NORTH SOUTH UNIVERSITY

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Course: CSE 482

Project Report

Fall 2022

Section: 02

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Project Name – *NSU Discussion Forum*

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Introduction:

This is a proposal for developing the **NSU Discussion Forum**. The goal of this document is to provide a comprehensive overview of the NSU Discussion Forum. 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 report document is intended for both the users and the developers of the system and will be proposed to '*Md. Naqib Imtiaz Hussain*' sir for its approval.

Background & Product context:

As we all lack a common discussion for North South University, we want to develop a discussion forum where NSU students can post, comment or discuss anything on this site.

Unregistered users can choose to register an account using their valid name, email address and password. System checks the validity of the e-mail address and creates an account. If the user credentials are valid at the login page, then they can access the homepage. The email address entered is registered before. The actor gets prompted with an error message "This email exists already". The actor either chooses to use a valid email address or creates one first. The email address or password entered is/are incorrect. An error message pops up "Your email address or password is/are incorrect".

After successful completion of login, users will be redirected to the Home Page. There users can see profile menu, discussion menu, contact, logout on the navbar. Users can see their information on the profile page. Users can also send any feedback to the administrator.

On the discussion page, users have to first select any category on which they want to discuss or comment about. Then on a particular category page, users can see past posts or comment on those topics. Users can again post, comment or discuss on any topic they want to. After completing work they can logout. Also it should be mentioned that Admin can login via the Admin panel. Admin can search any user & get their data. Admin can add, edit or delete any user. Admin can add categories for the user on which discussion will be created.

User Story:

- **Use Case as User:** User can access homepage after successful register & login. Users can see their profile section with their information. On the discussion page, users have to first select any category on which they want to discuss or comment about. Then on a particular category page, users can see past posts or comment on those topics. Users can again post, comment or discuss on any topic they want to. Users also can send feedback to the administrator. After completing their work, users can log out from the website.

- **Use Case as Admin:** After login to the admin panel, admin can add any new user, update any user, delete any user. Admin can add categories for the user on which discussion will be created. Admin can search for any particular user with a search bar & get the user's info.

Use Case Diagram:
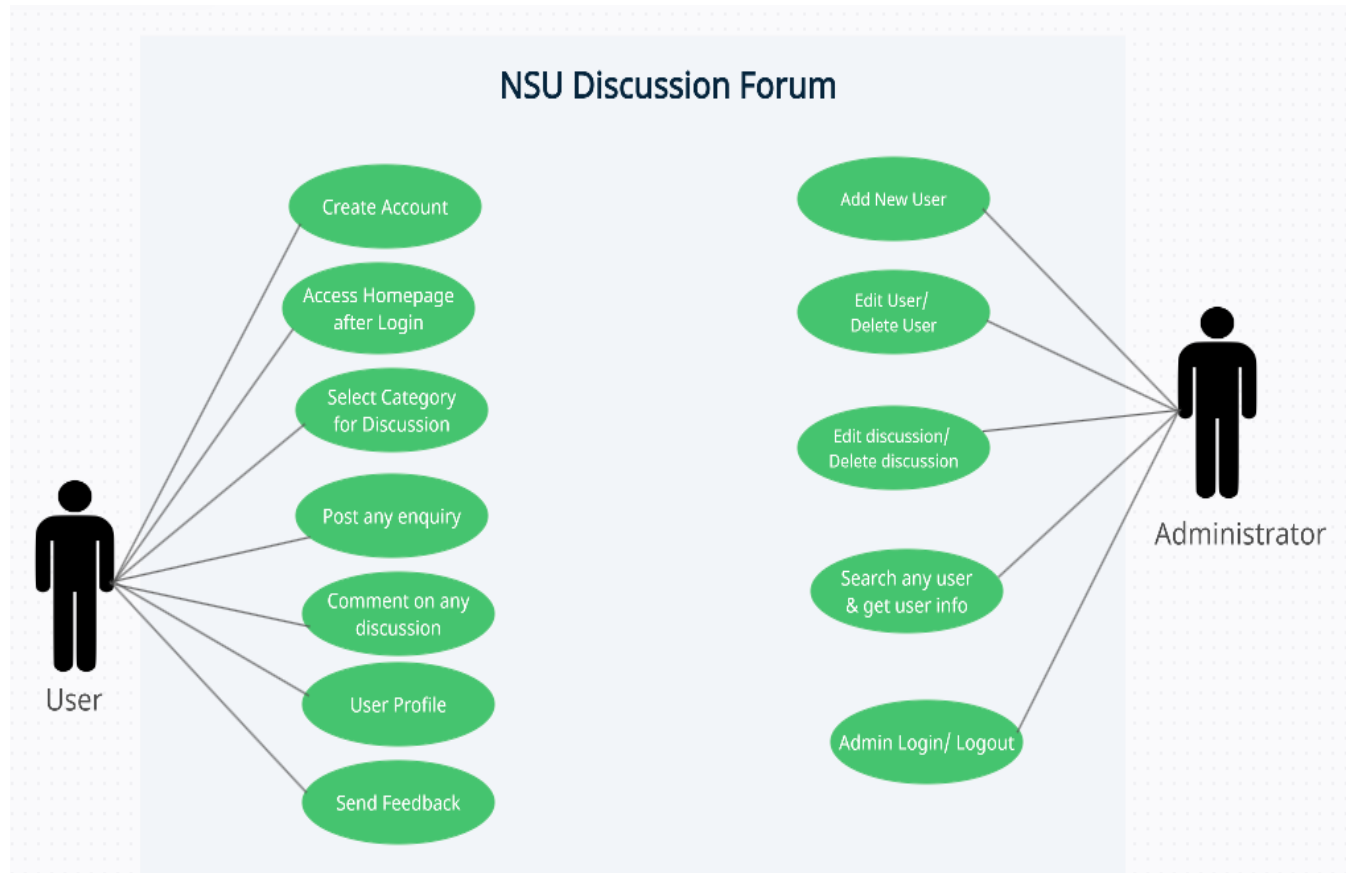
Front End Plan:

