



# Kalafong Provincial Tertiary Hospital

## Gynaecological Patient Information management System:

### User Manual

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### **Abstract**

This document is the Software User Manual (SUM) for the Patient Information Management System project and was made according to the software engineering standard described in the tender proposal provided by Professor Snyman. The Software User Manual (SUM) instructs how to install and use the Patient Information Management System software. This project is part of the Software Engineering Project course (COS301) at the University of Pretoria.

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# **1 Introduction**

## **1.1 Change Log**

Document Title: Software User Manual  
Version: 0.1.0  
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Version Date Author(s) Summary  
0.0.1 29-05-2015 LN. Joseph Document creation

## **1.2 Intended readership**

This document covers the use for the following users of the PIMS system:

the system administrator  
the project administrators  
the medical staff  
the usability test subjects

## **1.3 Applicability**

This Software User Manual (SUM) applies to the PIMS software, version 0.1.

## **1.4 Purpose**

The purpose of the SUM is to assist the user in installing and using the PIMS software.

## **1.5 How to use this document**

How it is to be used:

- Title page - System name and the names and/or affiliation of all stakeholders.
- Introduction - Introduction to the System
- Overview - Purpose of the system
- Configuration - Configuration used by the system
- Installation - Detailed description of where to find the software and how to install it.
- Getting Starting - Walk through of the system
- Using the System - Description of the systems functions
- Troubleshooting - Procedures to take in case of errors

### **1.5.1 Problem Reporting**

Since the Pentec team will be dissolved after completion of the PIMS project, the issue of problem reporting is left to the Administrator, Professor Snyman.

## 2 Overview

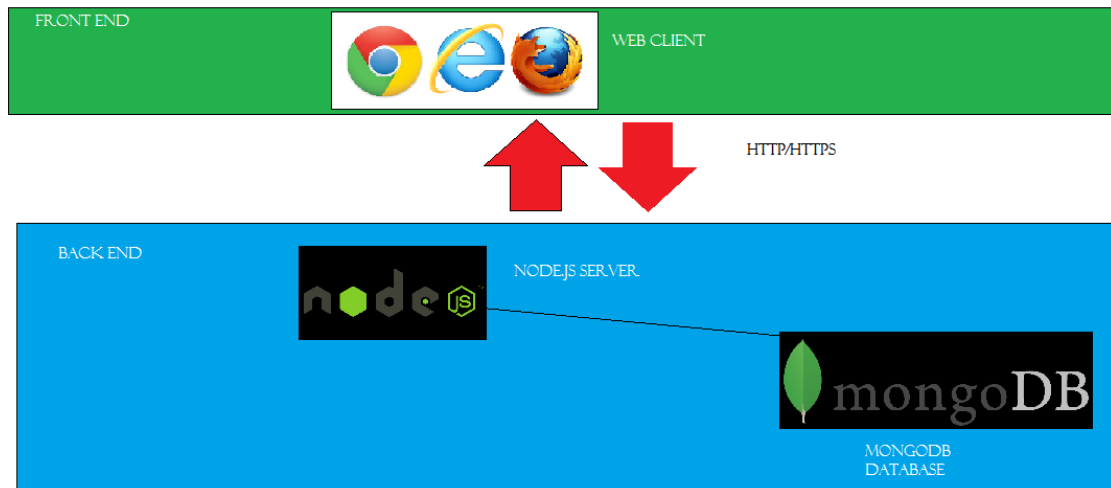
The purpose of this software is to be used by doctors and medical staff. It allows the administrative users to electronically fill in medical forms and be able to query for statistics for those forms and eventually receive a prediction that could assist in the functionality of the Kalafong Hospital. Regular users are allowed to fill in medical forms.

