JUNIOR PROJECT DESIGN

NSU STUDY PORTAL

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CSE 299 (Junior Design Project)
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DECLARATION

This is to certify that this Project is our original work. No part of this work has been submitted elsewhere partially or fully for the award of any other degree or diploma. Any material reproduced in this project has been properly acknowledged.

Students' names & Signatures
1. Monirul Islam Mahmud
2. Md Shihab Reza
3. Hafeza Akter

APPROVAL

We, Monirul Islam Mahmud, Md Shihab Reza and Hafeza Akter, members of CSE 299 (Junior Project Design) from the Electrical and Computer Engineering department of North South University; have worked on the project titled **"NSU STUDY PORTAL"** under the supervision of Rifat Ahmed Hassan as a partial fulfillment of the requirement for the degree of Bachelors of Science in Engineering and has been accepted as satisfactory.

Supervisor's Signature

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ACKNOWLEDGEMENT

By mercy of the Almighty we have completed our junior design project entitled **"NSU STUDY PORTAL"**.

Foremost, we would like to express our sincere gratitude to our advisor *Rifat Ahmed Hassan* for his continuous support in our project progress throughout the whole CSE 299 course, for his patience, motivation, enthusiasm, and immense knowledge. His guidance helped us in all the time of research, writing and completing this project. Our sincere thanks also go to North South University, Dhaka, Bangladesh for providing an opportunity in our curriculum which enabled us to have an industrial level experience as part of our academics. We are also very grateful to one of our dearest friends, Kazi Aniya Ahmed, for his help in this project.

Last but not the least, we would like to thank our family as their inspiration and guidance kept us focused and motivated.

ABSTRACT

The purpose of the project is to create a NSU students friendly website where all types of student helpful sites can be handled by our website. Why did we come up with this idea of NSU Study Portal? We lack a platform where we can submit their complaints to NSU authorities, a Proper site to take 'Notes' or save 'Homework' and also a proper discussion portal where every NSU'ers can chat. So, we introduced the NSU Study Portal which is a website-based platform where they can have a proper discussion portal, complaint portal, and features for saving their notes, homework, and also to do. The goal of this document is to provide a comprehensive overview of the NSU Study Portal. It will describe the system's purpose and characteristics, as well as the system's interfaces, what the system will do, the limitations that it must operate with, and how the system will react to external things. This document is intended for both the users and the developers of the system and will be proposed to Rifat Ahmed Hassan Sir for its approval. This document will help us to understand all the features, background story, implementation and how successful we were to implement all the facilities to the site. The 'NSU Study Portal' is a Django based project. Because we maintain records in databases in a variety of locations, we use SQLite database, which is one of the best and easiest ways to do so. The front-end of this project consists of HTML, CSS, and Bootstrap, and it connects with SQLite database because Django uses SQLite database as default. The frontend and backend of the web application were completed gradually over the duration of nine weeks. The web application took nine weeks to construct. Within the first few weeks, frontend responsibilities, such as page design, were done. The database was then created in preparation of the next weeks of backend development. Last but not least, the backend of the application has been finished over the past two to three weeks. To stay on schedule, this approach of work completion was used.

INTRODUCTION

NSUers are lack a website where they can take notes, save their homework, search their study related books or videos, a complaint portal where they can submit their complaint to NSU authority and a discussion forum where they can discuss with their course or project mates easily.

NSU Study Portal is a platform where NSUers can Take notes, Save homework, and submit their complaints directly to the NSU proctor office. Besides all of these NSUers can search their desired study-related youtube videos or books with the help of our youtube video search and find book feature. Also, our users can do wiki searches through our platform. The discussion forum is also available on this platform where they can discuss with their course or project mates which makes communication with each other easier.

For using all of these features our user has to log in on this platform. With our sign up one user can not fully get all of the services of this platform

In the create note feature there one has to give the note title and in the description box one can take their notes. They can save it in their account. Previous notes will be shown on the top of the create note page. In the homework feature one user has to give the subject, title and the description section they can write down their description about their homework. After saving that it will be shown on the top of the homework page and also in the bottom profile section of the user. In the search book section users have to give their desired book name or book subject name then through google book API our platform will show a book list. Our user can click and download their desired book. In Youtube search feature users have to search their desired learning topic then through Youtube API our platform will show our user their search related videos and they can watch videos. In the complaint portal feature our user has to give their NSU email, what

is their complaint, who's against the complaint and position of the person. To Submit their complaint one has to give all of the information and have to submit proper evidence. Then they can submit their complaint. In this feature our users can update their complaint and. Delete complaint option available for users. After that NSU authority will investigate the complaint and the decision will be given to the users.

