

# **SE 201.3 - Systems Analysis and Design**

## **Group Assignment**

*Health center module*

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## PROBLEM DESCRIPTION

### ABOUT THE ORGANIZATION

NSBM Green University Town is the first ever green university in South Asia and sets an example for the whole South Asia by paving the way for environmental sustainability. The university is open for both national and international student community and it has turned a new chapter in Sri Lankan higher education.

In here we will focus one of main departments of NSBM, which is its **Medical Center**. Medical center is equipped with many facilities ensuring that the students and the staff get the best service. Current situation of medical center is every task handled manually by its staff. All the records of students are currently updated on manually on papers. This sometimes is very costly and takes so much time. So that we are hoping to propose a system that will make everyone's lives so easy.

In here we will focus one of main department of NSBM which is medical center. Current situation of medical center is every task handled manually by its staff to get the best service. All the records of students are updated manually on papers. There is a student medical report for every student in university. All the medical data of a student(diseases, skills)are recorded in this card. Sometimes this is very costly, difficult and take so much time. So , we have to design efficient and an effective system for the medical department.

#### **Problem 1**

In manual file system-based system doctor has to go through previous files manually one by one to find a previous patient medical report.

#### **Solution-**

In our solution system previous patient recorded that are stored in databases can be accessed instantly by searching the name. The doctor can update the patient medical records very conveniently.

One doctor has many students. But every student doesn't need treatments at one time.

#### **Problem 2-**

In a manual file system-based system doctor has to go through previous files manually one by one to find the blood pressure, weight, height, blood sugar, body temperature etc. of a student.

In addition, doctor need to record updated data about student. Sometimes this is very costly, difficult and takes so much time.

**Solution-**

In our solution system student ,themselves can record parameters of blood pressure, height, weight , temperature etc.

These parameters are recorded in databases can be accessed instantly by searching student name/student ID.

**Problem 3-**

In a manual file system-based system doctor has to write a reference letter or an advice note to the patient.

**Solution-**

Doctor can print reference letter or an advice letter to refer super specialist ,hospitals for further checkup.

Doctor can type the reference letter and upload it to medical center database.

Doctor can print the reference letter instantly making it more professional.

**Problem 4-**

In the previous system students have to go to the doctor for get the medical reports whenever medical reports are needed to sit for an exam which he/she has been absent before because of a medical issue. Sometimes they have to travel even they are still sick because they will lose marks on their absent exams as a repeater.

This is very difficult and takes so much time.

**Solution-**

Students can upload medical reports to the doctor whenever medical reports are needed.

The doctor recommend that student is in a disease and doctor will be informed it to the exam division.

## USER REQUIREMENTS AND FEASIBILITY STUDY

<b>ID</b>	<b>Requirement Description</b>	<b>Completed</b>	<b>Functional/ non-Functional</b>
	System administration(Doctor) requirements	Yes	Non-Functional
	Doctor should login to do any specific task	Yes	Non-Functional
	Doctor should be able to change the password	Yes	Non-Functional
	Doctor should be able to record medical parameters(blood pressure, weight, height, blood sugar, body temperature)	Yes	Functional
	Doctor should be able to print reference letter of a patient/student	Yes	Functional
	Doctor should be able to see the personal details(name, address, faculty, contact number, guardian's name) of a student	Yes	Functional
	Doctor should be able to see the medical history of a students	Yes	Functional
	Doctor should be able to edit the medical history of a students	Yes	Functional
	Doctor should be able to see recommended drug details in the medical store	Yes	Functional
	Doctor should be able to delete the student details	No	Functional
	Student should login to do any task	yes	Functional