### 3 Configuration

## 4 System Configuration

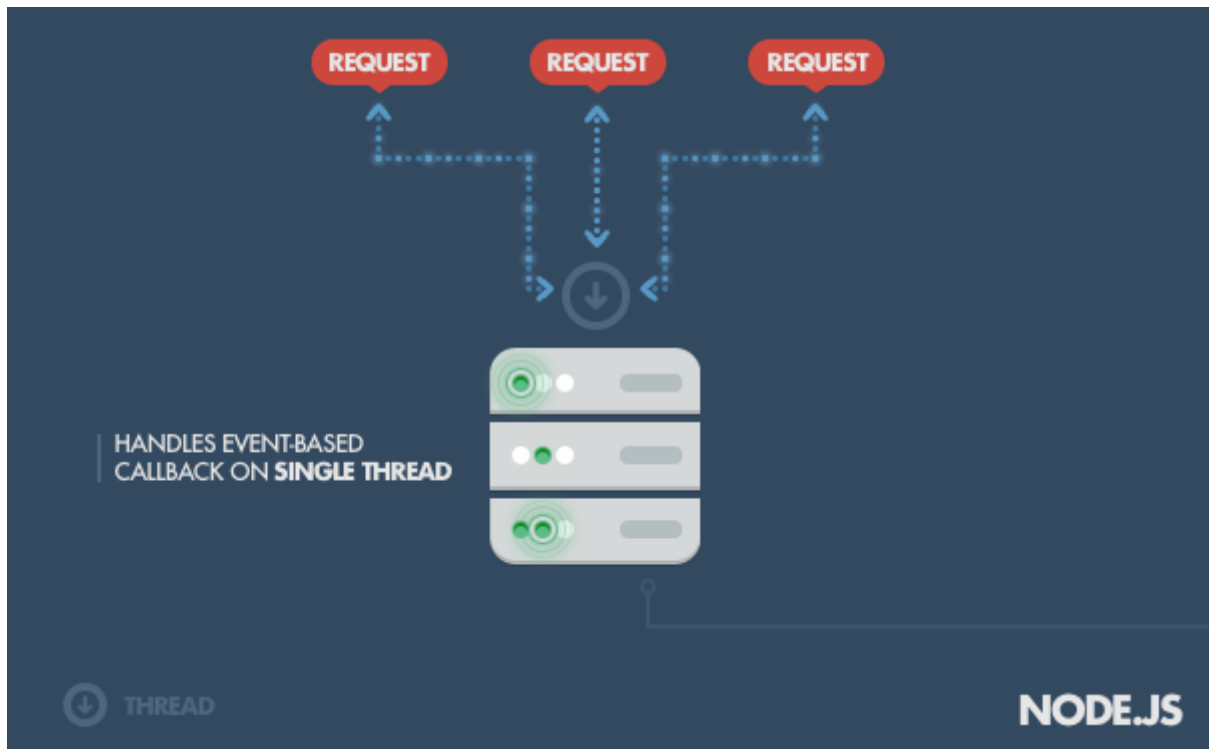
### 4.1 Basic System Structure

The current system that is in place makes use of a Node.js server that interacts with any web client. The server is hosted through a PaaS named Heroku. The system delivers compiled jade files to the users that are stylized using CSS. The jade files are controlled and animated by Javascript and jQuery. The node.js server accesses MongoDB database hosted on the DaaS, mongolab. This is illustrated below:



## 4.2 Node.js Architecture

Node.js is an asynchronous language and its basic client-server communication is illustrated below:



## 4.3 Communication Protocols Used

This is the current list of all communication protocols used by PIMS:

- HTTP/HTTPS
- SMTP



## 5 Installation

### 5.1 Running the Software

1. Website page
  - (a) Establish an internet connection
  - (b) Search for website in web browser
  - (c) Log into PIMS system with given authentication codes
2. Mobile Application
  - (a) Establish an internet connection
  - (b) Search for website in web browser
  - (c) Log into PIMS system with given authentication codes
3. Tablet or other
  - (a) Establish an internet connection
  - (b) Search for website in web browser
  - (c) Log into PIMS system with given authentication codes
- ...

