INSE 6260

SOFTWARE QUALITY ASSURANCE (SUMMER 2021)

Submitted To : Prof. Chun Wang

Presentation on **NURSE SAFEGUARD**

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Purpose:

- The objective of the project is to develop the nurse scheduling system for 500 nurses of an agency in Montreal by June 2021.

- This schedule helps to accommodate supplemental nurses to different hospitals as per nurse's availability and preferences which matches the hospital requirements.

Software development process : Waterfall Model - Development Plan

| Steps	Who is Involved	Action
Planning	Project Team	● Software Project Development plan (SPD plan) ● Software Quality Assurance plan (SQA plan)
Analysis	Client Developer and QA team.	● Identify the customer's specifications. ● Software Requirement Specification (SRS) is developed.
Design	Developer and QA team	● Detailed design plan and process - Software Design Document
Development	Developer	● Coding ● Testing
Testing	QA team	● Test Case Preparation ● Testing which includes Integration Testing, Functional testing & Regression testing ● SQA Report
Deployment	Developer and QA team	● Software Implementation

Functional Requirements: Nurse
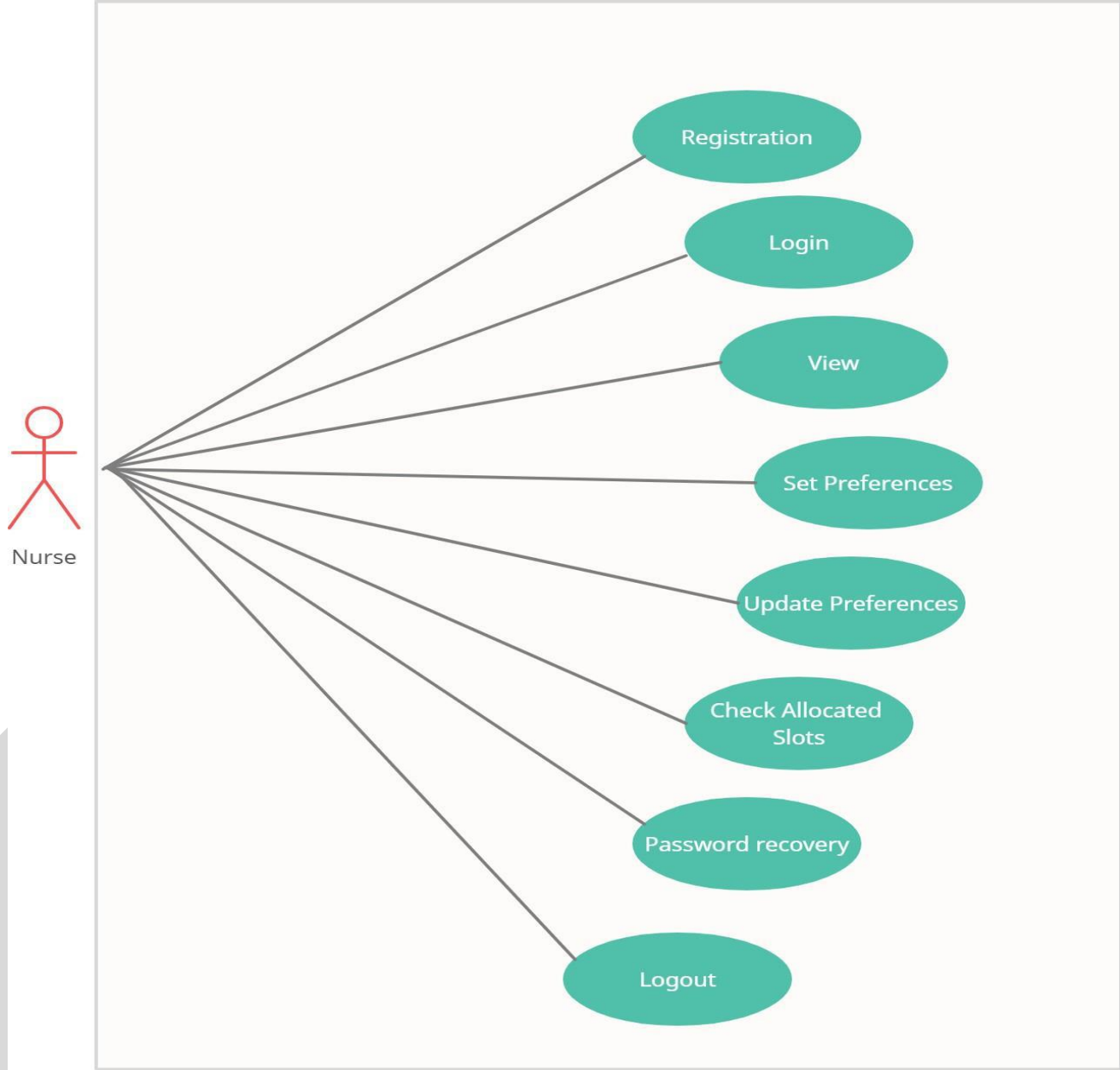
Functional Requirements: Agency
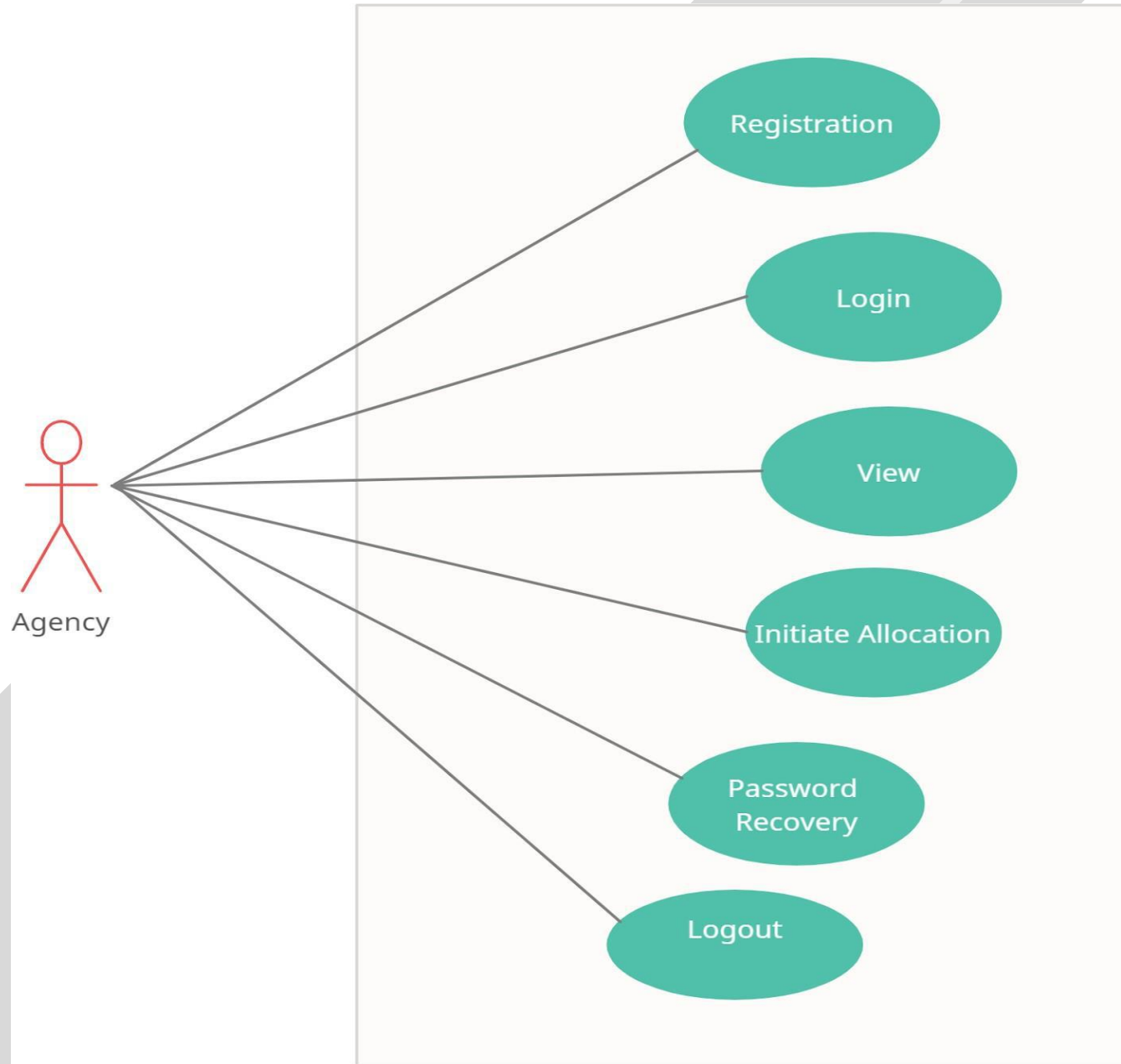
Functional Requirements: Hospital
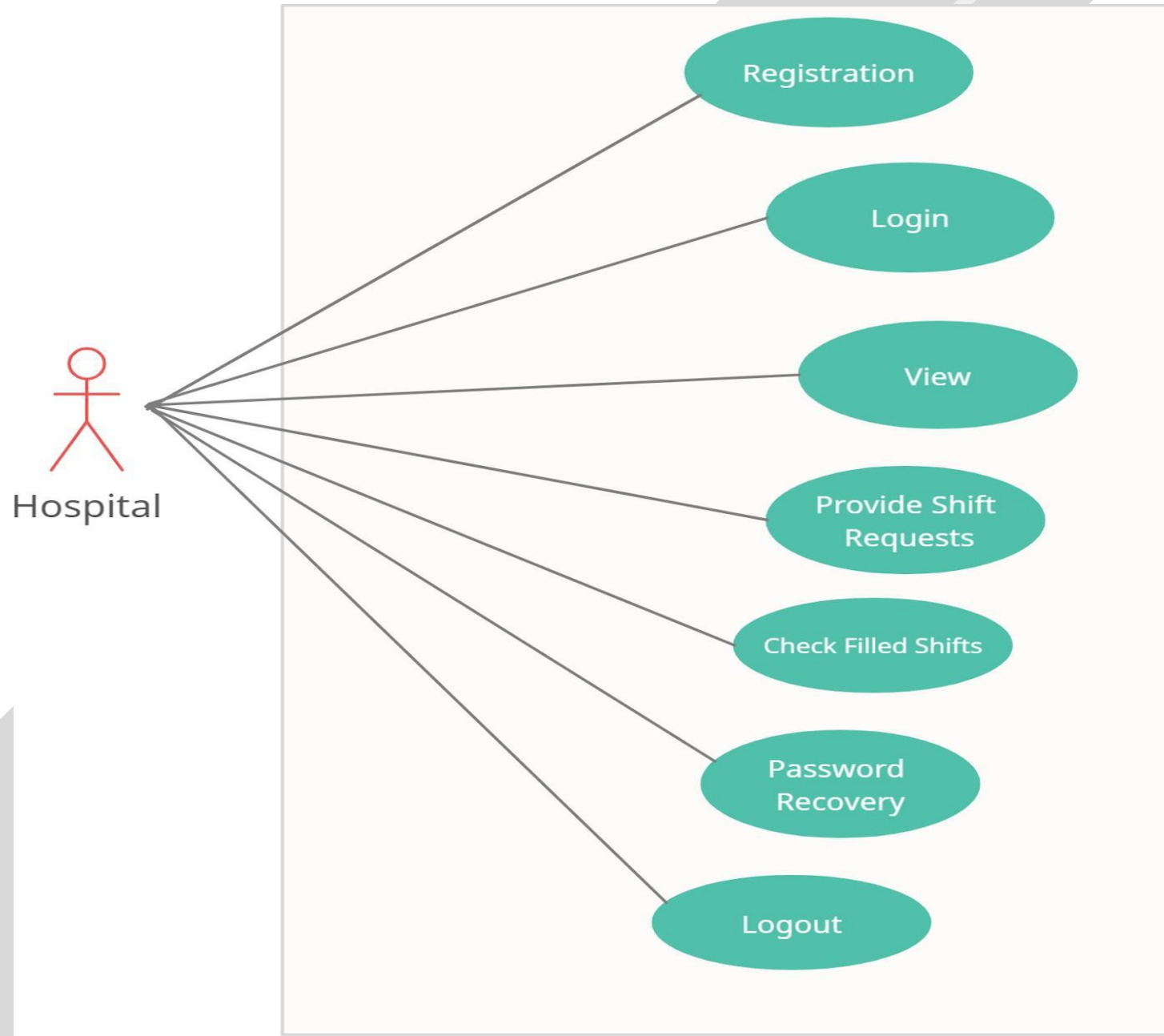
SQA Activities Plan

