



IT-254 Course project

Campus threads

A club merchandise store

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Declaration

We hereby declare that the project report entitled “Campus threads - A club merchandise store” submitted by us to National Institute of Technology Karnataka, Surathkal, for the course Web technologies and applications (IT254) during the academic year 2023-24.

The work done by us is our own piece of work and authentic to the best of our knowledge under the supervision of Dr. Deepa C.

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CERTIFICATE

This is to certify that Deepak, J. Hariharan and Jyotsana Achal, 2nd year students pursuing their Bachelors of Technology from the Department of Information Technology have successfully completed the course project for the course Web technologies and applications (IT254) under my supervision I am satisfied with their initiative and efforts towards the completion of their course project as part of their course.

Dr. Deepa C
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Signature

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Login page:



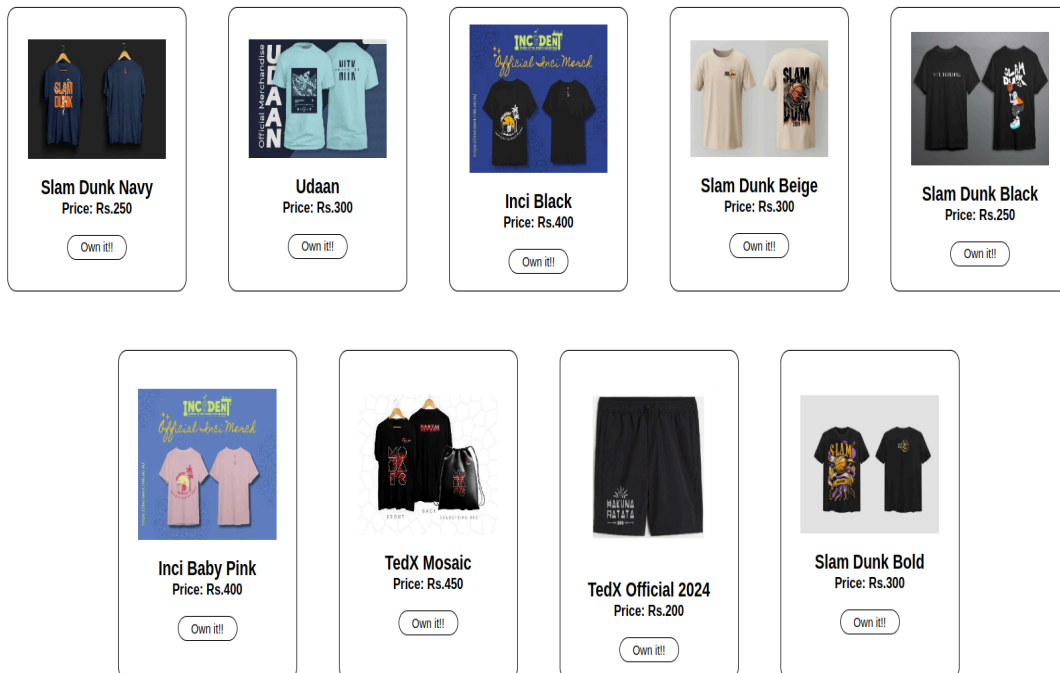
Click below to Login or Sign up!



Merchandise page:



NITK Merch Shop



Add merchandise page:

Make some bucks here Logout Order History Shop

Sell your stuff!!

Product Name


Belonging club

Choose file

No file chosen

Price

Submit




Order history page:

Make some bucks here Logout Order History Shop

Order History for Jyotsana Achal


ORDER ID: rB1NxYkKd7InUsiw7vbs

Name: Slam Dunk Bold
Price: 300
Quantity: 2
Size: XS
Delivery Status: In Transit
Delivery Address: Surathkal



ORDER ID: 920npbS4W2VDIAq0Wtyc

Name: Slam Dunk Beige
Price: 300
Quantity: 1
Size: S
Delivery Status: Delivered
Delivery Address: Bangalore



Buy product page:

Slam Dunk Beige



Price: Rs.300

Quantity

Size XS

Address

Place order

Routes table:

If user is authorized:

Route	Redirects to:
/	{<shop />}: page displaying merchandise
/add_merch	{<Merch />}: page to add and sell merchandise to the website
/manage/ :merchId	{<ManageMerch />}: goes to the page of merchandise management with the merchID
/merch/ :id	{<Buy />}: goes to page where the product can be purchased along with the user id
/order_history	{<OrderHistory>}: page to check order history of a user.

