Project Synopsis

on

# CONNECT EASY

Submitted as a part of course curriculum for

## Bachelor of Technology

in

## Computer Science



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## DECLARATION

We hereby declare that this submission is our work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgement has been made in the text.

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## CERTIFICATE

This is to certify that Project Report entitled “**CONNECT EASY**” which is submitted by **Iffat Rizvi, Harshit Gupta and Ishita Bharadwaj** in partial fulfilment of the requirement for the award of degree B. Tech. in Department of Computer Science of Dr A.P.J. Abdul Kalam Technical University, Lucknow is a record of the candidates own work carried out by them under my supervision. The matter embodied in this report is original and has not been submitted for the award of any other degree.

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Last but not the least, we acknowledge our friends for their contribution to the completion of the project.

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**ABSTRACT**

In today's fast-paced business landscape, online presence and e-commerce play a pivotal role in meeting customer demands efficiently. This project aims to use the latest technologies like React.js, MongoDB, Node.js, and Express.js to create a complete e-commerce web application. This platform empowers students to buy and sell hostel-used products while also fostering connections among like-minded individuals, such as full-stack developers and machine learning enthusiasts, enabling them to interact, collaborate, and chat on the website.

The problem this project addresses is the need for a centralized platform for students to exchange hostel-used items, find peers with similar development interests, and facilitate real-time communication. By combining the power of technology and community building, this web application aims to enhance the daily lives of students, creating an ecosystem of services and products for the younger generation in India and beyond.

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**CHAPTER -1**

## INTRODUCTION

As the technology is being advanced the way of life is changing. Now a day’s we can place the order for any thing from our home. There is no need to go to the shop for the things we want. The order can be placed online through Internet. The payment, the confirmation of purchasing; we can do every thing we want. Now we can think that how the days have been changed with time. People had to stand in rows to wait there terms to buy a particular thing from a popular shop. But what is happening now a day’s; we can extremely surprise that those things can be available on the door-step in few hours.

This project is mainly divided into two main categories: The seniors and the Customers/juniors.

The hostel seniors operate as the administrators. They can add, edit, update products or, delete products thus they are able to change the names of products, prices. The students can search for products selection, update the cart, remove products from the cart and check out from the website. The customer is also able to update infor-mation such as names, address and other data about the product. The User is able to browse the online shop and add a product to the cart. The user can also interact about the product to the seller by chat option.

Another feature we are providing is a communication system since there is no mode of interaction between the seniors and juniors in same and different domains.

The daily life problems faced by hostelers like electricity power shut, mishap in hostel facilities is resolved by a longer process. We have created a google form through which hostelers can file a complaint and it is resolved immediately.

## PROBLEM STATEMENT

In the fast-paced environment of modern educational institutions, students often face challenges in efficiently managing their daily needs and fostering connections with peers who share similar interests. One specific area of difficulty is the lack of a centralized, user-friendly platform where students can buy and sell hostel-used items, interact with fellow students, and collaborate on projects or studies. The absence of such a platform leads to inefficiencies and missed opportunities for both resource optimization and community building.

This project aims to address these challenges by developing an e-commerce web application utilizing the latest technologies, including React.js, MongoDB, Node.js, and Express.js (collectively known as the MERN stack). The platform, named ConnectEasy, will serve as a comprehensive solution for college students, offering functionalities such as:

**Trading Hostel-Used Items**: Enabling students to list, buy, and sell items commonly used in hostels.

**Networking and Collaboration**: Facilitating connections among students with similar interests, such as full-stack development and machine learning, through a dedicated chat system.

**Real-Time Communication**: Providing a robust chat feature that supports real-time interaction, mentoring, and knowledge sharing among students.

By integrating these features, the ConnectEasy platform aims to enhance the overall student experience, promoting efficient resource management and a strong sense of community. The ultimate goal is to create a dynamic and supportive ecosystem tailored to the needs of the younger generation in India and beyond.

**OBJECTIVE**

The main objectives for establishing an online presence are:

1. Implement features for efficient product listing and trading, enabling students to easily upload, browse, and purchase items while fostering a sense of community and collaboration among users with similar interests
2. Foster personalized networking opportunities for students by integrating features that facilitate communication and collaboration with senior students in various fields of study, creating an ecosystem for knowledge exchange and mentorship.
3. Evaluate the effectiveness and user satisfaction of the ConnectEasy platform through user feedback, metrics analysis, and usability testing to continuously optimize and enhance the platform's functionality and user experience.