| Software Development Life Cycle	SQA Activities	Action Plan	Resources Involved	Output
Planning	Review of Development Plan	Formal Technical Review(FTR)	Review Team	-Meeting Minutes -Review Report in SQA report
	Evaluation of Development Plan	Audit using Checklist	Team Member	-Audit Report -Approved Version of Development Plan
	Review of SQA Plan	Formal Technical Review(FTR)	Review Team	-SQA planning report -SQA review minute -Approved Version of SQA Plan
Modeling	Review of requirement Specification	Formal Technical Review	Review Team	-Meeting Minutes -Review Report in SQA report -Approved Version of Requirement Specifications
	Review of Design Document	Peer Review/Informal Review	Internal Team	-Meeting Minutes -Review Report in SQA report -Approved Version of Design Document
		Formal Technical Review	Review Team	
	Evaluate Design Document	Audit	Internal Team	-Audit Report in SQA Report
Construction	Review of Test Case Document	Peer Review/Informal Review	Internal Team	-Final Draft of Test case Document
		Formal Technical Review	Review Team	-Meeting Minutes -Review Report -Approved Test Case Document
	Testing before release	Unit Testing	Developer/Tester	-Unit Testing Report
	Testing	Functional Testing Integration Testing Regression Testing	Testers	-Test Summary Report -Bugs Report