- Register/ Login Page
- Homepage
- Profile Page
- Feedback Page
- Discussion - Select Category Page
- Discussion - Post & Comment Page
- Admin Dashboard

Back End Plan:

- Signup/Login
- MySQL database
- Profile Page
- Discussion Page
- Post & Comment
- Admin login
- Admin user Edit/Delete
- Admin user search
- Admin edit post/comment

Features:

1. Signup/Login only with email.
2. User Profile.
3. Users can Post, Comment, Reply.
4. Send Feedback.
5. Admin Dashboard.
6. Admin can add, edit & delete users.
7. Admin can edit posts.
8. Admin can view feedback.
9. Admin can search any user & get info.

Software Quality Attributes:

- The User interface of the system will be user friendly.
- Execution process must be fast and responsive.
- The software is a web-based application and is built in PHP and MySQL, so it's platform independent.
- The system will be secured and will respect the users privacy.
- All the data will be stored in a relational database.

ER Diagram:
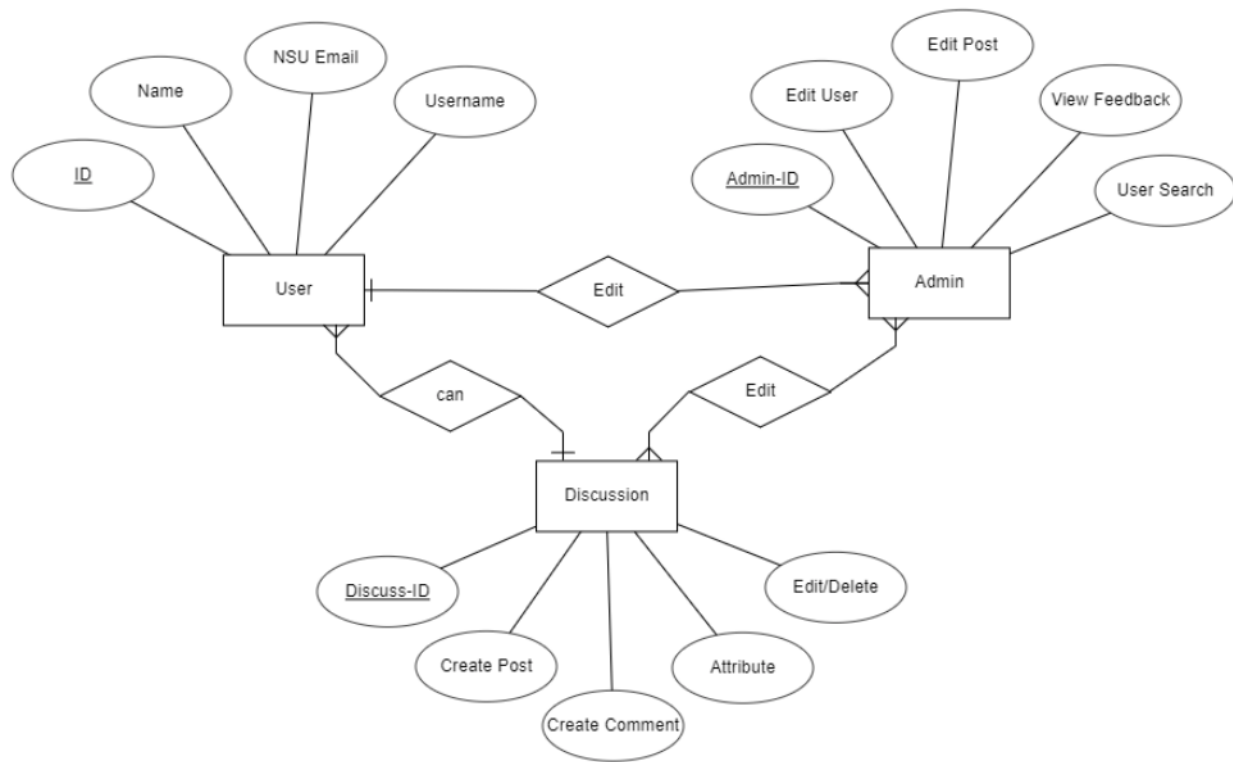
Development Plan:

- **_Phase-1:_** We will implement a user view first where only users can login with NSU Email & Discuss about anything. User can view his profile with his given information. Users can send feedback to administrators about any issue. Users can also Post, Comment & Reply to the discussion page.

- **_Phase-2:_** We will implement Admin Dashboard in this phase. Admin can login, add users, update users and delete any user. Admin can also edit or delete any discussion. Lastly, Admin can view feedback. We will also optimize the performance of the website & make secured

the site in this phase. Basic hosting choice will be governed by emphasis on performance and minimal latency.

Hosting Plan:

We have hosted this website on (www.00webhost.com) as this site gives us 1 Website free host, 300 MB Disk Space, Limited Bandwidth (3 GB), Free Cloudflare Protected Nameservers & MySQL Database. Our website's url: https://nsu-discussion-forum.000webhostapp.com

Collaboration Plan:

Tasks	Schedule
Host dev-site and develop	Ongoing Basis
Summary and discussion	Every Wednesday
Feedback on UI and functionality	Every Wednesday
Use Case testing	As per need

Performance Analysis:

Our website performance analysis suggests how we can make our website more efficient & more user friendly. We have tested our website on https://www.webpagetest.org. Performance report suggests that we should focus more on image loading problems. It's taking more requests and more bytes (74.4%) which means our website needs to request the server again

and again for the images. To prevent that, we can use svg type images for the site. Then we can also use the lazy loading feature for our site so that the server will handle requests only if the image needs to be shown on the screen, otherwise not. We can also use CDN, service worker & CSS sprite. Then we have used Bootstrap CDN where JS files block the page rendering. We also have to add Content Security Policy (CSP) and Strict Transport Security for our site to protect from malicious attack. LCP represents how quickly the main content of a web page is loaded, we have an LCP of 2.114 seconds which is less than 2.5 sec and that is good. Lastly we have to use a CDN for all static assets, use gzip compression and use expires header on cache control.
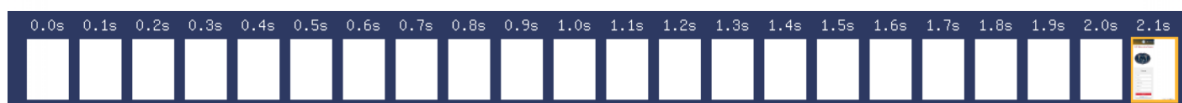
Observed Metrics (Based on Median Run by: ▶ Speed Index)
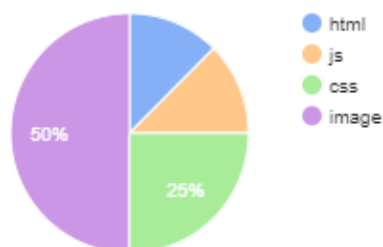
ⓘ **Note:** Metrics offered will vary

FIRST VIEW (RUN 1)

First Byte	Start Render	FCP	Speed Index	LCP	CLS	TBT	Total Bytes
.950s	2.100s	2.036s	2.100s	2.114s	0	≥ .000s	270

Visual Page Loading Process (Explore)

0.0s 0.1s 0.2s 0.3s 0.4s 0.5s 0.6s 0.7s 0.8s 0.9s 1.0s 1.1s 1.2s 1.3s 1.4s 1.5s 1.6s 1.7s 1.8s 1.9s 2.0s 2.1s

Requests

- html
- js
- css
- image

50% 25%

Bytes

- html
- js
- css
- image

74.7% 20%

9
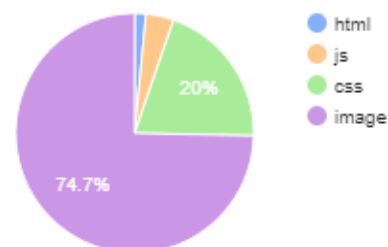
Appendix:

- All the data will be stored in a relational database.
- User - Person who is listed in the University database.
- Software Requirements Specification - A document that completely describes all of the functions of a proposed system and the constraints under which it must operate.
- If time favors us, we are planning to turn the system into a complete web-based application.