## SCOPE

After discussion with the team and with our guide, we can consider the scope of this project as follows:

* This model shall be used to understand the pace of buying and selling inside the hostel. It would also help to identify how influential the interaction between the majors and the minors is. This will lead to better monitoring capability and thereby improving the quality of online e-commerce system inside the premisis.
* The seniors and juniors would be able to interact easily through the chat system option where they can discuss about their engineering domains. This will lead to a better understanding between seniors and juniors.

**Chapter 2**

**Literature Review**

[1] This paper delves into the various coding and computing techniques essential for the development of robust e-commerce systems. Siddiqi, Akghar, Davies, and Al-Khayatt emphasize the importance of software development practices that ensure reliability, efficiency, and scalability of e-commerce platforms. The authors discuss both theoretical frameworks and practical implementations, providing a comprehensive overview of best practices in coding and system architecture. This conference paper likely includes case studies demonstrating successful e-commerce implementations, highlighting common challenges and solutions in the coding process. The paper’s insights are crucial for developers and researchers aiming to build and maintain high-quality e-commerce systems, addressing issues such as system performance, security, and user experience. Overall, this work contributes significantly to the foundational knowledge required for advancing e-commerce technology.

[2] Menasci’s work presents a structured reference model for designing an e-commerce curriculum, tailored to meet the educational needs of students preparing for careers in this dynamic field. The model integrates both theoretical and practical components, ensuring a well-rounded education that covers essential e-commerce concepts and real-world applications. Menasci emphasizes the importance of aligning the curriculum with industry requirements, providing students with the skills and knowledge needed to tackle contemporary e-commerce challenges. The paper discusses various aspects of the curriculum, including course content, teaching methodologies, and assessment strategies. This reference model serves as a guide for academic institutions aiming to develop or enhance their e-commerce programs, contributing to the preparation of competent professionals in the field.

[3] Chodorow’s introduction to MongoDB at the Free and Open Source Software Developers European Meeting (FOSDEM) in 2010 provides a foundational understanding of this NoSQL database, which is designed for high scalability and flexibility. MongoDB’s schema-less architecture allows for rapid development and iteration, making it an ideal choice for modern e-commerce platforms that require efficient data management solutions. Chodorow discusses MongoDB’s key features, including its document-oriented storage, dynamic schema design, and powerful query capabilities. The presentation covers practical aspects of implementing MongoDB, such as data modeling, indexing, and performance optimization. This introduction is invaluable for developers and architects seeking to leverage MongoDB’s capabilities in building scalable and responsive e-commerce applications, addressing the need for handling large volumes of diverse data efficiently.

[4] Kim, Kim, and Lee’s paper addresses the technical challenges of integrating product catalogs from various sources into a unified e-commerce system using category-hierarchy merging techniques. The authors propose innovative methods to align and merge different category structures, ensuring consistency and usability in e-commerce platforms. Their research highlights the importance of maintaining a coherent product hierarchy to enhance user experience and facilitate seamless product browsing and searching. The paper likely includes algorithmic approaches and case studies demonstrating the effectiveness of their techniques in real-world scenarios. This research is crucial for developers and e-commerce businesses aiming to improve the organization and presentation of product information, ultimately contributing to a more intuitive and efficient shopping experience for users.

[5] Singh’s study explores the critical role of e-services in B2C e-commerce, focusing on factors such as reliability, responsiveness, and user interface design that influence service quality and customer satisfaction. The paper discusses how effective e-service management can enhance consumer trust and loyalty, thereby driving business success. Singh identifies key elements that contribute to high-quality e-services, including promptness in response, accuracy of information, and ease of use. The research emphasizes the need for continuous improvement and innovation in service delivery to meet the evolving expectations of consumers. By analyzing various aspects of e-service quality, Singh provides valuable insights for e-commerce businesses looking to optimize their service offerings and improve customer retention.

[6] Wu, Ma, and Wu’s study examines the consumer-to-business (C2B) model in e-commerce, where consumers actively influence product offerings and business strategies. The authors analyze the drivers and outcomes of this shift towards consumer empowerment, highlighting technological advancements and changing consumer behaviors that facilitate this model. The paper discusses how businesses can leverage consumer insights and feedback to develop more personalized and relevant products and services. This consumer-centric approach is contrasted with traditional business models, showcasing the benefits of involving consumers in the value creation process. The research provides practical recommendations for businesses seeking to implement C2B strategies, emphasizing the importance of responsive and adaptable business practices in the digital age.