NSU Study portal created with a good user friendly interface where a user will experience a good UI and a flexible system. Our system will be secured and will respect the users privacy and here System Admin can access any type of data.

LITERATURE REVIEW

Similar Projects: Similar Projects related to NSU Study Portal are NSU Academics, NSUers Club and NSU x Materials. We will see all the similarities and differences between us. We will try to describe as much as possible.

➢ NSU Academics

Several features, including an advising list, a course map, a CGPA calculator, Dhaka Local Bus Routes, articles, and mental support, are available on NSU Academics. Students from NSU will benefit significantly. However, major drawbacks include the CGPA calculator's faulty functionality, the Academic Calendars direct links to the NSU website, and the Feedback section's use of Google Forms etc.

➢ **NSUer Club**

NSUers Club provides Advising Archive, Faculty Predictor, Ebooks free learning, CGPA calculator, cgpa analyze, file upload and most importantly faculty predictor. They have a very minimalistic and responsive user interface. We didn't get any disadvantage from their website.

➢ **NSU x Materials**

They also provide a user interface that looks decent. This website only contains the past lecture slides for all courses. Despite having a lot of resources, some of the files couldn't be opened, and the majority couldn't be downloaded.

❖ **Comparison with our project**

If we compare those websites with NSU Study Portal, we can get only one similarity with NSUer club's Find Ebooks feature which we also implemented on our site. Other than that, we don't have any similarity with any of their websites. We thought about those websites before the project proposal. We wanted to create different features for the NSU students. We research on the very needy things of NSU students which they are not getting from other sites. So we have come up with the idea of NSU Study Portal where students can save their Homework, they can also save their class notes, they can also edit or delete the class notes. Then they can search YouTube, Wikipedia, and Books for free. Most importantly, students can lodge complaints about anything related to NSU to this site. Another important feature which is implemented here is the Discussion Forum which is under development. We are implementing these functionality to our site so that

we get the users first priority over everything. We also develop these features to our site with user friendly UI.
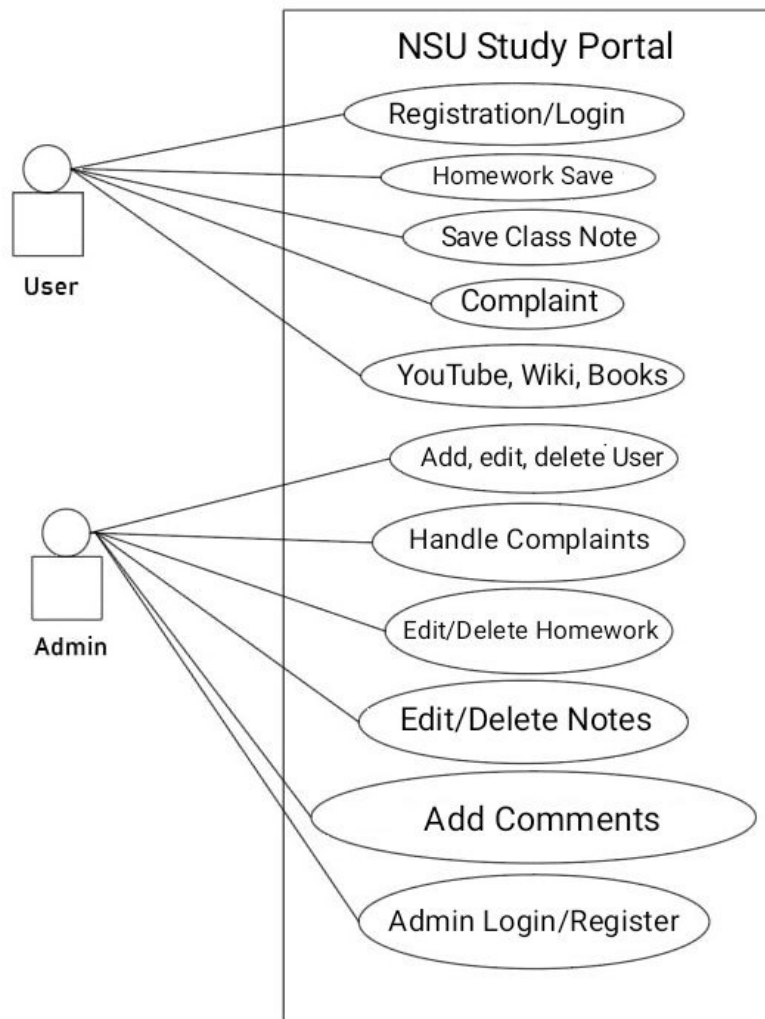
IN DEPTH DISCUSSION

