REVA UNIVERSITY
Bengaluru, India

SCHOOL OF APPLIED SCIENCES (MATHEMATICS)

A PROJECT REPORT

"NEW AND OLD BOOK PURCHASE SYSTEM WEB APPLICATION USING FAST API"

Submitted by

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Date: Date:

DECLARATION

Mr. Rahul Suregaonkar student of MSc Mathematics, IV Semester, School of Applied Science, REVA University declare that the Project Report entitled "New and old book purchase system web application using Fast API" done by us under the guidance of **Dr. Mahalakshmi**, Assistant Professor, School of Applied Science, REVA University. We are submitting the Project Report in fulfilment of the requirements for the award of the degree of Master of Science by the REVA University, Bengaluru during the academic year 2022-23.

I further declare that the result of this work has not been submitted previously to this or any other University or Institution for any degree.

CERTIFICATE

This is to certify that the Project report entitled "NEW AND OLD BOOK PURCHASE SYSTEM WEB APPLICATION USING FAST API" was carried out under my guidance for Rahul Suregaonkar (R21SN041) Bonafede student at REVA University during the academic year 2022-23. The above-mentioned students are submitting the Project report in fulfilment for the award of M.Sc. during the academic year 2022-23. The Final-Project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the said degree.

Signature of the Guide   Signature of the Director/HOD   Signature of the Examiner

Date :   Date :   Date :

CONTENTS

Body of the Project

TITLE OF THE PROJECT: NEW AND OLD BOOK PURCHASE SYSTEM WEB APPLICATION USING FAST API

I.   Summary of Project

Web application to purchase and sell old books on the same application provides more performance to all customers, giving a new experience of getting real-time recommendations based on real-time trends, price, and features. Implementation of new technologies like Fast API as Framework which enables the application to respond with the minimal time. The web application gives a new user interface with better experience for the users. Using the online bookstore system has a lot many benefits. There is absolutely no necessity for a consumer to go out looking for a particular book. The book of his/her liking can be easily purchased using the online bookstore software whilst sitting in their comfort zone and just running the software on a system with an active internet connection and a web browser. Developing an e-commerce website requires various pre-requisites. An abundant amount of knowledge on multi-tiered architecture, server, and client-side scripting methods, some of the implementation techniques like JSP, programming languages such as JavaScript, HTML and database techniques such as MySQL and Microsoft Access are required. Our project is designed and implemented using HTML and PHP languages. The database is managed using MySQL and the client-server communication is handled by Fast API.

II.   Background of research

There are many online bookstores like Powell's and Amazon which were designed using Html. I want to develop a similar website using Python and Fast API, Postgres SQL Server.

Online Book store is an online web application where the customer can purchase books online. Through a web browser the customers can search for a book by its title or author, later can add to the shopping cart and finally purchase using a credit card transaction. The user can login using

his account details or new customers can set up an account very quickly. They should give the details of their name, contact number and shipping address. The user can also give feedback to a book by giving ratings on a score of five. The books are divided into many categories based on subject Like Software, Database, English, Architecture etc.

An online bookstore web application is a trading platform for books online. Customers can connect to the network through their computer and browse for online booksellers, where they can check the book information, price, content, and many more things. They can register their name, address, and email if they need to purchase a book. Customers can log into the web application and search for the books they need, select their books, order the books, and pay to complete the order process. Customers can resell the same book they purchased from the same web application. The online second-hand bookstore uses the power of the internet and provides a website that can make book reselling easier. In this project the implementation of new technologies for the front-end like CSS3 and HTML5, to improve user friendly experience for the customers and implementation of technologies like JSP, programming languages such as JavaScript, python for back-end. Development of a web application using the new Fast-API framework gives the web application more stability and a fast interface, Easy integration with Databases, and high-level documentation. If the application needs recommendation systems with an Artificial Intelligence Model (AI), Fast-API helps to get request and response time to be minimum since both the web application and AI model work on the same framework. The books are classified into many categories, which will be useful to search the book on online bookstore.

The Databases are managed using Postgres SQL and mongo-dB for the client information, address, and profile.