[7] Yang, Cheng, and Song investigate online payment systems that utilize internet banking gateways, focusing on their security, efficiency, and user experience. The paper discusses various payment models, their implementation challenges, and potential solutions to enhance the security and convenience of online transactions. The authors analyze the technical aspects of payment gateways, including encryption, authentication, and fraud prevention measures. They also explore user interface design and usability factors that impact consumer adoption and satisfaction. This research is essential for understanding the technical and operational aspects of online payment systems in e-commerce, providing valuable insights for developers and businesses aiming to improve their payment infrastructure.

[8] Albrecht, Dean, and Hansen provide a comprehensive review of marketplace and technology standards in B2B e-commerce, examining the progress made, ongoing challenges, and future directions. The paper discusses the importance of standardization for interoperability and efficiency in B2B transactions, highlighting key standards and protocols that facilitate seamless communication and data exchange between businesses. The authors identify barriers to standard adoption, such as technological complexity, cost, and lack of awareness, and propose strategies to overcome these challenges. This work is significant for businesses and policymakers looking to enhance the effectiveness and integration of B2B e-commerce systems, providing a roadmap for achieving greater standardization and interoperability in the industry.

[9] Subramanian’s book offers an in-depth guide to the MERN stack (MongoDB, Express.js, React.js, and Node.js), a popular technology stack for developing modern web applications. The book covers the components of the MERN stack, best practices for development, and real-world applications, making it a valuable resource for developers looking to build scalable and responsive e-commerce platforms. Subramanian provides detailed explanations and examples of how to set up and use each component of the stack, along with strategies for integrating them effectively. The book emphasizes the benefits of using the MERN stack, such as improved performance, developer productivity, and ease of maintenance, and is an essential resource for anyone looking to leverage this technology in their web development projects.

[10] Mehra et al. provide a practical overview of MERN stack web development, emphasizing its application in building e-commerce websites. The paper discusses the advantages of using the MERN stack, such as improved performance, flexibility, and developer productivity, and presents case studies to illustrate its effectiveness. The authors explore various aspects of the MERN stack, including data modeling, API development, front-end design, and deployment. They also address common challenges and best practices for using the stack in e-commerce development. This study is useful for practitioners seeking to leverage the MERN stack to build scalable and responsive e-commerce applications, offering practical insights and examples to guide their development efforts.

[11] Lan et al. propose a mobile e-commerce solution, addressing the technical and design challenges of developing e-commerce applications for mobile devices. The paper highlights the importance of mobile compatibility for reaching a broader audience and enhancing user convenience. The authors discuss various aspects of mobile e-commerce development, including user interface design, performance optimization, security, and integration with existing e-commerce platforms. They present a framework for building mobile e-commerce applications that are user-friendly, secure, and efficient. This research is relevant for developers and businesses aiming to optimize their e-commerce platforms for mobile users, providing practical guidelines and insights for successful mobile application development

[12] Kim, Kim, and Lee's research focuses on the integration of product catalogs from different e-commerce systems using category-hierarchy merging techniques. They propose a method to align and merge disparate category structures, which is essential for creating a cohesive and user-friendly product catalog. This technique ensures consistency and usability, which are critical for improving the shopping experience. The authors present algorithmic solutions to handle the complexities of merging different hierarchical structures, and they likely include case studies or experimental results to demonstrate the effectiveness of their approach. This research is particularly valuable for e-commerce platforms that deal with large and diverse product inventories, helping to streamline product organization and navigation.

[13] Bernett and Jaramillo evaluate the impact of web-enabled technologies on call center operations, with a focus on how these technologies can enhance customer service and operational efficiency. They discuss the integration of web-based systems with traditional call center functions, highlighting improvements in customer interaction and process efficiency. The paper covers various aspects of web-enabled call center technologies, including CRM systems, automated response systems, and real-time customer support tools. The authors analyze the benefits and challenges associated with these technologies, providing insights into best practices for implementation. This study is relevant for organizations looking to upgrade their customer support infrastructure to improve service quality and customer satisfaction.

[14] Abbate's book provides a comprehensive historical account of the development of the internet, exploring its origins, key technological milestones, and the social and political forces that influenced its growth. The book traces the evolution of the internet from its early days as a government-funded research project to its emergence as a global communication network. Abbate discusses the contributions of various pioneers, the development of crucial technologies such as packet switching, and the role of standard-setting bodies. This historical perspective is crucial for understanding the foundational technologies that have enabled modern e-commerce and the broader digital economy. Abbate's work highlights the complex interplay of technology, policy, and society in the creation of the internet.

[15] Laudon and Traver's textbook offers a thorough exploration of e-commerce, covering a wide range of topics including its history, business models, technological infrastructure, and current trends. The book is structured to provide a deep understanding of both the strategic and operational aspects of e-commerce. It discusses various e-commerce business models (B2B, B2C, C2C, and C2B), the impact of technology on business processes, and the role of digital marketing. The authors also address important issues such as security, privacy, and ethical considerations in e-commerce. This comprehensive coverage makes it an essential resource for students, educators, and professionals seeking to understand the complexities of the e-commerce landscape and develop strategies for success in this rapidly evolving field.

