

**NU Rooms and Sessions**

By:

Deif Mohamed Ahmed – 211001739 *(Team Leader)*

Mahmoud Ayman – 211001811

Sherif Ehab Salama – 211001667

Omar Adel Abdelkader – 211000073

Abdelrhman Salah Salem – 211001698

[**CSCI313**](https://moodle.nu.edu.eg/course/view.php?id=8331)

Dr. Mourad rafat

October 2023

[**1.** **Introduction** 3](#_Toc150636826)

[**1.1 Purpose** 3](#_Toc150636827)

**1.2 Project scope**……………………………………………………………………………………..3

[**1.3 Used Technologies** 4](#_Toc150636828)

[The development of the Nu Rooms and Sessions system will leverage the following technologies: 4](#_Toc150636829)

[ HTML: To structure and present web content. 4](#_Toc150636830)

[ CSS: To style the user interface and enhance the user experience. 4](#_Toc150636831)

[ JavaScript: To implement client-side interactivity and dynamic features. 4](#_Toc150636832)

[ Bootstrap: To streamline the design and ensure responsiveness across devices. 4](#_Toc150636833)

[ Firebase Real-time Database: To store and manage data in real-time. 4](#_Toc150636834)

[ Firebase Authentication: To secure user registration and authentication. 4](#_Toc150636835)

[ Firebase Storage: To store and retrieve user-generated content. 4](#_Toc150636836)

[**1.4 Intended Audience** 4](#_Toc150636837)

[**1.5 Document Overview** 5](#_Toc150636838)

[**2. Overall Description** 6](#_Toc150636839)

[**2.1 Product perspective** 6](#_Toc150636840)

[**2.2** **Product Function** 6](#_Toc150636841)

**2.3 User characteristics**………………………………………………………………………...…10

[**2.4 Constraints** 10](#_Toc150636842)

**2.5** **Assumptions and Dependencies**……………………………………………………………..10

**3. Functional requirements**………………………………………………………………………….11

**4. Non-Functional requirements**…………………………………………………………………….13

**4.1 Maintainability**………………………………………………………………………………...13

**4.2 Performance**…………………………………………………………………………………...13

**4.3 Reliability**………………………………………………………………………………………13

**4.4 Availability**……………………………………………………………………………………..13

**5. Interface**……………………………………………………………………………………….…..14

**5.1 System interface**………………………………………………………………………….…...14

**5.2 Software interface**……………………………………………………………………………19

**6. Diagram**……………………………………………………………………………………………20

**6.1 Use case diagram**……………………………………………………………………………..20

**6.1.1 Use scenarios.**………………….………………………………………………………….21

**6.2 Sequence diagram**…………………………………………………………………………….30

**6.3 Class diagram**…………………………………………………………………………………30

**6.4 Scram meeting**…………………………………………………………………….…………..31

# **Introduction**

## **1.1 Purpose**

The purpose of this document is to present a detailed description of the Nu Rooms and Sessions. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate, and how the system will react to external stimuli.

**1.2 Project scope**

Technology is one of the most important sources used in the present time and can be utilized in all areas of life, in science, education, engineering, communication, entertainment, housing, and many more, consequently, the idea was to create a service program to help Nuians use their rooms better. (NU rooms and sessions) This is the name of the program we would like to do the program is based entirely on all users in general, as anyone who registers in the program can ask for help for anything they need, and can also volunteer to help others For example: If you want to inquire about in-person meetings or online meetings where participants can connect with each other and learn from each other, or if participants wanted help from TAs to solve an issue, the person can also ask for help from Nuians, by sending a broadcast. Containing his location and the problems he faces

## **1.3 Used Technologies**

## The development of the Nu Rooms and Sessions system will leverage the following technologies:

## HTML: To structure and present web content.

## CSS: To style the user interface and enhance the user experience.

## JavaScript: To implement client-side interactivity and dynamic features.

## Bootstrap: To streamline the design and ensure responsiveness across devices.

## Firebase Real-time Database: To store and manage data in real-time.

## Firebase Authentication: To secure user registration and authentication.

## Firebase Storage: To store and retrieve user-generated content.

## **1.4 Intended Audience**

* + - This document is primarily intended for the following stakeholders:
    - Development Team: The development team will use this document as a reference to understand the system's requirements, features, and constraints for the purpose of implementation.
    - Project Managers: Project managers will use this document to oversee the project's progress and ensure alignment with the defined requirements.
    - Quality Assurance Team: The QA team will refer to this document to design test cases and validate that the final system meets the specified requirements.
    - End Users: While not the primary audience, end users may refer to this document to gain insights into the system's capabilities and features.

## **1.5 Document Overview**

This document is structured into several chapters, each addressing specific aspects of the Nu Rooms and Sessions system. The following chapters will provide a more detailed insight into the system's functionalities, including user registration and authentication, room and session management, assistance requests, community interaction, as well as constraints and reactions to external stimuli.

