BidMarket

Submitted by

Maroof Afridi (10824)
Nauman Miskeen (10759)

BS-CS (Semester 8th)

Section: C

Submitted To

Ms. Noreen Khan

Department of Computer Science
City University of Science and Information Technology
Peshawar Pakistan
May, 2023.

BidMarket

by

Maroof Afridi (10824)
Nauman Miskeen (10759)

A Final Year Project Proposal submitted to the City University of Science and Information Technology, Peshawar, in partial fulfillment of the requirements for the degree of

Bachelor of Science in Computer Science

Approved by

Supervisor _____ _____

Name Signature

Undergraduate Studies Committee

1. Convener _____ _____

   Name Signature

2. Coordinator FYP _____

3. Head of Department (CS) _____

Department of Computer Science
City University of Science and Information Technology
Peshawar Pakistan

May, 2023.

Contents

List of Figures

List of Abbreviation

CSS	Cascading Style Sheets
HTML	Hypertext Markup Language
JS	Javascript
PHP	Hypertext Preprocessor
SQL	Structured Query Language.

1 Introduction

1.1 Overview

Online auction platforms like Amazon, eBay, and Christie's have revolutionized the auction industry by offering a convenient and accessible platform for buyers and sellers to engage in auctions remotely. On these platforms, sellers list their products for auction and buyers place their bids electronically. Bids can be placed anytime during the auction period and the highest bidder at the end of the auction wins the item. These platforms also offer various features to enhance the user experience, such as automatic bidding, auction alerts, and detailed product descriptions. The proposed online bidding app aims to create a comprehensive and efficient platform for sellers to showcase their products and for buyers to engage in competitive bidding. The system will consist of two panels within a Java mobile app, providing separate interfaces for sellers and buyers, along with a PHP-based Content Management System (CMS) for the admin to efficiently manage seller and user data. To ensure a fair and transparent bidding process, users will be required to sign up and create an account before participating in any bids. This will allow for proper identification and authentication of users, enhancing the overall security of the system. Furthermore, the app will implement bid increments and increasing bid time strategies to discourage bid sniping and collision among bidders, thus promoting a more balanced and competitive environment. The user-friendliness of the app will be a key focus, aiming to provide an intuitive and seamless experience for both sellers and buyers. Sellers will have access to a user-friendly interface where they can easily manage their profiles, view their current product listings, monitor bidding activity, and track their sales and listings' performance. Buyers, on the other hand, will have a convenient interface to explore available products, place bids, track their bid status, and view their bidding history.

1.2 Background

Online auction systems have been in use for decades, with the first electronic auction platform appearing in the early 1990s [1]. Since then, the popularity of online auctions has grown substantially, with platforms like eBay, Amazon, and Christie's offering auction services for a wide range of products, from consumer goods to high-end art pieces [2]. In an online auction system, sellers list their products with a starting price and a time frame during which buyers can place bids [3]. Buyers then compete to place the highest bid, with the highest bidder at the end of the auction winning the product. This process is facilitated by a bidding engine that manages the bidding process and tracks bid activity [4].

Online auction platforms like Amazon, eBay, and Christie's have revolutionized the auction industry by offering a convenient and accessible platform for buyers and sellers to engage in auctions remotely [5]. On these platforms, sellers list their products for auction and buyers place their bids electronically. Bids can be placed anytime during the auction period and the highest bidder at the end of the auction wins the item. These platforms also offer various features to enhance the user experience, such as automatic bidding, auction alerts, and detailed product descriptions [6]. Additionally, online auction platforms often have a vast network of buyers and sellers, which allows for a wider range of products and a more competitive bidding environment [7].

User friendliness and security are crucial factors in the design and implementation of bidding systems [8] emphasizes the significance of user-friendly interfaces in enhancing user satisfaction and engagement, ultimately leading to increased participation and higher success rates in bidding processes. Additionally, [9] highlights the importance of implementing strong security measures to protect user data and prevent unauthorized access, as trust and security concerns are major barriers to user adoption [10]. Further support for user friendliness and security can be found in the works of [11], who emphasize the need for intuitive navigation, clear instructions, and responsive design to ensure a seamless bidding experience. Moreover, the research [12] emphasizes the importance of encryption protocols, authentication mechanisms, and secure payment gateways to safeguard user information and transactions, establishing a secure environment for bidding processes. These findings collectively emphasize the significance of user friendliness and security in bidding systems, providing valuable insights for the development of the proposed bidding app.

