NuView

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BUSINESS ANALYSIS & INFORMATION ENGINEERING

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1. BUSINESS CASE

1.1. EXECUTIVE SUMMARY

Northeastern University is a leading private university which aims at improving its facilities from time to time on a large scale. This business case proposes a project to develop a mobile-application called 'NuView' for the campus recreational facilities of Northeastern University, Boston.

1.1.1 Issue

Students and faculty at Northeastern University are currently wasting time in going to the gym only to realize the equipment they need is unavailable. Additionally, there is no proper system to reserve courts or a spot in fitness classes without calling in each time at the facility centre. Lastly, each facility has its own individual website and there is no single place with all the information for all facilities.

1.1.2 Anticipated Outcomes

Introducing a mobile application like this will result in greater efficiency of day-to-day activities for the recreation offices, reduce manual printing of schedules on a daily basis and will result in a better management system enabling Facility Assistants to focus on helping the users within the building. The users of the facilities will have greater convenience and flexibility in accessing the centres. Supervisors will be focused on administrative activities instead of utilizing significant time on schedule management tasks. Lastly, maintenance staff will be equipped to schedule cleaning and repairs of equipment at the most convenient times.

1.1.3 Recommendation

The development of the NuView mobile application will serve the faculty, students, and maintenance staff at Northeastern University. Specifically, it will achieve transparency in the reservation system through projection of occupancy levels. Automation of various tasks that involve human-intervention for reserving courts and class spots. This will simplify and streamline workloads and bring flexibility and convenience to gym users. The development team will leverage the existing in-house application used by recreation staff and connect it to the new platform.

1.1.4 Justification

The alternatives for this project would be to stick to the current system or switch over to a computer-based system. However, NuView is the best course of action since a mobile application encompassing information for all facilities will have the greatest user bases and the greatest ease of access.

1.2 BUSINESS CASE ANALYSIS TEAM

The following individuals comprise the business case analysis team. They are responsible for the analysis and creation of the NuView application.

Role	Description	Name/Title
Executive Sponsor	Provides executive support for the project	Omar Rouhana, Associate Director Campus Rec - Business and Tech
Technology Support	Provides all technology support for the project	Gayathri Maganti, Technical Lead
Process Improvement	Advises team on process improvement techniques	Madison Goldstein and Heather Sin, Industrial Engineers
Project Manager	Manages the business case and project team	Madhu Prakash, Project Manager
Facility Representative	Provides recreational facility perspective for the project team	Meghna Tulasi, Rec Staff
Interface Support	Provides user interface support for the project	Ghazal Shambayati, UX

1.3 PROBLEM DEFINITION

1.3.1 Problem Statement

Users of campus recreational facilities at Northeastern University are experiencing disruptions to their busy schedules due to occupancy levels at the facilities. They often waste their time going to one of the gyms to find that the equipment they were planning to use is occupied. If the users would like to reserve a court for a group activity, they need to call the facility centre in advance and cannot easily make a reservation online. Each facility also has their own website and there may be some confusion on identifying the information listed with the exact facility the user wants to visit. These problems also place a burden on recreational staff at the facilities who must handle reservations manually. Maintenance staff has difficulty determining the best times to service or clean equipment.

1.3.2 Organizational Impact

The proposed project will have a significant impact on the organization and stakeholders.

Processes: The traditional process of maintaining each facility with a separate website will be eliminated while introducing this application and reduce a large amount of confusion caused by individual maintenance. A single platform that helps three different sections of users will prove to be easy to use, convenient, efficient and hassle-free.

Tools: A single-platform through a mobile application proves to be an efficient tool with integrated functionalities to handle various sections of users of recreational facilities in the university.

Hardware/Software: The users of this application would require a smartphone to easily download the application free of cost and require to be registered with the university. In addition to this, NU would have to purchase software license, additional servers to accommodate the platform and its growth in the next few years.

Roles & Responsibilities: The mobile application will be managed by students/employees of Northeastern University with rightful duties assigned to them. Students prove to play a very important role in proposing the design of the application.

1.3.3 Technology Migration

NuView will be the first of its kind to be implemented for the recreational facilities so there is no legacy technology to be migrated. However, there is an existing application used by the recreational staff currently that will be connected to the new system. The application needs to be reliable, user-friendly, and secure. It will need to handle the given number of users at a certain period, be able to automate processes and tasks that previously involved human-interaction, and be available for all mobile devices. Some of the obstacles include being able to collect adequate amount of information and data to support the application and gathering support from the university as the application will significantly alter the behaviour of the users, recreational staff, and operations of the facilities.

Phase I: Soliciting the clients. Mobile Application design and outsourcing.

Phase II: Hardware/Software will be purchased and infrastructure is setup. The systems will be created in the mobile-- based environment.

Phase III: Application Administration, Testing and deployment is carried out.

Phase IV: The details of university staff and students are integrated with the new mobile application with the help of the IT team of Northeastern University.

Phase V: The mobile--based platform will go live and all students and staff will receive access on the new mobile--based platform.

1.4 PROJECT OVERVIEW

Campus Recreation at Northeastern University aims to provide students and staff with facilities such as workout areas, courts, and fitness classes. In order to ensure maximum utilization of the recreation centres and convenience for the users, this project aims to provide a mobile application for the facility users. The NuView mobile application project overview provides detail for how this project will address Northeastern University's current problem.

1.4.1 Project Description

The current system for recreational facilities at Northeastern for reservations of courts is manual and only achieved by calling each facility centre. There is also no platform to access the occupancy levels in the workout areas. This project aims to combine and automate the present system to register and book group fitness classes. The project will be developed using Agile/iterative methodology to understand and accommodate all requirements. Once a basic prototype is implemented and operational, the project may be extended to facilitate the same type of services for dining halls. The prototype will consist of modules for court reservation, occupancy levels in workout areas, guest registration, and group fitness class bookings through a verification process for Northeastern students and staff.

This project will result in greater efficiency of day to day activities for the recreation offices, reduce manual printing of schedules daily, and will result in a better management system enabling Facility Assistants to focus on helping the users within the building. The users of the facilities will have greater convenience and flexibility in accessing the centres. Supervisors will be focused on administrative activities instead of utilizing significant time on schedule management tasks. Lastly, maintenance staff will be equipped to schedule cleaning and repairs of equipment at the most convenient times.

1.4.2 Goals and Objectives

The goal of the project is to achieve high-level operational efficiency within Campus Recreation by providing a mobile-based application with real-time availability of fitness services at various locations of the university.

Project Objectives include:

1. Achieve transparency in reservation system through projection of occupancy levels.
2. Automating various tasks that involve human-intervention for reserving courts/ gym-equipment.
3. Bring flexibility and convenience in using gym workout equipment and courts.
4. Leverage the existing in-house application used by recreation staff and connect it to this platform.

   The mobile application will have the following features:
   - Guest registration for gym
   - Occupancy levels in facilities and for specific workout equipment
   - Court bookings and reservations
   - Fitness class bookings (combine with existing fitness class schedule programming reservations capabilities)

1.4.3 Project Performance

The following table lists the key resources, processes, or services and their anticipated business outcomes in measuring the performance of the project. These performance measures will be quantified and further defined in the detailed project plan.

Key Resource/Process/ Service	Performance Measure
Scheduling	The application will reduce schedule overlapping, discrepancies and dissatisfaction. Reduction of paper wastage
Staff Resource	Better usage of staff/employee and gradual reduction in positions and workforce
Customer Management	Occupancy level feature will help to reduce congestion in specific areas
Inventory Management	Occupancy levels will help manage the equipment and spaces in the workout area, enabling access for each user
Easy access	The web-based mobile platform will increase transparency and reduce customer-dissatisfaction

1.4.4 Project Assumptions

The following assumptions apply to the NuView project. As project planning begins and more assumptions are identified, they will be added accordingly.

- All recreational staff will be trained to input occupancy levels into the application
- Students will be made aware of the new application and its features
- No court can be booked for more than an hour, but an extension facility exists if no party is scheduled after
- Funding is available for hardware/software for the application system
- Project has executive-level support and backlog

1.4.5 Project Constraints

The following constraints apply to the NuView application project. As project planning begins and more constraints are identified, they will be added accordingly.

- The project will not be developed internally as no IT resources are available, so it will be outsourced.
- Data updates for occupancy levels is manual and the supervisor needs to update in regular intervals; updates are necessary even if shifts change.
- There are limited numbers of squash equipment to rent out in comparison to the number of courts.

1.4.6 Major Project Milestones

The following are the major project milestones identified at this time. As the project planning moves forward and the schedule is developed, the milestones and their target completion dates will be modified, adjusted, and finalized as necessary to establish the baseline schedule.

Milestones/Deliverables	Target Date
Project Proposal and Business Case	02/14/2018
Project Plan Review and Completion	03/01/2018
Project Kick-off	03/10/2018
Phase I Complete	04/20/2018
Phase II Complete	05/25/2018
Phase III Complete	07/01/2018
Phase IV Complete	07/31/2018
Phase V Complete	08/10/2018
Closeout/Project Completion	08/15/2018

1.5 STRATEGIC ALIGNMENT

The NuView application project supports and aligns with Northeastern University's campus recreation strategy. The application will increase satisfaction for students and faculty while increasing the operational efficiency of staff.

Plan	Goals/Objective	Relationship to Project
Student and Faculty Satisfaction	Ensure students and faculty at Northeastern have effective options for accessing campus offers.	This project will increase Northeastern users' satisfaction for accessing campus rec offers.
Staff Operational Efficiency	Increase efficiency and reduce manual tasks for Northeastern staff members.	This project will eliminate or simplify some of the manual tasks

		currently done by recreational and maintenance staff.

1.6 COST BENEFIT ANALYSIS

The following table captures the cost and savings actions associated with developing the NuView application, descriptions of these actions, and the costs or savings associated with them through the first year. At the bottom of the chart is the net costs for the first year of the project.

Action	Action Type	Description	First year costs (- indicates anticipated savings)
Purchase Mobile-based product /Software	Cost	Initial investment for Mobile-based application Project	$30,000.00
Purchase Server Infrastructure	Cost	Investment on servers ($500 per 5 devices) $2500	$2500.00
Setting up Deployment, Integration, License fee.	Cost	Cost for Setting-up & Deployment ($1000) + Cost for Integration & License Fee	$15000.00
Software Installation and Training	Cost	Cost for IT group to install new software and for the training group to train all employees	$100,000.00
Hiring 2 new Software Engineers for maintenance of mobile-application	Cost	Support & Maintenance by 2 ($60,000 per year)	$120,000.00
Reduce Co-ordinators and Staff-Assistants by 6 employees	Savings	An immediate reduction in overhead equal to the annual salary of 2 Co-ordinators (roughly $75,000 per year and 2 Staff-Assistants (roughly $60,000 per year).	-$270,000.00
Part-Time employees like building supervisors and student	Savings	10-15 part-time supervisors and students currently work for an average of 20 hours per week. It	-$208,000.00

are no longer required to work		is anticipated that this number will be reduced to no more than 3-4 people. At an average of $22.00 per hour for supervisors and $12 for students, this results in ($22.00 x 20 hours/week x 5 supervisors + $12 x 20 hours/week x 7 students) $4000.00 increased revenue per week.	
Net First Year Savings			**$210,500.00**

1.7 ALTERNATIVES ANALYSIS

The following alternative options have been considered to address the campus recreational problem. These alternatives were not selected for many reasons which are also explained below.

