

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

### **Group Assignment**

*Health center module*

Submission Date: *May 30<sup>th</sup> of 2018*

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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

ID	Requirement Description	Completed	Functional/ non-Functional
	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

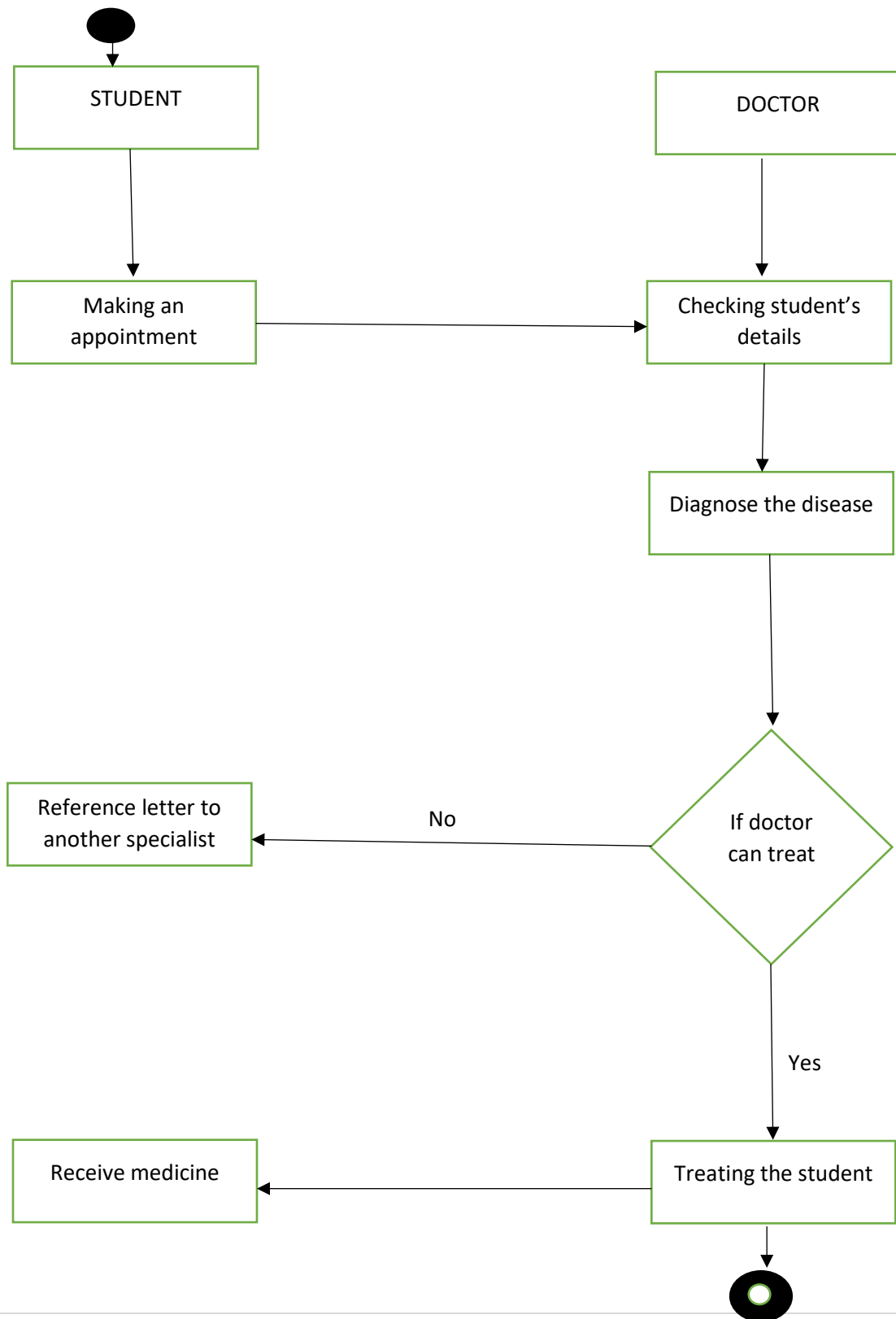
	Student should be able to upload medical report to the doctor(Whenever medical reports are needed to sit for an exam which he/she has been absent before because of a medical issue)	Yes	Functional
	Student should be able to edit the personal details	Yes	Functional
	Student should be able to change the 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 proje

