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Project (Individual)

Supervisor : Mrs.Nayomi Gamlath

SPORT ITEMS ORDERING SYSTEM, ANDROID APP FOR "MY – SPORTS" SHOP

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ABSTRACT

The project's goal is to create an Android app that makes ordering sports equipment, apparel, accessories, and other things easy. The app's simple layout lets users search for products, examine options, and order from a number of sports merchants and brands. The app will have a thorough product catalog including pricing, availability, and descriptions. Consumers can search by price, brand, and product type. The app will include safe payment options, order tracking, and customer support in addition to goods ordering. Users can also create and maintain their own app profiles with personal information and order history. The project will require an Android app, a backend server for user accounts and orders, and several payment methods and APIs. The app must also work closely with athletic goods stores and manufacturers to expedite and improve ordering. The Android app for ordering sports gear, apparel, and accessories will make it easy for sports lovers to order what they need.

Keywords – equipment, Android, accessories, availability, consumers

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CLIENT DESCRIPTION

I am planning to start my own Sports item shop call "**My Sport**". I will be the development in charge for the relevant requirement. This study is basing on this client requirement and my study purposes.

R.H.V.S. RANASINGHA

1. INTRODUCTION

The objective of the project is to create an application for Android that will make it simple for users to place orders for various sporting goods, including apparatus, apparel, accessories, and other products of a similar nature. Users will be able to search for products, view available options, and place orders from a variety of sports retailers and brands with the help of the app's straightforward and intuitive user interface. The application will be equipped with a comprehensive product catalog that will include detailed product descriptions, pricing, and availability information. Customers will have the ability to filter their searches according to a variety of parameters, such as the price range, brand, and type of goods they are looking for.

The app will not only allow users to place orders for products, but it will also give a wide variety of other functions, such as safe payment choices, order tracking, and customer assistance. Also, users will have the ability to establish and manage their own profiles within the app, which will contain their personal information as well as their order history. The project will necessitate the creation of an Android application, the establishment of a backend server for the administration of user accounts and orders, and the incorporation of a number of different payment channels and APIs. In addition, for the ordering process to be streamlined and effective, the app will require tight collaboration with a variety of sporting goods retailers and manufacturers. In general, the Android app for ordering sports things will give a straightforward and uncomplicated method for sports fans to place orders for the gear, apparel, and accessories they require to participate in their preferred sports activities.

1.1.Background & Motivation

It is not a pleasant experience to try to navigate an online business while using a smartphone, which typically has a screen that is somewhat small. It is inappropriate to use a device with a very small screen size because the web shop's capabilities are not suited to be accessed from these devices. These devices include smartphones and tablets. Using Android Studio and the Android Software Development Kit, "Sports shop" will be developed as an Android application. We are going to utilize SQLite as the database software. Using this program, you will be able to order the item you need and pay for it using the cash on delivery payment option. App for a sports store built with the Android Software Development Kit (SDK) and the Java programming language. SQLite serves as the app's backend database, which stores information such as the user ID, password, and products in the shopping cart. This app will offer a user login feature that will allow users to access their account details, including their past orders, addresses, and shopping cart, among other things. This application will feature a specialized functionality known as admin login, through which administrators will be able to sign in and validate any product that has been checked out by a user. After the order has been reviewed and approved by the administrator, it will then be sent out for delivery. In the future, as part of additional upgrades, we will be able to provide you with additional payment choices and some additional capabilities for managing your account. Because sports applications are something that will never become obsolete and can have a positive impact on a company's bottom line, this app will have a lot of potential uses in both the present and the future. Everyone, from the lowest-income worker to the highest-earning business executive, may at some point need to buy things more quickly and easily, and these applications may help with both of those goals, in addition to providing faster access.

Various sporting products the front and back parts of a store can be brought into harmony with the help of point-of-sale software. POS software enables cashiers to process sales and returns using a range of payment methods, look up order histories, print receipts, and maintain customer contact information for things like rewards programs on the front end of the business. Then, as transactions take place,

the software may, on the back end, update items like inventories, the accounting general ledger, and any pertinent customer relationship management information.