No Project (Status Quo)	**Reasons for Not Selecting Alternative**
Stick with current system	All information is housed in separate sites. Manual processes and tasks are involved.
Alternative Option	**Reasons for Not Selecting Alternative**
Switch to a web-based system	Limits user access and convenience

2. REQUIREMENTS DOCUMENTS

2.1. INTRODUCTION

This document outlines all the business, user and functional requirements for the proposed project.

2.2. BUSINESS REQUIREMENTS

Business-level requirements are written from the sponsor's perspective. The business requirements identify the reason why the project is being done or what business objective it supports, as well as the benefits to the business. Business requirements are typically documented early in the project life cycle

or the planning phase of the project, and are frequently documented in the project management deliverables.

ID	Business Requirement Statement
B1	The NU View application should allow Campus Recreation Facility User to view occupancy levels
B2	The NU View application should allow Campus Recreation Facility User to reserve court
B3	The NU View application should allow Campus Recreation Facility User to register a guest
B4	The NU View application should allow Campus Recreation Facility User to register for a fitness class
B5	The NU View application should allow Building Supervisor to update occupancy levels
B6	The NU View application should allow Building Supervisor to update court availability
B7	The NU View application should allow Building Supervisor to submit equipment breakdown report
B8	The NU View application should allow Maintenance Staff to view notifications for service requests and equipment repair requests
B9	The NU View application should allow Admin to update closures
B10	The NU View application should allow Admin to add new equipment in the facility

2.3. USER AND FUNCTIONAL REQUIREMENTS

User-level requirements are written from the user role's perspective. Named information is shown quoted in these requirement statements. Information used in the user-level requirements is described in the "Common Information" section below. Functional requirements are written from the system's (features or functions) perspective.

ID	User and Functional Requirement Statements
B1	The NU View application should allow Campus Recreation Facility User to view occupancy level
User Role	Campus Recreation Facility User
Goal U1	To view Building and equipment occupancy levels
U1.1	User selects view occupancy and chooses building and equipment from given options and then hits enter
U1.1F1	The application displays building names on selection of view occupancy and upon selection of specific building, displays list of equipment for user to view for each equipment occupancy
U1.1F2	The application should display total building and specific equipment occupancy level

	on user selection
B2	The NU View application should allow Campus Recreation Facility User to reserve court
User Role	Campus Recreation Facility User
Goal U2	To reserve Court or Studio room
U2.1	User selects book courts or studio room option on the application homepage
U2.1F1	The application navigates to login page to verify the user using the credentials entered
U2.1F2	The application displays list of types of court available in the recreation building and user selects required court
U2.1F3	The application displays the court schedule with available slot times
U2.1F4	Once the user selects the slot, the slot is confirmed using the email address registered on the user profile
U2.1F5	After reserving the court, the system sends a confirmation email to the user with the reservation details
B3	The NU View application should allow Campus Recreation Facility User to register a guest
User Role	Campus Recreation Facility User
Goal U3	Register a guest
U3.1	User logs in and selects the building the guest wants to use
U3.1F1	Application displays the form to enter guest details
U3.1F2	The User fills out basic details and uploads guest photo id and submits the form and the guest is registered
B4	The NU View application should allow Campus Recreation Facility User to register fitness class
User Role	Campus Recreation Facility User
Goal U4	Register for fitness class
U4.1	User logs in and selects a building
U4.1F1	Application displays list of fitness class for user to choose from
U4.1F2	User selects available class and timing and hits register
U4.1F3	Application sends confirmation
B5	The NU View application should allow Building Supervisor to update occupancy levels
User Role	Building Supervisor
Goal U1	To update occupancy level
U1.1	The Building Supervisor logs in and the application verifies the supervisor with the

	credentials
U1.1F1	Application displays list of buildings from which the user selects the building and the application navigates to list of equipment in the building with the count and date/time updated
U1.1F2	The Supervisor enter the count for each equipment and hits enter and the system saves the data and the previous data is updated with the current one
B6	The NU View application should allow Building Supervisor to update court availability
User Role	Building Supervisor
Goal U2	Manage court reservations and availability in Recreation Centres
U2.1F1	The Building Supervisor logs in and the application verifies the supervisor with the credentials
U2.1F2	Supervisor selects specific court from list of courts displayed once the user is verified through the system
U2.1F3	Supervisor uploads the schedule for the week and available slots and hits submit button
U2.1F4	System is updated with the court availability
B7	The NU View application should allow Building Supervisor to submit equipment breakdown report
User Role	Building Supervisor
Goal U3	Submit Work order for equipment breakdown in Recreation Centres
U3.1F1	The Building Supervisor logs in and the application verifies the supervisor with the credentials
U3.1F2	The Supervisor selects work order and fills up details for the broker equipment and hits submit
U3.1F3	The system saves the work order and sends a confirmation email with the track option
U3.1.F4	The system sends a work order notification to the maintenance staff
B8	The NU View application should allow Maintenance Staff to view notifications for service requests and equipment repair requests
User Role	Maintenance Staff
Goal U1	Views maintenance or breakdown requests
U1.F1	The maintenance staff logs in and the application verifies the staff with the credentials
U1.F2	The application displays service request notifications by date, location and damage type
U1.F3	The maintenance staff has a feature to check mark as repair once request is handled
B9	The NU View application should allow Admin to update closures
User Role	Admin

Goal U1	To update facility closure or delays
U1.F1	The admin logs in and the application verifies the staff with the credentials
U1.F2	The application displays calendar for admin to select a date to update closure or delay
U1.F3	Facility closure or delay is updated
B10	The NU View application should allow Admin to add new equipment in the facility
User Role	Admin
Goal U2	To add new equipment in a facility
U2.F1	The admin logs in and the application verifies the staff with the credentials
U2.F2	Selects add equipment and enters equipment details
U2.F3	The application saves the equipment and is added to database

2.4. Non-functional Requirements

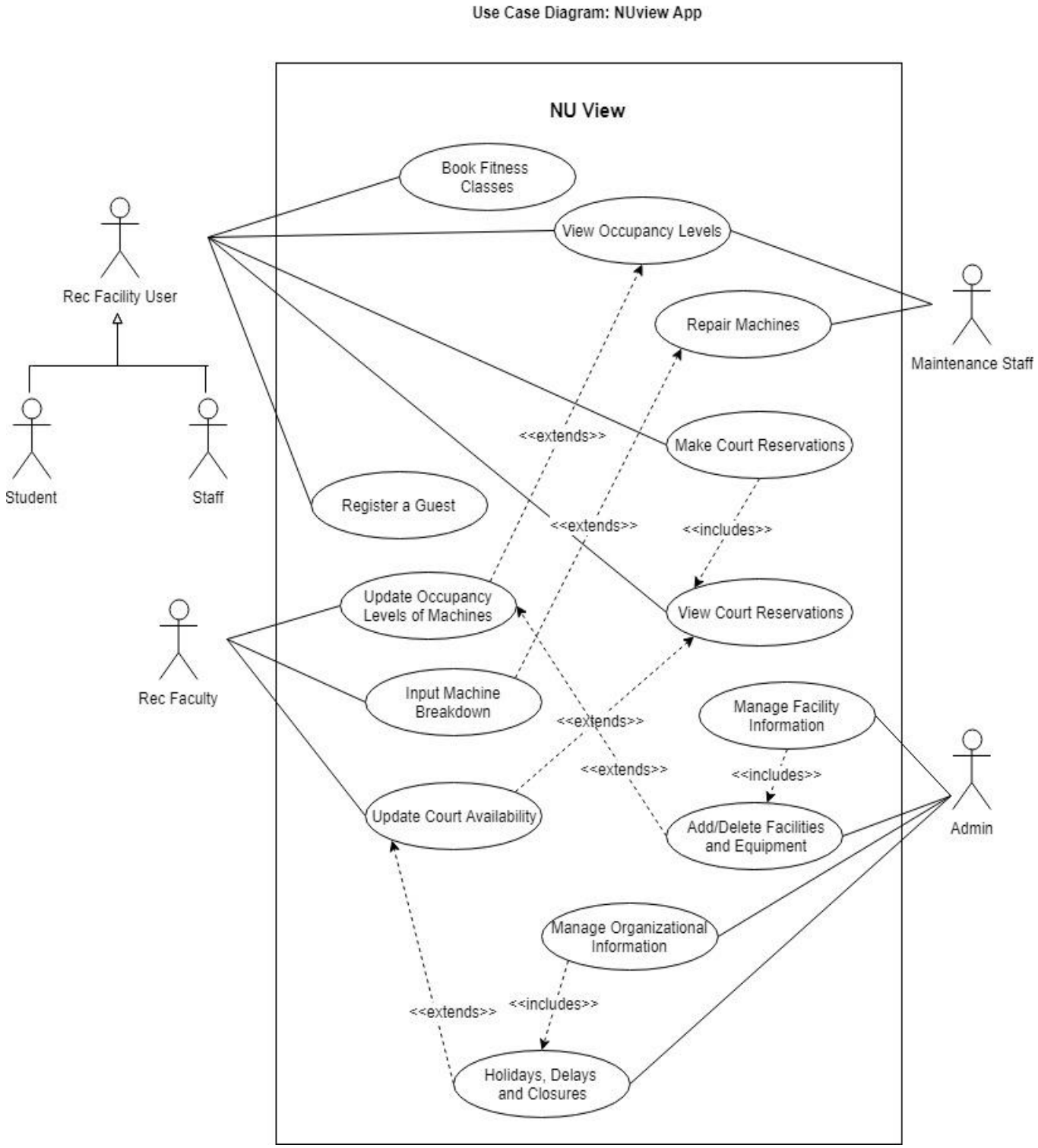
Non-functional requirements focus on the qualities that must be applied to design and implement the system. These are specific standards and attributes in support of the other requirements.

ID	Non-functional Requirement Statements
OPERATION Requirements	
Access Security	
N-ACS1	Each user is required to have a username and password
N-ACS2	Log-in is done through Northeastern's portal
N-ACS3	Every user's role is clearly defined by providing access to their role-specific pages.
Availability	
N-AVL1	The app will be able to handle the inflow of users during normal operating times of 7 am - 6 pm
N-AVL2	Booking of courts by students will be restricted for tournament days/times due reservations by instructors/coaches.
Efficiency	
N-EFC1	The average response time for refreshing pages is 3 seconds
N-EFC2	The system can handle the number of users as many as those present on mynortheastern.edu
Integrity	
N-INT1	The data will have an accuracy of 98% as there may be delays during the time machines "refresh" when the current user is finished
N-INT2	Information related to establishing identity of the person/ guest is protected by state, federal or foreign privacy laws and regulations.