III. Critical Review of Literatures and identification of research gaps

Han et al. [1] introduce the online bookstore web application using the ASP.NET framework, which has an MVC (Model View Controller) pattern-based way to build a dynamic website. New features were implemented, including new book recommendations for customers, a best-seller page with blogs, a customer comments section, expert suggestions, and many more. Chat box was implemented to provide direct communication with the bookstore. Shyam et al. [3] developed a web application for a resource-sharing platform named Shreic (Sharing Resources on Campus) using the Django framework. Appropriate software development life cycle

(SDLC) models and testing techniques have been used in the development process. Sawant et al. [6] developed a web application using the Django framework, a Python web framework that redefined web development in the Python world. A full-stack application, pragmatic design, and high-level documentation. In this project, they have implemented a new website model that helps skilled people in technology find jobs on the same platform. The backend has been in Python, Jinja2, and SQLite. Claims that Django is one of the best frameworks for easy and rapid web development. Shelke et al. [8] have worked on the online bookstore web application, which was developed using PHP as an open-source framework and My SQL as a database, which gives a wide variety of options to update the website with many possible features and helps in rapid application development. Given the above literature review, according to my knowledge, no studies have been initiated for the implementation of new web service technologies like Fast-API, where the server response will be minimal on the web application. Ms. Pragati et al. [4] project is designed and implemented using HTML and languages. The database is managed using MySQL and the client-server communication is handled by XAMPP. The objective of the project is to develop a basic e-commerce website for the sales of books over the Internet. The website allows a user to search for different books of different categories which are available for purchase. Jie Liu et al. [5] developed a web application online bookstore. Which uses JSP and JavaBean technology for building the application. Thakur M S [9] Structural coverage analysis for any code is a very common approach to measure the quality of any test suit. Structural coverage determines which structure of the software or which portion is not exercised. This chapter describes two different phases to achieve structural coverage analysis using DO-178B/C standards. Statement coverage is the very basic coverage criteria that involve the execution of all the executable statements in the source code at least once. Structural coverage analysis can be done by capturing the amount of code covered by the airborne software.

IV.   **Objectives of research work**

- To Implementation of new web service technologies and framework on web-based application to provide better performance in terms of response time of the web application.

- Creating new user interface which allows customers to get the best experience while using the web application, simple navigation from the home page to product page with details, feedback to improve whole web applications from the customers and fulfilling their requirements in time, keeping the customer information secure as every personal information is hashed.

- Keeping the web application most secure in any possible ways.

- The option of re-selling the purchased book from the same web application helps the customer to effortlessly sell the book with a good deal.

V. __Methodology of the research__

- HTML5, CSS3, Bootstrap, and React languages are used for the design and implementation of the web application for the front-end of the project.

- Postgres SQL and MongoDB are used for the database, where Postgres SQL is used to store the user information and MongoDB stores the Books Information for the Bookstore and images of books.

- Python and Fast-API is used for the client-server communication.

A. SYSTEM DESIGN

1. Home Page

This is the home page which is displayed after the user is logged in to the web application. It will display all the products which has discounts, popular products, limited offer, featured books, new arrivals, deal of the day, client reviews, blogs, contact information, cart, login option.

2. Publisher

This page displays a list of publishers of a particular book. It contains all the authors and publishers which are available in our bookstore, and it shows the image of the book along with the authors and publishers, hence customers can get the details of the book, author, and publishers which helps to choose the best book and opportunities to compare the books along with the details of the book so that they can add the book to the cart.

3. Books

In this page we can see all the available books in the bookstore along with the categories, languages. Categories include Action and Adventure, Business and Economics, Children, Engineering, Crafts, Science, Health, Novel etc. it specifies the price range of the products to choose and discount range.

4. Contact

At the top of every page, there is a user logo where it specifies the profile of the user which has three options Name, Email, and Password. Filling out all the options is mandatory for the user to log in or register their account on the website. After the order is placed the email will be sent to the customer for verification and order details and have a text area where the customer can fill in the address and personal information which is kept very secure in customized and secure databases. Customers can enquire about the details of the order and information about the book.

5. Cart

In Cart, the customer can access the shopping cart which contains all the books he/she has selected already to buy the book. The customer will have the option to see the book information and the number of books that they have selected. They can see the book information like Publisher, Author, Price, Quantity, and Book name. Customers are allowed to Add and delete some books inside the Cart,

The cart contains all the information about discounts added and the total cost of the purchase, Bank Offers, and some more details about payment of the books selected.
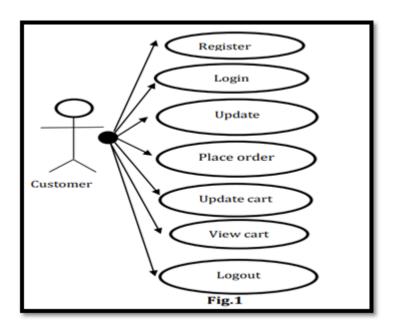
6. Rating