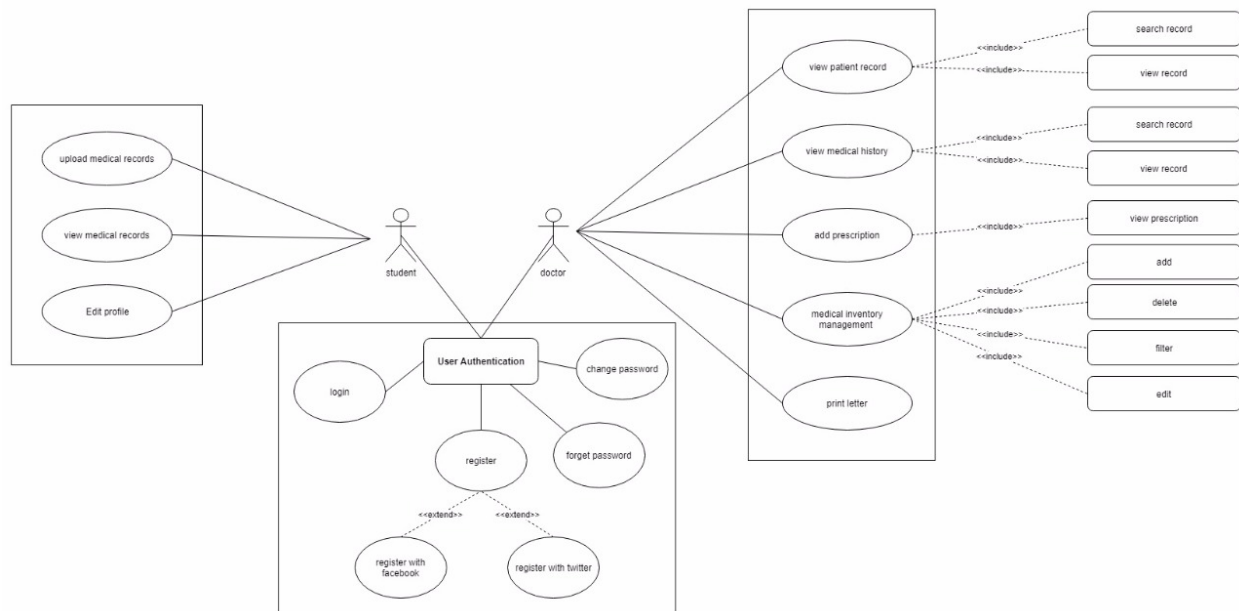
## Requirement Compliance Summary

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

## ACTIVITY DIAGRAM

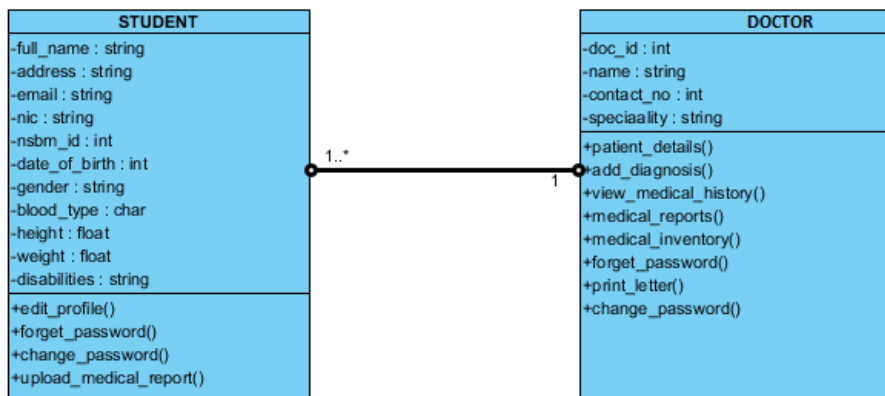


## USECASE DIAGRAM

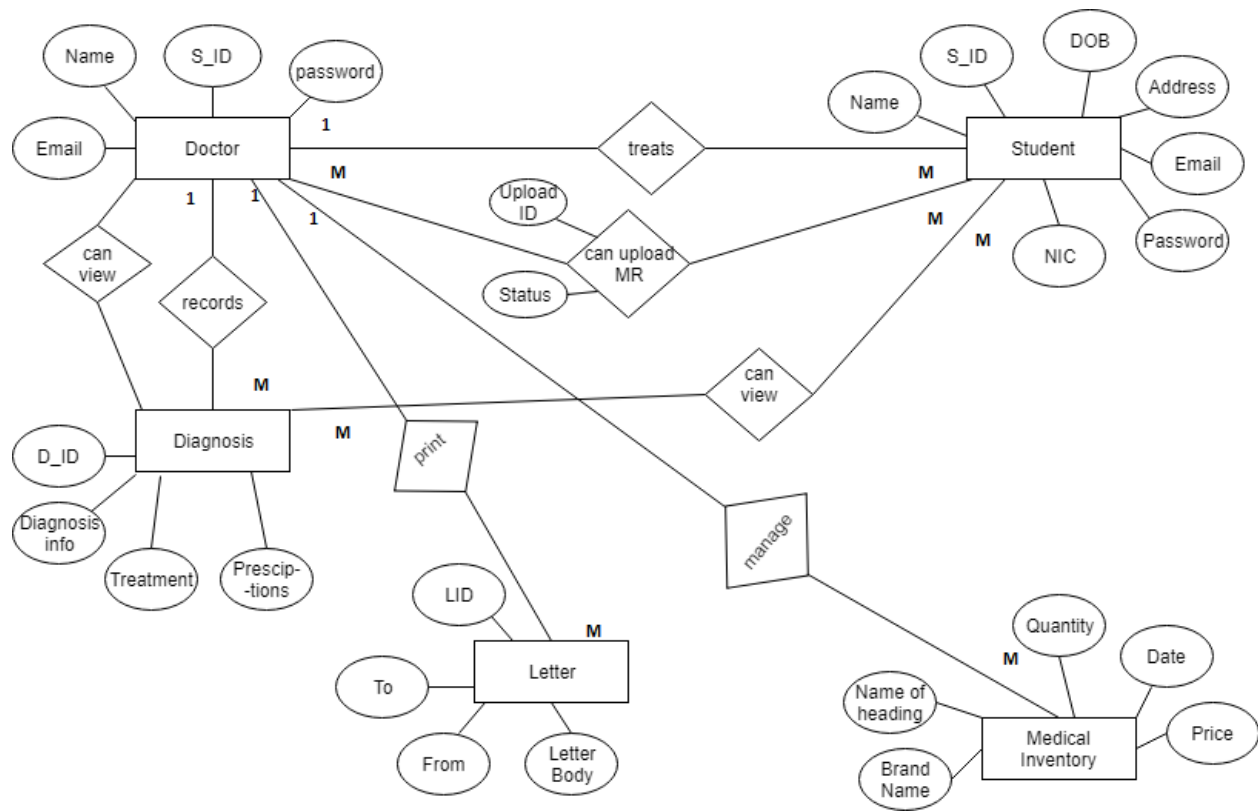




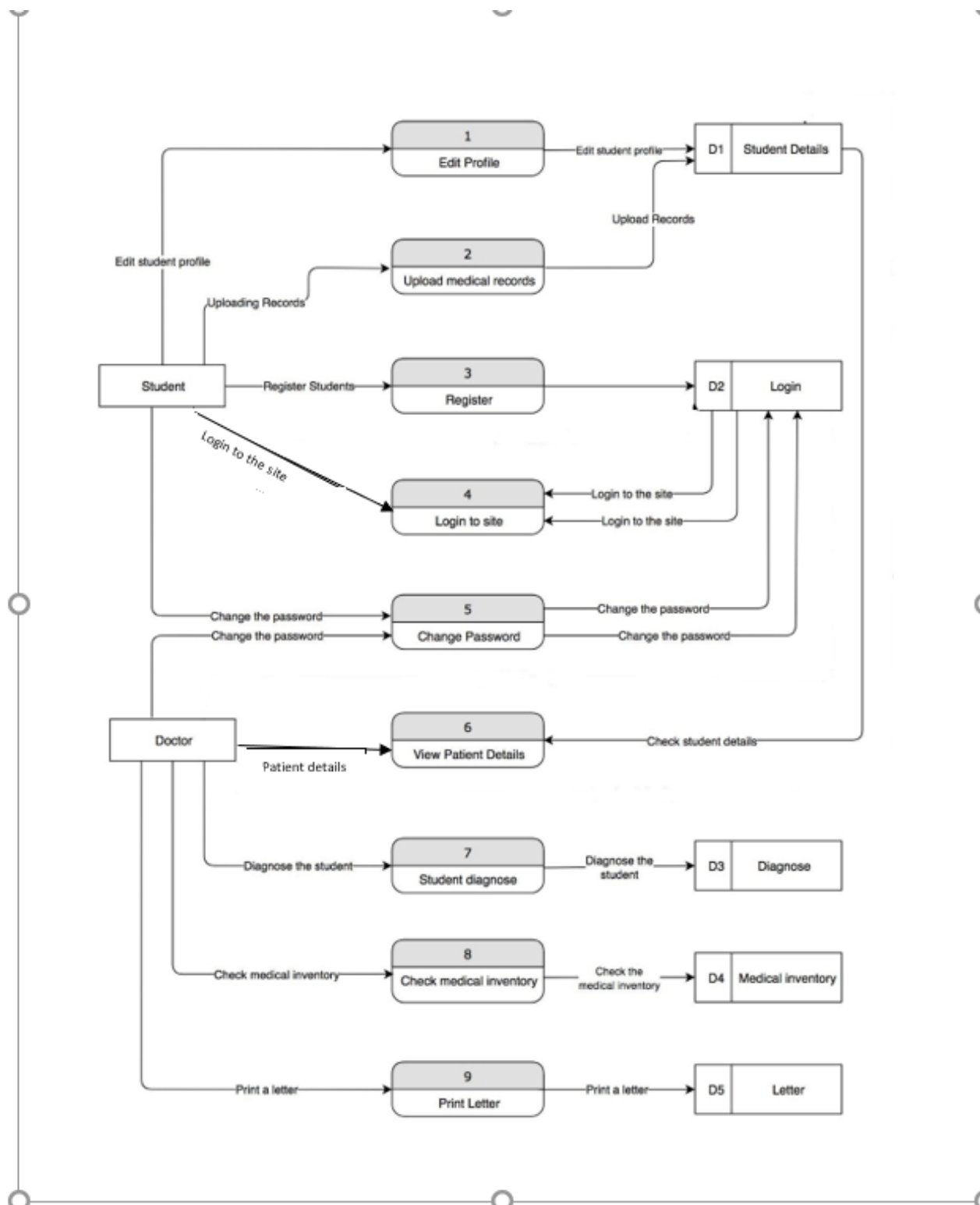
## CLASS DIAGRAM



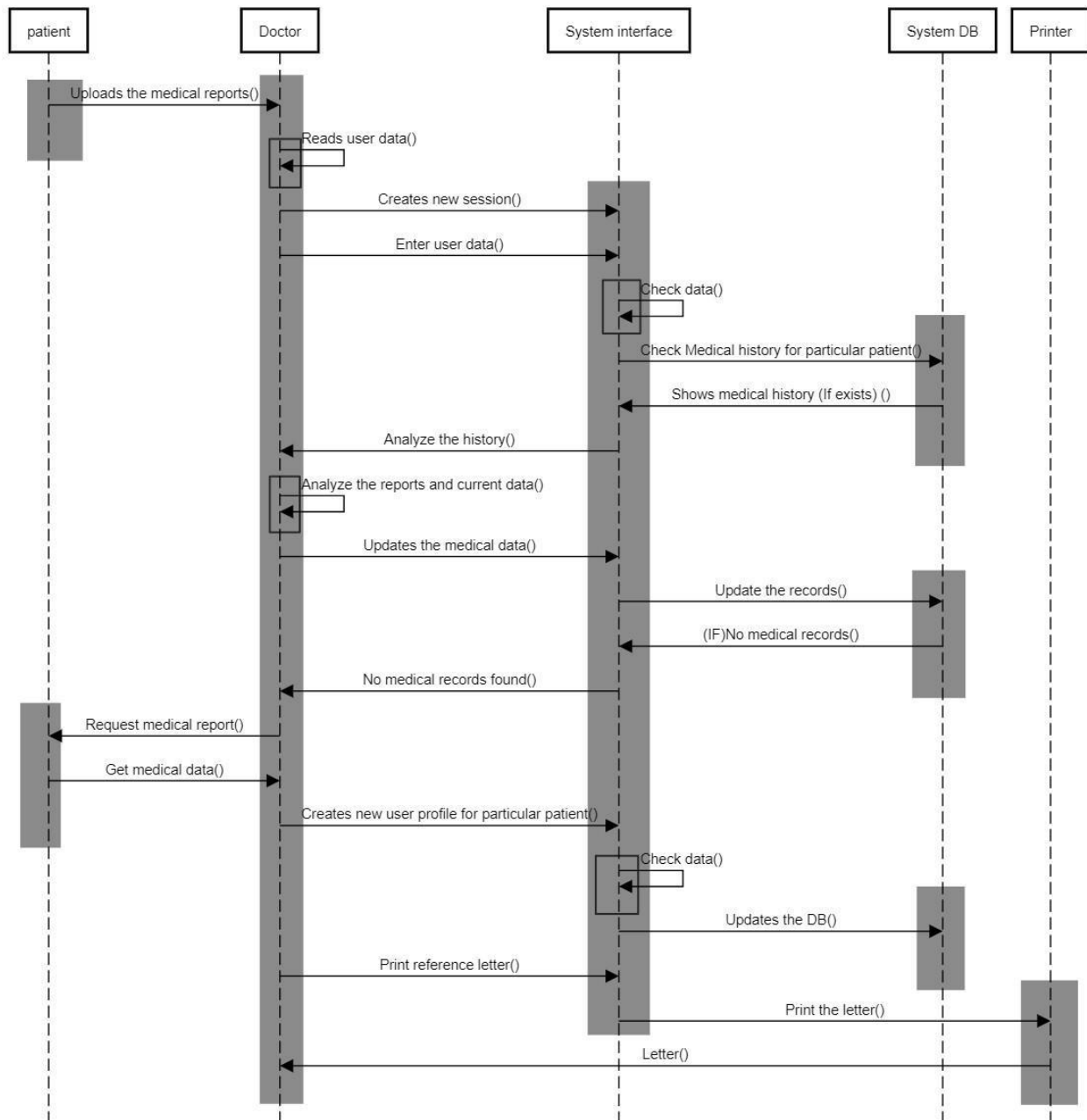