Software Design

Design Architecture
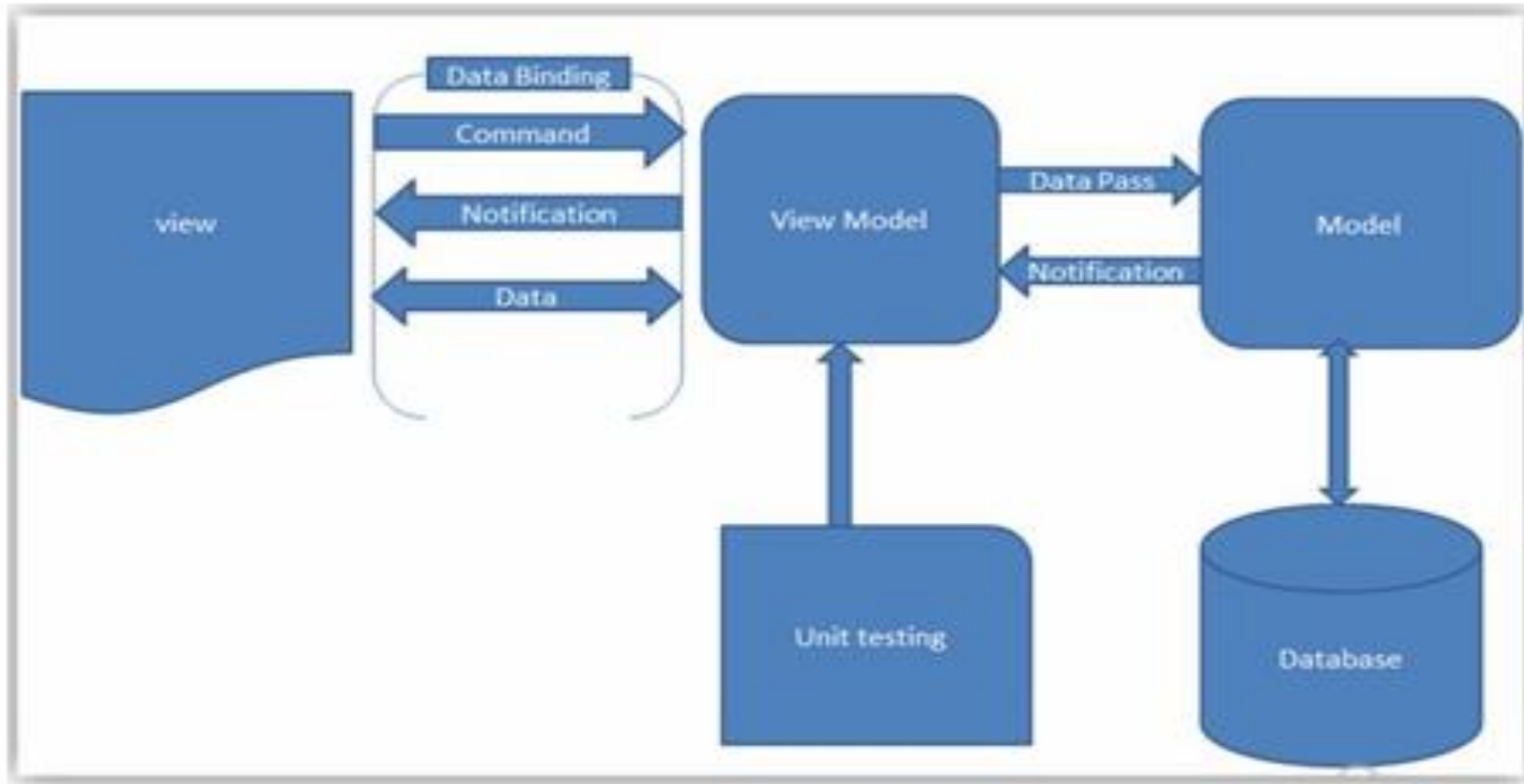
Database design
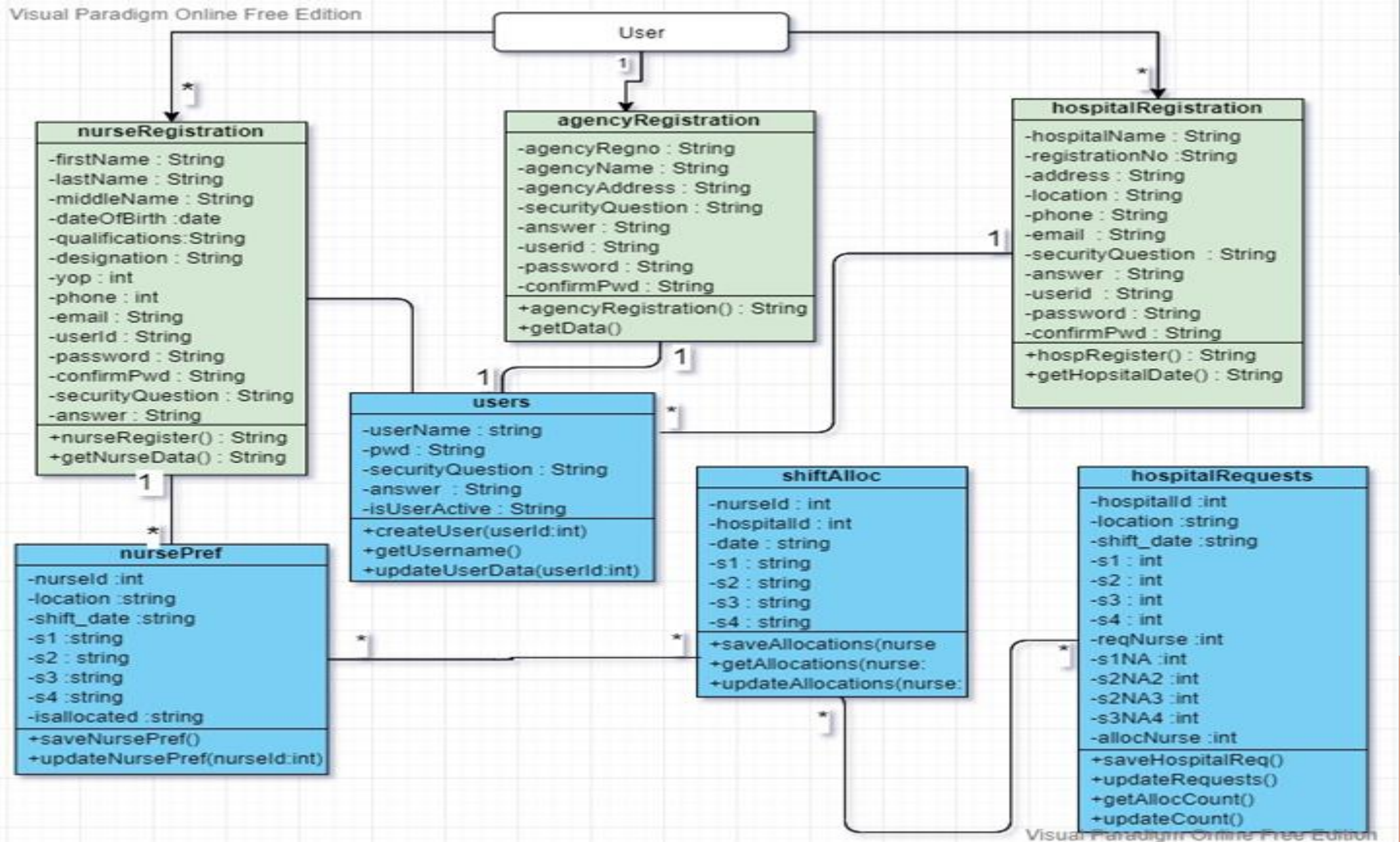
Login