The sports sector is now worth over one billion dollars. It is undeniably a fantastic idea to develop a sports application for your firm, considering the massive fan bases that exist for a variety of different sports.

1.2.Research Gap

One potential study gap for an Android app that allows users to order sports equipment may be related to the experience of users and their level of contentment with the app. To be more specific, there is a demand for research that investigates the factors that influence the user adoption and continued usage of sports items ordering apps. There is a lack of study on the factors that influence user adoption and sustained usage of sports item ordering applications, despite the fact that there are a great number of sports item ordering apps now accessible on the market. For instance, what factors encourage users to download and utilize an app for ordering sports things, and what factors are the most important in determining whether or not they are satisfied with the app? It is possible to conduct research in order to discover the primary aspects that drive user acceptance of sports products ordering applications and continuous usage of those apps.

Examining aspects like as app design, simplicity of use, product availability, pricing, and customer service could be among the things that fall under this category. App developers can make educated decisions about how to design and market their apps if they first identify the factors that influence user satisfaction and then use that information to guide their decisions. In addition, research could also be carried out to investigate the influence that app-based ordering systems for sports goods have had on the overall sports industry. For instance, what kind of an influence do these applications have on sales for various sports retailers and brands, and what kind of repercussions do they have for the larger sports ecosystem? This could help inform the creation of business models that are more effective and sustainable for apps that allow users to order sports things.

1.3.Research Problem

The research challenge for an Android app that allows users to place orders for sporting goods could be put as follows:

There hasn't been a lot of research done on the factors that influence user adoption and satisfaction with sports item ordering apps, nor has there been much research done on the impact these apps have on the sports industry. This is despite the fact that these apps are becoming increasingly popular. With regard to the questions listed below, this research problem attempts to provide answers as best it can:

- What are the most important elements that determine whether or not a user will embrace and continue to use a sports item ordering app?
- In what ways are these elements affected differently by the various user groups and settings?
- How happy are customers with the overall user experience and the functioning of the apps they use to order sports items?
- What are the primary factors that contribute to the happiness or unhappiness of a user?
- What kind of an effect do applications that let you order sports gear have on the marketing and sales techniques used by sporting goods businesses and brands?
- How exactly are these apps transforming the sports sector, and what does this mean for various stakeholders including sports organizations, athletes, and fans?

The answers to these research questions may provide useful insights into the design and marketing of sports item ordering applications, which will maximize the number of users who adopt the apps and their level of happiness. In addition to this, it can be used as a guide for the development of more efficient business models for sporting goods retailers and brands, and it can also provide light on the wider implications that these apps have for the sporting goods industry.

2. OBJECTIVES

2.1.Main Objective

The purpose of this study is to (1) identify the most important elements that drive user adoption of sports item ordering applications and (2) evaluate the impact that these apps have on the sports business.

In order to accomplish this goal, a literature study of the existing research on sports items purchasing applications and associated issues, such as e-commerce, user experience, and mobile app development, is going to be carried out. By conducting user surveys and conducting interviews with users, the goal is to determine the most important features and functions that users search for in an app that allows them to order sports things.

Using user testing and other means of evaluation, to determine how user-friendly existing applications for ordering sports things are and how satisfied their users are with those apps. The purpose of this study is to discover the characteristics that influence user acceptance and sustained usage of sports items ordering apps. These factors include app design, product availability, pricing, and customer assistance.

In conducting interviews with various players in the sports sector, the purpose of this project is to investigate the effect that sports item ordering applications have on the sales and marketing strategies of sports retailers and brands. On the basis of the findings of the research, to make suggestions about the development and promotion of mobile applications for the ordering of sports goods. It will be possible to effectively address the primary research objective, which is to identify the key factors that influence user adoption and satisfaction with sports items ordering apps and to evaluate the impact that these apps have on the sports industry. These sub-objectives can be achieved by successfully completing the primary research objective.