## ER DIAGRAM



## DATA FLOW DIAGRAM

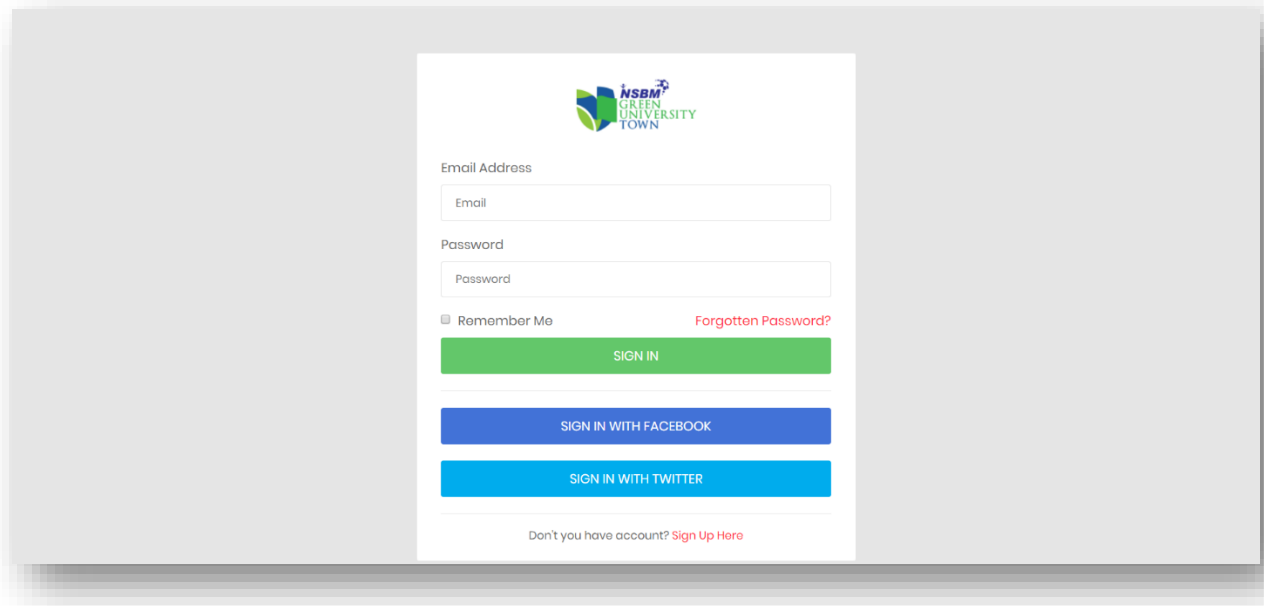


## SEQUENCE DIAGRAM



## USER INTERFACE SPECIFICATIONS AND OPERATIONS

### Login



The login form is centered on a light gray background. It features the NSBM Green University Town logo at the top. Below the logo, there are two input fields: 'Email Address' and 'Password'. A checkbox labeled 'Remember Me' is positioned to the left of a red link 'Forgotten Password?'. Below these fields is a green 'SIGN IN' button. Underneath the button are two more buttons: a blue 'SIGN IN WITH FACEBOOK' button and a light blue 'SIGN IN WITH TWITTER' button. At the bottom of the form, there is a red link 'Don't you have account? Sign Up Here'.