By the end of this document, the reader will have a comprehensive understanding of the project's objectives, key features, technology stack, and constraints, setting the foundation for the successful development and deployment of the Nu Rooms and Sessions system.

# **2.overall Description**

## **2.1 Product perspective**

* · “Nu rooms and sessions” will be an website that designed to assist students and Nuians in the use of rooms.
* · The system may also integrate with the Nu system and moodle to get additional data, such as students’ information and sessions time.

## **Product Function**

* · As a new user, I want to see an introduction to NU Rooms and Sessions on the homepage. So that I can understand its purpose and decide if I want to sign up.
* . As a potential user, I want to have the option to sign up or log in on the homepage. So that I can access the features of NU Rooms and Sessions.
* . As a user, I want to be able to sign up using my email address and password. So that I can create a personal account.
* . As a user, I want to log in using my email address and password. So that I can access my account and use the features of the website.
* . As a logged-in user, I want to see a dashboard after logging in. So that I can easily navigate to different sections of the website.
* . As a student, I want to check for available rooms on the Rooms page. So that I can find a suitable place to study or work.
* . As a student, I want to filter or search for free rooms based on specific criteria (time, location, capacity, etc.). So that I can quickly find a room that meets my needs.
* . As a student, I want to send a reservation request for a specific room and time. So that I can secure a room for my study or work.
* . As a student seeking assistance, I want to request help on the Sessions page. So that I can get support from other students.
* . As a student offering assistance, I want to be notified of assistance requests and be able to accept them. So that I can help my peers based on my availability.
* . As a user, I want to manage my profile, including updating personal information and changing my password. So that I can keep my account information up to date.
* . As a user, I want to receive notifications about room reservations, assistance requests, and other important updates. So that I can stay informed about relevant activities on the platform.
* . As a user, I want to communicate with other students through a messaging system. So that I can coordinate details for room reservations or assistance sessions.
* . As a user, I want to view a calendar to keep track of my reservations, study sessions, and other important events. So that I can manage my time effectively.
* . As a user, I want to provide feedback and ratings for room reservations and assistance sessions. So that I can contribute to building a trustworthy community.
* . As a user, I want the website to be mobile-friendly. So that I can access NU Rooms and Sessions from various devices.
* . As a user, I want the website to prioritize the security of my data. So that I can trust that my personal information is safe.
* . As a user, I want the website to be thoroughly tested before launch. So that I can have a smooth and reliable experience when using NU Rooms and Sessions.
* . As a user, I want the website to be launched successfully. So that I can start using its features and benefit from the services offered.
* . As a user, I want the website to be actively promoted and marketed. So that more students can discover and join NU Rooms and Sessions.
* . As an admin, I want to have a dedicated admin dashboard upon logging in. So that I can manage and oversee the entire NU Rooms and Sessions platform.
* . As an admin, I want to view and manage all user accounts. So that I can ensure the security and integrity of the platform.
* . As an admin, I want to receive notifications for new room reservation requests. So that I can promptly review and approve or reject them.
* . As an admin, I want to have the ability to manually assign rooms based on availability. So that I can optimize the room allocation process.
* . As an admin, I want to view and manage assistance requests. So that I can ensure students receive the help they need.
* . As an admin, I want to be able to view and manage user feedback and ratings. So that I can address any issues and maintain a positive community experience.
* . As a TA, I want to be notified of assistance requests. So that I can offer help to students in need.
* . As a TA, I want to review details of assistance requests before accepting them. So that I can ensure I am well-equipped to provide assistance in the specific subject or topic.
* . As a TA, I want to have the ability to accept or reject assistance requests based on my availability. So that I can manage my time effectively and provide quality assistance.
* . As a TA, I want to receive feedback and ratings for my assistance sessions. So that I can improve my teaching skills and contribute positively to the platform.
* . As an admin or TA, I want to be able to communicate with users through the messaging system. So that I can address any questions or concerns and provide guidance when necessary.
* . As an admin, I want to have the authority to manage and resolve disputes between users. So that I can ensure a fair and respectful environment within the NU Rooms and Sessions community.
* . As an admin, I want to have access to analytics and reports on room usage, assistance sessions, and user activity. So that I can make data-driven decisions to improve the platform.

**2.3 user characteristics**

* · Students and Nuians are the target audience for the NU rooms and sessions website.
* · The website needs to be simple to use and intuitive because users' technical skill levels might differ.
* · The user should have accessibility to internet connection.
* · The user should have an NU account to access to the website.

## **2.4 Constraints**

* · The phone will have to be connected to internet in order for the application to work.
* · Sign-in and password will be required to identify users.

**2.5** **Assumptions and Dependencies**

• The website will be internet dependent, so all users should have internet access when operating on it.