2.2.Specific Objectives

to determine which types of sporting goods are the most frequently purchased using mobile apps, as well as the normal order frequency and quantity.
the purpose of this study is to investigate how users think about sports item ordering applications, including the perceived benefits and cons of these apps.

- To investigate the most important features and functions that consumers want for in an app that allows them to order sports things, such as search, filters, reviews, and comparisons.

- The purpose of this study is to evaluate the role that trust, security, and privacy concerns play in user adoption of sports item ordering apps and user satisfaction with those apps.

- The purpose of this study is to investigate the influence that various marketing methods, such as discounts, promotions, and loyalty programs have on the acquisition and retention of users.

- To investigate the impact that aspects of app design, such as aesthetics, organization, and navigation, have on the degree to which users are satisfied and their future plans for using the app.

- The purpose of this study is to investigate the impact that sports item ordering applications have on the behavior and decision-making of consumers regarding their purchases, including factors such as brand loyalty, impulse buying, and cross-selling.

- To determine how effectively various payment and delivery alternatives can improve customer happiness and retention rates and then to evaluate those options.

- To determine which sports item ordering applications have the most serious problems with customer service, and then to analyze how those problems affect the level of happiness and loyalty felt by app users.

- The purpose of this study is to evaluate the potential influence that sports item ordering apps may have on the sports sector as a whole, including changes in supply chain management, product distribution, and retailing.

These particular aims have the potential to provide a more in-depth and nuanced knowledge of the elements that drive user uptake and satisfaction with sports products buying applications, as well as shed light on the larger implications of these apps for the sports business.

3. METHODOLOGY

3.1.Research Area

The scope of the research topic for an investigation into an Android app for ordering sports goods can be rather extensive because it encompasses many different aspects of mobile app development, e-commerce, and consumer behavior in the sports industry. The following are some prospective areas for research that could be investigated:

- Mobile app development: this research area focuses on the design, development, and deployment of sports items ordering apps, with a particular emphasis on user-centered design, usability testing, and performance optimization. Mobile app development: this research area focuses on the design, development, and deployment of sports items ordering apps. The design of the app interface, the architecture of the app, app optimization, app store optimization, and app analytics are all possible topics of interest.

- This study topic analyzes the aspects that influence user happiness with sports items buying apps. These factors include app functioning, convenience of use, reliability, security, and privacy. Also, this research area focuses on the user experience and satisfaction. User testing, user surveys, user feedback analysis, user adoption models, and user retention models are some of the topics that may be of interest.

- E-commerce and consumer behavior: This research area explores the impact of sports items ordering apps on consumer behavior in the sports industry, including purchase decision-making, impulse buying, cross-selling, and brand loyalty. [Cross-selling] refers to the practice of selling complementary products or services to existing customers. It's possible that topics such as marketing methods, price strategies, payment alternatives, delivery options, and customer service difficulties will be of interest to you.

- This study topic analyzes the larger consequences of sports products ordering apps for the sports industry, including changes in supply chain management, product distribution, and retailing. Trends in the sports industry and the sports market are also investigated in this research area. Market developments, industry structure, competitive dynamics, and regulatory challenges are some possible areas of discussion that could be of interest.

- Data analytics and machine learning: This research area focuses on the application of techniques for data analytics and machine learning to assess and optimize sports items ordering apps and related e-commerce processes. Specifically, the goal is to improve efficiency. It's possible that topics such as data visualization, data modeling, predictive modeling, and recommendation systems will be of interest.

Depending on the breadth and depth of the investigation being conducted, each of these research domains can be further broken into specific research questions and objectives.