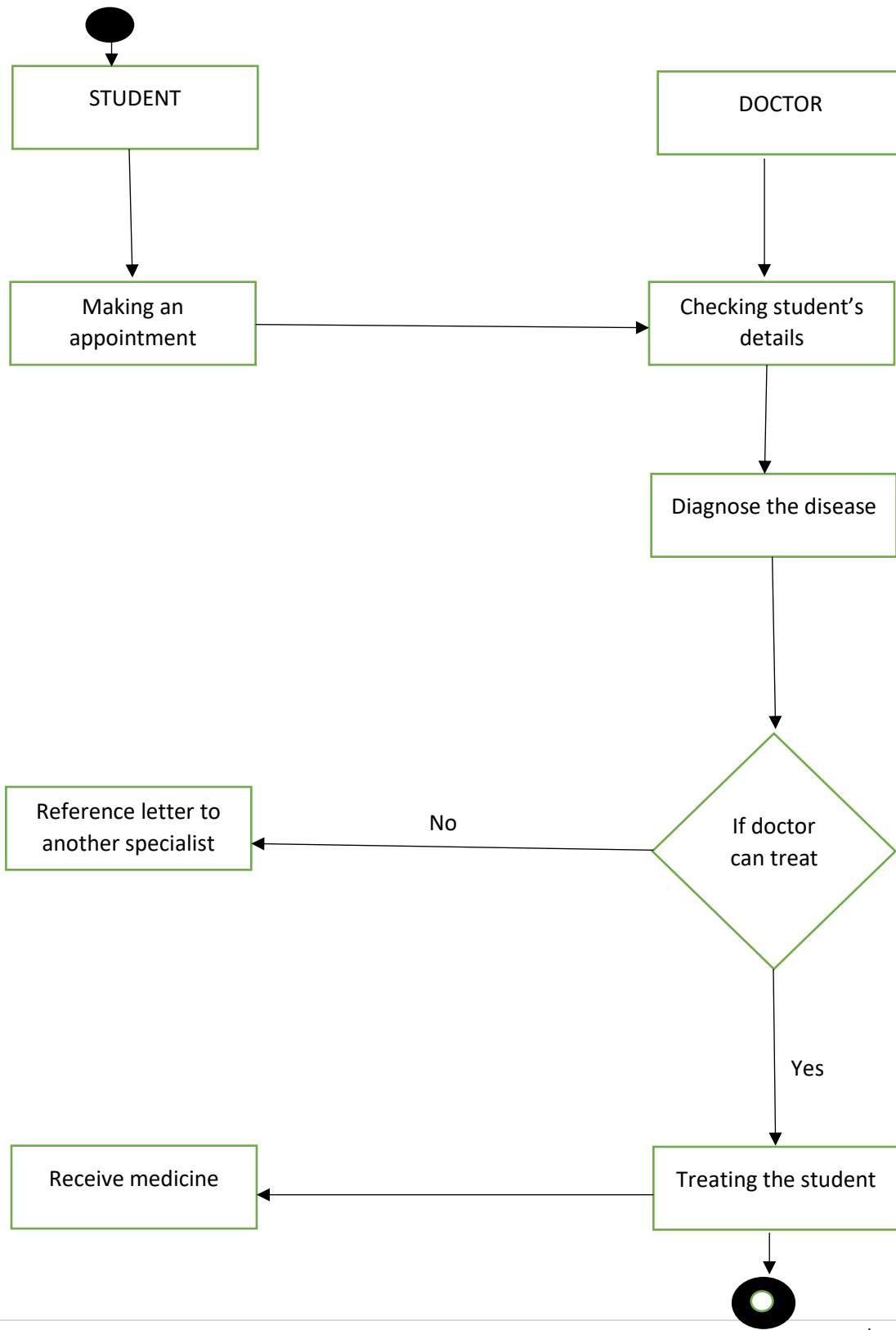
	Student should be able to upload medical report to the doctor(Whenever medical reports are needed to sit for an exam which he/she has been absent before because of a medical issue)	Yes	Functional
	Student should be able to edit the personal details	Yes	Functional
	Student should be able to change the medical history of himself	No	Functional
	Student should be able to see the medical history	Yes	Functional
	Student should be able to chat with a doctors about their medical problems.	No	Functional
	Student should be able to get appointment to see doctor	yes	Functional

- Completed: Yes (Completely implemented)
- NO (not implemented)
- Partially (partially implemented, more description under remarks subsection)
- Unknown (completion status not known)
- Dropped (requirement was dropped during the course of the project)

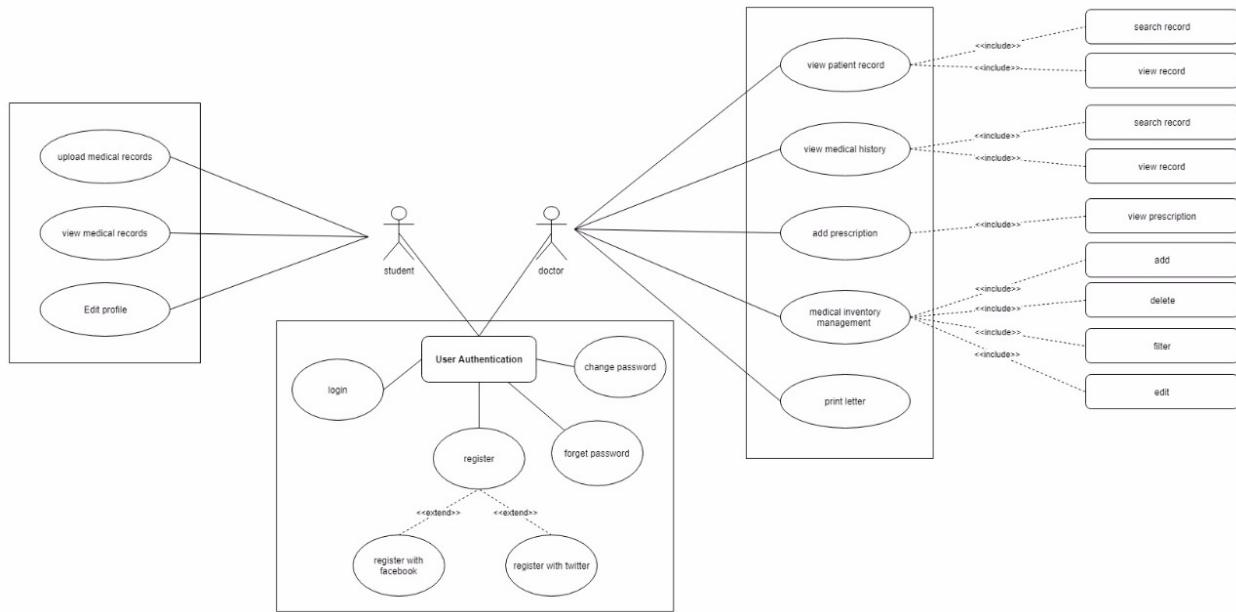
## Requirement Compliance Summary

Total number of requirements	17
Number of requirements implemented	14
Requirements partially fulfilled	0
Requirements not fulfilled	3
Requirements dropped	0