### 5.2 Shutting down the website

Contact your service provider(hosting site) to pull down the software

## 6 Getting Started

### 6.1 Systems Procedure Order

This section describes a brief overview of how a user can access the system, it shows perspectives from an administrative user as well as normal users. The sections that are discussed can be found in more detail in the next section.

### 6.2 Splash Page

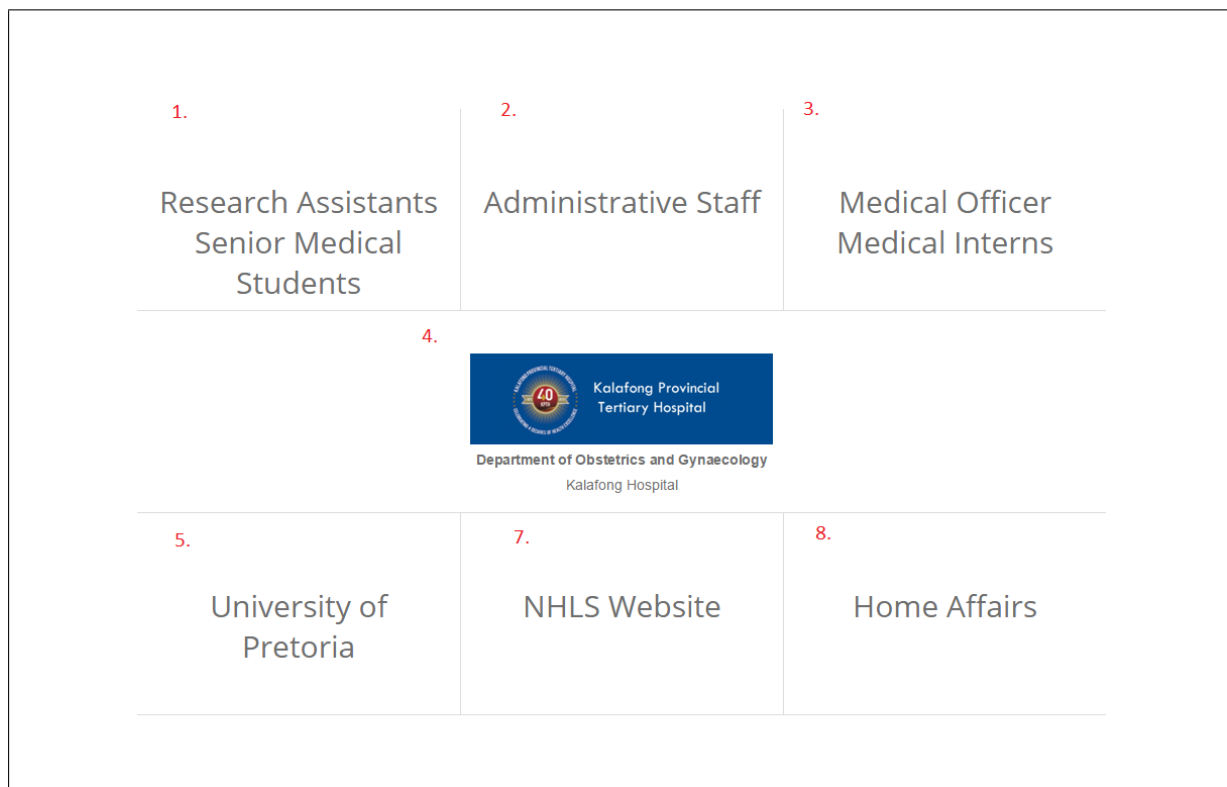


Figure 1: The splash page.

#### 6.2.1 Description

This section links users to different pages that they can access. A more detailed description of each component can be found below.