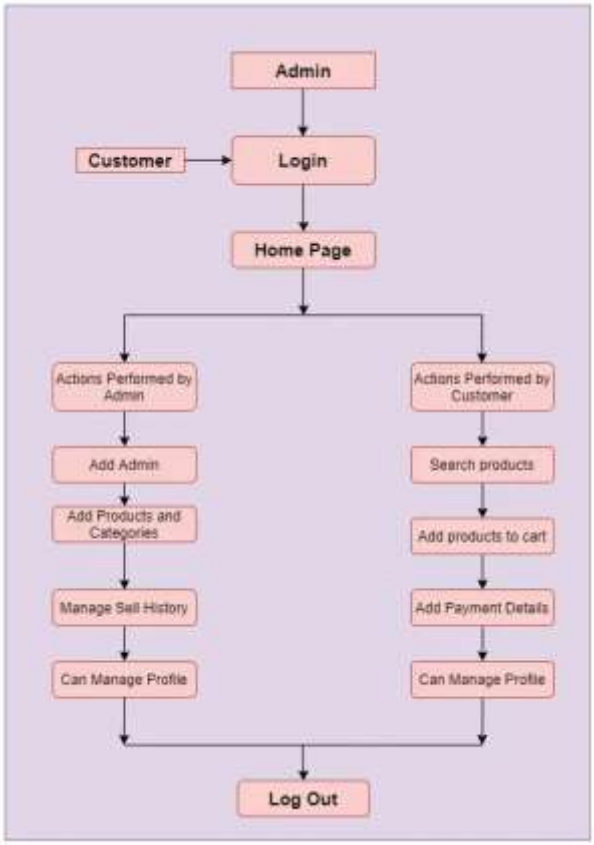

Figure 1. Overall Data Flow Diagram

- User Interface: This component includes the graphical user interface (GUI) that users interact with, such as screens, menus, buttons, and forms. The UI should be user-friendly and intuitive, with features like search and filter options, product categories, and shopping cart management.

- Mobile Application: This component includes the mobile application software that runs on the user's Android device and communicates with the server-side components. The app provides a platform for users to browse, search, select, order, and receive sports items.
- Web Server: This component hosts the web application that powers the backend of the sports items ordering system. The web server receives user requests from the mobile app, processes them, and returns the relevant information to the app. It stores and manages user accounts, product catalogs, orders, payment processing, and delivery tracking.

- Database: This component stores and manages the data used by the web server, such as user profiles, product information, inventory data, and order history. The database should be designed for efficient data retrieval and storage and should be scalable to handle large volumes of data.

- Payment Gateway: This component provides a secure payment processing system that allows users to pay for their orders using various payment methods, such as credit cards, e-wallets, and bank transfers. The payment gateway should comply with relevant security standards and regulations, such as PCI DSS.

- Logistics and Delivery: This component manages the logistics and delivery of the ordered sports items. It interfaces with the web server to update the order status, manage inventory levels, and track delivery progress.