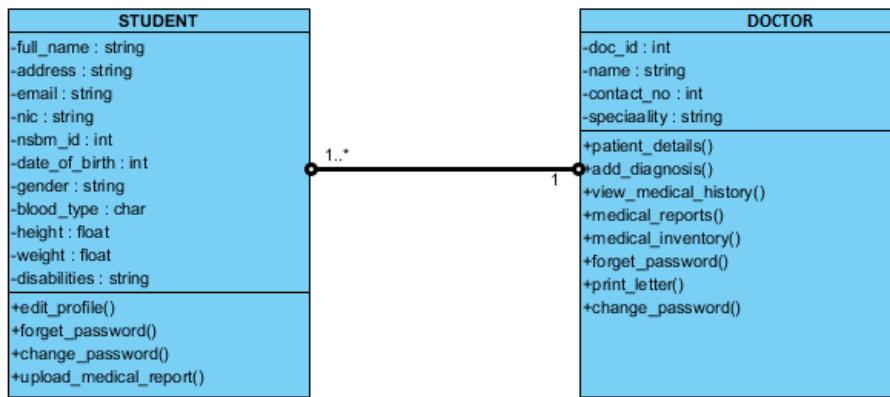
## ACTIVITY DIAGRAM



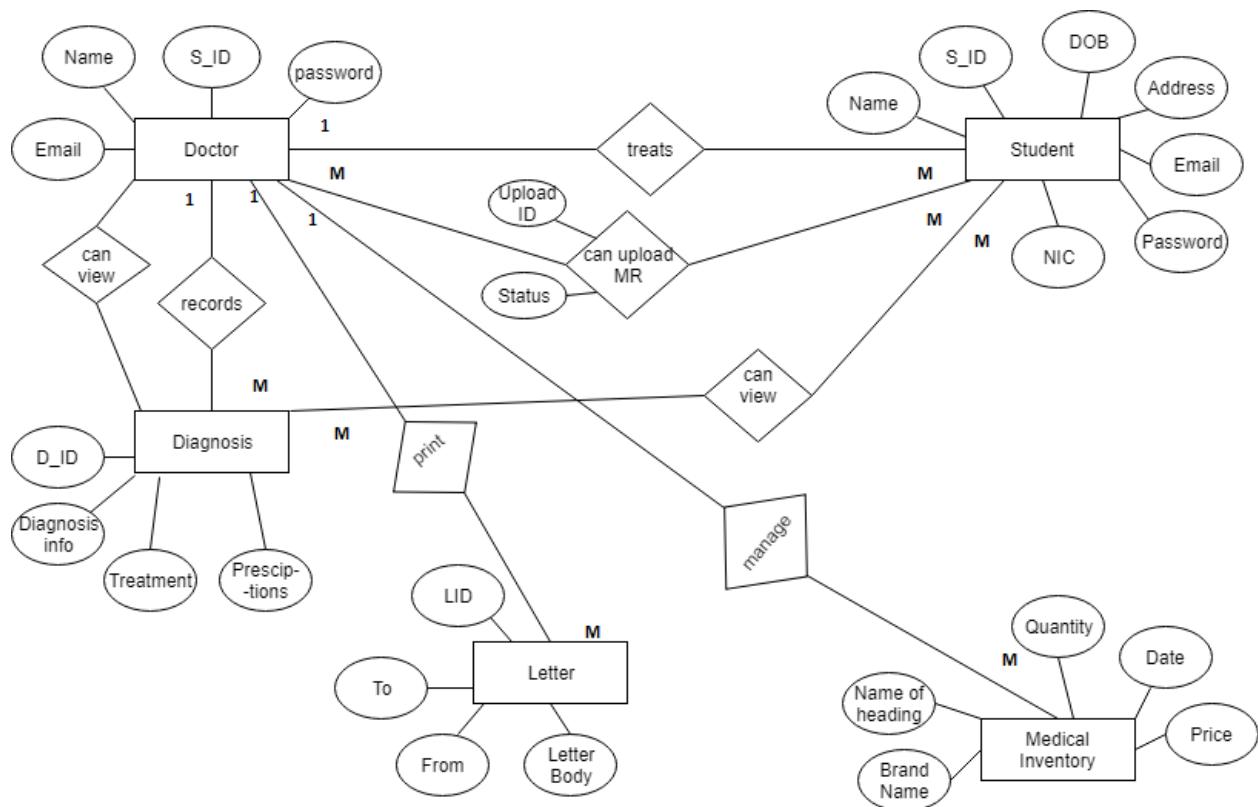
## USECASE DIAGRAM



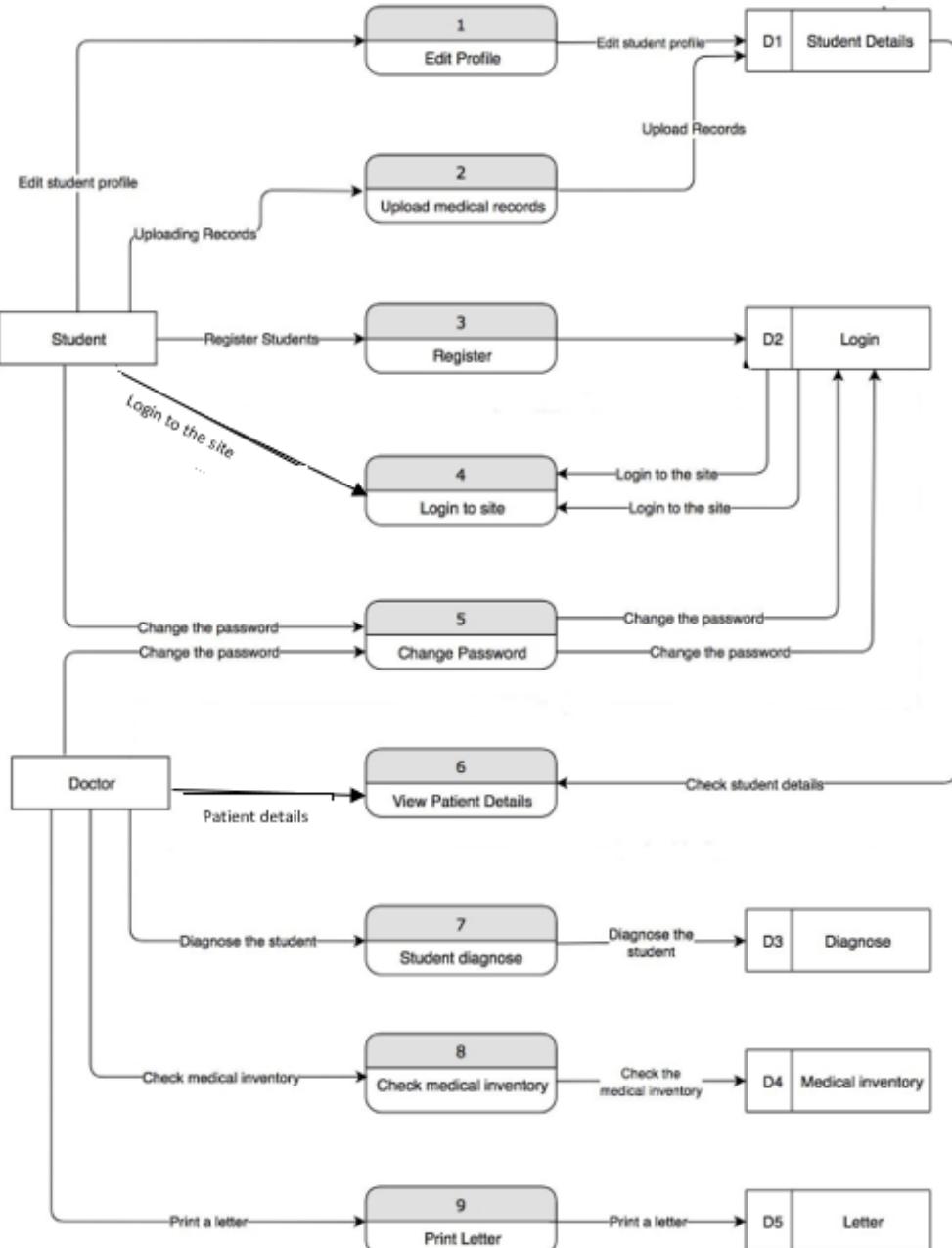
## CLASS DIAGRAM



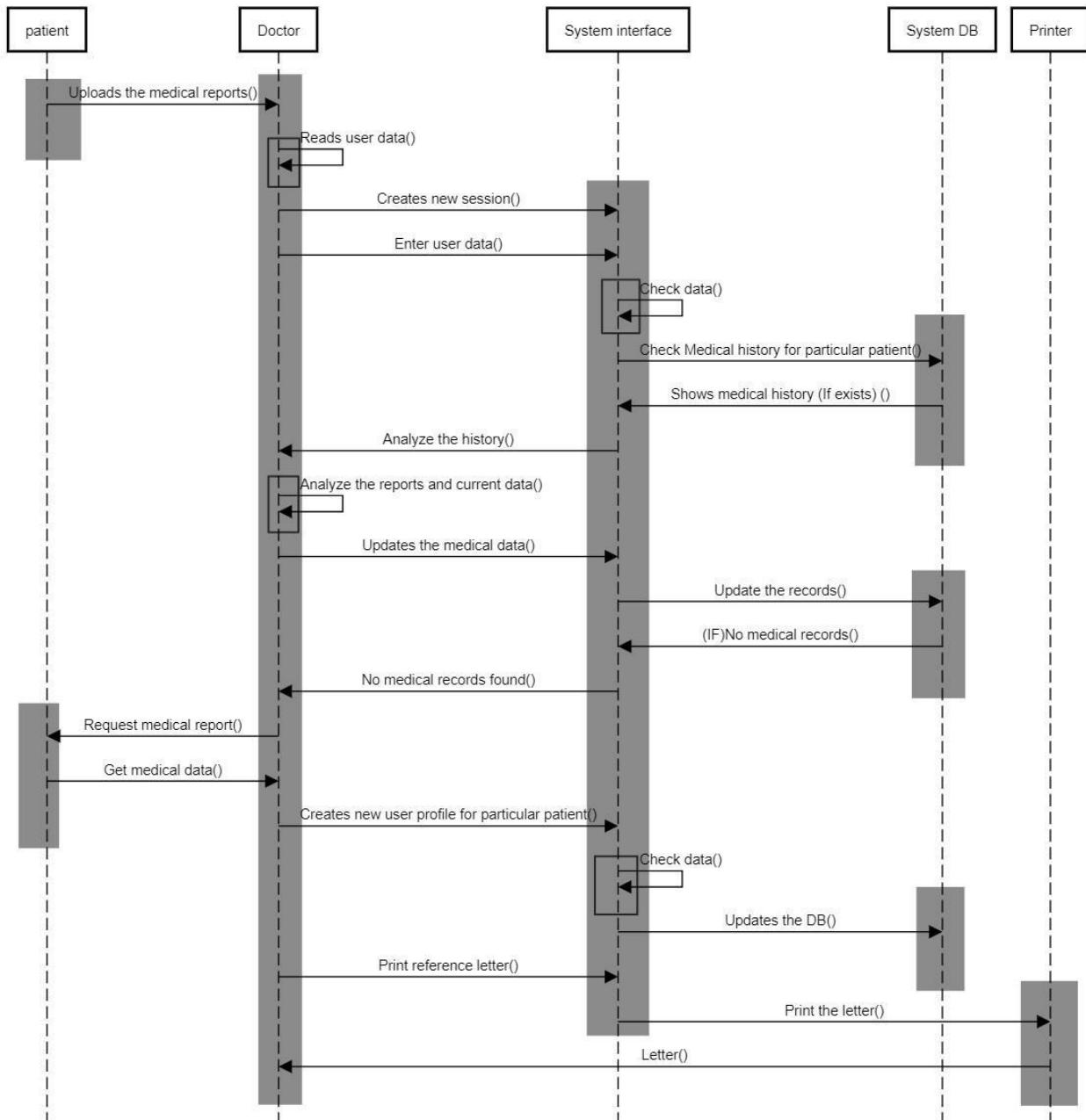
## ER DIAGRAM



## DATA FLOW DIAGRAM



## SEQUENCE DIAGRAM



## USER INTERFACE SPECIFICATIONS AND OPERATIONS

### Login



Email Address

Password

Remember Me [Forgotten Password?](#)

Don't you have account? [Sign Up Here](#)

### Register



Username

Email Address

Password

Agree the terms and policy

## Forget password

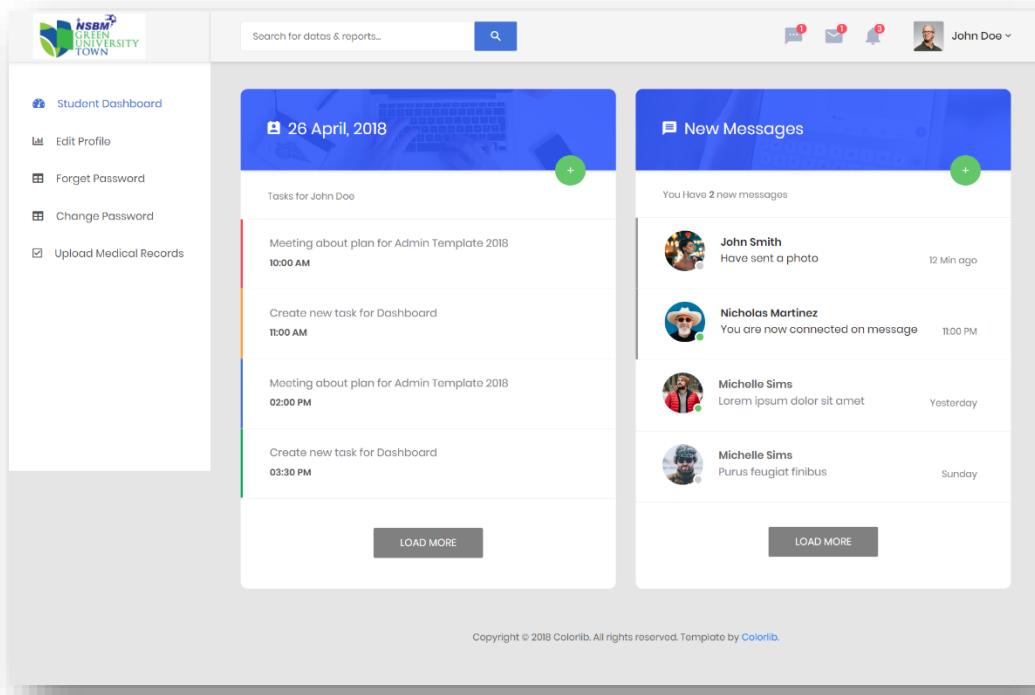


Email Address

SUBMIT