Reliability	
N-REL1	Constant checks will be in place to ensure the system will perform without failure
N-REL2	Every update to the app will undergo a series of tests like unit, integration and system tests with various test cases to ensure proper functioning of the entire application.
Survivability	
N-SRV1	Using checkpointing and rollback recovery techniques to make the system fault-tolerant.
Usability	
N-USE1	The user interface will be intuitive and guide the user
N-USE2	There will be a tutorial on how to use the app the first time the app is downloaded
REVISION Requirements	
Flexibility	
N-FLX1	The app can be used at any location where there is internet connection
N-FLX2	The product is a mobile app and is available on all mobile devices
Maintainability	
N-MNT1	A simple design and structure of the application will help testability and modifiability ensuring maintainability.
Scalability	
N-SCL1	The classes are clearly defined with boundaries and responsibilities to ensure scalability.
Verifiability	
N-VER1	A quick check into the backend database will show that the system is recording all the necessary data points
N-VER2	The users will receive email confirmations once they book a machine or court, and/or register a guest
TRANSITION Requirements	
Interoperability	
N-IOP1	The app will be able to support Northeastern's log-in system
N-IOP2	The app is interoperable with a fitness-class application that can be coupled to provide a better booking experience for users.
Portability	
N-POR1	The app is easily portable as it will be housed in mobile devices
Reusability	
N-REU1	The app can be customized for other capabilities such as study room bookings.
N-REU2	The application can also be used to provide services in NU Dining Services with very few changes to the existing structure.