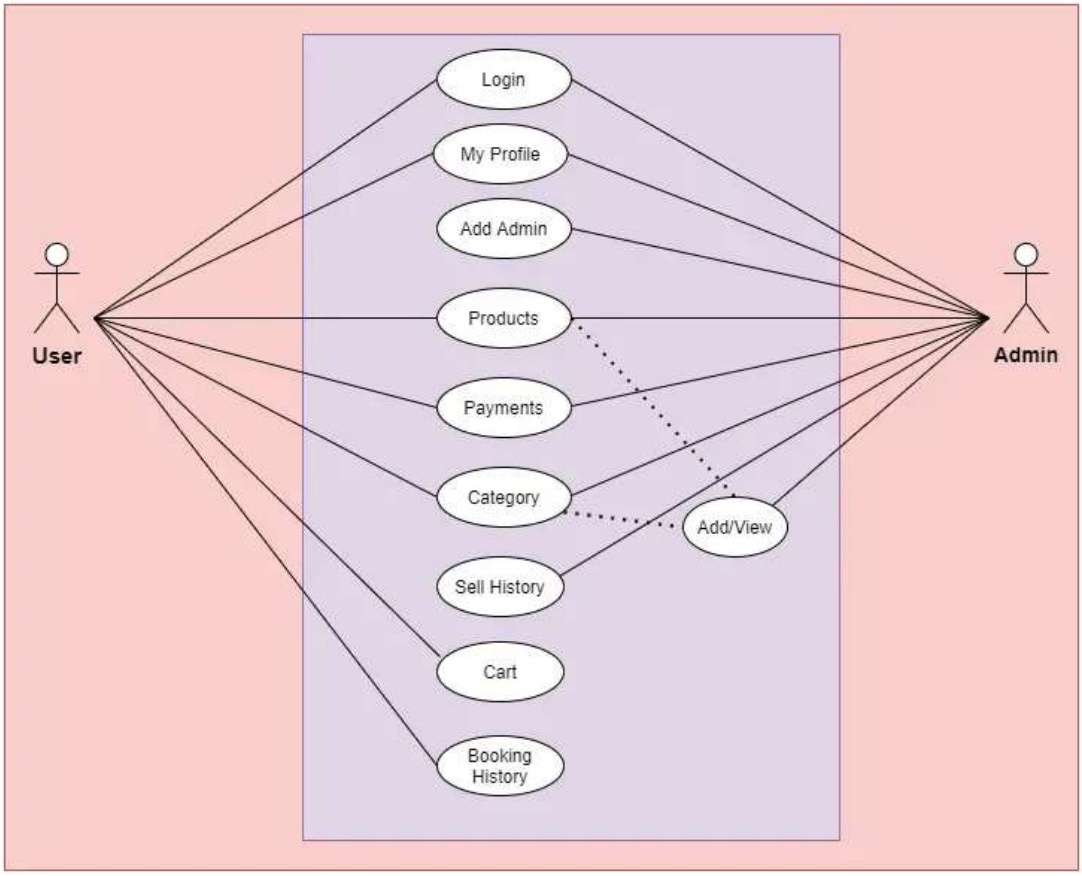

Figure 2. Use case diagram.

3.2.Architecture

A typical Android app that allows users to place orders for sporting goods will have a system architecture that is composed of multiple layers and components, each of which will have its own set of capabilities and duties. The following is an overview of the typical system architecture for an Android app that is used to place orders for sporting goods:

- Presentation Layer: The components of the user interface, such as screens, menus, and forms, are stored in this layer. Users interact with these components to browse, search, select, and place orders for sports goods. The rendering of the user interface and the presentation of data to the user are both under its purview.

- Application Layer: The application's business logic as well as its processing components are contained within this layer. It manages data, processes input from users, and communicates with the backend components, such as the web server and the database. It also handles user input.

- Backend Layer: The web server, the database, and any other backend components that are responsible for the storage, processing, and communication of data are all included in this layer. The web server is responsible for taking in user requests, processing those requests, retrieving and storing data from the database, and sending responses up to the application layer. User accounts, product catalogs, orders, and the processing of payments are some of the types of information that are stored and managed by the database that the app uses.

- Integration Layer: The components that integrate with other systems and services, such as payment gateways, logistics providers, and other third-party APIs, are included in this layer, which is also known as the integration layer. It grants the application the ability to communicate and share data with the aforementioned external services and systems.

- Layer of Security: This layer is comprised of the components that are responsible for maintaining the app's and its data's confidentiality and integrity. Encryption, authentication, access control, and data validation are some of the security methods that are included.

For the most part, the system architecture of an Android app that allows users to place orders for sporting goods should be designed to provide scalability, dependability, security, and performance. It should be able to facilitate seamless connection and data exchange between the components of the app and the external systems, while also offering a smooth and intuitive user experience for the users of the app.