Nurse Registration

Welcome to Nurse Safe Guard

Login

First Name*

Address

Last Name *

Your Phone *

Date of birth

Please select your Designation

Years of practice as a nurse

Your Email *

User ID

Please select your Qualification

Please select your Security Question

Password *

Enter Your Answer *

Confirm Password *

Register

Hospital Registration

Welcome to Nurse Safe Guard

Login

Hospital Name

Hospital authorization ID *

Address

Location

Phone *

UserID

Please select your Security Question ▼

Password *

Answer*

Confirm Password *

Email *

Register

Agency Registration

Welcome to Nurse Safe Guard

Login

Agency Name *	Agency Registration Number *
Address	Location
Phone *	User ID
Please select your Security Question ⌄	Email *
Answer*	Password *
	Confirm Password *

Register

Nurse Safe Guard

 Welcomenurse3

- 💼 **Provide Availabilty**
- 👤 Update Profile
- 👤 Update Preferences
- 💼 Allocated Shifts
- ➡ Reset Password
- ➡ Logout

Provide Preferences and Availability

From

To

Location

| Please select your Location | ⌄ |

select shifts

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
○ Shift 1	○ Shift 1	○ Shift 1	○ Shift 1	○ Shift 1	○ Shift 1	○ Shift 1
○ Shift 2	○ Shift 2	○ Shift 2	○ Shift 2	○ Shift 2	○ Shift 2	○ Shift 2
○ Shift 3	○ Shift 3	○ Shift 3	○ Shift 3	○ Shift 3	○ Shift 3	○ Shift 3
○ Shift 4	○ Shift 4	○ Shift 4	○ Shift 4	○ Shift 4	○ Shift 4	○ Shift 4

Submit

Provide Availabilty

Update Profile

Update Preferences

Allocated Shifts

Reset Password

Logout

Update Profile

	Id	First Name	Last Name	Qualifications	Designations	Years of practice	Phone	Email
Edit	24	nurse3	n	Masters	GNM	2	1234567891	sukesh.gandham@gmail.com

Provide Availabilty

Update Profile

Update Preferences

Allocated Shifts

Reset Password

Logout

Allocated slots

Location	Shift Date	Shift 1	Shift 2	Shift 3	Shift 4
Laval	Monday, July 5, 2021	Y	N	N	N

Reset Password

Welcome to Nurse Safe Guard

Login

Please select Type

User ID

Password *

Confirm Password *

Please select your Sequrity Question

Answer*

Reset

ⒺHospitalUser

🏠 Home

💼 **Provide Shift Requests**

👤 Update Profile

💼 Allocated Shifts

↪ Reset Password

↪ Logout

Hospital

Date

Location

Laval ▾

select shifts

	Shift 1 (8 AM – 8 PM)	Shift 2 (8PM – 12 AM)	Shift 3 (12am – 8am)	Shift 4 (8pm-7am)
No.of Nurses Required				

Submit

Nurse SafeGuard

WelcomeAgency

- 🏠 Home
- 💼 **Allocate Nurses**
- 👤 Update Profile
- ↪ Reset Password
- ↪ Logout

Agency

Select Date

[   ] 📅

[Retrieve]