## STUDENTS ACCOUNT

### Student dashboard



Search for data & reports... Search icon

John Doe Profile icon

**26 April, 2018**

**New Messages**

You have 2 new messages

User	Message	Time
John Smith	Have sent a photo	12 Min ago
Nicholas Martinez	You are now connected on message	11:00 PM
Michelle Sims	LOREM ipsum dolor sit amet	Yesterday
Michelle Sims	Purus feugiat finibus	Sunday

**Tasks for John Doe**

- Meeting about plan for Admin Template 2018  
10:00 AM
- Create new task for Dashboard  
11:00 AM
- Meeting about plan for Admin Template 2018  
02:00 PM
- Create new task for Dashboard  
03:30 PM

LOAD MORE

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## Edit profile

The screenshot shows a web-based profile editing interface. At the top left is the university's logo, "NSBM GREEN UNIVERSITY TOWN". To its right is a search bar with placeholder text "Search for datas & reports..." and a magnifying glass icon. On the far right of the header are three small notification icons (a speech bubble, an envelope, and a bell) each with a red circular badge indicating one new item, and a user profile picture labeled "John Doe".

The main content area has a sidebar on the left containing links: "Student Dashboard", "Edit Profile" (which is the active page), "Forget Password", "Change Password", and "Upload Medical Records".

