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BANSAL INSTITUTE OF SCIENCE AND TECHNOLOGY, BHOPAL (M.P)

(Department of Computer Science and Technology)

DECLARATION

We hereby declare that this project work entitled “One Market For Patna” has been prepared by Rahul Gupta (0112CS191077), Rahi Turkar (0112CS191076), Gagan Bisen (0112CS191040), Satyendra Kumar Saket (0112CS191097), and Ankit Kumar Chaubey (0112CS191021) by during the guidance of Prof. Manish Saxena & Prof. Shital Gupta, Department of Computer Science, Bansal institute of Science and Technology, Bhopal in the partial fulfilment of B. Tech degree prescribed by the college.

We also declare that this project is the outcome of our effort and that it that not been submitted to any other university for the award of any degree.

Date: 1-03-2023

Abstract

Auctions are processes where selling and buying of products takes place by offering them for a bid and the buyer with the highest bid price buys the product or the seller with lowest ask price sells the product. Due to the emergence of e-commerce, the world has become a universal marketplace which grants every individual the right to become a seller and buyer of products irrespective of geographical barriers. In this project, we aim to create a web application for online auction system where every product is offered for bidding and the interested buyers can bid on them and buy them at fair prices. We have used the ReactJS library for developing the frontend and Django for the backend development. Initially, we have created an e-commerce web application prototype with all the typical features in it like user and admin system, login / authentication system, catalogue of products, shopping cart, payment page, etc. We have introduced bidding functionality after development of the base e-commerce system. The purpose of this project is to create a simulated environment for research in this domain to test the different fraud detection algorithms for shill bidding, bid shielding, etc.

Acknowledgement

This paper and the research behind it would not have been possible without the exceptional support of our project guide and supervisor, Prof. Manish Saxena. His enthusiasm, knowledge and exact attention to detail have been an inspiration and kept the work on track from the beginning. We would also like to thank our friends and family who supported us and also offered deep insight into the study.

Introduction

Online auction systems are a major component of the electronic commerce space which have an ever-increasing popularity. In these systems, a seller uploads a product online for a given set amount of time and the buyers with the highest bid purchases the product. This system allows sellers to sell their products from anywhere which eliminate the geographic limitations. In the traditional approach, web applications have been written using HTML along with embedded JavaScript code which manipulated the Document Object Model through low level browser API. React is useful to develop modular code which employs incremental update of user interfaces in response to state changes. React applications are component based in nature organized in a tree structure. A component in React has a state which varies over time along with a set of properties that represent input parameters and a render method that specifies the subcomponents