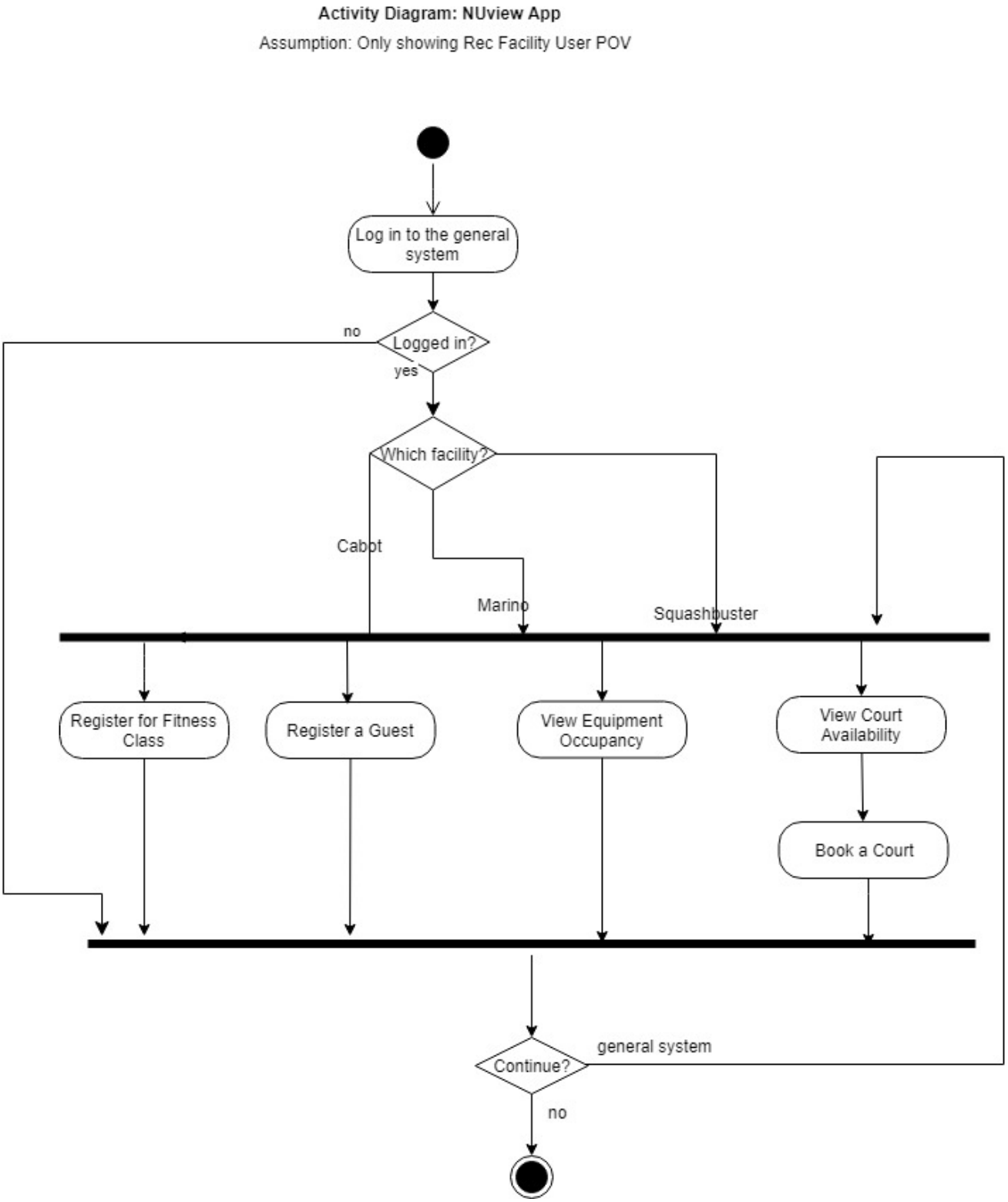
3. Diagrams & Process Flows

3.1. Use Case Diagram

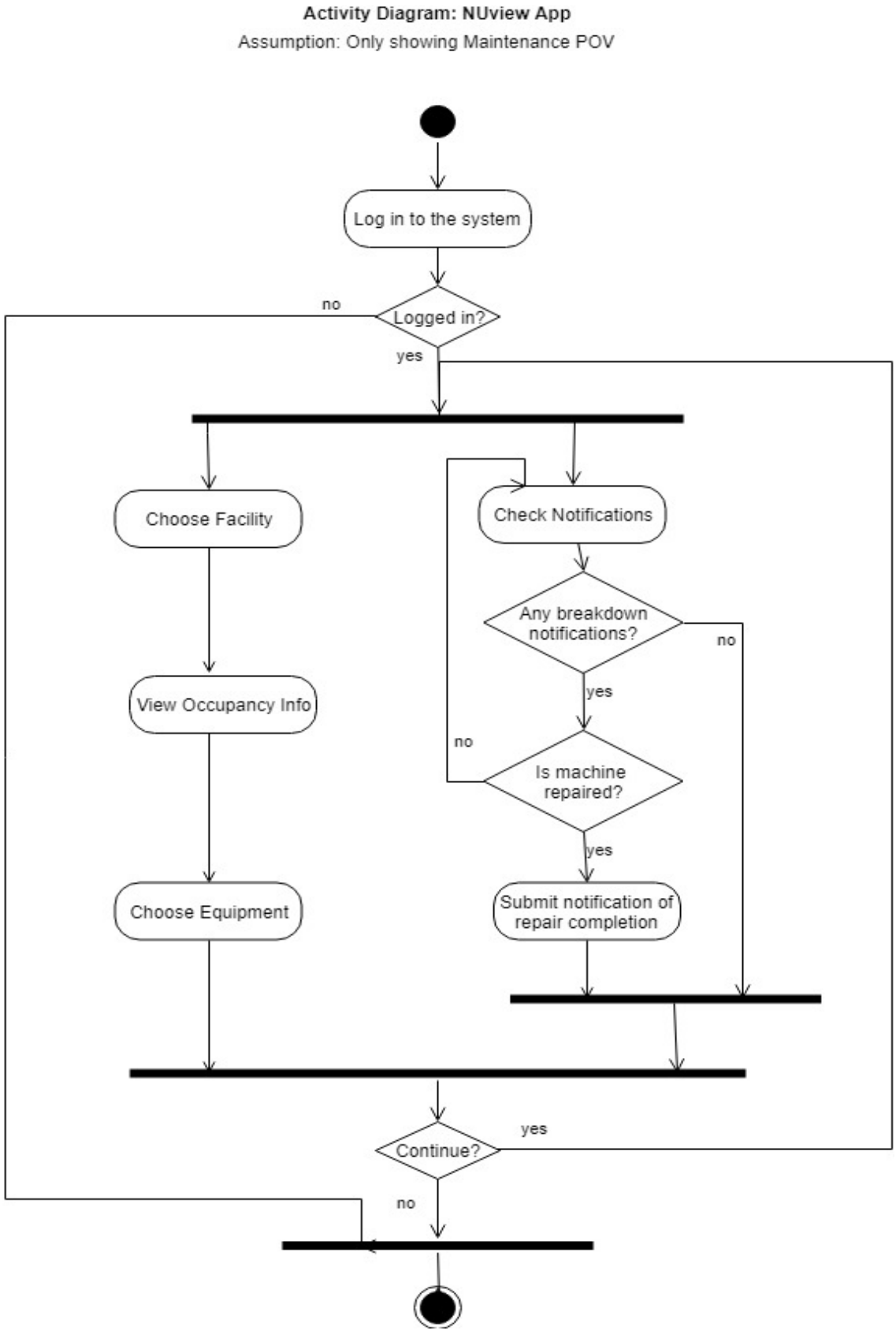


3.2. Activity Diagrams

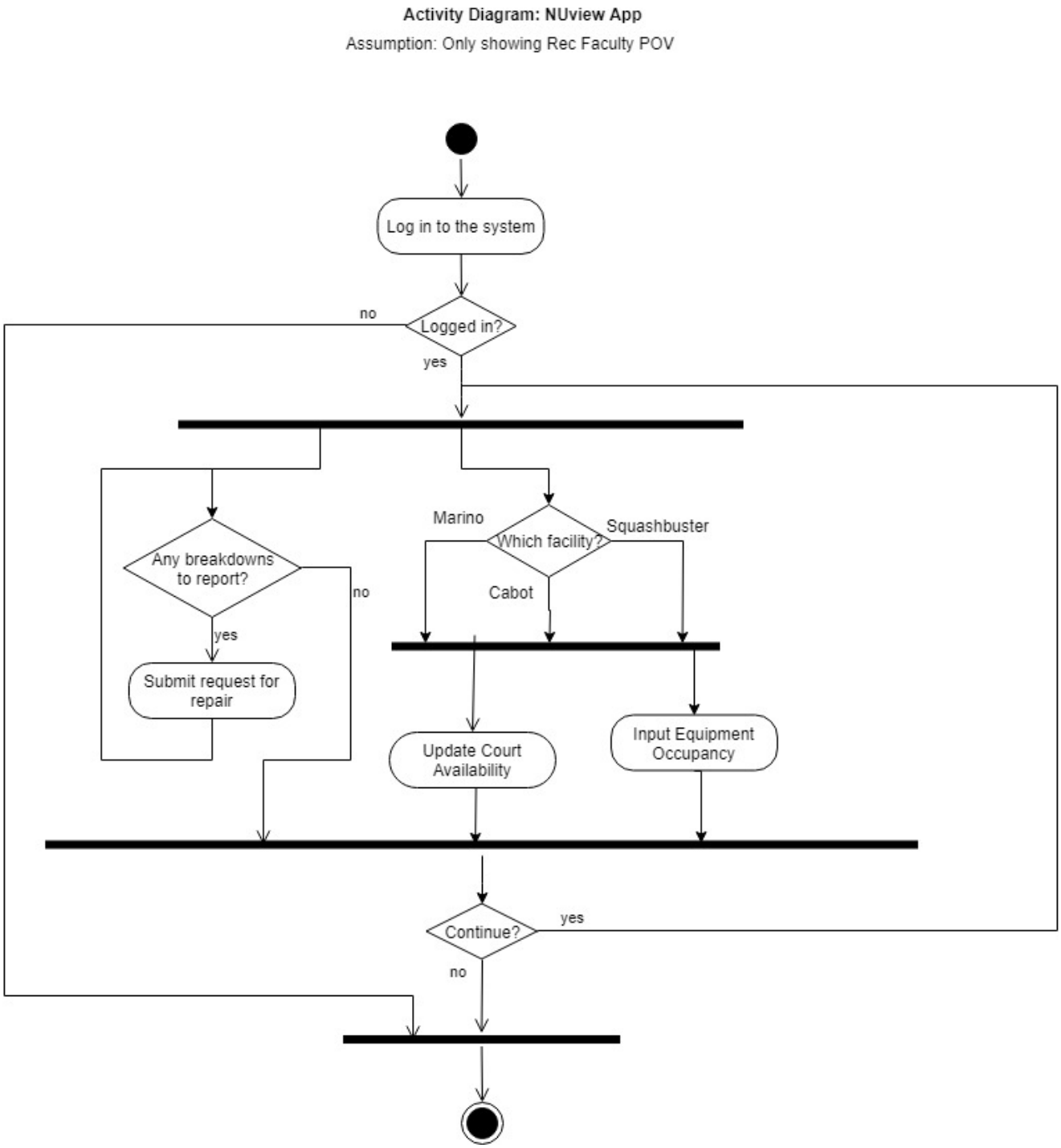
3.2.1. POV: Recreational Facility User



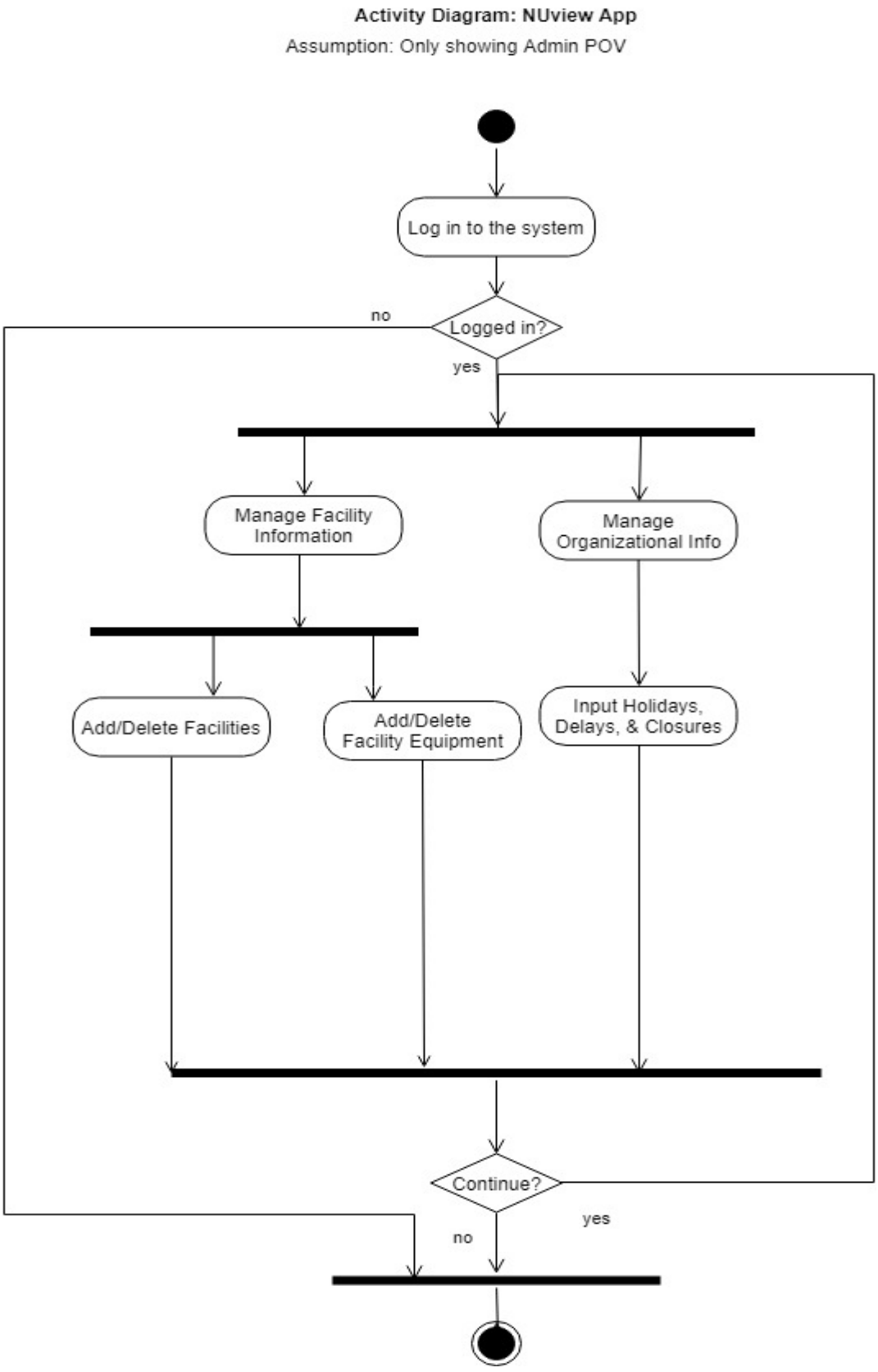
3.2.2. POV: Maintenance Staff



3.2.3. POV: Recreational Faculty

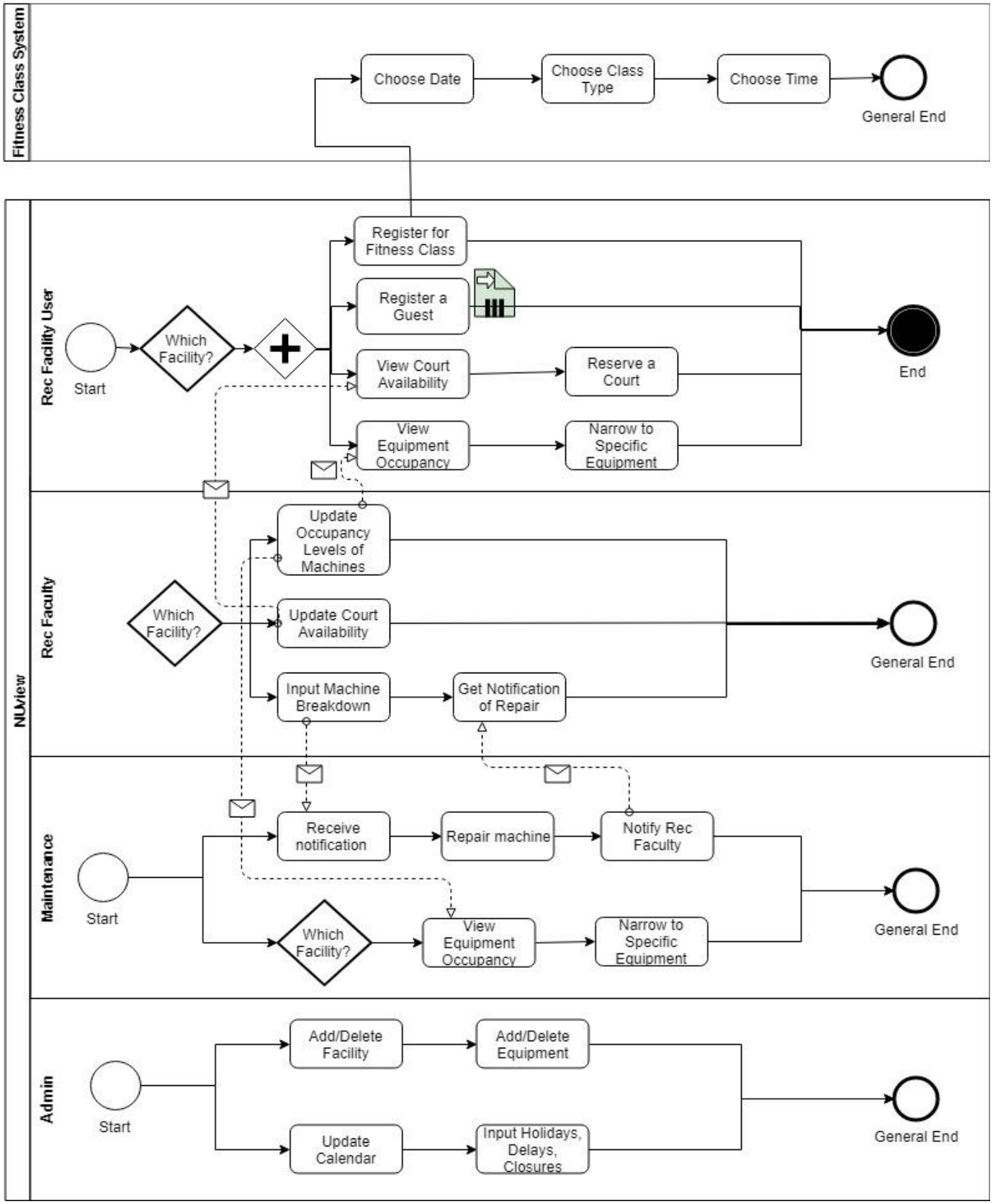


3.2.4. POV: Admin

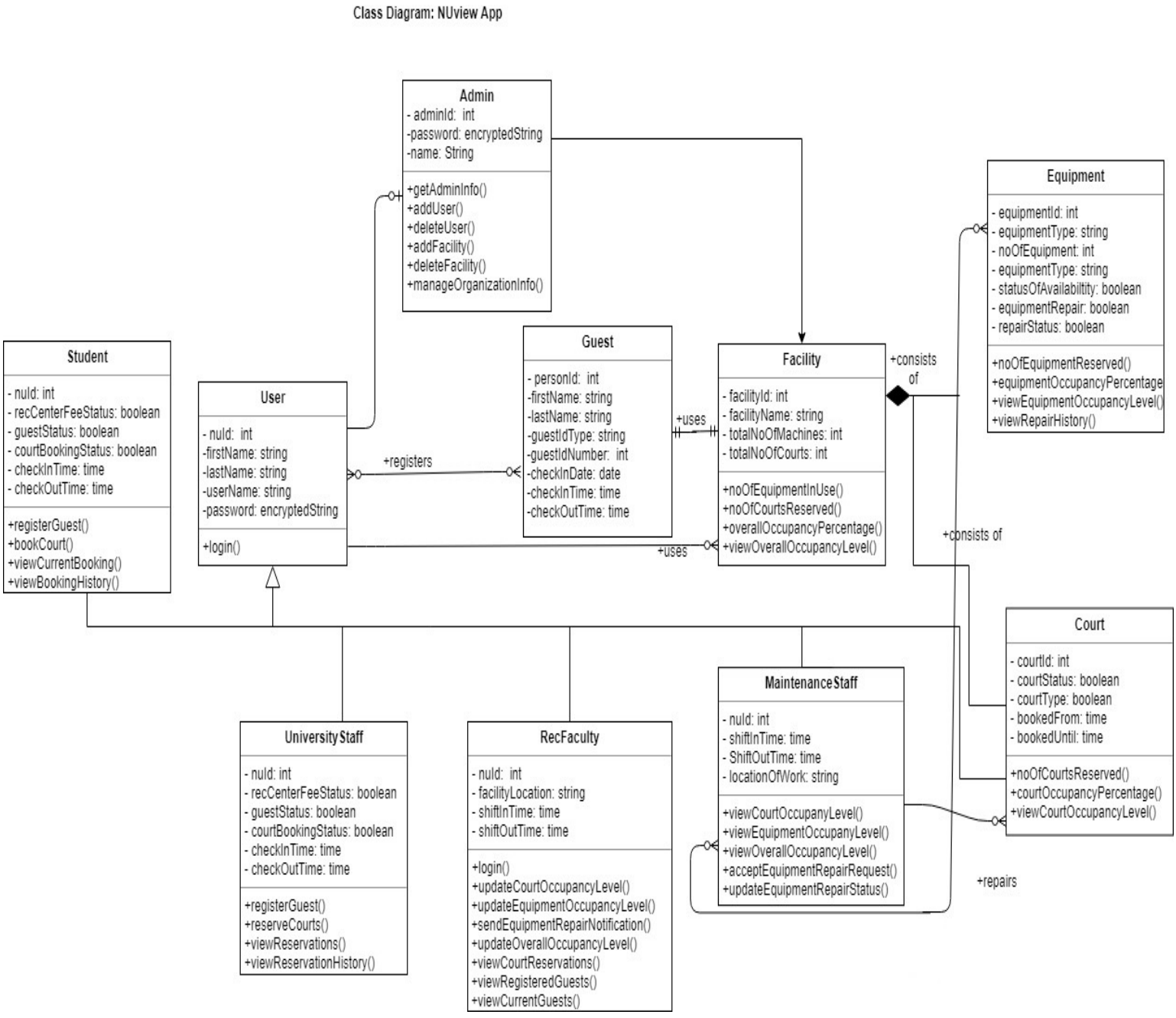


3.3. Business Process Model Notation (BPMN) Diagram

BPNM Diagram: NUview App

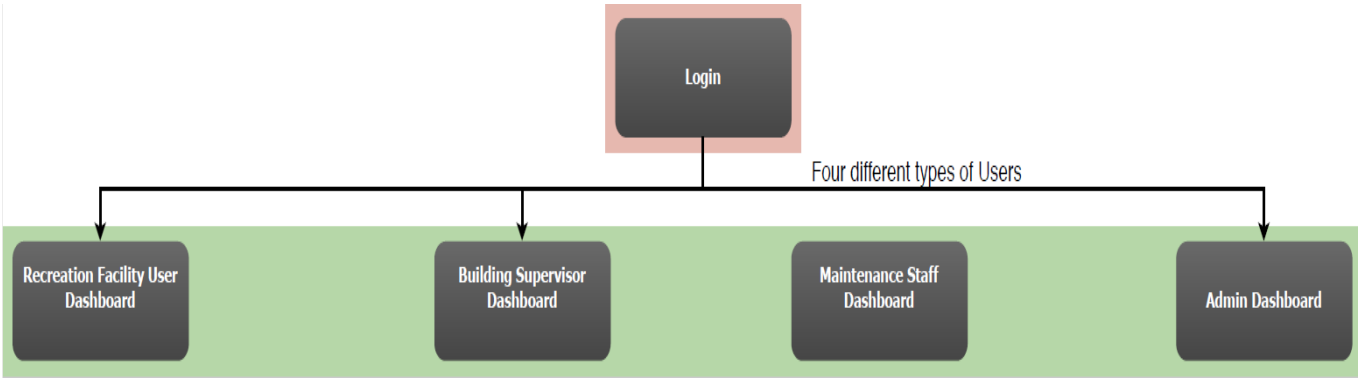


3.4. Class Diagram

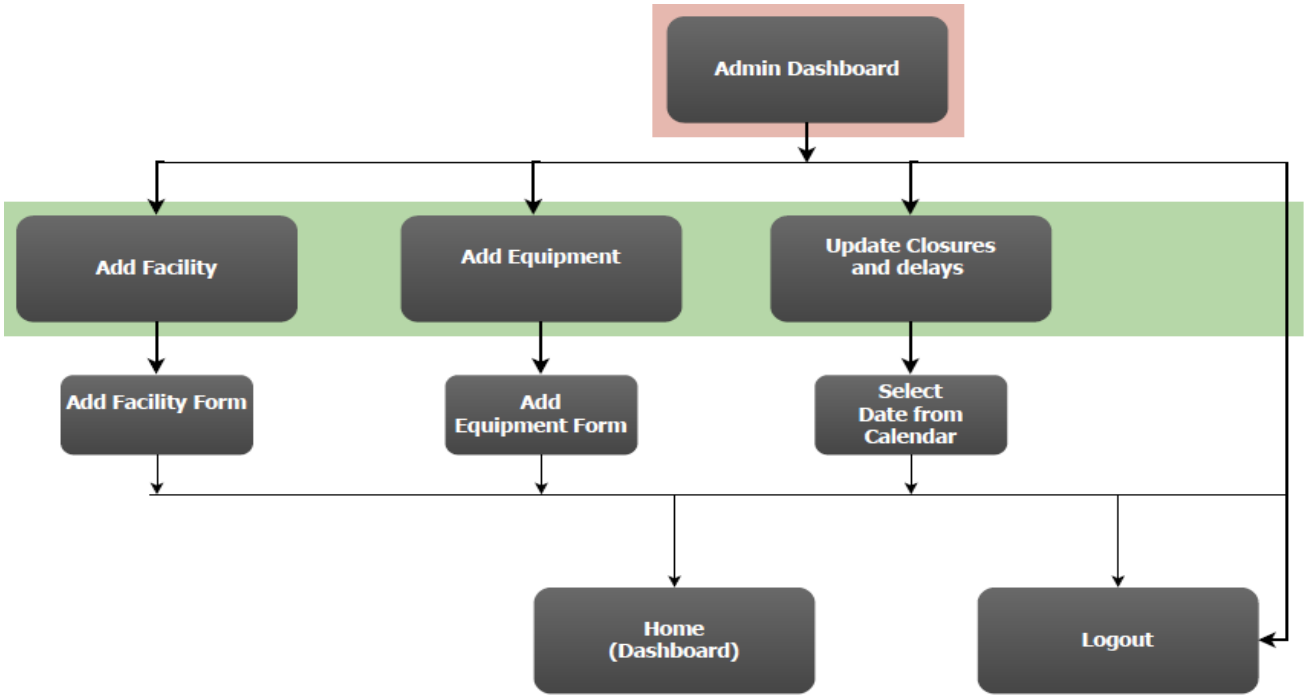


3.5. Windows Navigation Diagrams (WND)

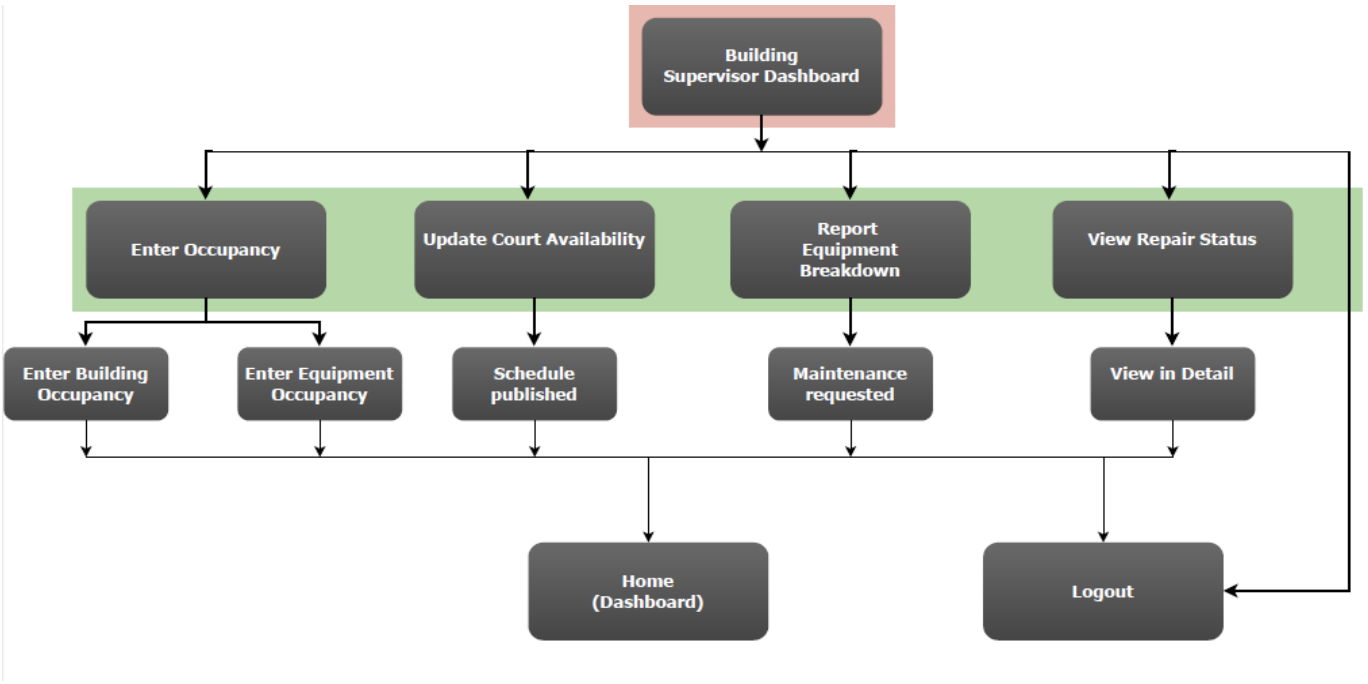
3.5.1. User



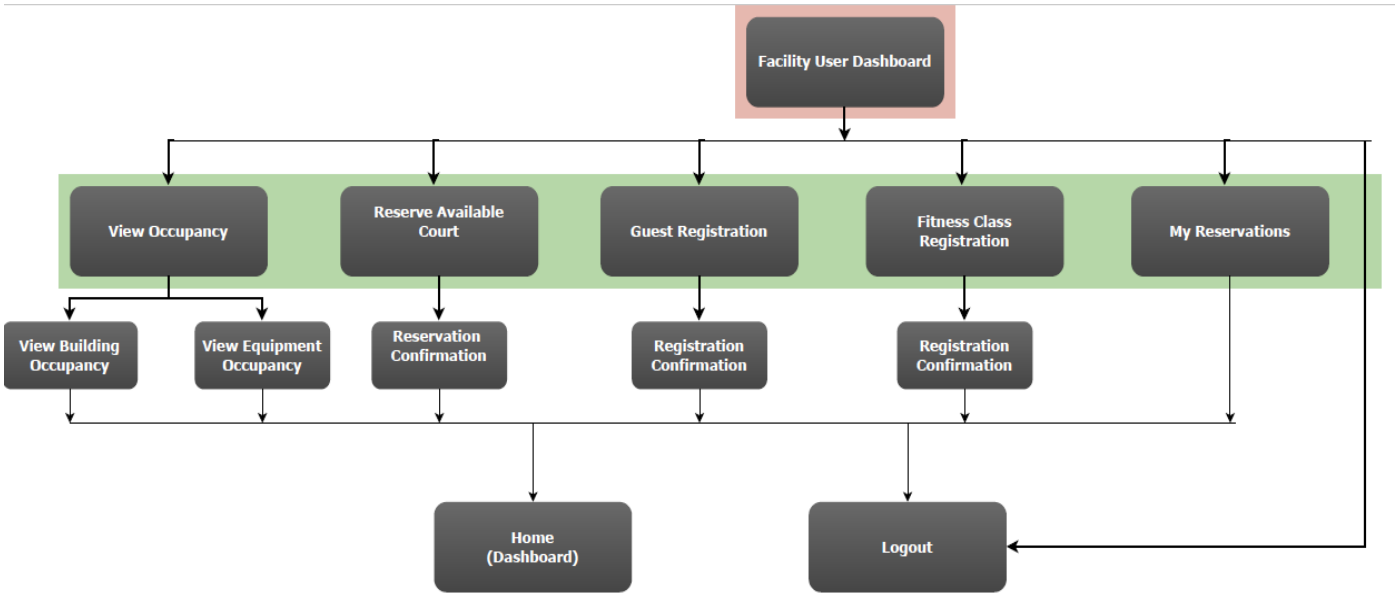
3.5.2. Admin



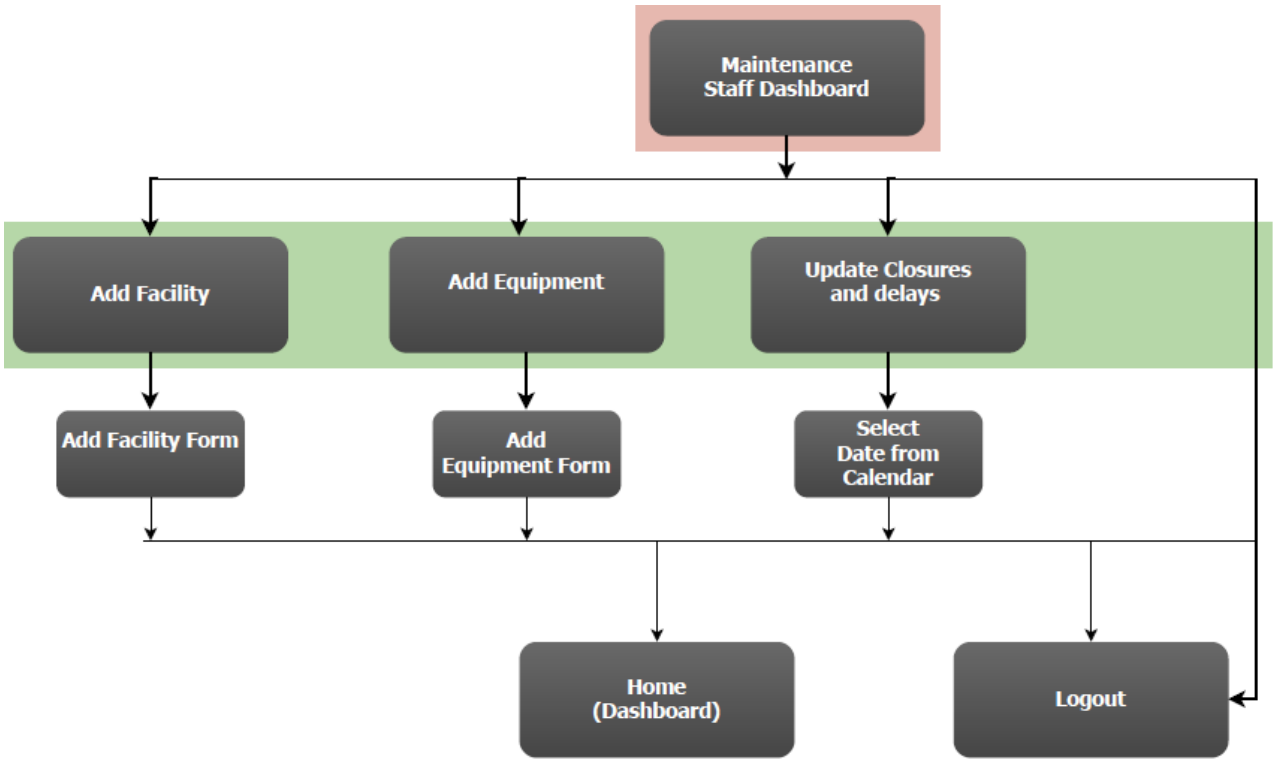
3.5.3. Building Supervisor



3.5.4. Facility User



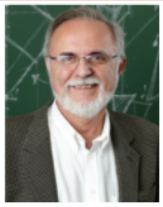
3.5.5. Maintenance Staff



3.6. User Personas

3.6.1. Student

3.6.2. Faculty



Professor Smith

Age: 45
Occupation: Part-time faculty
Location: Somerville, MA
Bio: Works full-time and teaches part-time
Goals:

- Would like to attend the school gym but has no time to wait for equipment to be available

3.6.3. Maintenance Staff

John Doe

Age: 57
Occupation: Maintenance
Location: Boston, MA
Bio: A full-time maintenance employee for recreational facilities at NEU
Goals:

- Efficiently fix machines in a timely manner for use by members

4. Use Cases

ID:	UC-1
Title:	User reserves court or a studio room
Description:	Recreation facility User accesses the system and views the court/studio availability. Then selects a court/studio for reservation
Primary Actor:	Recreation Facility User: Student, Faculty, Staff, Alumni, Retiree
Preconditions:	Recreation Facility User is logged into application and authorized[Paid Campus Recreation fees]
Post conditions:	Recreation Facility User has court/studio room reserved
Trigger:	User needs to use the court/studio room
Main Success Scenario:	1. User logs in and selects recreation building from the menu 2. User selects "Reserve Courts" or “Reserve Studio room” 3. System displays available courts/studio for reservation 4. User selects a court/studio room of choice 5. Selects registered email id from dropdown 6. User clicks "Submit" button 7. System registers User for the selected court and displays/sends a confirmation message
Extensions:	4a. No courts are available for this User. --- 4a1. System displays error message saying no courts are available, and provides the reason & how to rectify if possible. --- 4a2. User either backs out of this use case, or tries again after rectifying the cause. 6a. Some courts could not be reserved. --- 6a1. System displays message showing which courts are reserved, and which courses are not reserved along with a reason. ---6b1. In case of no show in 30 minutes, court/studio reservation will be cancelled.
Frequency of Use:	High

Priority:	High

ID:	UC-2
Title:	Manage court reservations and availability in Recreation Centres
Description:	Building Supervisor accesses the system and uploads court schedule