NSBM GREEN UNIVERSITY TOWN

Email Address

Email

Password

Password

☐ Remember Me [Forgotten Password?](#)

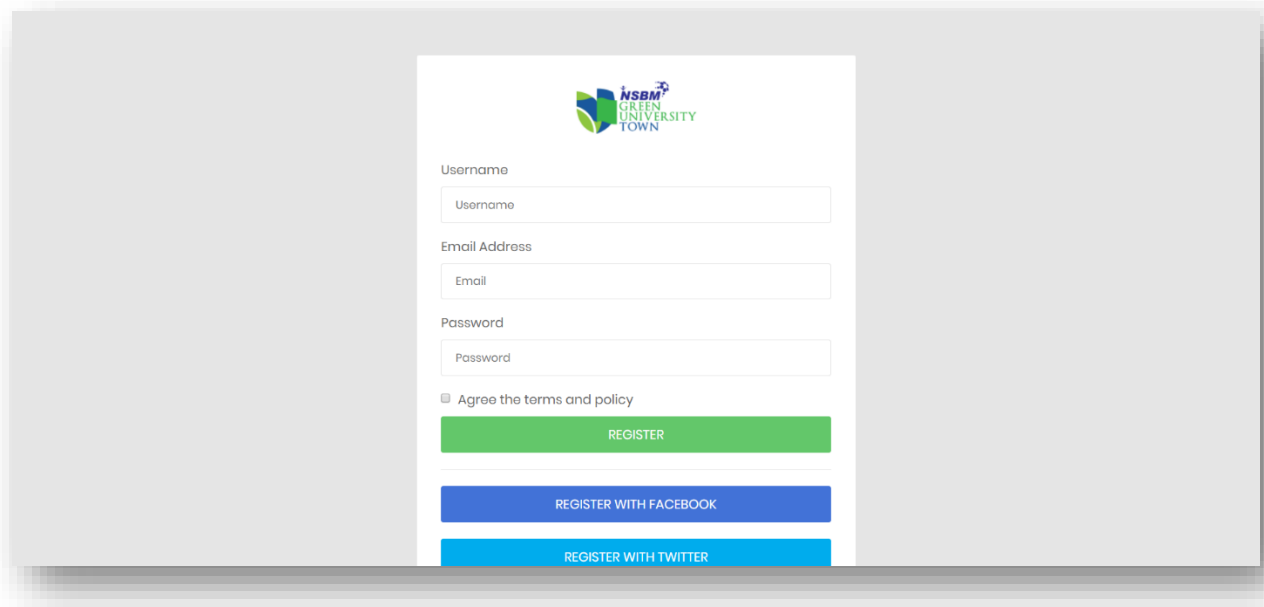
SIGN IN

SIGN IN WITH FACEBOOK

SIGN IN WITH TWITTER

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

### Register



The register form is centered on a light gray background. It features the NSBM Green University Town logo at the top. Below the logo, there are four input fields: 'Username', 'Email Address', 'Password', and 'Password'. A checkbox labeled 'Agree the terms and policy' is positioned to the left of the 'REGISTER' button. Below these fields are three buttons: a green 'REGISTER' button, a blue 'REGISTER WITH FACEBOOK' button, and a light blue 'REGISTER WITH TWITTER' button.