**3. Functional Requirements**

1. **Administrator**

• Database management:

- Manage the database and keep track of the availability of rooms and students information

• students Feedback Handling:

- Assist with complaints, questions, and comments from students.

1. **students:**

• Authentication:

- Log in: Users must with a valid email and password with nu account to access the site.

• Profile Management:

- View and edit personal information and details

• Room Selection:

- Browse for the available rooms and labs for studying.

• Search Functionality:

- Utilize the filtration system to find a specific room.

• Notifications:

- the system sends notifications to the students to inform them about the non-availability of the room for a period of time

- the system sends notifications to the students to make sure that the student still in the room or not

• Recommendation:

-the system makes some recommendations for the most time available rooms to the students

• Cancellation:

- the students can cancel the reservation of the room.

1. **Teacher’s assistants:**

• make sessions:

- he can reserve rooms to make sessions

• Authentication:

- Log in: Users must with a valid email and password with nu account to access the site.

• Profile Management:

- View and edit personal information and details

• Search Functionality:

- Utilize the filtration system to find a specific room.

1. **security:**

**• access with the rooms:**

**-** Security must know the number of students in reserved rooms and which one has reserved the room.

**4.Non-Functional Requirements**

**4.1 Maintainability**:

• Our system allows us to add functionalities and features to the system later.

**4.2 Performance:**

• Pages should not take more than 5 seconds to load. (Response time).

**4.3 Reliability:**

• The system is estimated to fail at a mean time of 3 times per year.

**4.4 Availability**

• System should be able to run 24/7 if an internet connection is available.

**5. Interface**

**5.1 System interface**

A screenshot of a login form

Description automatically generated

**Login Page**

Students or TAs have to login with NU mail to enter the website.

Icons for NU Facebook or any social media.

A screenshot of a computer

Description automatically generated

**Dashboard Page**

* The user has options to see upcoming Sessions that he can reserve.
* The system will give the user recommendations for sessions or rooms that he usually reserves and uses so can reach it easily.
* The user can see his past reservations details like date and time that he reserves at.
* The user can see that the request he sent to session is approved or not in approved sessions.

A screenshot of a computer

Description automatically generated

**Rooms page**

* The user can see all rooms and labs:

1. The gray stroke means there is a lecture.
2. The yellow stroke means there is a lab or tutorial.
3. The green stroke means the room is available.
4. The red stroke means the room is booked by students.

* Filter:

1. Users can filter by lab or tutorial or lecture.

A screenshot of a web page

Description automatically generated

**Sessions page**

* The students or TAs can give a session so he should define time, course name and the room or lab that will be held in.
* The students can request a session for any course to understand the missed points.
* The students can show their requests are approved or not.

A screenshot of a computer

Description automatically generated

**Recourses Sharing**

* The user can upload any sources he had in any course that can be useful for anyone who take the course.
* The user can search for any documentation for the course he wants.
* The user can download any documentation for the course he wants.

A screenshot of a computer

Description automatically generated

**Sidebar**

* Sidebar for navigate between pages to make user experience easier.

**5.2 Software interface**

“NuRooms” web application is a cross platform app which is developed using html, css and Javascript , Firebase tools. Through creating this app Visual studio code, packages and libraries are used. The web application is set to view sets of data, notifications, posts, photos and any other interactions. from the web app users to the server as Outing data, and the received from the server as Incoming data.

**6. Diagrams**

**6.1 Use case diagram**

**A diagram of a company structure

Description automatically generated**

**6.1.1 Use case scenarios.**

Use case 1.

|  |  |
| --- | --- |
|  | |
| Usercase Name | add session |
| Actors | User |
| Main success  scenario | * + - 1. User presses “add session” button.       2. The system will show the user the available rooms and time.       3. Users will choose the needed room they want.       4. A room will be requested for this session. |
| Exceptions | User will choose unavailable time or room. |
| Actions | * system will display an alert that this room or time is not available. |
| Pre-Condition | * User must be logged in. |
| Post Condition | * The session will be added to the database. |

Use case 2.

|  |  |
| --- | --- |
|  | |
| Usercase Name | Login |
| Actors | User |
| Main success  scenario | 1. The user opens the login page.  2. The user enters their username and password.  3. The system validates the username and password against the stored credentials.  4. If the validation is successful, the system grants the user access to the system and displays the main interface.  5. If the validation fails, the system displays an error message and prompts the user to try again. |
| Exceptions | Username or password are not valid.  User/shelter clicks on the log in button without filling all of the  required information. |
| Actions | • The user forgets their password and requests a password reset.  • The user's account is locked due to multiple failed login attempts.  • The system encounters technical difficulties during the login process. |
| Pre-Condition | • The user has a valid account in the system.  • The user has an internet connection |
| Post Condition | • The user is either granted access to the system or informed of the reason for failure. |