Primary Actor:	Building Supervisor
Preconditions:	Building Supervisor is logged into application and authorized
Post conditions:	Court availability and schedule is uploaded
Trigger:	Court schedule to necessary for User to book courts
Main Success Scenario:	1. Building Supervisor logs in and selects recreation building from the menu 2. Selects courts 3. Selects upload schedule for court 4. Selects "Submit" button and schedule is published 5. System is updated for court reservations
Extensions:	5a. In case of “no-show” or “no-proper equipment”, --- 5a1. Updates court availability as soon as possible
Frequency of Use:	Every week and when schedule changes
Priority:	High

ID:	UC-3
Title:	User cancels reservation for court or a studio room
Description:	Recreation facility User accesses the system and views the reservation and cancels it.

Primary Actor:	Recreation Facility User: Student, Faculty, Staff, Alumni, Retiree
Preconditions:	Recreation Facility User is logged into application and authorized[Paid Campus Recreation fees] and has reservation under their name
Post conditions:	Recreation Facility User cancels reservation
Trigger:	User needs to cancel court/studio reservation
Main Success Scenario:	1. User logs in and selects “My Reservations” from the menu 2. User selects “Cancel” reservation from options 3. System confirms the action 4. Reservation is cancelled
Extensions:	3a. Retracts back from “Cancel” reservation action --- 3a1. System reserves the reservation as it is
Frequency of Use:	Medium-When user wants to cancel reservation
Priority:	Medium

ID:	UC-4
Title:	Enter occupancy level for equipments in Recreation Centres
Description:	Building Supervisor accesses the system and enters the count
Primary Actor:	Building Supervisor
Preconditions:	Building Supervisor is logged into application and authorized
Post conditions:	Occupancy levels updated for each gym equipment

Trigger:	Occupancy data is needed to display for effective use of the User
Main Success Scenario:	1. Building Supervisor logs in and selects recreation building from the menu 2. Selects level of building 3. Selects equipment and enters the count of number of people using it currently 4. Selects sauna occupancy and enters the counts 5. Selects "Submit" button 6. System is updated with updated occupancy levels
Extensions:	3a. No count entered for sauna when successive supervisor change but remain of same gender --- 3a1. System displays message with last updated time
Frequency of Use:	Every hour
Priority:	High

ID:	UC-5
Title:	View occupancy level for equipments in Recreation Centres
Description:	Recreation facility User accesses the system and views the occupancy levels
Primary Actor:	Recreation Facility User: Student, Faculty, Staff, Alumni, Retiree
Preconditions:	Recreation Facility User is logged into application and authorized[Paid Campus Recreation fees]
Post conditions:	User is informed of Occupancy levels in the building
Trigger:	User wants to access the recreation centre and wants to the occupancy of the recreation centre