The central form is titled "Add user" and "User Details". It includes fields for "Full Name", "NSBM ID", "Address", "Email" (with placeholder "Enter Email"), "National ID", "Height", "Weight", "Gender" (a dropdown menu showing "Please select"), "Blood Type" (radio buttons for A, B, AB, O), and "Disabilities" (a text area with placeholder "Content..."). Below these fields is a file upload section for "upload medical reports" with a "Choose Files" button and a message "No file chosen".

A large blue "Save Profile" button with a padlock icon is at the bottom of the form. At the very bottom center of the page is a copyright notice: "Copyright © 2018 Colorlib. All rights reserved. Template by Colorlib."

## Upload medical records

The screenshot shows a web-based application interface. On the left, there is a sidebar with the following menu items:

- [Student Dashboard](#)
- [Edit Profile](#)
- [Forget Password](#)
- [Change Password](#)
- [Upload Medical Records](#)

In the center, there is a search bar with the placeholder text "Search for datas & reports..". Above the main content area, there is a header bar with icons for search, notifications, messages, and a user profile for "John Doe".

The main content area contains a form titled "Upload Medical record". It includes a file input field with a "Choose File" button and a message indicating "No file chosen". Below the file input are two buttons: a blue "Submit" button and a red "Reset" button.

At the bottom of the page, there is a copyright notice: "Copyright © 2018 Colorlib. All rights reserved. Template by [Colorlib](#)".

## DOCTORS ACCOUNT

### Doctors dashboard

The screenshot shows a modern web-based dashboard for a doctor. At the top left is the logo 'HSB GREEN UNIVERSITY TOWN'. To its right is a search bar with placeholder text 'Search for datas & reports...'. On the far right are three small notification icons (speech bubble, envelope, bell) each with a red badge indicating one new item, and a user profile for 'John Doe'.

The left sidebar contains a navigation menu with the following items:

- Doctor Dashboard** (selected)
- Patient Details
- Add Diagnosis
- View Medical History
- medical reports
- Medical Inventory
- Forget Password
- Print Letter
- Change Password

The main content area is divided into several sections:

- Statistics:** Three cards showing patient counts and trends:
  - 1036 patients diagnosed (blue card with a line graph)
  - 20 reports to be graded (green card with a line graph)
  - 12 letters proceeding (orange card with a line graph)
- Calendar:** A section for '26 April, 2018' showing tasks for 'John Doe':
  - Meeting about plan for Admin Template 2018 at 10:00 AM
  - Create new task for Dashboard at 11:00 AM
  - Meeting about plan for Admin Template 2018 at 02:00 PM
  - Create new task for Dashboard at 03:30 PMA 'LOAD MORE' button is at the bottom.
- Messages:** A section titled 'New Messages' showing two notifications:
  - John Smith: Have sent a photo (12 Min ago)
  - Nicholas Martinez: You are now connected on message (11:00 PM)
  - Michelle Sims: Lorem ipsum dolor sit amet (Yesterday)
  - Michelle Sims: Purus feugiat finibus (Sunday)A 'LOAD MORE' button is at the bottom.

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## View patient details

The screenshot shows a web-based medical application interface. On the left is a sidebar with a logo for 'NSBM GREEN UNIVERSITY TOWN' and a list of navigation links including 'Doctor Dashboard', 'Patient Details' (which is currently selected), 'Add Diagnosis', 'View Medical History', 'medical reports', 'Medical Inventory', 'Forget Password', 'Print Letter', and 'Change Password'. The main content area has a search bar at the top with placeholder text 'Search for datas & reports...' and a magnifying glass icon. Below the search bar is a user profile for 'John Doe' with a small profile picture. A table lists patient details with columns for 'Full Name', 'Address', 'Email', 'NIC', and 'NSBM ID'. All listed patients are 'Pamodi Rathnayake' with the same address, email, NIC, and NSBM ID. At the bottom of the page is a copyright notice: 'Copyright © 2018 Colorlib. All rights reserved. Template by Colorlib.'

Full Name	Address	Email	NIC	NSBM ID
Pamodi Rathnayake	No 1/E sapugaskanda,makola	wathmarathnayake@gmail.com	980123472V	BSC-UCD-C
Pamodi Rathnayake	No 1/E sapugaskanda,makola	wathmarathnayake@gmail.com	980123472V	BSC-UCD-C
Pamodi Rathnayake	No 1/E sapugaskanda,makola	wathmarathnayake@gmail.com	980123472V	BSC-UCD-C
Pamodi Rathnayake	No 1/E sapugaskanda,makola	wathmarathnayake@gmail.com	980123472V	BSC-UCD-C
Pamodi Rathnayake	No 1/E sapugaskanda,makola	wathmarathnayake@gmail.com	980123472V	BSC-UCD-C
Pamodi Rathnayake	No 1/E sapugaskanda,makola	wathmarathnayake@gmail.com	980123472V	BSC-UCD-C
Pamodi Rathnayake	No 1/E sapugaskanda,makola	wathmarathnayake@gmail.com	980123472V	BSC-UCD-C
Pamodi Rathnayake	No 1/E sapugaskanda,makola	wathmarathnayake@gmail.com	980123472V	BSC-UCD-C
Pamodi Rathnayake	No 1/E sapugaskanda,makola	wathmarathnayake@gmail.com	980123472V	BSC-UCD-C

## Add diagnosis

The screenshot shows a 'Medical Diagnosis' form. The sidebar on the left includes the 'NSBM GREEN UNIVERSITY TOWN' logo and the same list of navigation links as the previous page. The main content area has a search bar and a user profile for 'John Doe'. The 'Add Diagnosis' link in the sidebar is highlighted. The 'Medical Diagnosis' form has a title 'Diagnosis Details'. It contains several input fields: 'NSBM ID' (with a placeholder box), 'Diagnosis' (with a placeholder 'Content...'), 'Treatment' (with a placeholder box), 'Prescription' (with a placeholder box), and 'Instruction' (with a placeholder box). At the bottom is a large teal-colored 'Submit' button with a padlock icon.