Use case 3.

|  |  |
| --- | --- |
|  | |
| Usercase Name | Show rooms |
| Actors | User |
| Main success  scenario | 1. User/Shelter navigates to the "Show Rooms" section.  2. System displays a list of available rooms with details (e.g., room number, capacity, location). |
| Pre-Condition | * User/Shelter is logged in to the system. * The system has available rooms to display. |
| Post Condition | * User/Shelter views the list of available rooms. |

Use case 4.

|  |  |
| --- | --- |
|  | |
| Usercase Name | Show sessions |
| Actors | User |
| Main success  scenario | 1. User/Shelter navigates to the "Show Sessions" section.  2. System displays a list of available sessions with details (e.g., session topic, date, time). |
| Pre-Condition | * User/Shelter is logged in to the system. * The system has available sessions to display. |
| Post Condition | * User/Shelter views the list of available sessions. |

Use case 5.

|  |  |
| --- | --- |
|  | |
| Usercase Name | Request sessions |
| Actors | User/Admin |
| Main success  scenario | 1. User/Shelter navigates to the "Request Sessions" section.  2. User selects the type of assistance they need and provides relevant details.  3. User submits the request.  4. System acknowledges the request. |
| Exceptions | 3a. User submits an incomplete request. |
| Actions | 3a.1. System prompts the user with a message indicating that all required information must be filled out.  3a.2. User/Shelter completes the missing information and resubmits the request. |
| Pre-Condition | * User/Shelter is logged in to the system. |
| Post Condition | * User/Shelter has successfully requested assistance sessions. |

Use case 6.

|  |  |
| --- | --- |
|  | |
| Usercase Name | Show Available Rooms |
| Actors | User |
| Main success  scenario | 1. User/Shelter navigates to the "Show Available Rooms" section.  2. System displays a list of available rooms with details (e.g., room number, capacity, location). |
| Pre-Condition | * User/Shelter is logged in to the system. * The system has available rooms to display when goes to show rooms. |
| Post Condition | * User/Shelter views the list of available rooms. |

Use case 7.

|  |  |
| --- | --- |
|  | |
| Usercase Name | Reserve Rooms |
| Actors | User/Admin |
| Main success  scenario | 1. Student navigates to the "Reserve Rooms” section.  2. Student selects a room based on their preferences and availability.  3. Student submits a reservation request for the selected room and time.  4. System acknowledges the reservation request. |
| Exceptions | 3a. Student tries to reserve an unavailable room or time slot. |
| Actions | 3a.1. System notifies the student that the selected room or time slot is not available and prompts them to choose another option. 3a.2. Student selects an alternative room or time slot and resubmits the reservation request. |
| Pre-Condition | * Student is logged in to the system. * The system has available rooms to reserve. |
| Post Condition | * Student successfully reserves a room for a specific time. |

Use case 8.

|  |  |
| --- | --- |
|  | |
| Usercase Name | Accept Assistance |
| Actors | User/Admin |
| Main success  scenario | 1. TA navigates to the "Assistance Requests" section.  2. TA views a list of assistance requests from students.  3. TA selects an assistance request to review and potentially accept. 4. TA accepts the assistance request. |
| Exceptions | 4a. TA tries to accept a request that has already been accepted by another TA. |
| Actions | 4a.1. System notifies the TA that the request has already been accepted by another TA and prompts them to choose another request. |
| Pre-Condition | * TA is logged in to the system. * There are pending assistance requests from students. |
| Post Condition | * TA successfully accepts an assistance request. |

Use case 9.

|  |  |
| --- | --- |
|  | |
| Usercase Name | Cancel Room Reservation |
| Actors | User/Admin |
| Main success  scenario | 1. Student navigates to the "My Reservations" section. 2. Student views a list of their reserved rooms and upcoming reservations.  3. Student selects a reservation to cancel.  4. Student confirms the cancellation.  5. System cancels the room reservation. |
| Exceptions | 4a. Student decides not to cancel the reservation. |
| Actions | 4a.1. System does not proceed with the cancellation and returns to the reservation details. |
| Pre-Condition | * Student is logged in to the system. * The student has existing room reservations in the system. |
| Post Condition | * Student successfully cancels a room reservation. |

**6.2 Sequence diagram**

A diagram of a project

Description automatically generated

**6.3 class diagram**

A diagram of a computer network

Description automatically generated with medium confidence

**6.4 Scram meeting**

<https://nileuniversity-my.sharepoint.com/:v:/g/personal/d_mohamed2139_nu_edu_eg/EeZrkv2E3uBLi1nfEQyoz3kByulyR5F_dD0aRgTdG09Fig?referrer=Teams.TEAMS-ELECTRON&referrerScenario=MeetingChicletGetLink.view.view>