Main Success Scenario:	1. User logs in and selects recreation building from the menu 2. Selects level of building 3. To view equipment occupancy details user selects a specific equipment from a drop down list or selects view-all 4. Selects sauna occupancy to view sauna usage
Frequency of Use:	High
Priority:	High

ID:	UC-6
Title:	Submit Work order for equipment breakdown in Recreation Centres
Description:	Building Supervisor accesses the system and submits a work order request to the maintenance in case of equipment breakdown
Primary Actor:	Building Supervisor
Preconditions:	Building Supervisor is logged into application and authorized
Post conditions:	Work order is forwarded to maintenance staff and Building supervisor is kept updated of the process
Trigger:	Equipment stops working
Main Success Scenario:	1. Building Supervisor logs in and selects recreation building from the menu 2. Selects work order 3. Fills up details such as broken equipment placement, name, ID and brief description 4. Selects "Submit" button and work order is forwarded
Extensions:	3a. In case of “severe damage” --- 3a1. Contact maintenance staff directly

Frequency of Use:	High-When equipment is out of order
Priority:	High

ID:	UC-7
Title:	Register a guest for access to Recreation Centre
Description:	Recreation Facility User accesses the system and submits a guest registration form before a day
Primary Actor:	Recreation Facility User: Student, Faculty, Staff, Alumni, Retiree
Preconditions:	Recreation Facility User is logged into application and authorized [Paid Campus Recreation fees]
Post conditions:	Guest is registered and pays guest fees at the building
Trigger:	Guest plans to use the recreation facilities
Main Success Scenario:	1. User logs in and selects recreation building from the menu 2. Selects register guest option 3. Fills guest details and purpose of use 4. Uploads guest ID 5. Submits form 6. Receives Confirmation
Extensions:	3a. ID picture is non-verifiable --- 3a1. Register guest again 3b. Guest eligible for waiver form ---3b1. Check mark waiver box while filling up the form
Frequency of Use:	Low-When Recreation Facility User wants to bring in a guest

Priority:	Low-medium

ID:	UC-8
Title:	View and Register for fitness class
Description:	Recreation Facility User accesses the system and selects fitness class from a list and registers for the class
Primary Actor:	Recreation Facility User: Student, Faculty, Staff, Alumni, Retiree
Preconditions:	Recreation Facility User is logged into application and authorized [Paid Campus Recreation fees and fitness program fees]
Post conditions:	User is registered for the fitness class
Trigger:	User wants to register for fitness class
Main Success Scenario:	1. User logs in and selects fitness class 2. Selects register option 3. Selects available class from drop down list 4. Submits registration 5. Receives Confirmation
Extensions:	4a. Class may be full till the user submits registration --- 4a1. User will be put in waitlist ---4a2. User will be asked to confirm if waitlist is cleared
Frequency of Use:	Medium - When Recreation Facility User wants to attend fitness class
Priority:	Medium