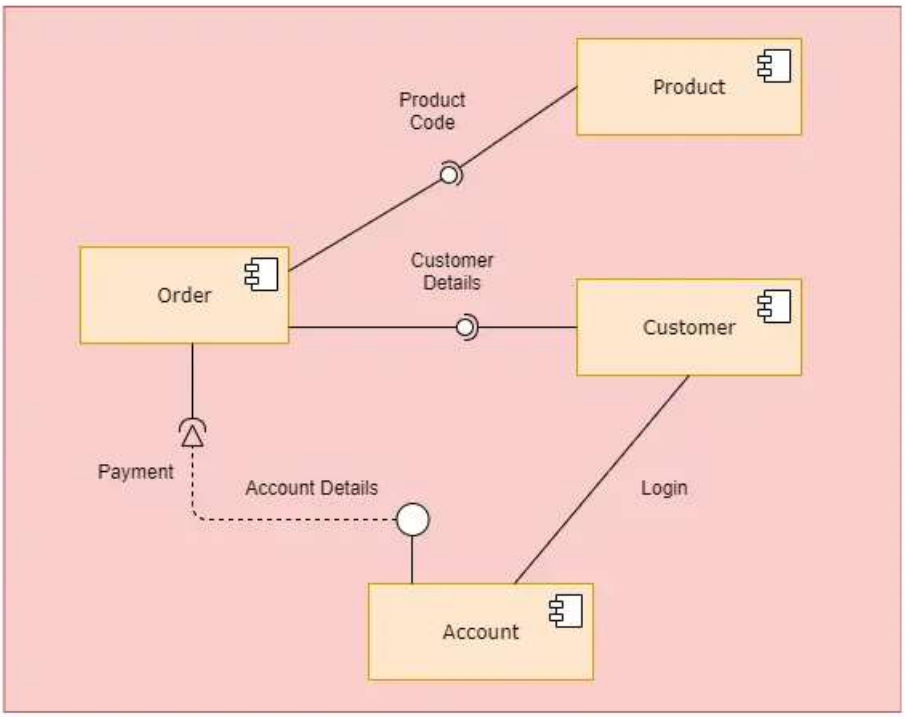

Figure 3. Content Diagram

3.3.Software Architecture

The SDLC architecture is going to be used for the suggested program. Each step is further broken down into its component parts at this point. At each successive step, testing and implementation will be carried out. Both the software and the hardware will be impacted. This method is broken down into five stages: planning, designing, testing, building, and delivering the finished product. The following is an explanation of each stage of the software development life cycle (SDLC): planning, analysis, design, implementation, and maintenance. Therefore, I decided that this should be the software architecture for this study [6].

- Planning - At this point, we have compiled a list of all the prerequisites necessary to accomplish our objective.

- Analysis - At this stage, both the preliminary analysis and the system analysis are brought to a successful conclusion. In the first step, the problem must be declared, and in the second stage, the problem must be diagnosed, and in the third stage, data must be collected and evaluated. In the first stage, objectives and goals must be studied.

- Design - At this time, the user will be familiar with the insights provided by the work.

- Implementation - Currently, the program is in the process of being created.

- Maintenance - At this point, the performance of the system is being evaluated on a consistent basis to ensure that it will not become outdated.