Description

NSUers can take notes, save assignments, and lodge complaints to the NSU proctor office using the NSU Study Portal. In addition to all of these options, NSU students can use our tools to find books and YouTube videos pertinent to their studies. Additionally, our technology allows users to conduct wiki searches. On this platform, there is also a discussion forum where users can interact with other users who are in the same course or project, promoting collaboration.

For class notes Feature we have used Django Crispy Form where users can edit or delete the class notes. For the Homework Reminder we also used Django crispy form to take input from students. On the same page saved homeworks will be shown which will be user specific. Users can edit or delete the homeworks. Users can search youTube videos on our site where we used the YouTube API to implement this feature. Then there is a books search option on our site where we have used Google Books API. Users can read any books for free on our site. Then there is a definition page where we have used Wikipedia API. Users can search any word or sentence for getting this word's definition. Our site will fetch the data from Wikipedia. Users can lodge complaints to NSU authority via the complaint lodge feature. Admin can also add comments to the specific user in reply to their complaint lodge. Most important feature of our site is there is a discussion forum where users can chat with each other and discuss, post about anything related to NSU.

Technical Details

UML Expanded Use Case

(1) Use case name: Register & Login

<u>Actors</u>: Faculty, Student

<u>Type</u>: Primary

<u>Brief Overview</u>: Unregistered students/faculties can choose this option to register an account using their valid name, NSU email address and password.

Typical Course of events:

Actor Actions	System Response
Actor goes to the website	System reponds with the Register page of the website
Actor clicks the "Register" option to sign up for an account	System checks the validity of the e-mail address and creates an account
After register, user can login with the email and password.	If the user credintials are valid, then they can access the homepage.

Alternative Courses of Events:

(i) The email address entered is registered before. The actor gets prompted with an error message "This email exist already". The actor either chooses to use a valid email address or creates one first.

(ii) The email address or password entered is/are incorrect. An error message pops up "Your email address or password is/are incorrect". The actor types in the correct information or chooses "forgot password" if he/she wants to.

(2) Use Case Name: Submitting complain

Actors: Student/ Faculty

Type: Primary

Brief Overview: Faculty or teachers can submit the complaint form with proper evidence.

Typical Courses of Events:

Actor Actions	System Response
Users after login, they can complain a file.	System will redirect them to the complain page.
Users after completing all the information, press the send button.	System decides if it's a valid or not and then respond by updating their page.

Alternative Courses of Events:

If any information didn't properly answered via users, then no response will be send.

3) Use case name: Update users and secure the data in database

Actor: System Admin

Type: Secondary

Brief Overview: The system admin is logged into the system and can update information about the student/faculty. The admin can choose to edit, add or remove any accounts & has complete control of the database.