The customers are allowed to give ratings for the books they purchased based on his/her opinion about the book, bookstore customer service, and many more, They can write reviews on the blog page. Customers can rate it by giving 5 starts for good service and review about the book.
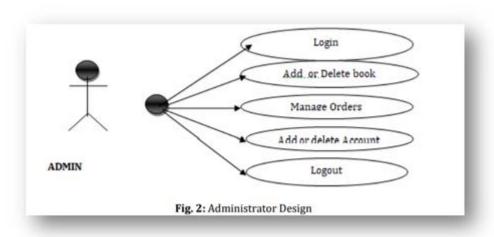
7. Admin Login

The admin login will have special functions that will not be available for the user like:

- Adding the new books for the bookstore and managing the prices, discounts.
- Deleting the books which are not in the stock.
- Adding New feature Updates for the web application in the production environment.
- Managing orders from the customers.
- Adding new updates with respect to arrivals of the new books to customers.

B. SYSTEM INTERFACE DESIGN
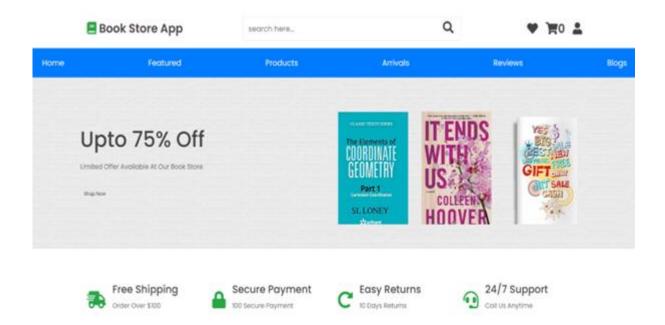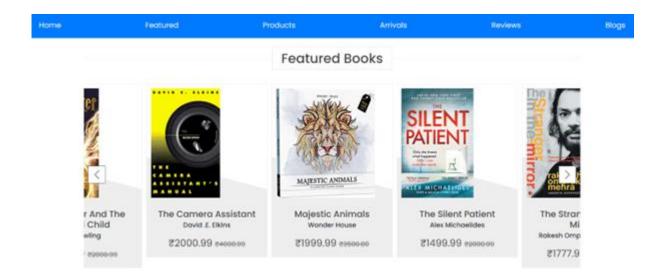

Fig.1

C. ADMINISTRATIVE DESIGN

Fig. 2: Administrator Design

D. MAIN REQUIREMENTS

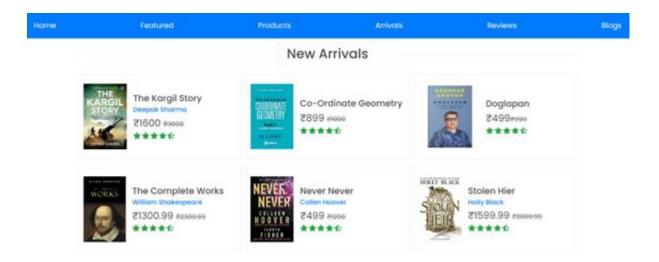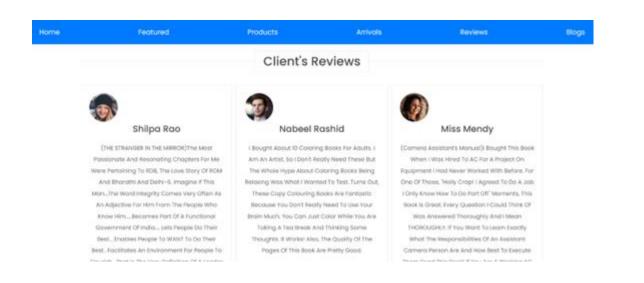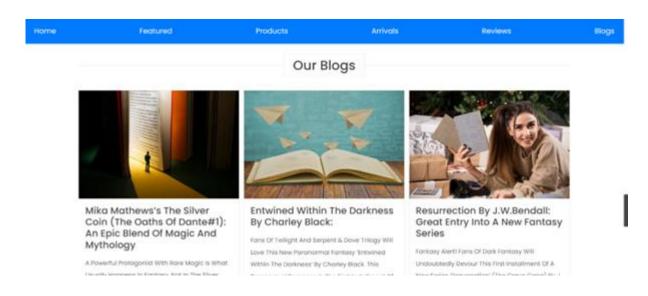| Hardware Requirement	Software Requirement
2 GB of ram	1. Postgres SQL: A relational database management system. 2. Mondo-Db
Dual core processor or more	1. Python: programming language used for backend programming. 2. JavaScript: Programming language used to make web application responsive. 3. Fast-API Installation.
	Web browser: Used to access the website

E. OUTPUT OF THE PROJECT

1. **Main Page**

Book Store App

search here...

