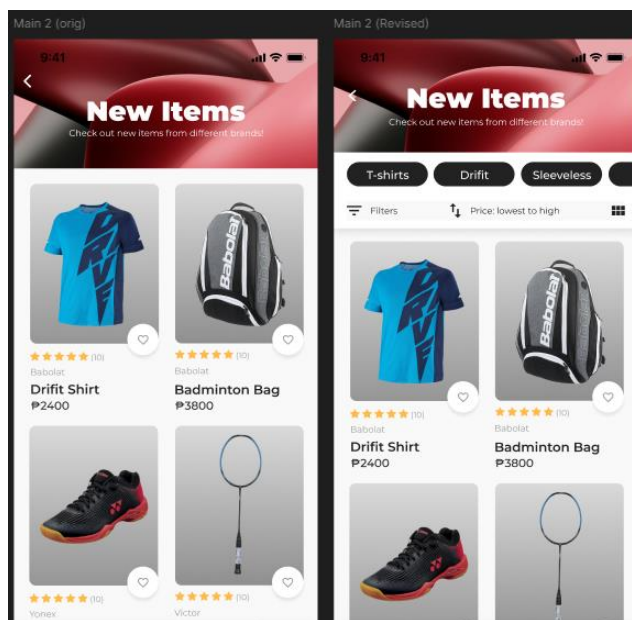
- o **Selecting Product Color or Size**
  - ▪ The team completely removed the dropdown menu for selecting the color or size of the product and redesigned it with an overlay effect.
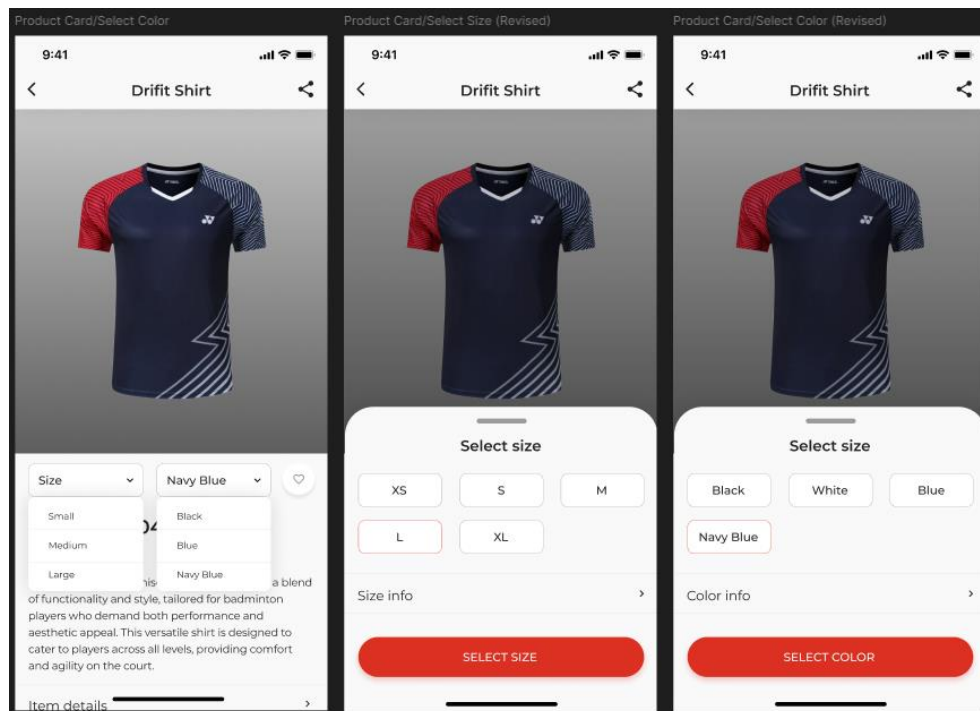

...views and ratings tab. Users can now only access it inside the order details in the delivered tab.
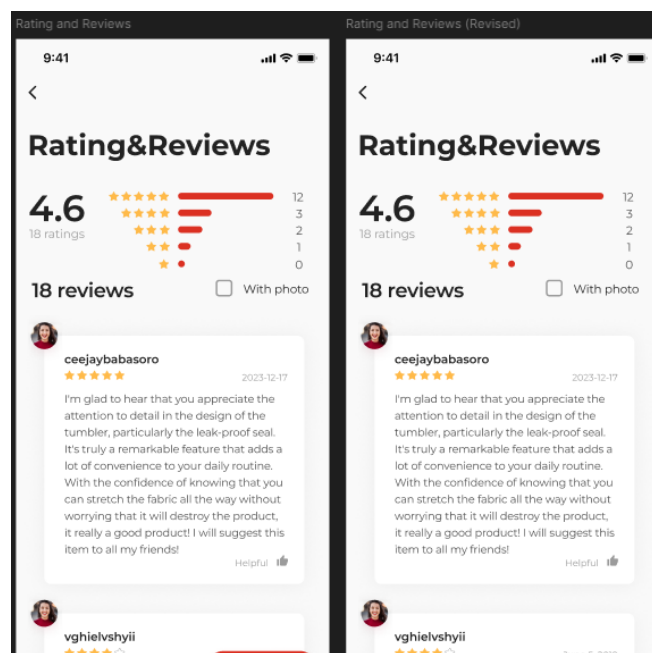
Did you discover any major flaws that would suggest a completely different type of design?

