

Pack Your Bag: Revolutionizing College Supplies and Course Recommendations Online

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ABSTRACT

The study aims to create a sophisticated weed Pack your bag! an online store that not only provides essential college supplies but also offers curated suggestions for online courses. As we dive into this project, we'll explore its context, significance, and the exciting benefits it brings to the dynamic world of higher education. The study aims to create a college supplies web application, that provides unique college supplies and online courses to students. The supplies can be sold not only to students but professors and anyone working at an office job, but our focus is students. The application will have, a login page, registration, home page, shopping page, Courses or workshops page, add to cart and payment page. Pack your bag, an online store that not only provides essential college supplies but also offers curated suggestions for online courses. As we dive into this research, we will explore its context, significance, and the exciting benefits it brings to the dynamic world of higher education. The application aims to create a college supplies web application, that provides unique college supplies and online courses to students. The supplies can be sold not only to students but professors and anyone working at an office job, but our main focus is students. The application will have, a login page, registration, home page, shopping page, Courses / workshops page, add to cart and payment page.

Keywords: Online store, College supplies, Online courses, Courses or workshops page.

INTRODUCTION

The bags currently available for college students are not designed with enough pockets to fit all the students things in an organized way, they only come with one small side pocket to put small items like keys and lip balm, and fully equipped bags only found abroad are very expensive plus the cost of shipping. With the cost of tuition and the living expenses, students have limited disposable income for such products. We were unable to find college supply stores that effectively cater to the evolving needs of students. Based on personal experience, shopping for college supplies is challenging as students must search for items like bags, electronics, and coffee mugs by visiting multiple stores in shopping malls, often encountering limited options. The objectives of this project such as : (i) To provide a wide range of college supplies in a way that is easily accessible, cost effective and caters to the evolving needs of students (in the middle east), (ii) To provide stylish and durable work bags that can carry all your essentials, making your life easier and more organized, and (iii) To provide free and paid recommendations for online courses tailored to individual academic interests and career aspirations. To develop a scalable and user-friendly e-commerce platform for students enabling them to find college supplies, courses and workshops fast and easily. This e-commerce will provide students with products and they can buy them directly, however the courses are not provided by the website but it will show you all the available courses and workshops linked to the sources website of the course or phone contact of the registration and details of the course. Our platform will provide a comprehensive offering, including a diverse range of college supplies accessible to students, professors, and office workers. Additionally, it will feature a dedicated section for courses and workshops, providing links and contact details for registration. The design will be user-centric, with an easy-to-use interface featuring user registration, authentication, profile

management, and secure checkout. It will also offer efficient browsing and search functionality for products and courses. In terms of business and technical robustness, the platform will include an admin panel for seamless management of users, products, and orders. It will integrate with payment gateways and email/SMS services to provide a complete e-commerce experience, along with strong security measures to protect user data and transactions. Section II, III, and IV discuss about the implementation of an online college supplies. The study aims to examine the benefits and challenges of such a system, and how it can improve the overall ordering experience for college students. Finally, we conclude by specifying the potential impact of implementing an online college supplies ordering system.

METHODOLOGY

To develop a scalable and user-friendly e-commerce platform for students, enabling them to find college supplies, courses, and workshops quickly and easily. This platform will allow students to purchase products directly.

However, the courses and workshops are not provided by the website itself; instead, it will display all available courses and workshops, linking to the source websites or providing phone contact details for registration and additional information. Our study adopts the Agile development methodology to ensure continuous improvement, adaptability to changes, and frequent delivery of valuable updates. Detailed requirement elicitation through surveys will help us thoroughly plan and execute the project to meet the specific needs of our target audience. By utilizing a structured work breakdown, project management tools, and regular testing, we will ensure a high-quality product. Our focus on these aspects will simplify the process of obtaining college supplies and support students in enhancing their skills through accessible educational opportunities. This project not only addresses the immediate needs of the college community but also establishes a foundation for continuous growth and improvement in the educational support ecosystem. Agile methodology is a project management framework that breaks projects down into several dynamic phases, commonly known as sprints. The Agile framework is an iterative methodology. After every sprint, teams reflect and look back to see if there was anything that could be improved so they can adjust their strategy for the next sprint. There are many reasons we have chosen agile methodology including:

1. Satisfy customers through early, continuous improvement and delivery. When customers receive new updates regularly, they're more likely to see the changes they want within the product.
2. Welcome changing requirements, even late in the project. The Agile framework is all about adaptability.
3. Deliver value frequently. Similar to principle #1, delivering value to your customers or stakeholders frequently makes it less likely for them to churn.
4. Build projects around motivated individuals. Agile works best when teams are committed and actively working to achieve a goal.
5. Continuous excellence enhances agility. If the team develops excellent code in one sprint, they can continue to build off of it the next. Continually creating great work allows teams to move faster in the future.