#### 6.2.2 Detailed Component Description

- 1. Research Assistants & Senior Medical Students Link:** This is a link that will direct the user to a customized login page for research assistants and senior medical students.
- 2. Administrative Staff Link:** This is a link that will direct the user to a customized login page for administrative staff.
- 3. Medical Officer & Medical Interns Link:** This is a link that will direct the user to a customized login page for medical officers and medical interns.
- 4. Kalafong Hospital Link:** This link directly links users to the official University of Pretoria Kalafong hospital page.
- 5. University of Pretoria Link:** This link directly links users to the official university of pretoria page.

6. **National Health Laboratory Service Link:** This is a link that will direct users to NHLS website.
7. **Home Affairs Link:** This is a link that will direct users to the home affairs website in order to allow users to check their life status.

### 6.2.3 Accessing user login

1. Select the link that is relative to user's login. Eg. Research Assistants should click the Research Assistants & Senior Medical Students link.
2. More information on the login page in the login tutorial section. . .

## 6.3 Login

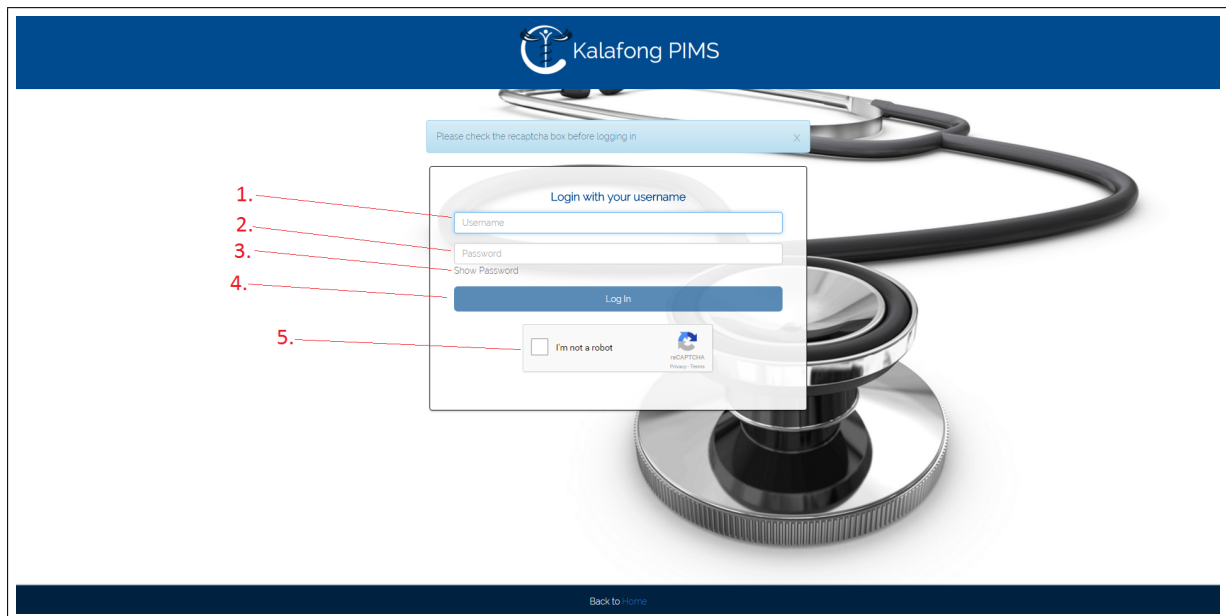


Figure 2: The login page.

### 6.3.1 Description

This is the login page that all users must access before being able to access the main web page. Users must fill in their credentials and pass a security check to be able to access this page. More detailed information can be found below.

### 6.3.2 Detailed Component Description

1. **Username Input Box:** This is the input box in which users will enter in their username.
2. **Password Input Box:** This is the input box in which users will enter in their password.
3. **Show Password Button:** This button allows users to check their password text. Clicking this button will toggle between whether the password is shown or not.
4. **Login Button:** This is the button the users will click once they have filled in their information and passed the security check. This will link them to their relative my space page.
5. **Recaptcha:** This is the security check that is put in place. More information on how to use it is placed within the "How to Login" section.