However, the bidding process is not without its issues, such as bid sniping and collision among bidders [13]. Bid sniping is the practice of placing a last-minute bid to win an auction [14], while collision among bidders involves buyers working together to artificially inflate prices. These issues can result in lower profits for sellers and a less fair and transparent bidding process. The proposed online bidding app aims to address these issues through features such as bid increments and increasing bid time [15], as well as prioritizing user-friendliness and security.

1.3 Motivation

The existing bidding systems has issues such as bid sniping, collision among bidders and bad user experience by implementing bid increments, increased bid time, and user-friendly interfaces. Therefore, bidding system has many issues like bid sniping due to which this market is not growing. To overcome this issue, there is a need of an application which not only cope up with all the problem, but also enhance the fairness, security, and accessibility of the bidding

process, resulting in higher profits for sellers and a better user experience for buyers.

1.4 Problem Statement

The current online bidding systems face challenges such as bid sniping, collision among bidders, poor user-friendliness, and security vulnerabilities. Unfair bidding practices can harm the integrity, fairness of the bidding process, poor UI's and security issues can result in lower profits for sellers also damage to the reputation of the system.

1.5 Aim and Objectives

The aim and objectives of this project are:

1.5.1 Aim

The aim of this project is to develop an online bidding system that addresses the challenges of unfair bidding practices, user-friendly interface and security.

1.5.2 Objectives

- To attract a large number of buyers to the platform, in order to increase the competition for the products being sold. This would drive up the price of the products, which would benefit the sellers.
- To develop a platform for buyers and sellers that will facilitate a user-friendly bidding process.
- To implement strong user authentication, encryption mechanisms to protect user data and prevent unauthorized access.
- To create a fair bidding app using features such as bid increments, increased bid time to prevent bid sniping and collusion.

1.6 Significance of the Study

Bid Market will have significant benefits for sellers and buyers alike. user-friendly interface pertains to the simplicity, convenience of the platform, ensuring that users can easily navigate and utilize its features. Accessibility focuses on making the platform readily available and easily accessible to users, regardless of their location or device. Security measures encompass the protection of user data and prevention of unauthorized access, safeguarding the integrity and privacy of the platform. By mitigating unfair bidding practices, prioritizing user-friendly

interface, accessibility, and security. The proposed app aims to optimize the experience for both sellers and buyers. These improvements will not only contribute to higher profitability for sellers also result in an enhanced user journey for buyers, fostering trust, engagement, and overall satisfaction with the platform.

2 Methodology

The development methodology for this project will follow the Waterfall approach, which involves a sequential flow of phases, with each phase building upon the work of the previous phase. The Waterfall approach is suitable for this project as the requirements and objectives are well-defined, and the development process can proceed in a linear manner.

2.1 Proposed Solution

The proposed solution for this project is a mobile bidding system that uses Java in Android Studio for the mobile app, MySQL for the database, and PHP for the CMS for the admin. To enhance user-friendliness and transparency, the proposed system will provide users with clear and concise bidding rules and guidelines. The system will also provide users with real-time bidding status updates, including their current bid status and whether they are winning or losing, as well as notifications when they have been outbid. To ensure a fair bidding process, we will implement several measures such that all users have equal opportunities to bid on items by setting bid increments and prohibiting bid sniping. The mobile app will provide a user-friendly interface for buyers and sellers to interact with the bidding system. The PHP CMS will allow for the management of user data and the administration of the bidding system. The database will store all the necessary data for the bidding system, including user data, product listings, and bidding history.

2.1.1 Seller Flow

Upon logging in, as mentioned in figure 2.1 the seller can access and modify their profile information, view their current product listings, check the number of active bids on each product, and view the products that have been sold after the bidding period ended and a final buyer was selected. Once finished, the seller can log out and exit the system.