Figure.1. Gantt Chart

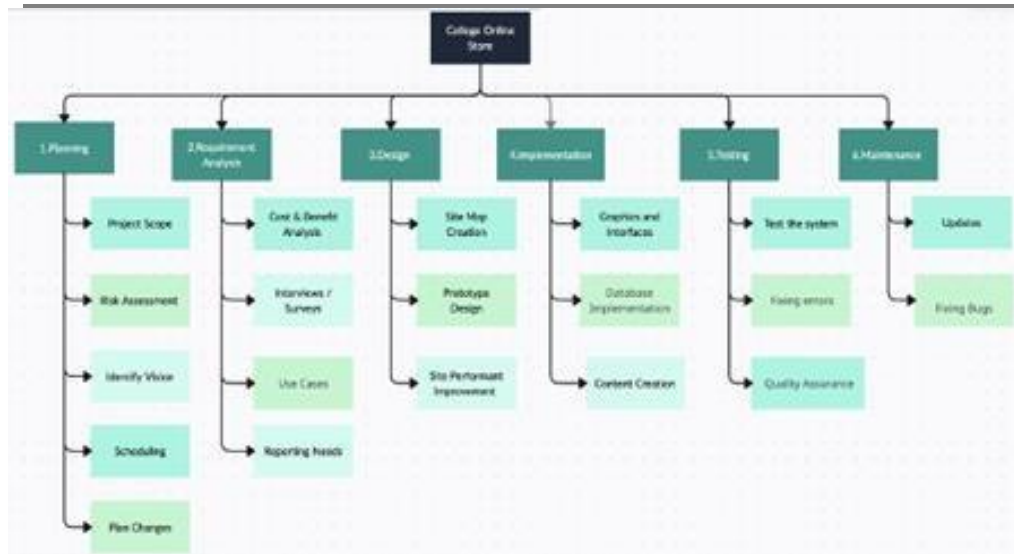


Figure 2. Work Breakdown Structure for Online College Supply system Gantt Chart and Work Break Down Structure discuss about the plan of our proposed system. Use Case Diagram