- No significant issues were identified based on the feedback from the chosen participants. The team has already made minor revisions; therefore the prototype is now considered acceptable.

- The team would like to address an issue with the recent design. The problem was that the constraints of some buttons seemed out of place and needed adjustment.
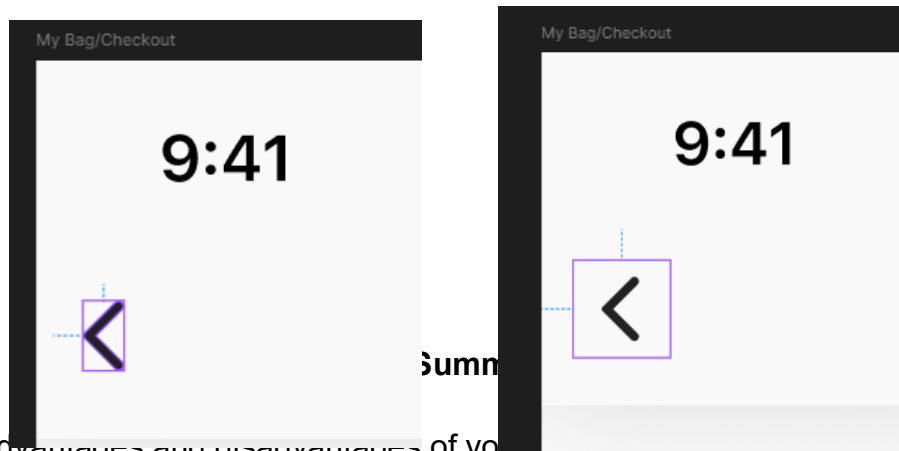
What were the advantages and disadvantages of your evaluation?

- The evaluation of the prototype provided several advantages and disadvantages. On the positive side, the team successfully gathered essential data and insights crucial for refining the prototype, offering a comprehensive understanding of user needs, preferences, and pain points for targeted enhancements. The online nature of the evaluation facilitated easier recruitment and communication with participants, allowing efficient scheduling and distribution of necessary links and instructions via social media, and broadening the reach to include participants from diverse geographic locations. However, the evaluation faced challenges due to the lack of physical contact and in-person laboratory work, which limited the depth and type of data that could be collected, potentially missing detailed, hands-on feedback and observations. Additionally, inconsistent internet connectivity in the Philippines caused delays and interruptions, complicating the real-time observation of participant interactions and affecting the team's ability to accurately

assess the app's performance and user experience. This highlighted the need for stable internet connections for more effective remote evaluations.

What would you have done differently knowing what you know now (both design wise and evaluation-wise)? Given more resources, what could you have done that would have produced significantly more insightful evaluation results (again, whether this is an improved prototype or a different evaluation path).

- Reflecting on the evaluation process for the prototype, we would have implemented a more iterative design approach, involving user feedback at multiple stages to refine the prototype effectively. Given more resources and time, conducting separate evaluations for the initial proposal and revised prototypes would have provided deeper insights into necessary improvements at each development phase. Investing in enhanced back-end coding to fully operationalize the app and integrating advanced features like push notifications and expanded online functionalities would have not only strengthened the prototype but also yielded more comprehensive evaluation results, ensuring a more polished and user-centric final product ready for global deployment.

Summary of the Project

The project focused on creating a prototype for AeroSports, with a strong emphasis on benchmark tasks to evaluate user interaction and identify areas for design improvement. Notable strengths of the prototype included its intuitive navigation, which significantly contributed to a user-friendly experience. However, aspects related to design highlighted opportunities for refinement. These included elements such as layout consistency and visual coherence, which could enhance user experience further. While the prototype initially lacked online features due to time constraints, future iterations aim to integrate these capabilities along with additional features like music, enhancing overall user engagement and functionality.

The study underscored the importance of solid interface design knowledge, and a deep understanding of user needs in prototype development. Despite participants' initial exposure to the prototype, their proficiency in navigating the Android UI indicated satisfactory usability. Overall, the team concluded that while the prototype effectively laid the groundwork for the AeroSports ecommerce experience, ongoing design refinements will be critical to optimizing usability and ensuring the platform meets the expectations of badminton enthusiasts.