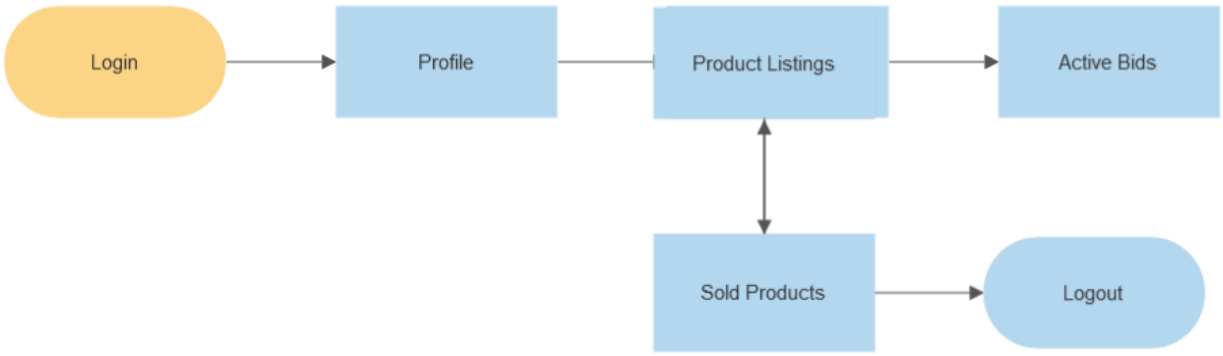

Figure 2.1: Seller Flow Chart

2.1.2 Buyer Flow

Upon logging in, the buyer can view the list of available products for bidding, with promoted products being displayed at the top. The buyer can then place a bid on any of the available products. If the buyer places the highest bid, the maximum bid for that product will be updated. If no other buyer places a higher bid, the buyer will be able to purchase the product. After completing the bidding process, the buyer can then logout from the system and exit. Here is the flow chart for buyer in figure 2.2:

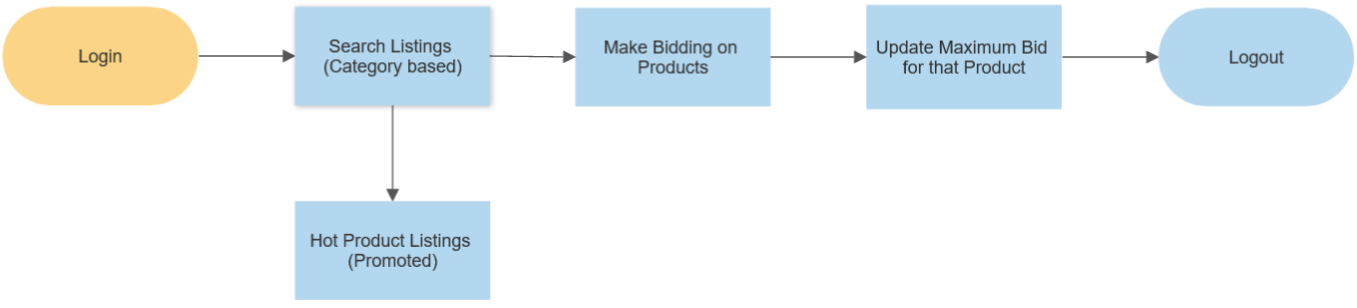

Figure 2.2: Buyer Flow Chart

2.2 Tools and Techniques

The tools and techniques that will be used in this project include Java in Android Studio for the mobile app development, MySQL for the database management, and PHP for the CMS development. We will use bootstrap for UI design of the CMS.

2.2.1 Android Studio and Java

Android studio will be used as the IDE to develop and test the app for mobile. The combination of Java and Android Studio provides a powerful and flexible platform for developing mobile applications that can run on a wide range of devices and platforms, making it an ideal choice for the proposed online bidding system mobile app.