NSBM GREEN UNIVERSITY TOWN

Username

Username

Email Address

Email

Password

Password

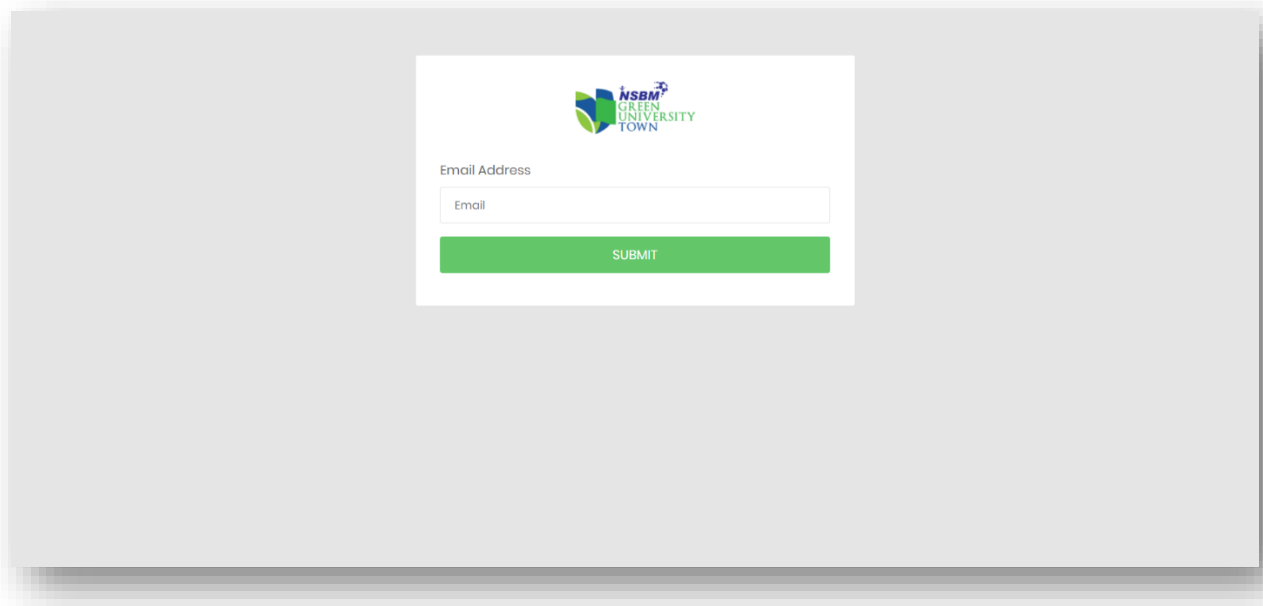
☐ Agree the terms and policy

REGISTER

REGISTER WITH FACEBOOK

REGISTER WITH TWITTER

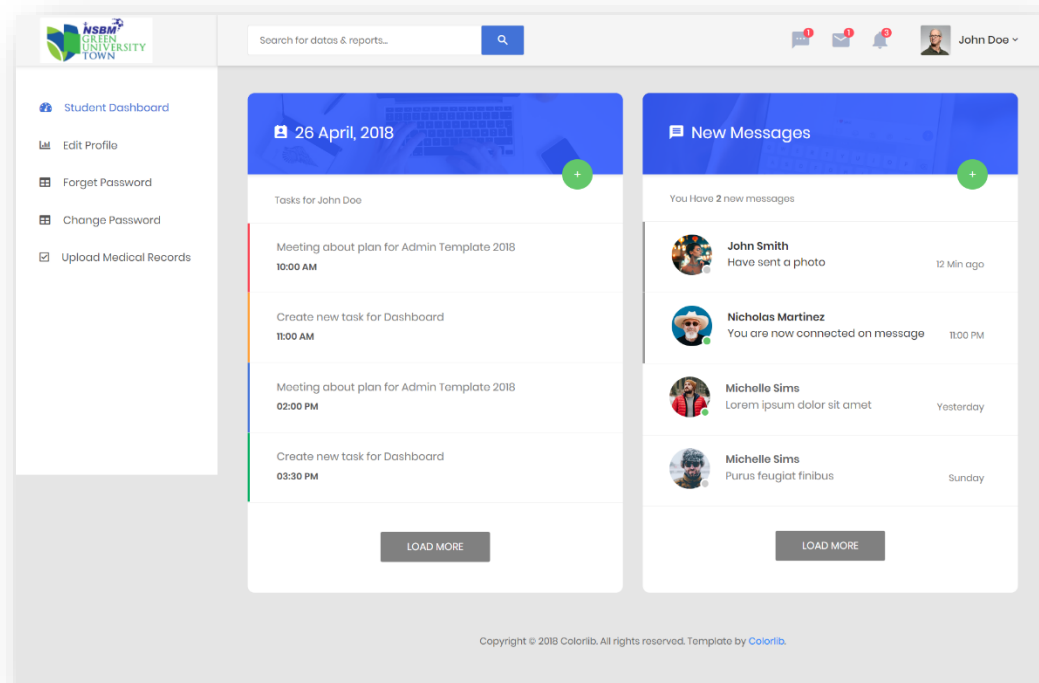
## Forget password



The image shows a 'Forget password' form for NSBM Green University Town. The form is centered on a light gray background. It features the university's logo at the top, followed by the label 'Email Address'. Below this is a text input field with the placeholder text 'Email'. At the bottom of the form is a green 'SUBMIT' button.


## STUDENTS ACCOUNT

### Student dashboard



The image displays a student dashboard for NSBM Green University Town. The dashboard has a clean, modern design with a light gray background. On the left, there is a sidebar menu with the following items: 'Student Dashboard' (selected), 'Edit Profile', 'Forget Password', 'Change Password', and 'Upload Medical Records' (checked). The main content area is divided into two columns. The left column is titled '26 April, 2018' and contains a list of 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), and 'Create new task for Dashboard' (03:30 PM). The right column is titled 'New Messages' and shows a list of messages from 'John Smith', 'Nicholas Martinez', 'Michelle Sims', and 'Michelle Sims'. Each message includes a profile picture, name, and a brief description. At the bottom of the dashboard, there is a copyright notice: 'Copyright © 2018 Colorlib. All rights reserved. Template by Colorlib.'

## Edit profile





Search for datas & reports...


1


1


5

 John Doe ▾

 Student Dashboard

 Edit Profile

 Forget Password

 Change Password

☒ Upload Medical Records

Add user

User Details

Full Name

NSBM ID

Address

Email

Enter Email

National ID

Height

Weight

Gender

Please select ▾

Blood Type

☐ A

☐ B

☐ AB

☐ O

Disabilities

Content...

upload medical reports

Choose Files

No file chosen

Save Profile

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## Upload medical records

The screenshot displays a web application interface for a student dashboard. The header includes the NBSM Green University Town logo, a search bar, and user profile information for John Doe. The left sidebar lists navigation options: Student Dashboard, Edit Profile, Forget Password, Change Password, and Upload Medical Records (which is highlighted). The main content area features a form titled 'Upload Medical record' with a file input field, a 'Choose File' button, and 'Submit' and 'Reset' buttons. A copyright notice is visible at the bottom of the form area.

**NBSM GREEN UNIVERSITY TOWN**

Search for datas & reports...