Requests from hospital

Hospital ID	Request Date	Shift 1	Shift 2	Shift 3	Shift 4	Total Nurses Required	Allocated	Location
1	6/16/2021 12:00:00 AM	4	3	2	2	11	1	Laval

Allocated Nurses

Hospital ID	Shift Date	Shift1 Allocated	Shift2 Allocated	Shift3 Allocated	Shift4 Allocated	Total Allocated
1	6/16/2021 12:00:00 AM	0	0	1	0	1

Available Nurses

Test Summary Report

1. *Metrics*
   1. No of test cases planned vs executed
   2. No of Test cases Passed/Failed/Out of scope

1. No. of Defects with their priority and status

Tests Planned	Tests Executed	Passed	Failed	Out Of Scope
86	83	79	4	3

Status	High	Medium	Low	Total
Closed	1	1	0	2
Open	0	1	0	1

Test Cases Passed vs Fail/Out of Scope

Out Of Scope 3.6%
Failed 4.8%
Passed 91.6%

DefectsPriority & Status
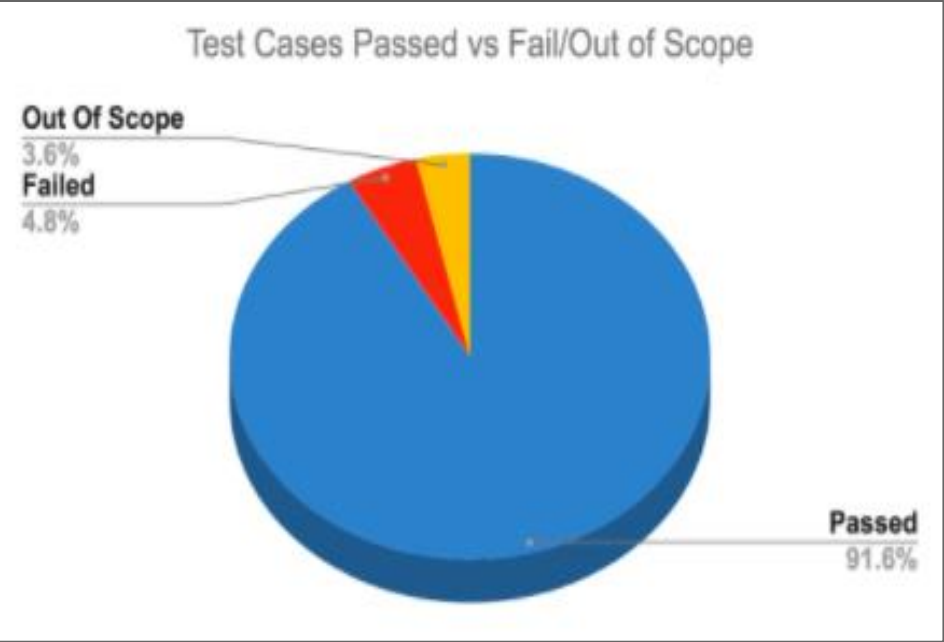
Allocation

Nurse

- Shift Allocation to the nurse is based on the availability and preferences provided.
- Example:
  - Monday : Shift 1
  - Tuesday : Shift 2
  - Wednesday : Shift 3
  - Thursday : Shift 4
  - Friday : Shift 3
  - Saturday : Shift 2
  - Sunday : Shift 1

Allocation contd..

Hospital

- Hospital provides shift requests based on the requirement.
  - Ex:
    - Shift 1 : 10
    - Shift 2 : 5
    - Shift 3 : 3
    - Shift 4 : 4

Allocation Contd..

<u>Agency</u>

- Agency checks the number of open requests available in the system by selecting a date.
  - Ex: 5 July 2021.

- Agency user initiates the allocation, system checks the nurse's availability based on the hospital request.
- If no nurse available, the system updates the database as unallocated.

Allocation Algorithm

Agency selects the date to initiate the allocation

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System retrieves hospital request and nurses available

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Check Total Requested Nurses <> Allocated Nurses
Retrieve nurses from the system for the selected date, shift, and location.
Check count of available nurses by shift <= No. of nurses required in a shift from hospital request

If Yes	No
Allocate and update the nurse status	Do nothing
Increment the count of allocated nurses	
Update the Nurse status as allocated for the specific day.	
Notify the nurse and hospital	

Thank you !