2.2.2 Bootstrap and PHP

Bootstrap offers responsive design capabilities, which ensures that the CMS is optimized for viewing on multiple devices and screen sizes, including mobile phones and tablets [16]. This is essential for ensuring that the CMS is accessible to users regardless of the device they are using. Additionally, Bootstrap offers built-in JavaScript plugins, which can enhance the functionality of the CMS and improve the user experience. Bootstrap will be used as the main styling framework for the admin CMS.
PHP can be easily integrated with a variety of databases, including MySQL, which will be used in this project. This allows the CMS to interact with the database to store and retrieve user and product information. Php will be used as the main backend language to develop and connect the admin cms with database. Overall, the combination of Bootstrap and PHP provides an ideal platform for building a user-friendly and secure CMS for the proposed online bidding system.

2.2.3 MySQL

MySQL is a great choice for this project because it is compatible with both the Java-based mobile app and PHP-based CMS [17]. It can handle large amounts of data and support complex queries, making it suitable for storing and managing the data for the bidding system. Additionally, MySQL has a robust community of users and developers, which means that there are plenty of resources available for support, troubleshooting, and development. So MySQL will serve as the database for both the mobile app and the admin CMS.

2.3 Work Plan

The work plan for this project is divided into several phases, each with its own set of objectives and deliverables. The first phase will involve requirements gathering, where the project requirements will be documented and analyzed. Next stage is to design the user interface of the app. This involves creating wireframes and prototypes of the app screens, incorporating user feedback, and finalizing the design. Then in the next phase backend with connected database will be designed. To develop the web app for the admin panel, involves building the backend infrastructure, integrating the database, creating the user authentication as well as authorization mechanism, and developing the admin panel with features such as match scheduling, feedback management, and payment tracking. Finally The app and CMS will be fully evaluated. Here is the Gantt chart for our project in Figure 2.3:

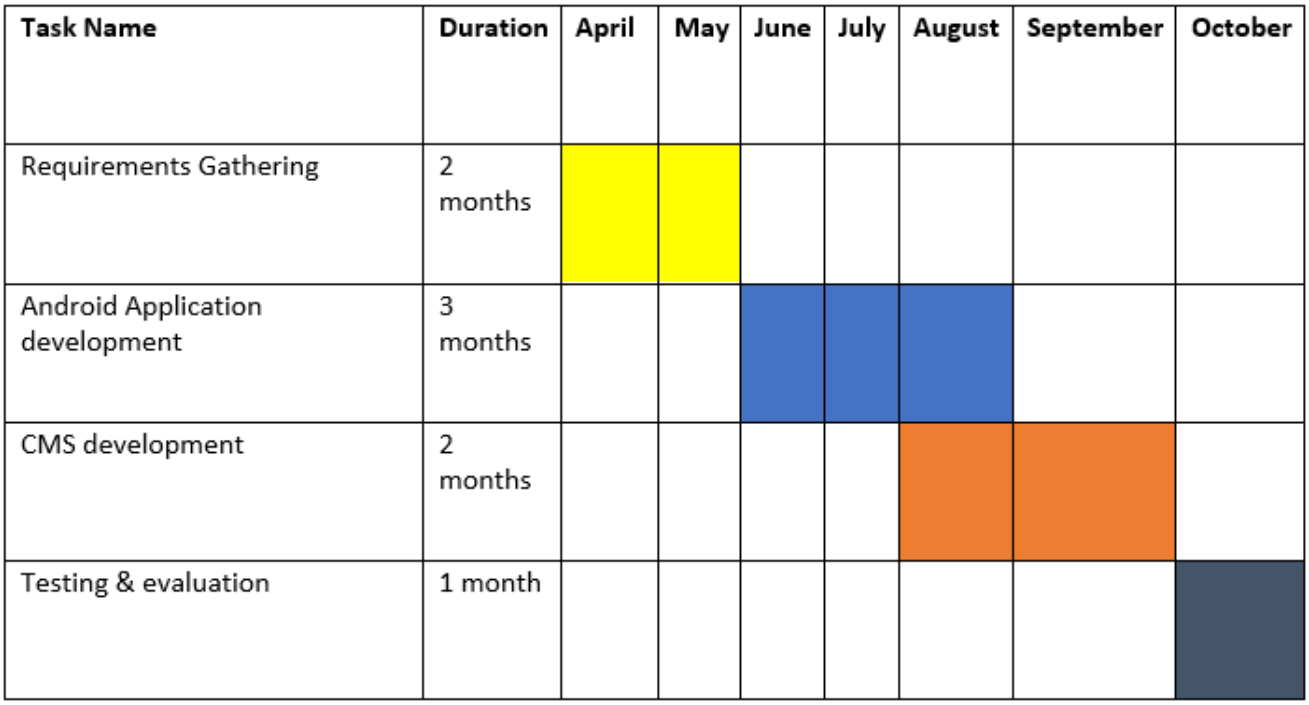

Figure 2.3: Gantt Chart

The whole methodology is given below in figure 2.4:

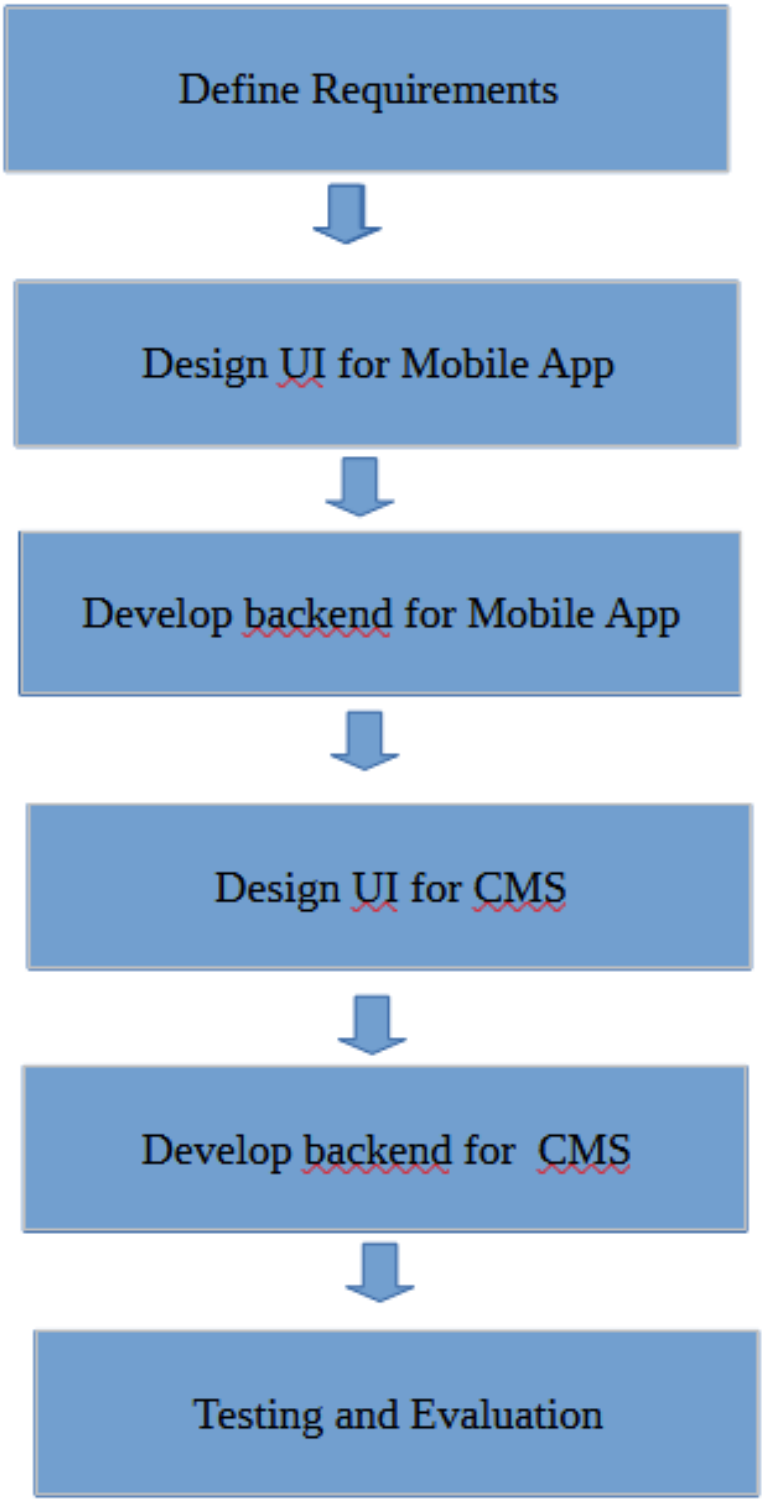

Figure 2.4: Block Diagram

Conclusion

Bid Market aims to provide a user-friendly, accessible, and secure platform for sellers and buyers. The system will incorporate features such as bid increments, bid withdrawal options, and increasing bid time to prevent bid sniping and collision among bidders. Thereby increasing fairness in the bidding process, while the potential for unfair bidding exists and may even be profitable for the company. The system's aim is to prioritize user-friendliness and accessibility. Overall, the implementation of such a system could have significant benefits for the online marketplace, such as increasing consumer trust and confidence in the bidding process.

References

[1] Darpan Anand. Implementation of online e–auction to overcome the problem of corruption with effective and efficient procurement with transparency. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(1S):1–6, 2021.

[2] Caroline McHolme Beam. *Auctioning and bidding in electronic commerce: the online auction*. University of California, Berkeley, 1999.

[3] Audrey Elizabeth Wen and HoiYat Wong. Bidder and seller strategies in online auctions: A review. In *2021 3rd International Conference on Economic Management and Cultural Industry (ICEMCI 2021)*, pages 1993–1999. Atlantis Press, 2021.

[4] INIOLUWA ADEJARE ADEDOKUN. Design and implementation of an online auction system. 2022.

[5] Francisco Alvarez and Marcello Sartarelli. Cross-bidding in ebay-like environments. *Dynamic Analysis in Complex Economic Environments: Essays in Honor of Christophe Deissenberg*, pages 5–27, 2021.

[6] Jim Ingebretsen Carlson and Tingting Wu. Shill bidding and information in ebay auctions: A laboratory study. *Journal of Economic Behavior & Organization*, 202:341–360, 2022.