Typical Courses of Events:

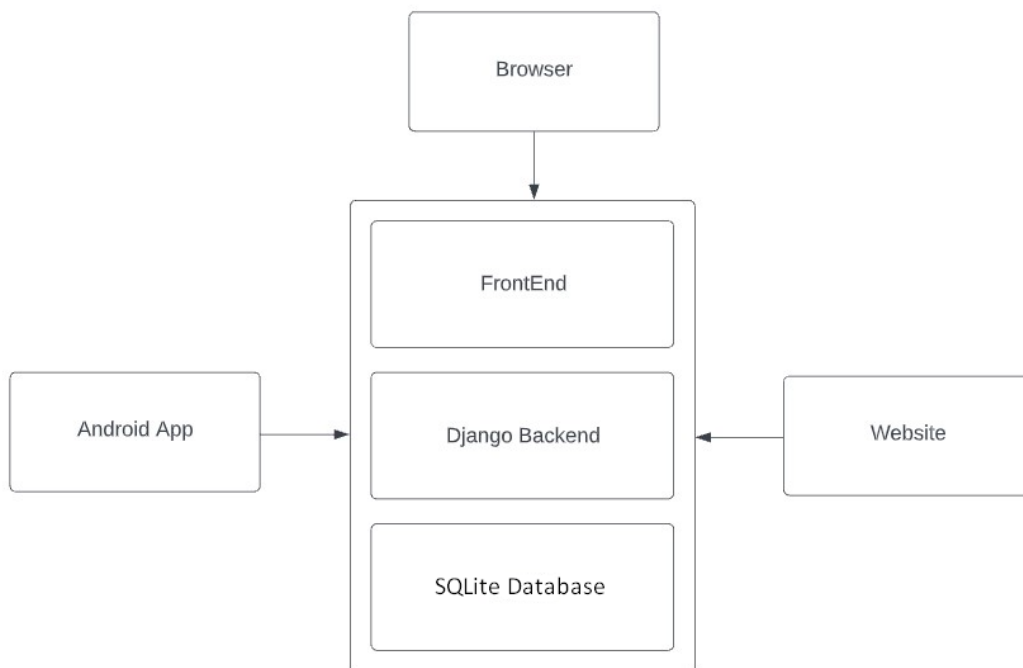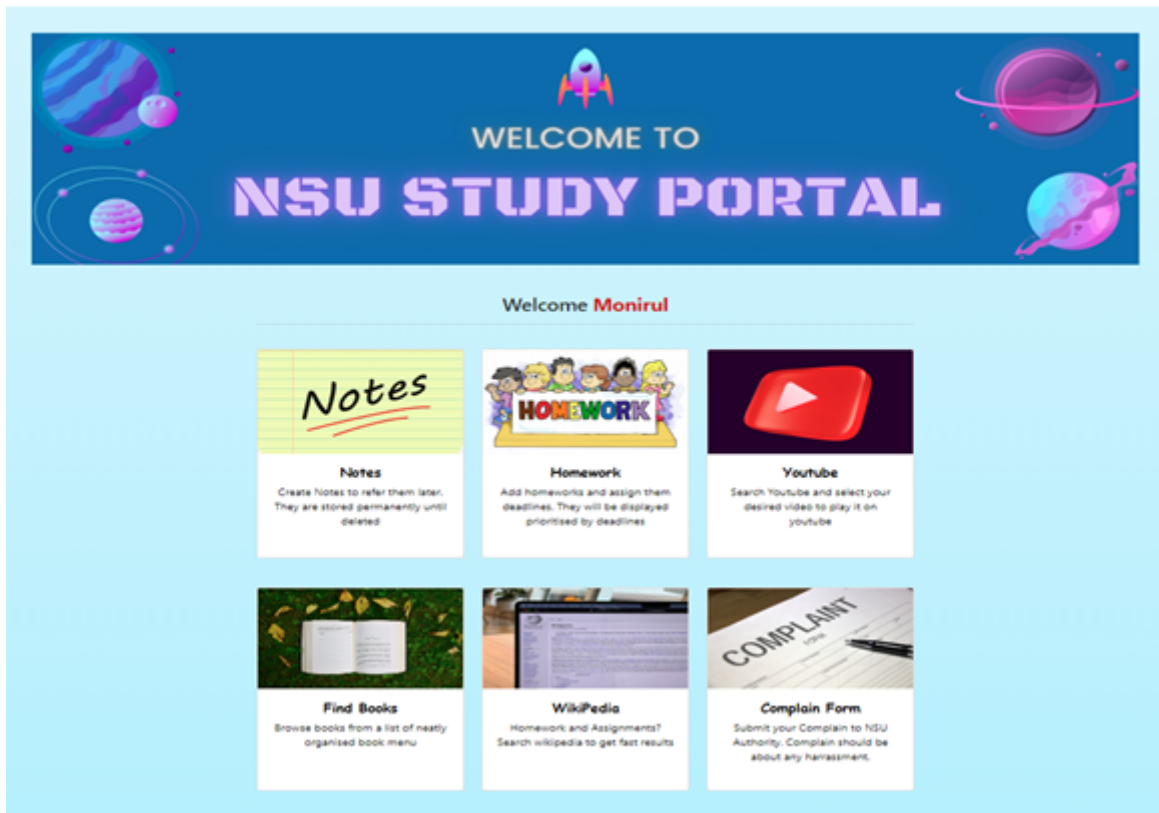| Actor Actions	System Response
Admin chooses to update the user by clicking on the specific person's information	System will update the user info.
Admin clicks "update" and press "save" on the admin panel.	All the changes will be saved by the system.
Admin will get the submitted complain information and can edit the info.	The system edits the complain information.