John Doe

- Student Dashboard
- Edit Profile
- Forget Password
- Change Password
- Upload Medical Records**

**Upload Medical record**

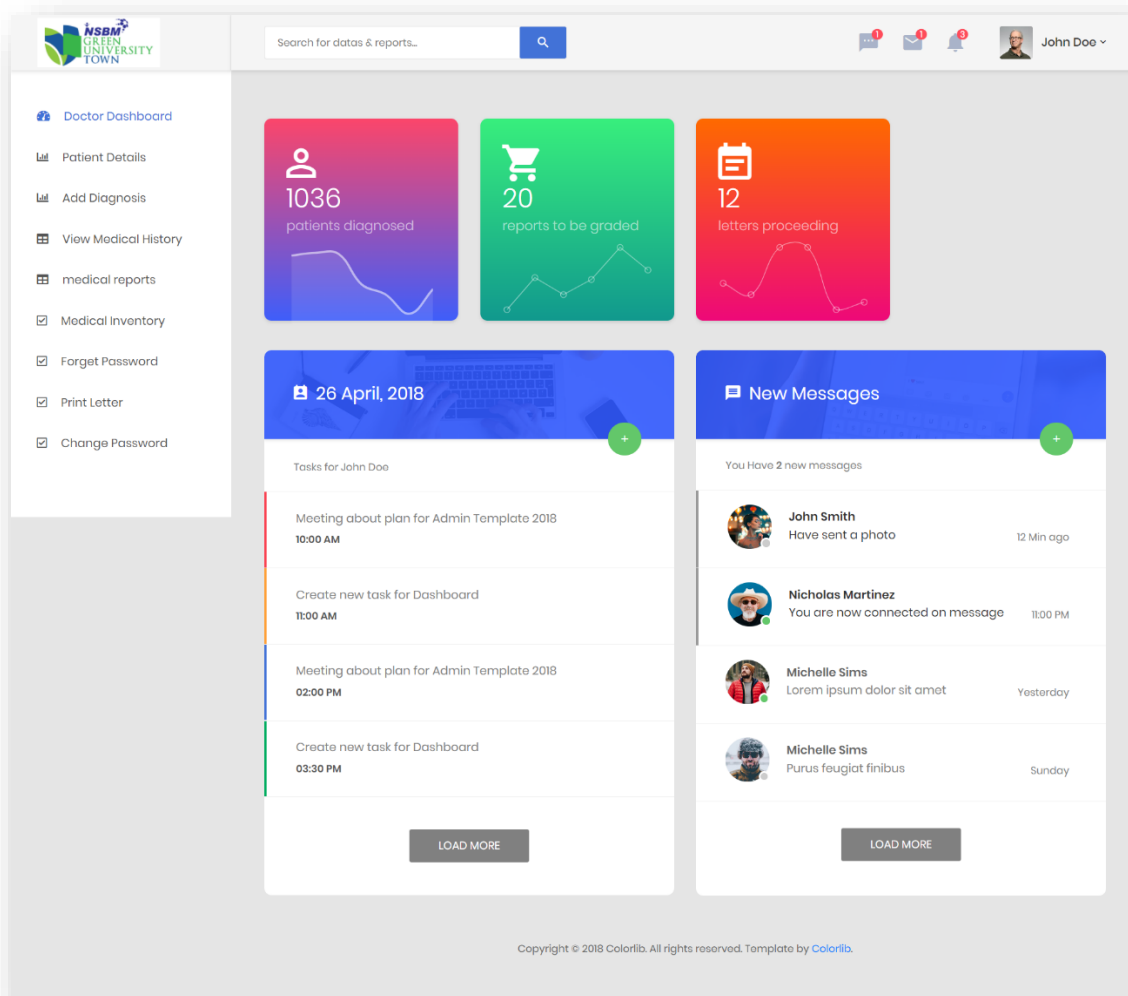
File input  No file chosen

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## DOCTORS ACCOUNT

### Doctors dashboard



## View patient details

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Search for datas & reports...

John Doe

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

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

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## Add diagnosis

NSBM GREEN UNIVERSITY TOWN

Search for datas & reports...

John Doe

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

Medical Diagnosis

Diagnosis Details

NSBM ID

Diagnosis

Treatment

Prescription

Instruction

Submit

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## View medical history

The screenshot shows the 'View Medical History' page. The left sidebar contains a menu with the following items: Doctor Dashboard, Patient Details, Add Diagnosis, View Medical History (highlighted), medical reports, Medical Inventory, Forget Password, Print Letter, and Change Password. The main content area features a search bar at the top with the text 'Search for datas & reports...' and a magnifying glass icon. Below the search bar is a table with the following columns: NSBM ID, Diagonis, Treatment, Prescription, and Instructions. The table contains five rows of data, all showing 'Fever' as the diagnosis and 'panadol,piriton' as the treatment. The prescription for all rows is 'panadol every 6 hours piriton 1 for day and night each', and the instructions are 'none'. At the bottom of the page, there is a copyright notice: 'Copyright © 2018 Colorlib. All rights reserved. Template by Colorlib.'

NSBM ID	Diagonis	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 the 'Received medical reports' page. The left sidebar contains a menu with the following items: Doctor Dashboard, Patient Details, Add Diagnosis, View Medical History, medical reports (highlighted), Medical Inventory, Forget Password, Print Letter, and Change Password. The main content area features a search bar at the top with the 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. The first row shows 'BSC-UCD-CSC-16.2-016' as the NSBM ID, 'SE201' as the Module Code, '16.2' as the Batch, and 'REPORT.pdf' as the File. The second row shows 'BSC-UCD-CSC-16.2-014' as the NSBM ID, 'SE201' as the Module Code, '17.1' as the Batch, and 'REPORT.pdf' as the File. Both rows have a 'not graded' submit state. At the bottom of the page, there is a 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	<a href="#">REPORT.pdf</a>	not graded
BSC-UCD-CSC-16.2-014	SE201	17.1	<a href="#">REPORT.pdf</a>	not graded