### 6.3.3 How to login

1. Fill in username input box and confirm it is correct. NOTE: If the user login page does not look like the above do not panic. There are different themes for each user type. The other themes can be found at the bottom of the login section in figure 5.
2. Fill in password input box and confirm it is correct. The user can confirm the password is correct using the show password button.
3. Complete the security check for the recaptcha by clicking on the recaptcha checkbox.
4. If multiple logins have been made in succession, a user may be prompted to select certain images related to a theme. For example, below (Figure 3) the recaptcha is asking the user to select all images with street name signs.

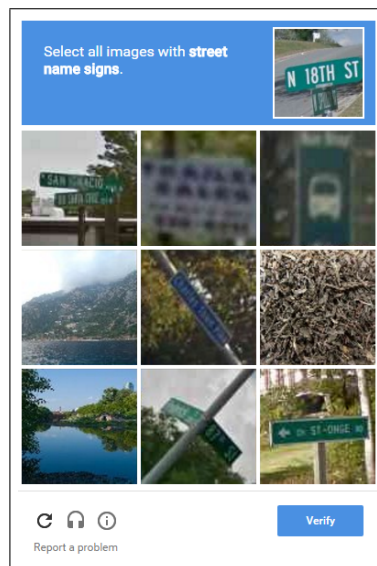


Figure 3: Recaptcha prompt.

5. If the recaptcha security check is successful the checkbox will look like figure 4.

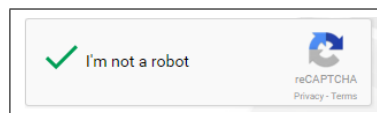


Figure 4: Passed recaptcha security check.

6. The user will now be able to click the login button to redirect them to their MyPimsSpace page.



Figure 5: Other themed login pages.

## 6.4 Admin Navbar

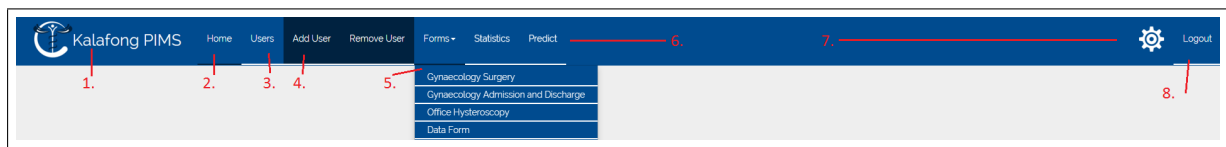


Figure 6: The Admin Navbar.

### 6.4.1 Description

This is the navbar that administrative users will use to help them navigate through pages with ease. A more detailed description can be found below.

### 6.4.2 Detailed Component Description

1. **Logo:** This is the logo for the kalafong PIMS and if clicked will link the user back to their MyPimsSpace page.
2. **Active tab:** This is the active tab and will identify to user the current page that are on using a dark blue line at the bottom of its tab. If clicked it will reload the current page. (NOTE: If tab has sub-tabs it will behave as a Submenu tab).
3. **Submenu tab:** This is a submenu tab and when clicked will reveal sub tabs that relate to the sub menu tab.
4. **Subtab:** Behave like regular tabs but do not underline when active, instead the Submenutab will be underlined.
5. **Dropdown tab:** This is a dropdown tab and when click will display a dropdown menu much like the one in figure 6.
6. **Regular tab:** These tabs will link a user to the specified section. Eg. Predict will link the user to the prediction page.
7. **Settings tab:** This tab works similar to a submenu tab and can show all the optional settings for the specific user.
8. **Logout tab:** This tab is a regular tab but when clicked the user will be logged out and redirected to the splash page.

### 6.4.3 How to navigate a Subtab

1. Click on the Submenu tab which will reveal the Subtabs with an animation
2. Click on the subtab which is relevant to the page the user would like to access. Then the user will then be redirected to that page.