♥ 🛒0 👤

Upto 75% Off

Limited Offer Available At Our Book Store

Shop Now

Free Shipping
Order Over $100

Secure Payment
100 Secure Payment

Easy Returns
10 Days Returns

24/7 Support
Call Us Anytime

2. Featured Books

| Home | Featured | Products | Arrivals | Reviews | Blogs |

Featured Books

r And The
Child
wling

₹2000.99

The Camera Assistant
David .E. Elkins

₹2000.99 ₹4000.99

Majestic Animals
Wonder House

₹1999.99 ₹2500.00

The Silent Patient
Alex Michaelides

₹1499.99 ₹2000.99

The Stra
Mi
Rakesh Omp

₹1777.9

3. New Arrivals
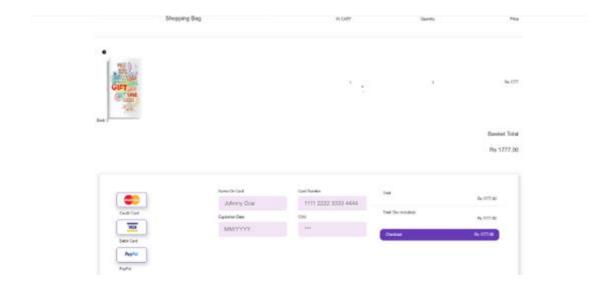

4. Client Reviews

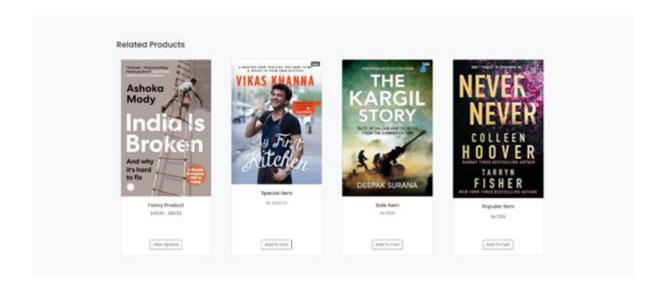## 5. Blogs

6. Product Page
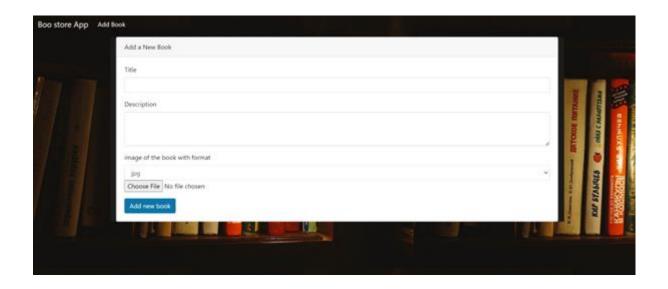
7. Cart Page

8. Product Detail Page

9. Related Products

10. Add Book to Store

By the above screenshot we can see that user can add books to online books which they have already purchased previously on the same website.

VI.   Results and discussion:

Online bookstore web application provides an online platform for customers to buy books online and sell the old books in the same web application. Latest framework Fast-API is used to design the web application, which has better performance when compared to all traditional API's. The web application is built on Asynchronous Server Gateway Interface (ASGI), where the response time of requests will be minimum. Implementation of latest Technologies improves the user interface of the web application. The web application can reduce cost effectively, saves time, and it can be accessible anytime. Basically, this project describes the new methodologies for the development of web services.

After Building the Full stack web application we observed that the response time was minimal and had greater capacity to work with more data, it can take much load and can handle the application in a smooth way. The payment gateway was more improved with security transactions through the bank which helps user to buy books online effectively.

VII.   Conclusions:

According to my knowledge no studies were initiated for implementation of new webservice technologies like Fast-API where the server response will be minimal on the web application.

Web application to purchase and sell old books on the same application provides more performance to all customers, giving a new experience of getting real-time recommendations based on real-time trends, price, and features. The online bookstore allows users to shop all the books at one place, they can shop books of different categories with minimum price. Online bookstore reduces effort of users, where they must search for books in the physical stores. All the books from different vendors and those books that are available at exclusive shops will be

available at the online bookstore. The project is effective in maintaining the user information and the product information with secured database.

VIII. <u>**References**</u>

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Signature of the Student　　　　Signature of Supervisor　　　　Signature of School Director

 Date:　　　　　　　　　　　　 Date:　　　　　　　　　　　　 Date:

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First Sheet of Plagiarism Originality Report to be attached.

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