[7] Yi-Hui Chen, Li-Chin Huang, Iuon-Chang Lin, and Min-Shiang Hwang. Research on blockchain technologies in bidding systems. *International Journal of Network Security*, 22(6):897–904, 2020.

[8] Steve Brown, John Bessant, and Fu Jia. *Strategic operations management*. Routledge, 2018.

[9] Norleyza Jailani, Mohammed Al-Aaidroos, Muriati Mukhtar, Marini Abu Bakar, and Amirah Ismail. Mapping e-auction sharia compliant requirements to user interface design. *International Journal on Advanced Science*, 10(3):1058–1065, 2020.

[10] Probir Banerjee, Kwok Kee Wei, and Louis Ma. Role of trialability in b2b e-business adoption: theoretical insights from two case studies. *Behaviour & Information Technology*, 31(9):815–827, 2012.

[11] Jaehun Joo. Roles of the buyer's trust in seller in posted-price model of consumer to consumer e-commerce. *Journal of theoretical and applied electronic commerce research*, 10(3):30–44, 2015.

[12] Goodarz Javadian Dehkordi, Samin Rezvani, Muhammad Sabbir Rahman, Firoozeh Fouladivanda Neda Nahid, and Samaneh Faramarzi Jouya. A conceptual study on e-marketing and its operation on firm's promotion and understanding customer's response. *International Journal of Business and Management*, 7(19):114, 2012.

[13] Zongli Ye, Chin-Ling Chen, Wei Weng, Hongyu Sun, Woei-Jiunn Tsaur, and Yong-Yuan Deng. An anonymous and fair auction system based on blockchain. *The Journal of Supercomputing*, pages 1–43, 2023.

[14] Nicola Dimitri. Last minute only bidding is implausible in ebay sealed bid type-of-auctions. *Electronic Commerce Research*, 22(2):225–239, 2022.

[15] Nathan Fisher, Jarrod Trevathan, and Heather Gray. Detecting shill bidding using ebay's 30-day bid summary. *International Journal of Cyber-Security and Digital Forensics*, 8(2):120–134, 2019.

[16] Jake Spurlock. *Bootstrap: responsive web development*. " O'Reilly Media, Inc.", 2013.

[17] Binildas Christudas and Binildas Christudas. *MySQL*. Springer, 2019.