ID:	UC-9
Title:	Cancel registration for fitness class
Description:	Recreation Facility User accesses the system and goes to fitness class and cancels registration for a class
Primary Actor:	Recreation Facility User: Student, Faculty, Staff, Alumni, Retiree
Preconditions:	Recreation Facility User is logged into application and authorized [Paid Campus Recreation fees and fitness program fees]
Post conditions:	User cancels registration
Trigger:	User wants to cancel the registration for fitness class
Main Success Scenario:	1. User logs in and selects fitness class 2. Selects “my registration” option 3. Selects cancel registration 4. System confirms cancellation 5. Receives Confirmation
Extensions:	4a. Retracts back from “Cancel” registration action --- 4a1. System reserves user spot in the class
Frequency of Use:	Medium-When user wants to cancel fitness class registration
Priority:	Medium

ID:	UC-10
Title:	Views occupancy level and completes maintenance request
Description:	Maintenance staff accesses the system and views occupancy levels and if low, comes in from maintenance services
Primary Actor:	Maintenance staff
Preconditions:	Maintenance staff is logged into application and authorized
Post conditions:	Maintenance service – equipment repair is completed
Trigger:	Low occupancy level and maintenance request received
Main Success Scenario:	1. Maintenance staff logs in and selects facility centre 2. Selects pending request from the received notification 3. Views request 4. Logs out
Extensions:	4a. Once the request is completed --- 4a1. Maintenance staff selects mark as repaired ---4a2. Notification is sent to Supervisor stating the maintenance request was handled
Frequency of Use:	Medium- Only when Maintenance service is requested
Priority:	Medium

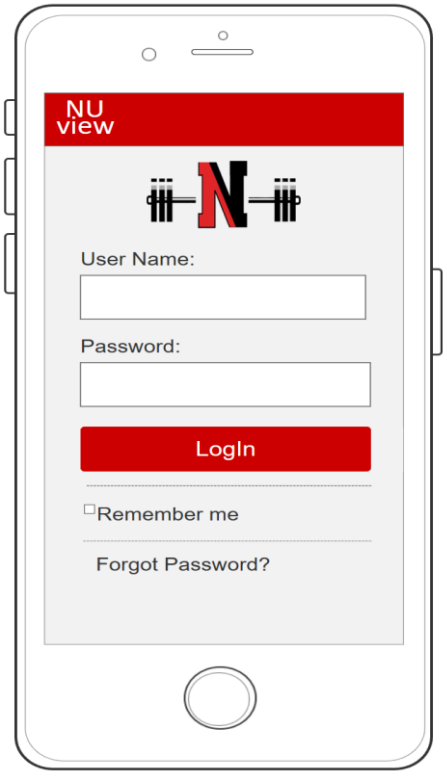
ID:	UC-11
Title:	Facility closures and delays
Description:	Admin accesses the system and updates facility closures and delays
Primary Actor:	Admin
Preconditions:	Admin is logged into application and authorized
Post conditions:	Facility closures and delayed timings are visible to the users
Trigger:	Facilities affected by weather conditions or reserved for events
Main Success Scenario:	1. Admin logs in and selects a facility centre 2. Selects a date to update facility timing or closure 3. Submits changes
Frequency of Use:	Medium- Only when facility centre is not available for use
Priority:	Medium

ID:	UC-12
Title:	New equipment addition
Description:	Admin accesses the system and adds new equipment
Primary Actor:	Admin
Preconditions:	Admin is logged into application and authorized
Post conditions:	New equipment available for staff to update occupancy
Trigger:	New equipment ordered for a facility
Main Success Scenario:	1. Admin logs in and selects facility centre 2. selects floor and equipment type with serial number 3. Hits enter 4. Equipment is added to the facility centre database
Frequency of use:	Medium-When an equipment is to be added to the facility
Priority:	Medium