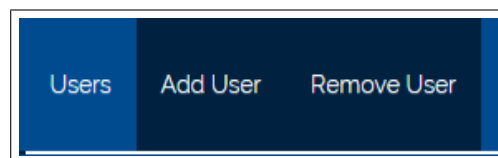


Figure 7: Submenu tab with subtabs visible

### 6.4.4 How to navigate a dropdown menu

1. Click on the Submenu tab which will reveal the dropdown menu.

2. Click on the dropdown tab which is relevant to the page the user would like to access. Then the user will then be redirected to that page.

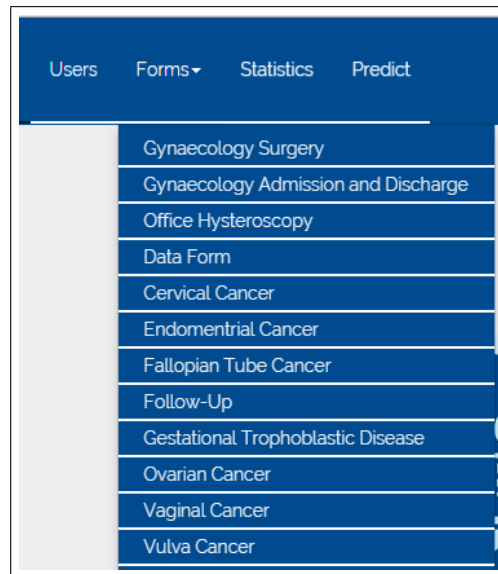


Figure 8: Dropdown menu

#### 6.4.5 How to navigate a regular tab

1. Click on the regular tab which is relevant to the page the user would like to access. Then the user will then be redirected to that page.

#### 6.4.6 How to navigate the settings tab

1. Click on the Settings tab which will reveal the Subtabs with an animation
2. Click on the subtab which is relevant to the page the user would like to access. Then the user will then be redirected to that page.

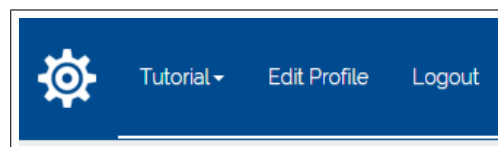


Figure 9: Active settings menu

#### 6.4.7 How to Logout

1. Click the logout tab and the user will be logged out.

### 6.5 Regular User Navbar



Figure 10: The User Navbar.

#### 6.5.1 Description

This is the navbar that users will use to help them navigate through pages with ease. A more detailed description can be found below.

### 6.5.2 Detailed Component Description

1. **Logo:** This is the logo for the kalafong PIMS and if clicked will link the user back to their MyPimsSpace page.
2. **Active tab:** This is the active tab and will identify to user the current page that are on using a dark blue line at the bottom of its tab. If clicked it will reload the current page. (NOTE: If tab has sub-tabs it will behave as a Submenu tab).
3. **Dropdown tab:** This is a dropdown tab and when click will display a dropdown menu much the like the one in figure 6.
4. **Settings tab:** This is a settings tab and when clicked will reveal sub tabs that relate to the sub menu tab.
5. **Logout tab:** This tab is a regular tab but when clicked the user will be logged out and redirected to the splash page.

### 6.5.3 How to navigate a dropdown menu

1. Click on the Submenu tab which will reveal the dropdown menu.
2. Click on the dropdown tab which is relevant to the page the user would like to access. Then the user will then be redirected to that page.