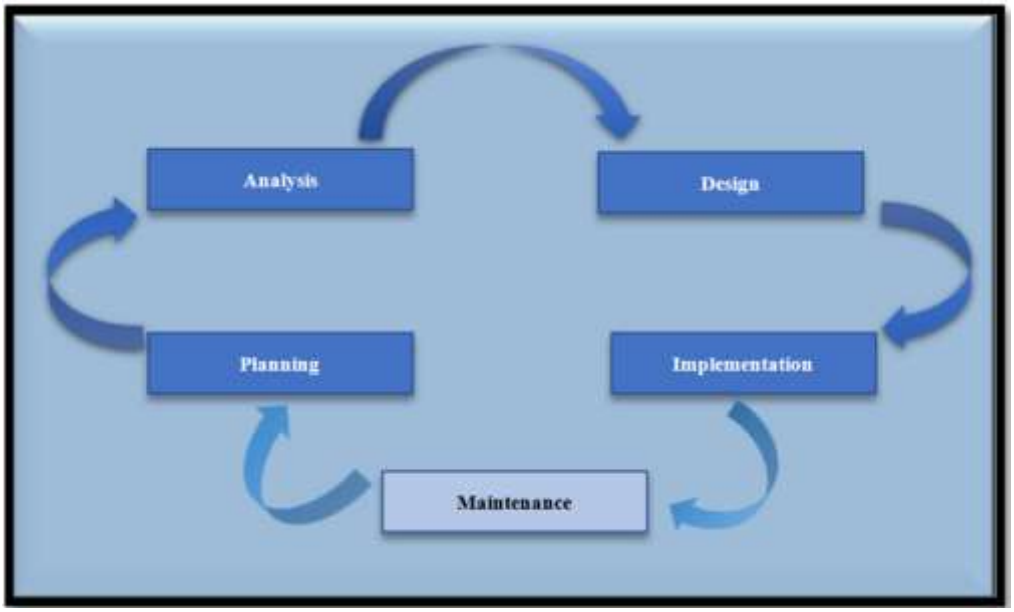

Figure 4. SDLC Methodology Life Cycle

3.4.Gantt Chart

No	Weeks / Description	01	02	03	04	05	06	07	08	09	10	11	12	13
1	**Problem Definition**													
1.1	Define Requirments													
1.2	Develop the Project Proposal													
2	**Planing**													
2.1	Develop scope statement													
2.2	Develop and Refine Other Plan													
3	**Design**													
3.1	User Interface Design													
4	**Development**													
4.1	App Develop													
5	**Testing**													
6	**Implementation**													
7	**Documentation**													

Figure 5.Gantt Chart

4. PROJECT REQUIREMENTS

4.1.Functional Requirements and Non-Functional Requirements

Functional Requirements:

- User Registration and Login: The app need to permit users to register for accounts and log in using either their email address and associated password or their social network accounts.

- Product Catalog: The application ought to display a product catalog that includes photographs, descriptions, and prices of various sporting goods. Users ought to be able to filter and search for the products they are interested in.

- Shopping Cart: Customers should be able to add things to a shopping cart, change the quantity of items in the cart, and remove items from the cart.

- Checkout and Payment: The app should make it possible for customers to check out and pay for their purchases using a variety of payment methods, including credit cards, debit cards, PayPal, and mobile payments.

- Users should be able to examine their order history, check the status of their orders, and receive notifications regarding the status of their orders while using the order tracking feature.

- Reviewing and Rating Capabilities for Customers should have the ability to review and rate the things they have purchased.

Non-Functional Requirements:

- Performance is essential, and the app in question should be quick to respond to user input and offer a streamlined experience overall. It should load very rapidly and be able to accommodate a large number of users and transactions simultaneously.

- The application should have a foolproof security system that safeguards user information and blocks illegal access. Encryption, secure payment channels, and secure user authentication should all be utilized by it.

- Scalability is a feature that should be integrated into the program to ensure that it can accommodate an increasing number of users. It should be able to handle a significant number of users, transactions, and data sets.

- Compatibility: It is necessary for the application to be compatible with a variety of Android versions, screen sizes, and resolutions.

- Usability: The application must be simple to operate, provide clear navigation, and be straightforward to understand. It ought to have a standardized user interface and be designed in accordance with the Android design principles.

- The mobile application must have a high degree of dependability and be accessible at all times. Errors and exceptions should be handled politely, and users should be given error messages that are easy to understand.

In a nutshell, functional requirements specify what the app should be able to do, and non-functional requirements outline how the app should function. Both types of requirements are necessary to ensure that the application satisfies the user's expectations and offers a high-quality user experience in order for the app to be considered successful.

4.2. Technologies and Tools to be selection

4.2.1. Technologies

- Java
- Python
- Java – spring
- C++

4.2.2. Tools

- MongoDB
- Eclipse
- Firebase
- Android studio

5. BUDGET

Description	Cost (LRK)
Requirement gathering	10000
Internet	1500
Documentation	3000
System designing and implementation	18000
Total	**33500**

Table 1. Budget

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