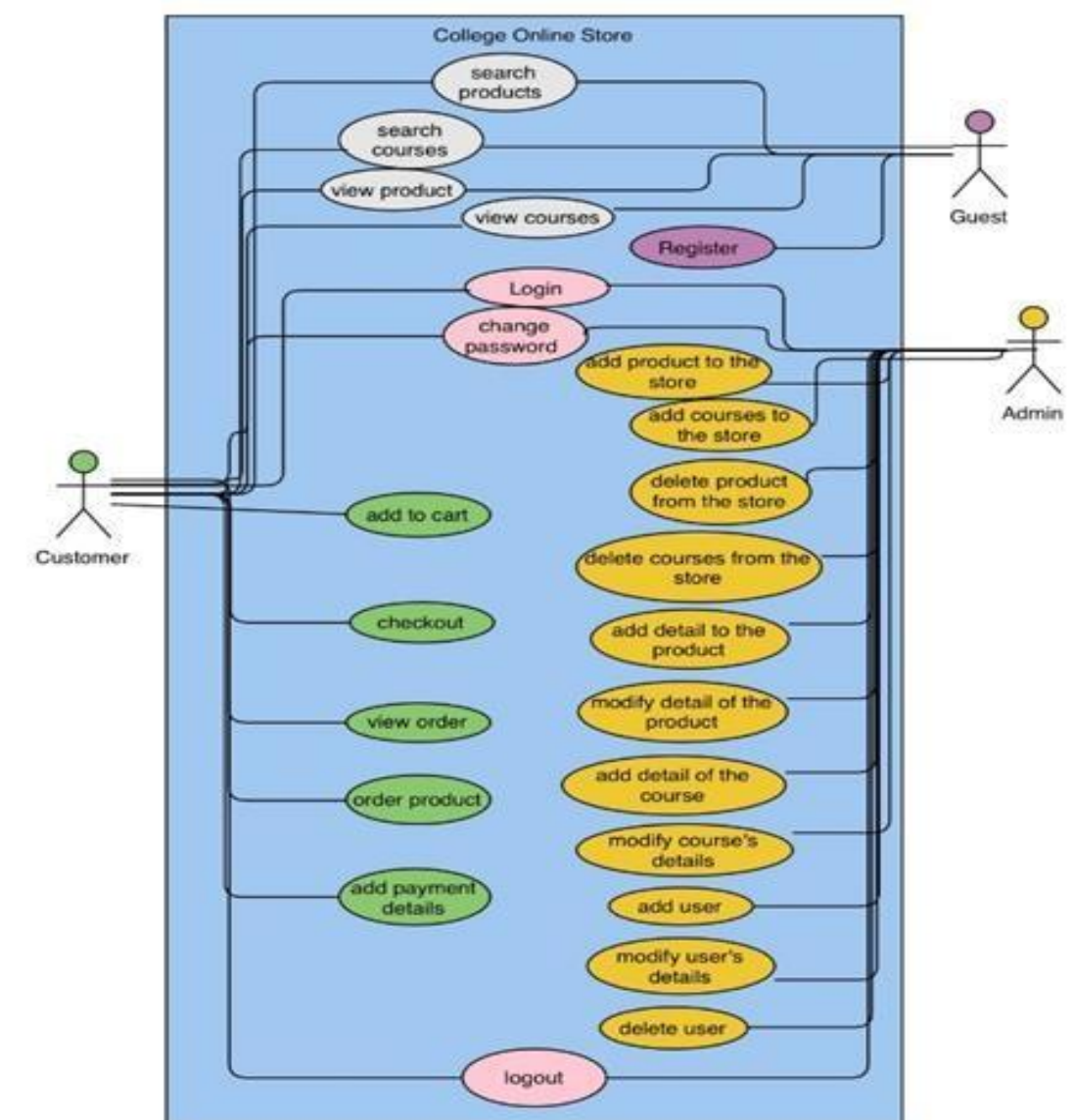
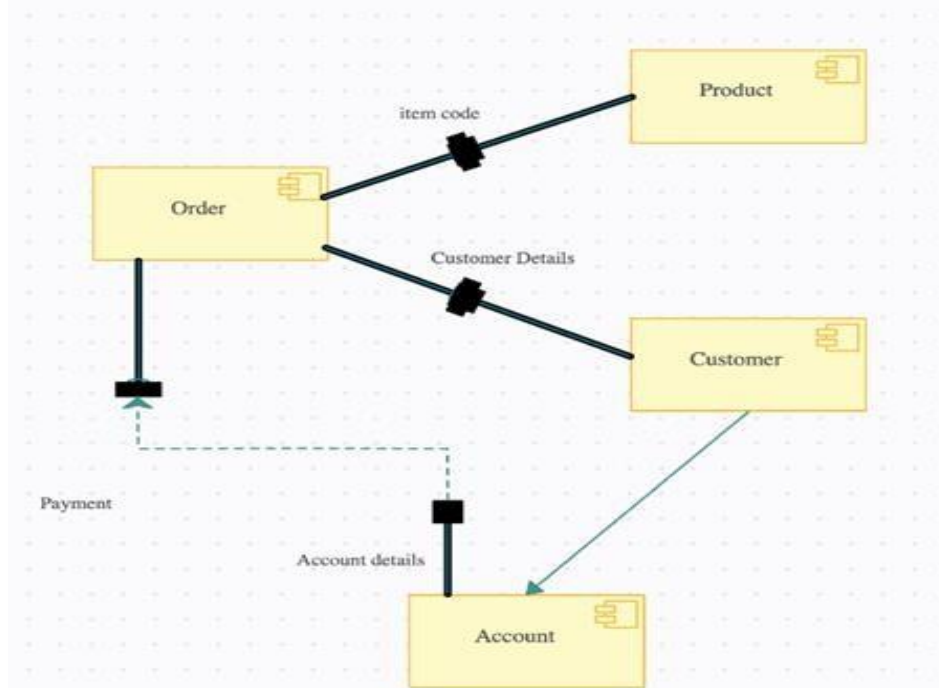


Figure 3. Use Diagram for Online College Supply system



Component Diagram

There are 4 Key Elements of a Component Diagram:

Components

Interfaces

Ports

Connectors

Benefits of component diagrams:

Clear Structure

Modularity

Interoperability

Dependency Management

Facilitates Communication

Resource Identification

To develop an e-commerce college supplies store, we need to consider several essential categories: software and development tools, hardware, infrastructure and hosting, database management, security tools, third-party services and APIs, project management and collaboration tools, testing tools, CI/CD and deployment tools, monitoring and maintenance, and personnel.

Software and Development Tools

Visual Studio: Our primary IDE for coding, debugging, and testing the application.

SQL Server Management Studio (SSMS): Essential for managing SQL databases.