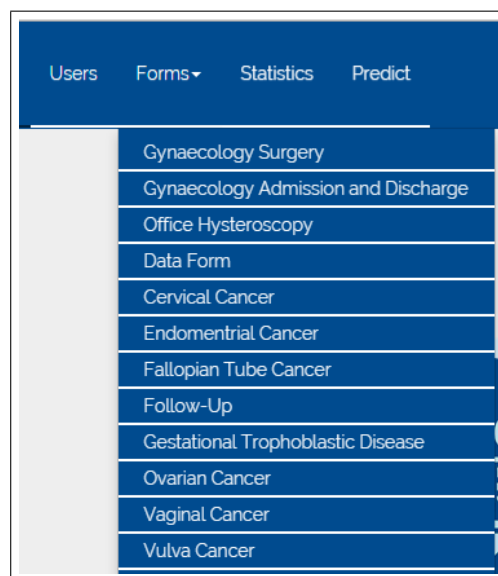


Figure 11: Dropdown menu

### 6.5.4 How to navigate a regular tab

1. Click on the regular tab which is relevant to the page the user would like to access. Then the user will then be redirected to that page.

### 6.5.5 How to navigate the settings tab

1. Click on the Settings tab which will reveal the Subtabs with an animation
2. Click on the subtab which is relevant to the page the user would like to access. Then the user will then be redirected to that page.

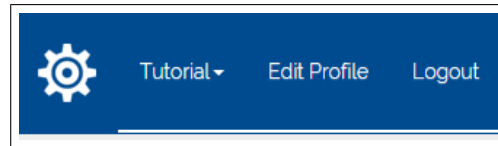


Figure 12: Settings menu. NOTE: This is the admin's settings menu and edit profile is not included in the regular users setting's subtabs.