If user is not authorized:

Route	Redirects to:
/ login	{<Login />}: page for logging into the site

Chapter 1: Introduction

The Nitk Merchandise Website serves as a digital marketplace specifically tailored for the National Institute of Technology Karnataka (NITK) community. The website's inception stems from the necessity to provide a centralized platform for individuals associated with NITK to purchase and sell merchandise related to the institution.

NITK boasts a vibrant community comprising students, faculty, alumni, and supporters who take pride in their affiliation with the institution. The website caters to this community's needs by offering a diverse range of merchandise, including apparel, accessories, memorabilia, and more.

The primary aim of the Nitk Merchandise Website is to create a seamless and intuitive shopping experience for users while promoting engagement and interaction within the NITK community. By offering an online platform for merchandise transactions, the website seeks to foster a sense of unity and pride among its users.

The Nitk Merchandise Website emerges as a pivotal solution catering to the diverse needs of sellers and buyers within the esteemed National Institute of Technology Karnataka (NITK) community. Developed meticulously, this e-commerce platform is rich in features and functionalities, ensuring a seamless experience for users. At its core lie fundamental components such as the Login Page, Merchandise Display Page, Add Merchandise Page, Order History Page, and Buy Now Option, meticulously crafted to optimize functionality and user-friendliness.

Chapter 2: Objective

User Authentication and Security:

- The project prioritizes the implementation of robust user authentication mechanisms, including both traditional username/password authentication and Google authentication.
- Security measures are paramount to safeguard user accounts and personal information against unauthorized access and malicious activities.

Merchandise Management:

- The website empowers sellers with an intuitive interface to list their products efficiently.
- Sellers can upload product images, provide detailed descriptions, and set pricing, facilitating effective merchandising strategies.

Product Display and Navigation:

- A user-friendly Merchandise Display Page is designed to present available products in an organized and visually appealing manner.
- Navigation features are optimized to enable users to explore products effortlessly, enhancing their browsing experience.

Order Management:

- The Order History Page provides users with comprehensive insights into their past purchases, including order details, status updates, and delivery information.
- Transparency and accountability are fostered, allowing users to track their orders seamlessly from purchase to delivery.

Transaction Facilitation:

- The Buy Now Option streamlines the purchasing process, enabling users to initiate purchases from product listings with minimal friction.
- Seamless transaction facilitation enhances user convenience and promotes a hassle-free shopping experience.

Chapter 3: Methodology

The development of the Nitk Merchandise Website adheres to an agile methodology, allowing for iterative development and continuous improvement. The methodology encompasses the following stages:

Requirement Analysis:

- Extensive stakeholder engagement and requirement gathering activities are conducted to comprehensively understand the project scope and objectives.
- User stories, use cases, and functional requirements are identified and documented to serve as a blueprint for development.

Technology Selection:

- Thorough evaluation of available technologies and frameworks is undertaken to select the most suitable options based on project requirements.
- Considerations include scalability, security, performance, and compatibility with existing systems to ensure optimal technology stack selection.

Database Design:

- A robust and scalable database schema is designed to efficiently store and manage various data entities, including user profiles, product information, orders, and transactions.
- Firebase firestore is used for the sake of storing data of users, merchandise and orders. It is a no-sql database model.
- Considerations are made for data integrity, normalization, and indexing to optimize database performance.

Frontend Development:

- The frontend components of the website are developed using modern web development technologies such as React.js.
- Emphasis is placed on creating intuitive user interfaces, responsive designs, and seamless navigation to enhance user experience across devices.

Backend Development:

- Backend infrastructure is developed to support core functionalities such as user authentication, product management, order processing, and database interactions.
- Technologies such as Firebase for authentication and Firestore for database management are leveraged to ensure scalability and reliability.