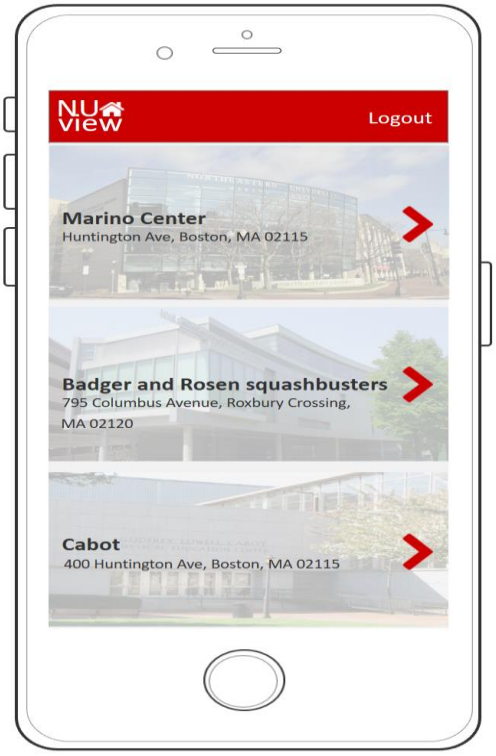
5. USER INTERFACE DISPLAYS

5.1. Loading Page

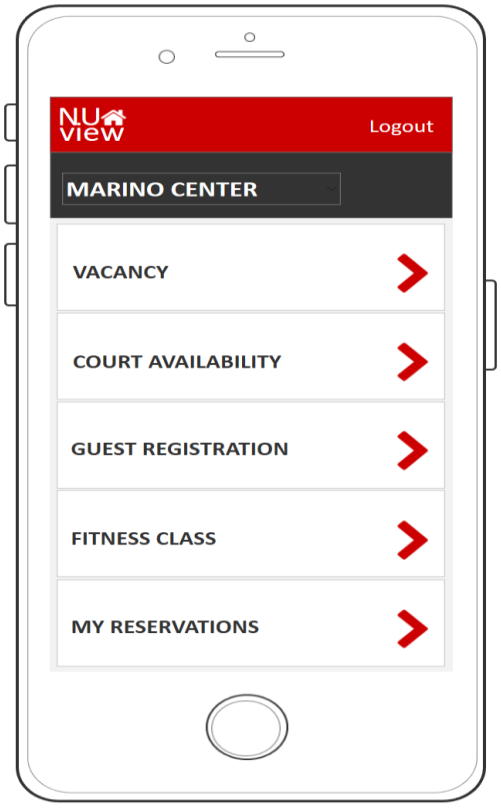
5.2. Log-in Page



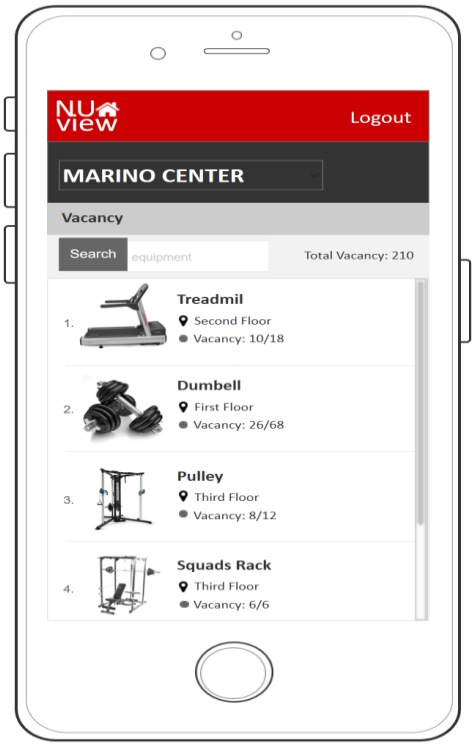
5.3. User- Landing Screen



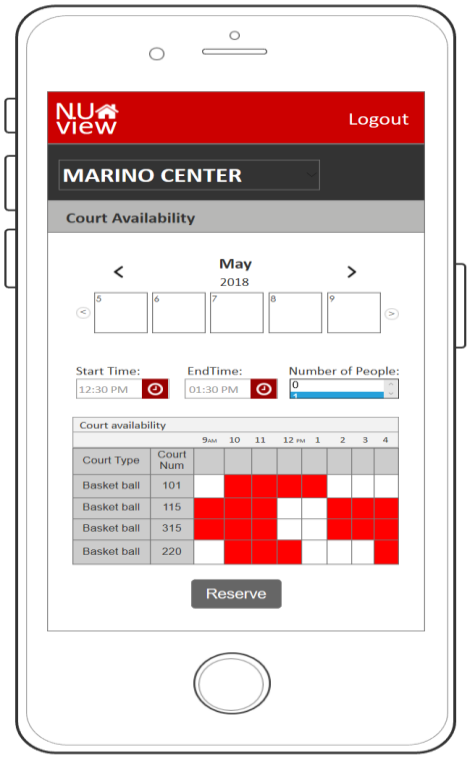
5.4. User- Home Screen



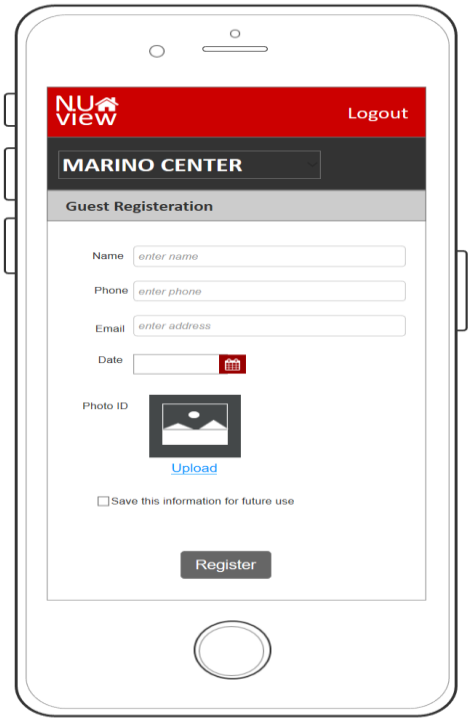
5.5. User- Vacancy Screen



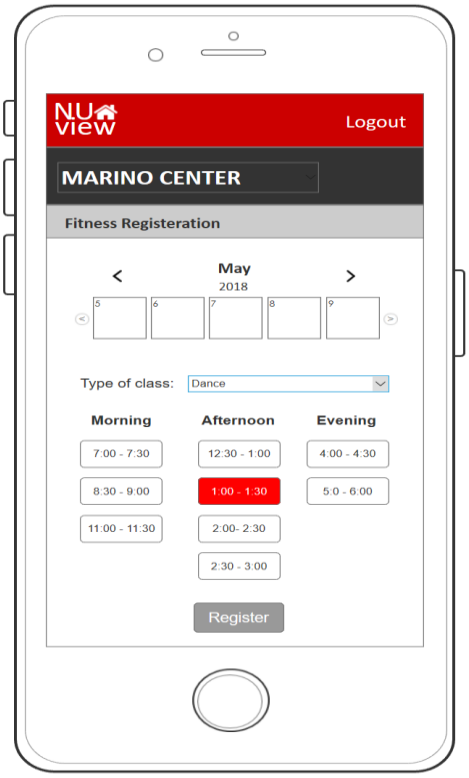
5.6. User- Court Availability Screen



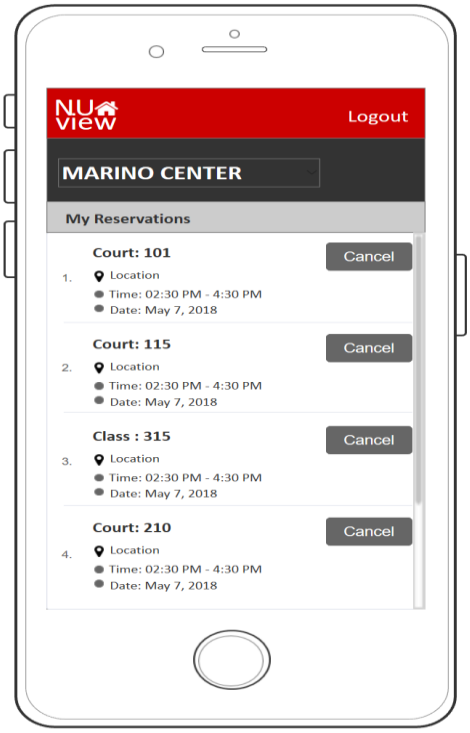
5.7. User- Guest Registration



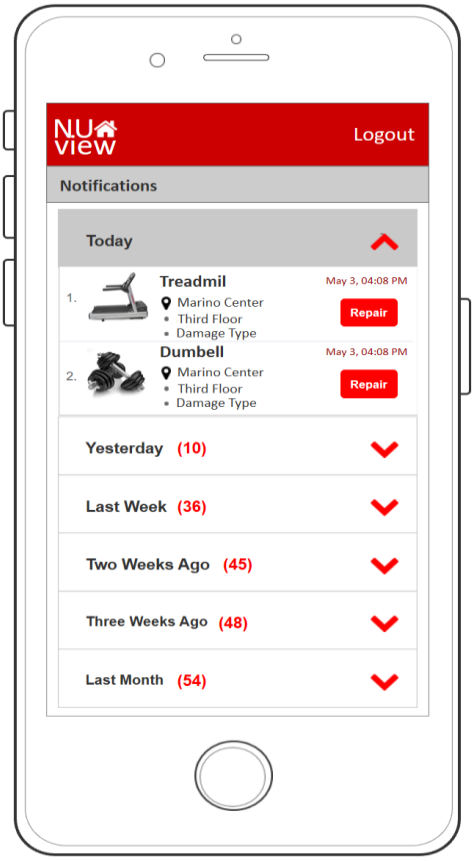
5.8. User- Fitness Class Screen



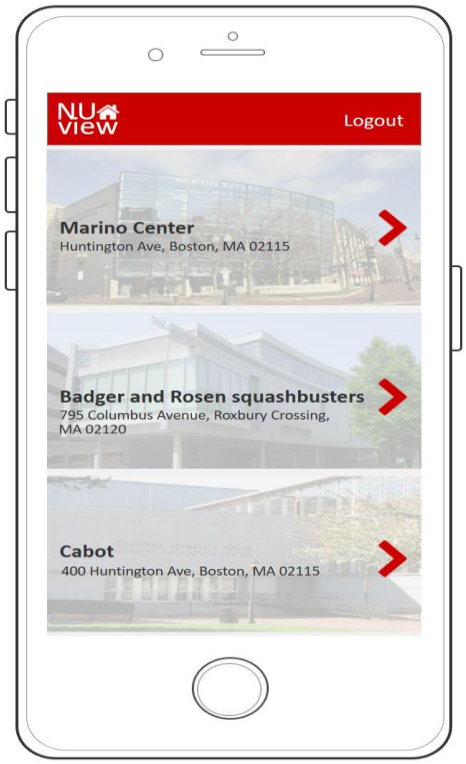
5.9. User- My Reservation Screen



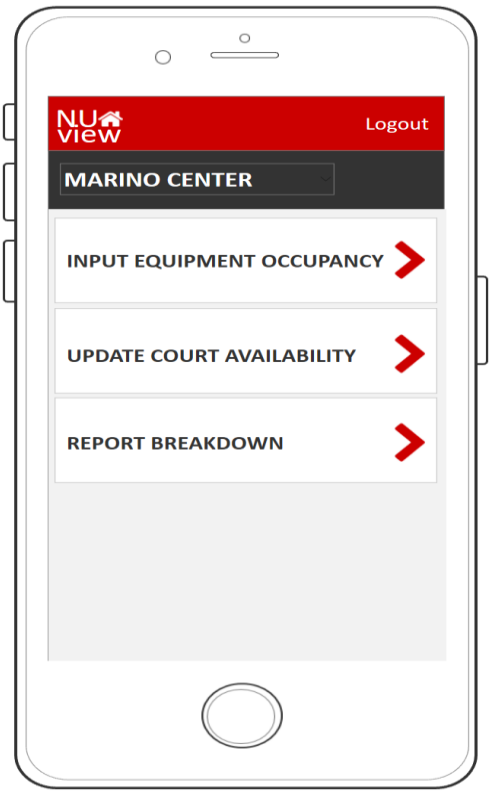
5.10. Maintenance Staff- Notifications Screen



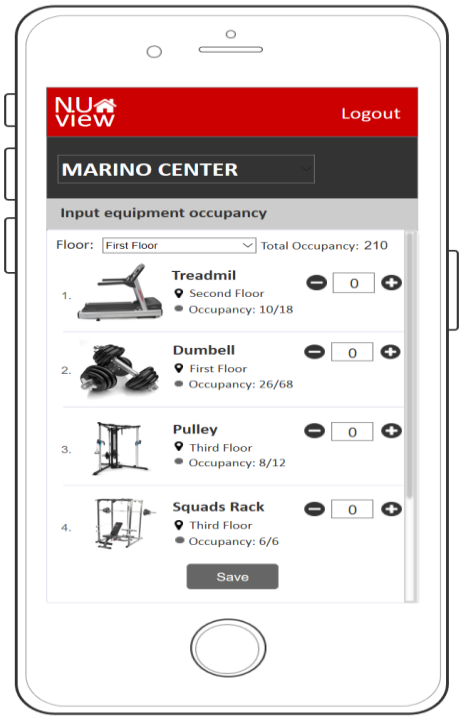
5.11. Staff- Landing Screen



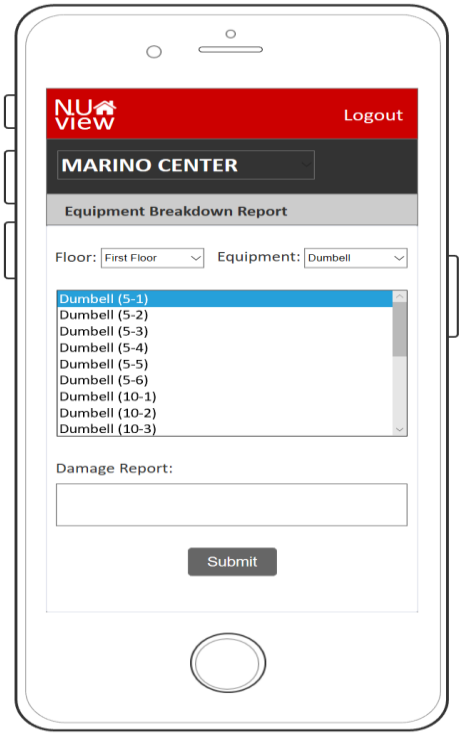
5.12. Staff- Home Screen



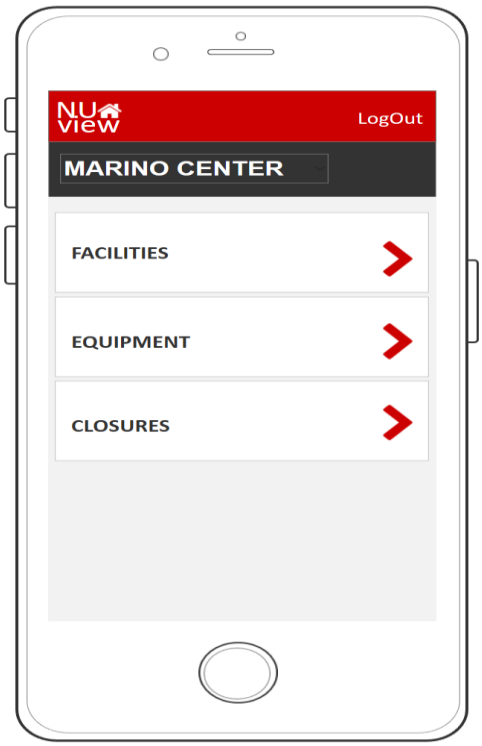
5.13. Staff- Input Equipment Occupancy Screen



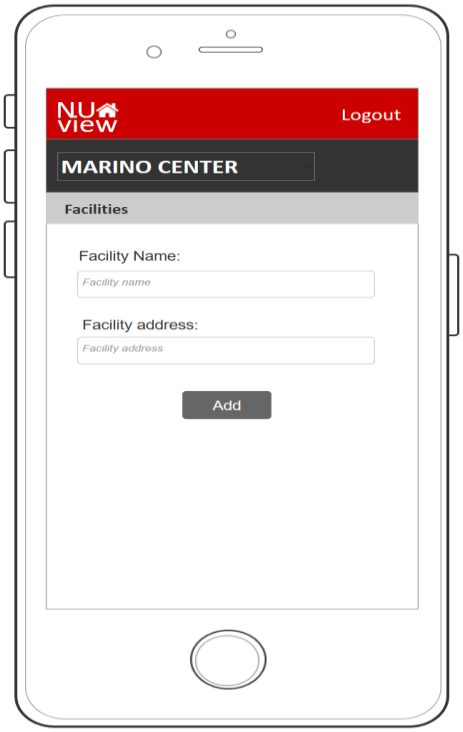
5.14. Staff- Input Equipment Breakdown Screen



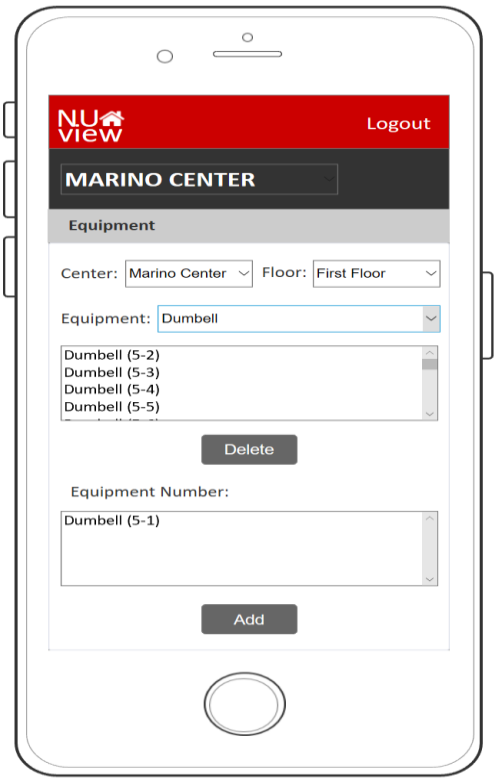
5.15. Admin- Home screen



5.16. Admin- Add Facilities Screen



5.17. Admin- Add Equipment screen



5.18. Admin- Add Closure Screen