## Medical inventory

The screenshot shows the 'Medical Inventory Management' section of a web application. The left sidebar contains a menu with options: Doctor Dashboard, Patient Details, Add Diagnosis, View Medical History, medical reports, Medical Inventory (selected), Forget Password, Print Letter, and Change Password. The main content area has a search bar at the top with the text 'Search for datas & reports...'. Below the search bar, there are filters for 'All Properties', 'Today', and 'Filters'. A table lists three items: Paracetamol (brand: panadol, price: 12, date: 2018-09-27 02:12, quantity: 200), piriton (brand: hernas, price: 20, date: 2018-09-27 02:12, quantity: 130), and jeovani (brand: scc, price: 50, date: 2018-09-27 02:12, quantity: 100). Each item has a checkbox and a set of action icons (delete, edit, add, etc.). At the bottom right, there are buttons for '+ ADD ITEM' and 'Export'. The footer of the main content area reads: 'Copyright © 2018 Colorlib. All rights reserved. Template by Colorlib.'

NSBM GREEN UNIVERSITY TOWN

Search for datas & reports...

Medical Inventory Management

All Properties Today Filters

+ ADD ITEM Export

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

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## Print letter

The screenshot shows the 'Print Letter' section of the web application. The left sidebar is the same as in the previous screenshot, with 'Print Letter' selected. The main content area is titled 'For Future Check up' and contains a form with the following fields: Name (text input), From (text input with value 'Medical Center Nurse'), To (text input with value 'Referring Doctor'), Address (text input), and Description (text area with value 'Content...'). At the bottom of the form, there are 'Print' and 'Cancel' buttons.

NSBM GREEN UNIVERSITY TOWN

Search for datas & reports...

For Future Check up

Name

From Medical Center Nurse

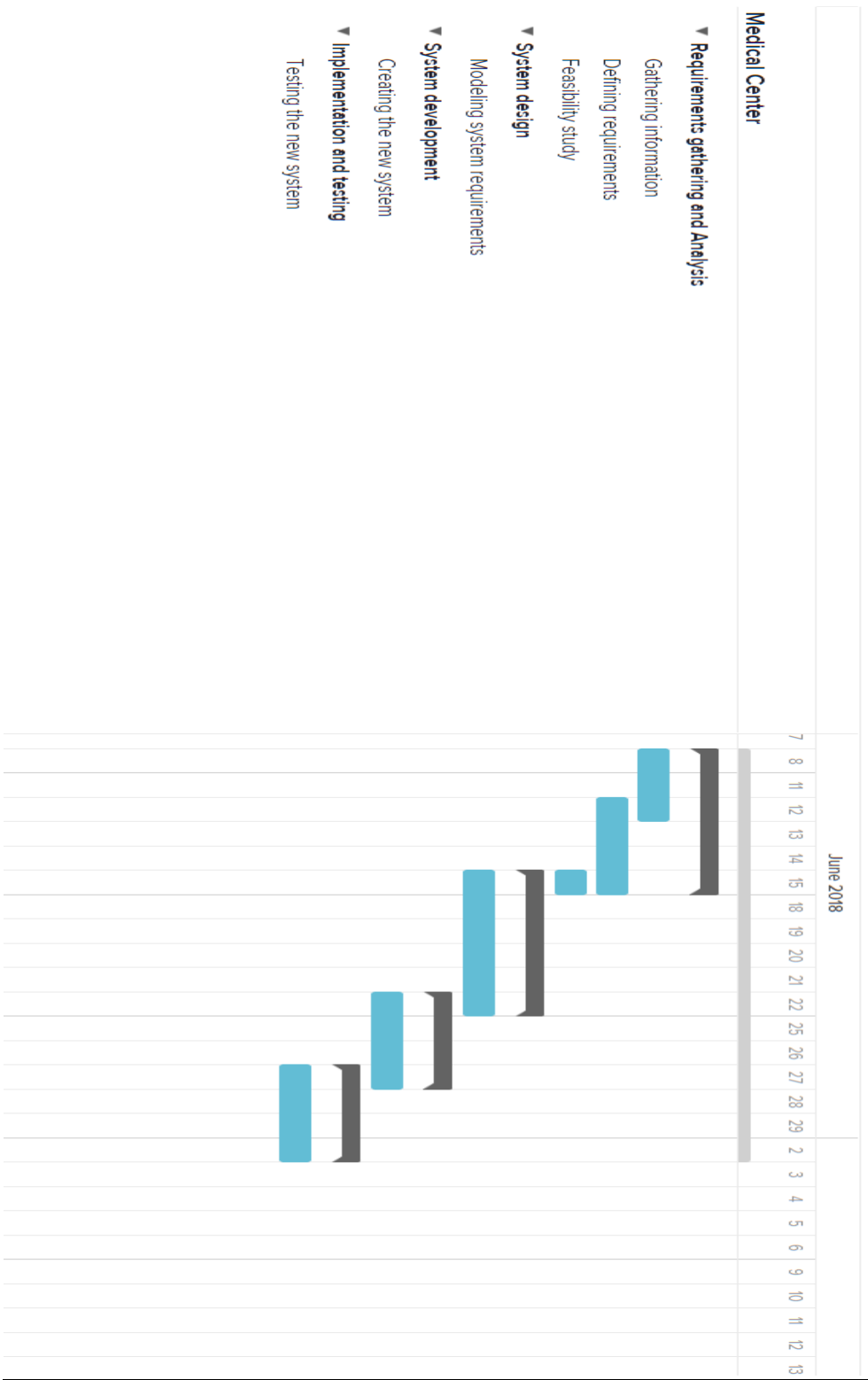
To Referring Doctor

Address

Description Content...

Print Cancel

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 thoroughly 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.