Integration and Testing:

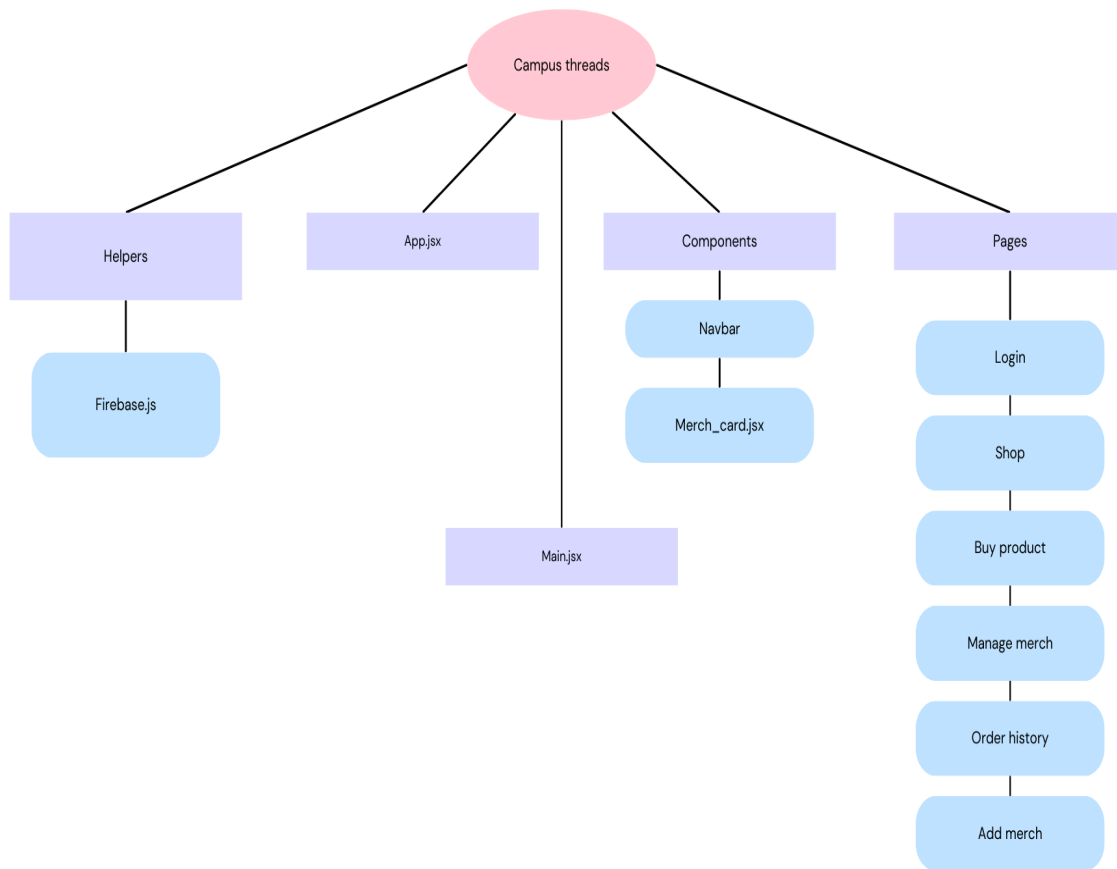
- Frontend and backend components are integrated to ensure seamless communication and functionality across the website.
- Comprehensive testing, including unit tests, integration tests, and user acceptance tests, is conducted to identify and rectify any issues or bugs.

Deployment and Maintenance:

- The website is deployed to a reliable hosting environment, ensuring availability and performance.
- Ongoing maintenance and support activities are carried out to address any issues, implement updates, and enhance features based on user feedback, ensuring continued success and user satisfaction.

Chapter 4: System Design Block Diagram/Flow Chart

The system design encompasses various components, including user authentication, merchandise management, order processing, and database interaction. These components are interconnected to facilitate seamless communication and data flow within the system.



Chapter 5: Implementation

During the implementation phase, the Nitk Merchandise Website's key features and functionalities were developed, including:

- Login Page: Featuring options for both traditional username/password authentication and Google authentication.
- Merchandise Display Page: Showcasing available products with relevant details and images.
- Add Merchandise Page: Allowing sellers to list new products by providing detailed information and uploading images.
- Order History Page: Enabling users to track their past purchases, view order details, and monitor order status.
- Buy Now Option: Facilitating users to initiate a purchase directly from the merchandise display page.