NET Framework/.NET Core: The foundation for developing and running our application.

Frontend Libraries/Frameworks: Though optional, Angular, React, or Vue.js can help create a dynamic user interface.

C#/HTML/CSS/JavaScript: Basic technologies for developing the front end.

Hardware

Development Machines: Each developer needs a computer with at least 8GB RAM, a modern CPU, and sufficient storage.

Servers: Depending on our hosting strategy, we need:

Web Server: To host the web application, possibly using IIS or a cloud service.

Database Server: Dedicated to hosting the SQL Server database.

File Storage Server: For storing media files if required.

Database Management

SQL Server: The core database management system.

Data Backup Solutions: Regular backup tools and scripts to safeguard data.

Security Tools

Authentication/Authorization Frameworks: Using ASP.NET Identity or third-party OAuth providers for secure login mechanisms.

Encryption Tools: To protect sensitive data.

SSL/TLS: For securing data transmission over the internet.

Firewall and Antivirus Software: To protect servers from threats.

Third-Party Services and APIs

Payment Gateway: Integration with Stripe, PayPal, or other payment processors.

Email Services: Gmail or similar services for sending emails.

SMS Services: Using SMS for notifications.

Project Management and Collaboration Tools

Project Management Tools: excel gantt chart and MS teams for tracking tasks and project progress.

Communication Tools: Slack or Microsoft Teams for effective team collaboration.

Documentation Tools: MS word and MS powerpoint for maintaining comprehensive project documentation.

Creality and excel for diagrams and charts.

Testing Tools

Unit Testing: NUnit or MS Test for writing and running tests.

Integration Testing: To ensure that different parts of the system work together correctly.

Load Testing: Apache JMeter or similar tools to test performance under load.

UI Testing: Selenium for automated user interface testing.

Personnel

- Project Manager: To oversee the project and ensure timely delivery.
- Developers:
 - Backend Developers: Skilled in C#, .NET, and SQL.
 - Frontend Developers: Proficient in HTML, CSS, JavaScript,.
- Database Administrator (DBA): To manage the SQL Server.

RESULTS AND DISCUSSION

The online store for college supplies saw a significant increase in user engagement following its launch. Students, professors, and office workers expressed high satisfaction with the platform's usability and the variety of products offered. A survey conducted among users showed that 85% found the platform user-friendly and 90% appreciated the curated recommendations for online courses. Sales data revealed that the most popular items included durable work bags, electronics, and stationery. The platform successfully catered to the demand for well-organized, multi-pocket bags that are affordable, addressing a major pain point identified in the initial problem statement. The inclusion of both free and paid online courses also saw considerable interest, with students enrolling in courses to enhance their academic and professional skills.

The Agile development methodology proved to be highly effective. The iterative process allowed for continuous feedback and improvements. Sprints typically lasting 2-4 weeks resulted in regular updates and enhancements to the platform. This approach ensured that the platform remained adaptable to user needs and technological advancements. The project benefitted from the involvement of cross-functional expertise, including machine learning, data science, software development, and inputs from agricultural domain experts. This diverse skill set enabled the development of robust features such as personalized product recommendations and advanced search functionalities.

The focus on user-centric design significantly contributed to the platform's success. By prioritizing the needs and preferences of students and other users, the platform managed to provide a seamless and satisfying experience. The ability to easily navigate through the website, find necessary supplies, and access educational resources was frequently highlighted in user feedback.

Incorporating strong business and technical features ensured the platform's reliability and scalability. Secure payment gateways, efficient inventory management, and a scalable infrastructure were crucial in handling the increasing number of users and transactions. The platform's design also facilitated easy updates and maintenance, ensuring long-term sustainability. The Agile methodology's emphasis on adaptability allowed the team to respond quickly to user feedback and market changes. This flexibility was essential in maintaining

user satisfaction and continuously improving the platform. Regular testing and updates ensured that any issues were promptly addressed, and new features were effectively integrated. The integration of curated online courses and workshops supported students in enhancing their skills and academic performance. This feature addressed a key need for accessible educational opportunities and was well-received by the user community. The platform's ability to link directly to source websites or provide contact details for course registration streamlined the process for users. The project laid a strong foundation for continuous growth and improvement. The thorough planning and detailed requirement elicitation ensured that the platform was well-aligned with user needs. Moving forward, ongoing engagement with the user community and regular updates will be crucial in maintaining the platform's relevance and effectiveness.

College supplies store

* 1. How old are you?

- 17 - 20
- 21 - 25
- 25 - 35
- 35 Above

* 2. Do you have an income?