**CHAPTER 3**

**PROPOSED METHODOLOGY**

Methodology includes the introduction of different modules that we are going to incorporate in our website:

**Authentication:**

Authentication is the process of identifying users that request to a system, network, or device. Access control often determines user identity according to credentials like username and password. Other authentication technologies like biometrics and authentication apps are also used to authenticate user identity.

**Customer Module**

Customer will be able to login to an account on our website and do seamless searching.

**Seller Module**

Different students would be able to create an account on our website and add the details of the products they are selling.

**Google Form**

This feature will help the hosteler to register their complaints regarding hostel facility to be done in a shorter period of time.

**Chat Option**

The student can interact with seniors/juniors using search options in the respective development field.

## FLOWCHART

## A diagram of a payment process Description automatically generated

**Figure 3.1: flowchart**

1. First page would be the login credentials page where the student can sign in by using their KIET library id ensuring that the students of KIET college can access the website only.
2. After login successfully, the student can see the two options, either to add products in case of selling or can buy the products with the detailed descriptions .
3. Another feature we are providing for the hosteler is the google form where they can register their complaints regarding hostel facility.

## SOFTWARE AND HARDWARE REQUIREMENTS

### SOFTWARE REQUIREMENTS:

* 1. Visual Studio Code
  2. Chrome for testing and displaying
  3. Heroku for deploy
  4. Postman for API checking

### HARDWARE REQUIREMENTS:

1. Laptop

**CHAPTER 4**

**TECHNOLOGY USED**

**React:**

React (also known as React.js or ReactJS) is a free and open-source front-end JavaScript library for building user interfaces based on UI components. It is maintained by Meta (formerly Facebook) and a community of individual developers and companies. React can be used as a base in the development of single-page, mobile, or server-rendered applications with frameworks like Next.js. However, React is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side functionality.

**MongoDB**:

MongoDB is an open-source document-oriented database that is designed to store a large scale of data and also allows you to work with that data very efficiently. It is categorized under the NoSQL (Not only SQL) database because the storage and retrieval of data in the MongoDB are not in the form of tables.

The MongoDB database is developed and managed by MongoDB. In under SSPL(Server Side Public License) and initially released in February 2009. It also provides official driver support for all the popular languages like C, C++, C#, and .Net, Go, Java, Node.js, Perl, PHP, Python, Motor, Ruby, Scala, Swift, Mongodb. So, that you can create an application using any of these languages. Nowadays there are so many companies that used MongoDB like Facebook, Nokia, eBay, Adobe, Google, etc. to store their large amount of data.

**Node.js:**

Node.js (Node) is an open source development platform for executing JavaScript code server side. Node is useful for developing applications that require a persistent connection from the browser to the server and is often used for real-time applications such as chat, news feeds and web push notifications.

Node.js is intended to run on a dedicated HTTP server and to employ a single thread with one

process at a time. Node.js applications are event-based and run asynchronously. Code built on

the Node platform does not follow the traditional model of receive, process, send, wait, receive. Instead, Node processes incoming requests in a constant event stack and sends small requests one after the other without waiting for responses. This is a shift away from mainstream models that run larger, more complex processes and run several threads concurrently, with each thread waiting for its appropriate response before moving on.

**Express-js**

Express is a node js web application framework that provides broad features for building web and mobile applications. It is used to build a single page, multipage, and hybrid web application. It's a layer built on the top of the Node js that helps manage servers and routes.

**Material UI**

It is used for styling the frontend.

**CHAPTER 5**

**CONCLUSION**

In conclusion, e-commerce has undergone a transformative evolution, introducing an innovative system based on the MERN stack. It offers essential features like digital payment gateways, product sorting, and robust search functionality, all efficiently managed by MongoDB.

Additionally, the incorporation of a chat system and networking tool to connect with senior students enriches the e-commerce experience. These additions enable real-time communication and collaborative learning, enhancing user engagement. Compared to its predecessors, this e-commerce model excels in providing a seamless, secure, and user-friendly shopping experience while fostering a sense of community and knowledge-sharing. As e-commerce continues to thrive, embracing advanced technologies like the MERN stack, MongoDB, chat systems, and networking tools keeps us at the forefront of this dynamic digital marketplace. It not only serves the needs of consumers and retailers but also empowers users to connect, learn, and grow within the e-commerce ecosystem.

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