Each component was meticulously implemented to ensure seamless functionality and an intuitive user experience.

Implementation of login page:

- Firebase project creation and configuration.
- Email/Password authentication enabled.
- Additional sign-in method configured, namely google sign-in.
- Firebase Authentication library (firebase/auth) installed in the project.
- Establishing a connection between the project and firestore database.
- Login form built to capture email and password.
- Error handling implemented for failed login attempts.
- User redirection upon successful login.

Implementation of merchandise display page:

- Firebase Firestore consists of merchandise.
- React project fetches all of the merchandise information from the firestore using the already established connection between the project and firebase.
- The firestore provides links for the images of the product that are stored in the storage section of the firebase.
- A react component was created for rendering all of the products.
- For all the products obtained from the firebase, it utilizes the react component to render on the shop page

Implementation of add merchandise page:

- A form was created that would take information of the product from the merchant who desires to sell merchandise.
- The form includes the option of uploading pictures of the merchandise.
- The firestore consists of a collection namely merch.
- The react project then adds the information obtained from the user into the firestore when the submit button is clicked through the already established connection.
- The pictures of the media are stored into the storage of the firebase.

Implementation of buy now page:

- Every product card displayed on the shop page consists of a buy button.
- Clicking of which redirects the user to a page where delivery details are collected.
- The redirected page consists of all of the details of the product chosen by the customer and a form that receives the quantity, size of merchandise and delivery address.
- On clicking of the place order button, the obtained information from the customer is utilized to create an entry in the orders section of the firestore.
- The order placed is linked with the user id in the firestore.

Implementation of order history page :

- Component Setup:
 - The code defines a React functional component named OrderHistory.
- State Initialization:
 - It initializes state variables using the useState hook to manage orders, products, and order details.
- Data Fetching with useEffect:
 - The component fetches products and orders data asynchronously when it mounts using the useEffect hook.
 - It calls getProducts and getOrders functions, storing the retrieved data in corresponding state variables (products and orders).
- Order Details Processing:
 - Another useEffect hook is used to process order details.
 - It filters orders belonging to the current user (userOrders), then maps each order to include product details.
 - The resulting array of order details is stored in the orderDetails state.
- Styling:
 - CSS styles are defined using JavaScript objects to style various elements such as cards, containers, and text.
- Conditional Rendering:

- The component conditionally renders different content based on user authentication status and order data availability.
 - If the user is authenticated and there are orders, it displays the order history. Otherwise, it prompts the user to log in or shows a message indicating no orders.
- `getOrders` Function:
 - An asynchronous function `getOrders` is defined to fetch order data from a Firestore database using Firebase SDK.
 - It retrieves order details such as ID, merchandise ID, user ID, delivery status, etc., and returns them as an array of objects.

Chapter 6: Results

The Nitk Merchandise Website has been successfully developed and deployed, achieving the following outcomes:

- **User Engagement:** The website has garnered significant user engagement, with a steady influx of visitors exploring merchandise offerings.
- **Transaction Volume:** A considerable volume of transactions has been processed through the platform, indicating user trust and satisfaction.
- **Positive Feedback:** User feedback has been overwhelmingly positive, highlighting the website's ease of use, reliability, and convenience.
- **Stability and Performance:** The website has demonstrated stability and robust performance, with minimal downtime and efficient response times.

Chapter 7: Future Work

Future enhancements and developments for the Nitk Merchandise Website include:

- **Advanced Search and Filtering:** Implementing advanced search and filtering options to facilitate easier navigation and product discovery.
- **Rating and Review System:** Introducing a rating and review system to enable users to provide feedback and enhance product transparency.
- **Social Media Integration:** Integrating social media sharing functionalities to amplify the website's reach and visibility.
- **User Profile Management:** Enhancing the user profile management system to provide users with more control over their accounts and preferences.
- **Performance Optimization:** Continuously optimizing website performance and scalability to accommodate growing user traffic and demands.