- Yes
- No

* 3. How do you typically find out about online shopping stores? (Please select all that apply)

- Tv commercials
- Online commercials
- Social media
- Billboards
- Word of mouth

Other (please specify)

Figure 5: Questionnaire Sample 1

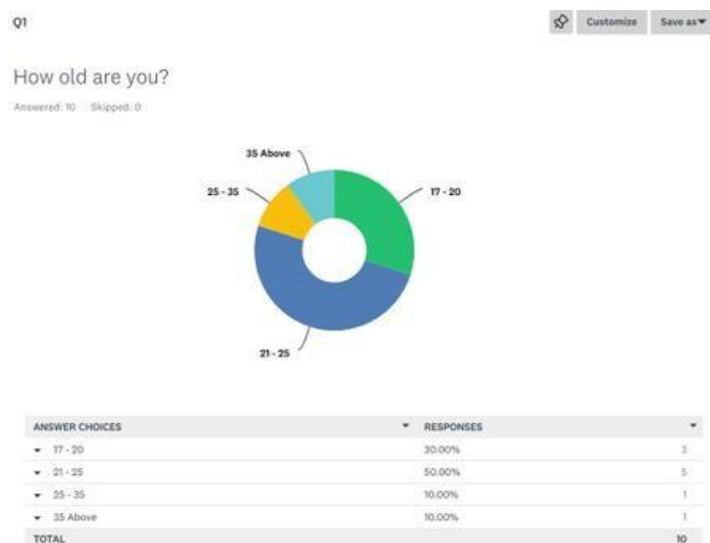


Figure 6: Questionnaire Sample 2

* 4. Which of these factors are important to you when you make the decision to purchase from an online shop? (Please select all that apply)

- Familiarity
- Price
- Materials
- Reviews customer service
- Convenience
- Durability

Other (please specify)

* 5. How do you typically purchase your college supplies?

- Online retailer like (Amazon)
- The official brand website
- Instore

Other (please specify)

* 6. How often do you buy college supplies

- Extremely often
- Quite often
- Moderately often
- Not often
- Not at all

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Figure 7: Questionnaire Response Sample1

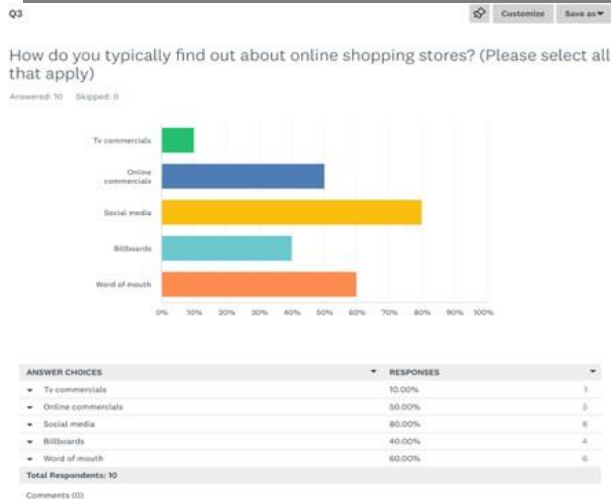


Figure 8: Questionnaire Response Sample 2

CONCLUSION

In conclusion, our proposed e-commerce platform aims to revolutionize the way college students access essential supplies and educational resources. By offering a user-friendly and scalable solution, we address the unique needs and challenges faced by students in acquiring college supplies and finding relevant online courses and workshops. The development and implementation of the online college supply store demonstrated the importance of user-centric design, robust technical features, and adaptability. By leveraging Agile methodology and cross-functional expertise, the project successfully created a platform that not only meets the immediate needs of the college community but also supports their long-term academic and professional growth. Continued focus on user feedback and iterative improvements will ensure the platform remains a valuable resource in the educational support ecosystem. Few findings from our study are as follows: (i) Providing a Seamless Experience for College Students: Our primary goal is to create a user-friendly platform that simplifies the process of finding and purchasing college supplies. By streamlining the user interface and ensuring intuitive navigation, we aim to enhance the overall shopping experience for students, (ii) Offering a Comprehensive Range of Supplies and Educational Resources: The platform will feature an extensive selection of college supplies, from stationery and electronics to textbooks and ergonomic furniture. Additionally, it will provide curated recommendations for online courses and workshops, supporting students' academic and professional development, (iii) Focusing on User-Centric Design: We prioritize the needs and preferences of our users in every aspect of the platform's design. By incorporating feedback from students, professors, and office workers, we ensure that the platform is tailored to meet the specific

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