Use Case Diagram

Fig. 1 : Use Case Diagram

User Case Diagram

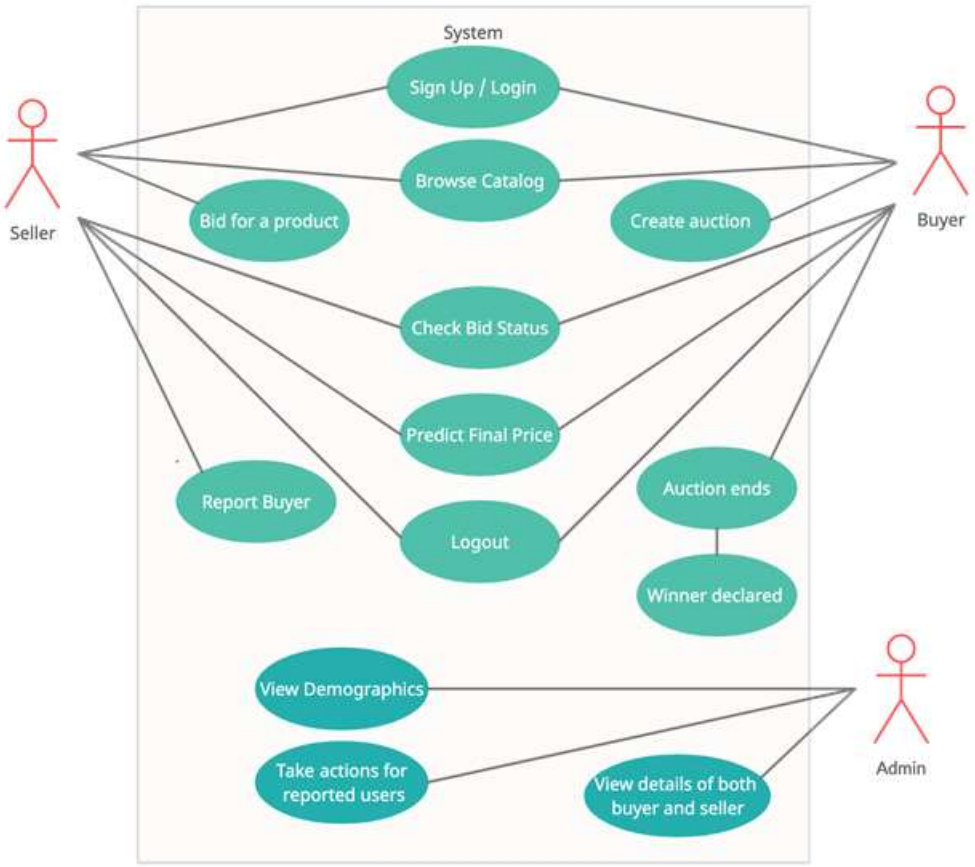

Fig. 1 : Use Case Diagram

Class Diagram

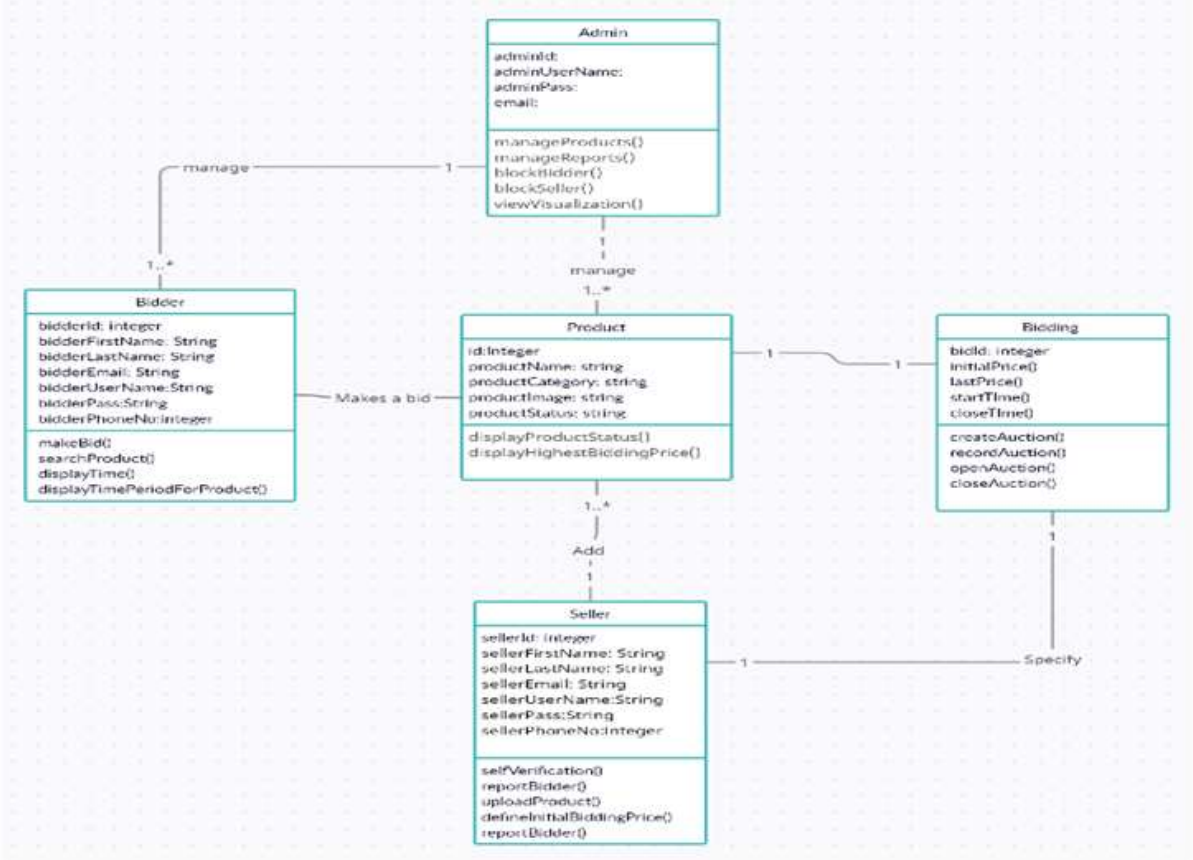

Fig. 3 : Class Diagram

Advantages

- User can create account.
- User can post their product.
- User can bid the price.
- User interface is very easy to understand.
- It helps user to know the prices of all the commodities at one place.
- Users can negotiate the price, if they want to.

Front-End Development

1. We import all the necessary libraries for developing the components for the frontend of the system.

2. Since django supports development of single page applications, we create only a single file index.html and index.js

3. First , we developed the product.js file to create the catalogue of products in the frontend. We add all the features to this component so that it looks like a proper e-commerce product card.

4. We make use of jsx to decide how should each product card look like and also for the other components like buttons, textboxes, etc.

Back-End Development

1. For the backend , we make use of Django to communicate with the backend to make requests to an API, return data from the API and to do changes with the data in the React application.

2. We declare the route path in django as to perform HTTP requests.

3. Initially, we used the React Redux store dispatch to reflect changes from backend to the frontend of the system.

4. After any changes are made in the frontend, they are sent to the actions.js file through which asynchronous requests are sent through django and changes are made in the backend and results are displayed on the frontend.

Hardware Components

- Processor (Any)
- Hard Disk – 5GB
- Memory – 1GB RAM

Software Requirement

- Windows 7 or Above
- Modern Web Browser

Features

- User can create account.
- User can post their product.
- User can bid the price.
- User interface is very easy to understand.
- It helps user to know the prices of all the commodities at one place.
- Users can negotiate the price, if they want to.

Conclusion

This paper employs the best practices in building a web application for online auctions. We have designed, analyzed and implemented a web application for online auctions using UML, React library and Django framework. We have used UML to add functions using class diagrams, use case diagrams, data flow diagrams, sequence diagrams,etc. The application allows the bidder for quick bidding and sellers to achieve maximum profit. React library allows the development of a single page application which does not reload while navigating through each page.The backend of the system is developed by using the Django framework which makes it easier to achieve modular development. Future works involve adding new functionalities to the system like verifying users' identity, support different types of auctions, a mechanism to remove spurious and inactive accounts to improve system performance.