Design Implementation

- Front End:

  1. HTML
  2. CSS
  3. Bootstrap

- Back End:

  1. Django
  2. Python

- Database:

    1. SQLite (Django Default)

- Code Editor:

    1. Visual Studio Code

- API:

    1. Google Books API
    2. YouTube API
    3. Wikipedia API

- Client Devices:

    1. Android, iOS, Laptop, Desktop
    2. OS: Android 6.0+, iOS, Windows, MacOS
    3. CPU: 1 GHz or faster
    4. RAM: 1 GB or more.
    5. Wireless: 802.11b/n/ac

Result & Discussion:

We tested our project in a practical setting after it was finished, and it performed well. Since our application was created using only open source software, which is available for free, anyone can use it and further develop it without investing any money. Additionally, since everyone now is familiar with how computers work in general, we think operating the system shouldn't require any special training.

We have implemented Class Notes feature, Homework reminder feature, Wikipedia search, Books search, Complaint Lodge feature & Most importantly Chat feature. We have used HTML, CSS & Bootstrap for the front end part. For the backend part we have used Django, which is a Python framework. For the database we have used django default SQLite Database. First of all, In this website users have to Sign Up & Login to access the homepage. There will be a User Profile which is based on registration info. Users can Take class notes & save homework on this site. Users can get due homeworks reminders. Users can search any Youtube video here, We have used Youtube API to implement this. You can see we have searched Python and the site is showing all the videos related to python. Users can search any books where we will use Google Book API. Users also can search any definition in this page. Here we will use Wikipedia API. Users can lodge any complaints to the NSU Authority via this feature. Lastly there will be a Discussion forum where users can discuss anything about NSU related topics. Admin can add, edit or delete complaints, homeworks and users. Lastly, Admin will respect users' privacy.

CONCLUSION

We made an effort to write a concise summary of the project we worked on for this paper. The paper was divided into three sections; in the first, we talked about giving the reader a quick overview of our idea. The second chapter covered similar projects that are already in existence, and the third and final chapter went into great detail on the technical aspects of the project as well as how our project was implemented. This project taught us how Django operates. We only had a basic understanding of Django before working on this project, but after finishing it, we have gained a lot of knowledge about it. We discovered how to use CSRF tokens, create secure websites with Django, create Block-Endblock

content, and use crispy forms. We are also limited in certain ways. We were short on time, money, and hosting. We also struggled to implement the chat system feature correctly. In the future, we'll work to host this platform for NSU students and will create a chat system. The website's user interface will also be upgraded. The features are simple for our users to use. We'll make sure our consumers' data is safe.

REFERENCE

- Head First Design Patterns: Building Extensible and Maintainable Object-Oriented Software, Second Edition
- https://docs.djangoproject.com/en/4.1/
- https://developer.mozilla.org/en-US/docs/Learn/Server-side/Django/Introduction
- https://www.w3schools.com/django/
- https://www.fullstackpython.com/django.html

Appendix

Term	Definition
Database	Collection of all the information monitored by this system.
User	Teacher or Student of NSU
Hosting	The activity of providing storage space and access for websites.
CSRF token	Unique, secret, unpredictable value that is generated by the server-side application and transmitted to the client.
Crispy Form	An application that helps to manage Django forms.