## View medical history

The screenshot shows a web-based medical application interface. On the left, there is a sidebar with a logo for 'NSBM GREEN UNIVERSITY TOWN' and a list of navigation links including 'Doctor Dashboard', 'Patient Details', 'Add Diagnosis', 'View Medical History', 'medical reports', 'Medical Inventory', 'Forget Password', 'Print Letter', and 'Change Password'. The main content area features a search bar at the top with placeholder text 'Search for datas & reports...' and a magnifying glass icon. Below the search bar is a table with the following columns: NSBM ID, Diagnosis, Treatment, Prescription, and Instructions. The table contains five rows of data, all identical, showing 'BSC-UCD-CSC-16.2-016' as the NSBM ID, 'Fever' as the diagnosis, 'panadol,piriton' as the treatment, 'panadol every 6 hours piriton 1 for day and night each' as the prescription, and 'none' as the instructions. At the bottom of the main content area, there is a small copyright notice: 'Copyright © 2018 Colorlib. All rights reserved. Template by Colorlib.'

NSBM ID	Diagnosis	Treatment	Prescription	Instructions
BSC-UCD-CSC-16.2-016	Fever	panadol,piriton	panadol every 6 hours piriton 1 for day and night each	none
BSC-UCD-CSC-16.2-016	Fever	panadol,piriton	panadol every 6 hours piriton 1 for day and night each	none
BSC-UCD-CSC-16.2-016	Fever	panadol,piriton	panadol every 6 hours piriton 1 for day and night each	none
BSC-UCD-CSC-16.2-016	Fever	panadol,piriton	panadol every 6 hours piriton 1 for day and night each	none
BSC-UCD-CSC-16.2-016	Fever	panadol,piriton	panadol every 6 hours piriton 1 for day and night each	none

## Received medical reports

The screenshot shows a web-based medical application interface, similar to the previous one but for received reports. The sidebar on the left includes the same navigation links: 'Doctor Dashboard', 'Patient Details', 'Add Diagnosis', 'View Medical History', 'medical reports', 'Medical Inventory', 'Forget Password', 'Print Letter', and 'Change Password'. The main content area features a search bar at the top with placeholder text 'Search for datas & reports...' and a magnifying glass icon. Below the search bar is a table with the following columns: NSBM ID, Module Code, Batch, File, and Submit State. The table contains two rows of data, both showing 'BSC-UCD-CSC-16.2-016' as the NSBM ID, 'SE201' as the module code, '16.2' as the batch, 'REPORT.pdf' as the file, and 'not graded' as the submit state. At the bottom of the main content area, there is a small copyright notice: 'Copyright © 2018 Colorlib. All rights reserved. Template by Colorlib.'

NSBM ID	Module Code	Batch	File	Submit State
BSC-UCD-CSC-16.2-016	SE201	16.2	REPORT.pdf	not graded
BSC-UCD-CSC-16.2-014	SE201	17.1	REPORT.pdf	not graded

## Medical inventory

The screenshot shows the 'Medical Inventory Management' section of a web application. On the left, a sidebar menu includes options like Doctor Dashboard, Patient Details, Add Diagnosis, View Medical History, medical reports, Medical Inventory (which is checked), Forget Password, Print Letter, and Change Password. The main area displays a table of medical inventory items:

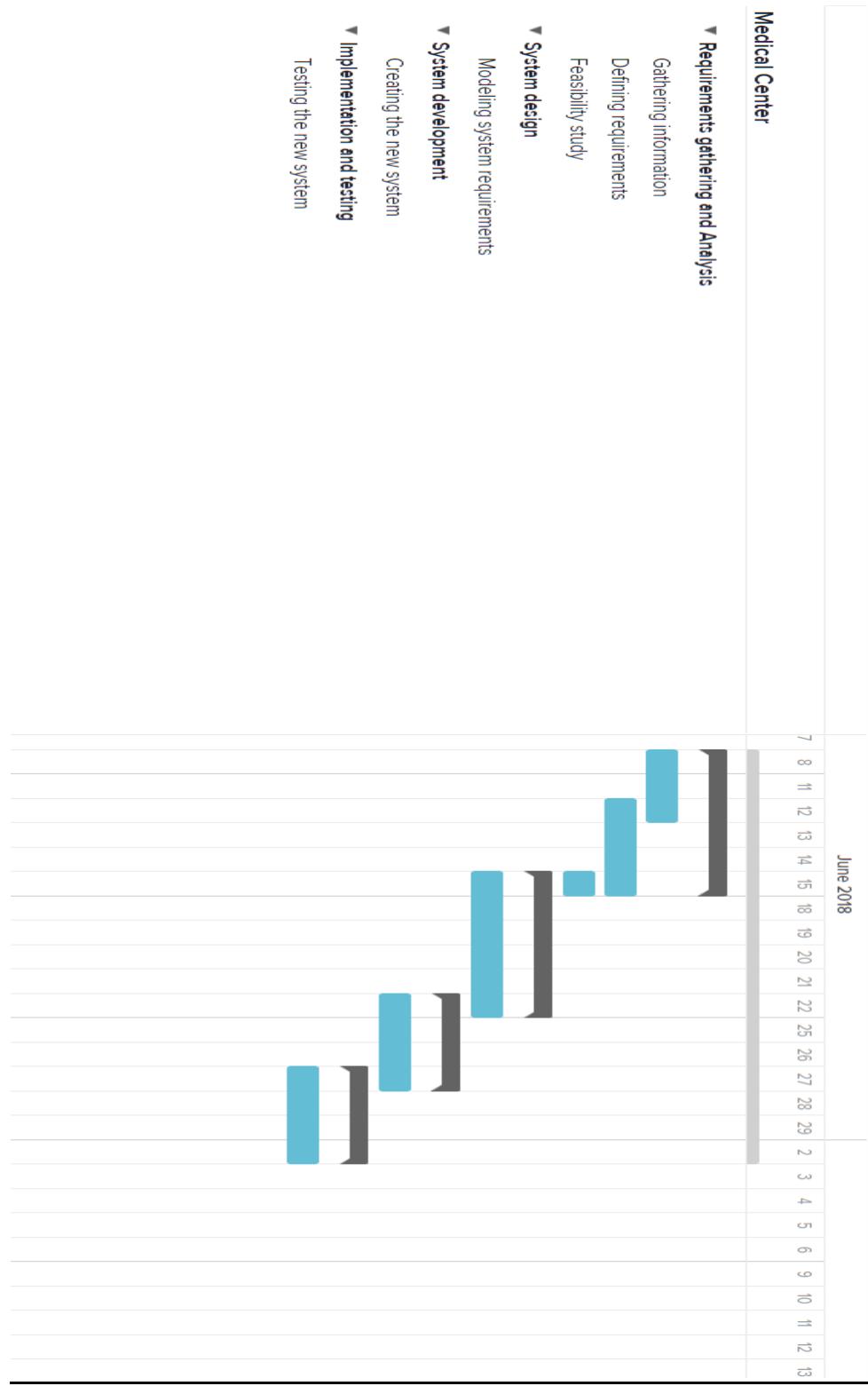
	NAME OF THE DRUG	BRAND NAME	PRICE	DATE	QUANTITY	Actions
<input type="checkbox"/>	Paracetamol	panadol	12	2018-09-27 02:12	200	
<input type="checkbox"/>	piriton	hemas	20	2018-09-27 02:12	130	
<input type="checkbox"/>	jeevani	scc	50	2018-09-27 02:12	100	

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## Print letter

The screenshot shows the 'Print Letter' page. On the left, the same sidebar menu is visible. The main area contains a form titled 'For Future Check up' with fields for Name, From, To, Address, and Description. The 'From' field is populated with 'Medical Center Nurse'. The 'To' field is populated with 'Reffering Doctor'. The 'Description' field has placeholder text 'Content...'. At the bottom, there are 'Print' and 'Cancel' buttons.

## DEVELOPMENT PATH OF THE SYSTEM



## TESTING

### Test Plan

All the functions, buttons, forms including all the interfaces have been checked through a specific test plan separately. The doctor account has already been created. The testing is a white box testing. A thorough check on the internal working of the code has been done on this web page.

Test	User Requirement Addressed	Expected Result	Actual Result	Pass/Fail	Date	Corrective Action
Logo displayed	The website uses NSBM Green University logo	The logo of NBSM	As expected	Pass	07/10/18	None
Navigation bar appears	Website is easy to navigate	Navigation bar appears	As expected	Pass	07/10/18	None
Navigation bar highlight effect works	Website is easy to navigate, Easy to recognize selected fields from the navigation bar	When you click a navigation bar hyperlink it gets highlighted	As expected	Pass	07/10/18	None
Navigation bar hyperlinks work	Website is easy to navigate	When mouse goes over labels it gets highlighted and can click on it to take you to correct page	As expected	Pass	07/10/18	None
Student Dashboard works	Students can see special appointments and messages	Students can look up for special messages and for special appointments	As expected	Pass	07/10/18	None

Student account works perfectly	All menu hyperlinks and forms in student account work	The student can edit their profile ,change their passwords and upload necessary medical records	As expected	Pass	07/10/18	None
Doctor dashboard works	Doctor gets a count of his patients , reports to be checked and letters that need to be proceeding	Doctor can take necessary actions according to the data displayed on the dashboard	As expected	Pass	07/10/18	None
Doctor account works perfectly	All menu hyperlinks and forms in Doctor account works	Doctor can view patient details, add diagnosis, view patient's medical history, view medical reports, check the medical inventory, print letters to specialists and the doctor can change his password for his account	As expected	Pass	07/10/18	None
Registration form works	Students can register	Students can register to get the service of the NSBM Medical center	As expected	Pass	07/10/18	None

## Test-Design Specification

**Accuracy to Original Design** – The last coded version of this website is superior to the original sketched design. All font styles and font sizes are right. All effects and all functions working perfectly.

**Content** – We checked all the pages in this website and checked that all have proper grammar and spellings.

**Menus and Links** – We have check all of the menu items and links to make sure they all go where they should and there are no pages with content missing. Links may also include all the content and open within the site window without any errors.

**Forms** – We filled out our own email forms to make sure all of the fields are correct and working well and we checked that actually we get the submission that the form is supposed to send. We used many functioning forms in our site.

**Browser Check** – We tested this website on multiple browsers. Ex: - Google chrome, Firefox, Internet Explorer.

**Mobile testing** - We tested our website using most popular devices such as IPHones, Android phones and tablets.