### 6.5.6 How to Logout

1. Click the logout tab and the user will be logged out.

## 6.6 Home Icons

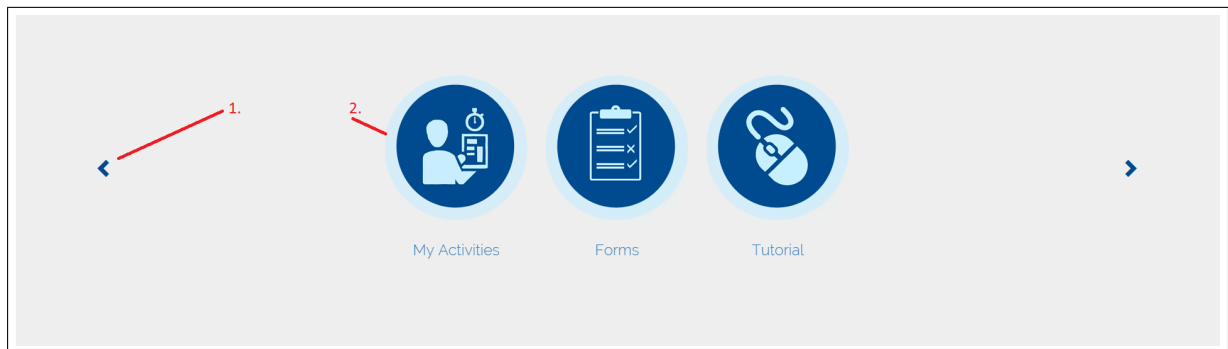


Figure 13: Admin & User Home Icons

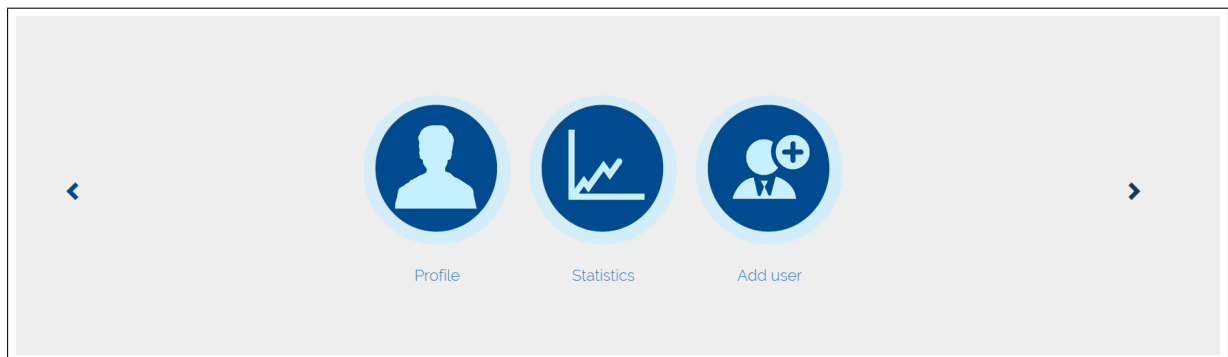


Figure 14: More Admin Home Icons

### 6.6.1 Description

The home icons are put in place to ease up usability for users as well as provide an aesthetically pleasing way of navigating the web application. The animation in place is more aesthetic for a regular user as they have limited icons and thus can only navigate through the same set of icons.

### 6.6.2 Detailed Component Description

1. **Navigation Arrow:** This arrow is used to navigate through the home icons.
2. **Home icon:** This is used as a point of navigation, home icons can either be links or have have a submenu links.



### **6.6.3 How to navigate home icons**

1. By clicking the on the navigations arrows

OR

1. By clicking the left and right keyboard arrows

### **6.7 Fill Forms**

### **6.8 Statistics Queries**

### **6.9 Statistics Dashboard**

### **6.10 Add User**

### **6.11 Remove User**

### **6.12 Update Profile**

### **6.13 Predict**

## 7 Using the System

The login, forms, user and statistics operations are described in this chapter.

### 7.1 User

#### 7.1.1 add user

**Functional Description** This operation adds a user to the PENTEC-PIMS database.

**Formal Description**

- Syntax: add user (username,surname,password,staff type,department,email address,user right) as [Users] [A schema to save the details of all medical staff that can access the system]

- Parameters:

schema (Required when chosen) : Users Schema

pentec\_pims (Required) : This is the name of the database in mongoose that we are using

details (Required):All the above mentioned details in syntax are important to add a user

**Examples**

- add user John Doe, Medical Intern, User right 2, Gynaecologist
- add user url:http://kalafongpims.herokuapp.com/addUser
- URL : http://kalafongpims.herokuapp.com as Medical Staff This is a medical research dataset PENTEC Software User Manual 0.1.0 14

**Possible errors**

- You do not have the login credentials
- A user with name [username]already exists
- You don't have the role of admin

**Solutions**

- Go to admin(Dr Snyman) and request he add you to the database of users.
- Register with your already given details. No duplicates allowed.
- Go to admin(Dr Snyman) and request he make you admin.

**Related operations** remove user

#### 7.1.2 edit profile

**Functional Description** This operation edits a users profile and saves it to the PENTEC-PIMS database.

**Formal description**

- Syntax: edit user (username,surname,password,confirm password,staff type,department,email address,user right) as [Users] [A schema to save the details of all medical staff that can access the system]

- Parameters:

schema (Required when chosen) : Users Schema

pentec\_pims (Required) : This is the name of the database in mongoose that we are using.

details (Required) :All the above mentioned details in syntax are important to complete edit profile.

## Examples

- edit user John Doe, Medical Intern, User right 2, Gynaecologist
- edit user url:http://kalafongpims.herokuapp.com/editProfile
- URL : :http://kalafongpims.herokuapp.com as Medical Staff This is a medical research dataset  
PENTEC Software User Manual 0.1.0 14

## Possible errors

- You do not have the login credentials to log into the system
- Passwords don't match
- You don't have the role of admin
- You do not appear on the system

## Solutions

- Go to admin(Dr Snyman) and request he add you to the database of users.
- Register with your already given details sent to your email. No duplicates allowed.
- Re-enter your password
- Go to admin(Dr Snyman) and request he make you admin.

## Related operations add user

### 7.1.3 password

**Functional description** This operation changes your password on the PENTEC-PIMS database.

## Formal description

- Syntax:password (confirm password, password) as [Users] [A schema to save the details of all medical staff that can access the system]

- Parameters:

schema (Required when chosen) : Users Schema

pentec\_pims (Required) : This is the name of the database in mongoose that we are using.

details (Required) :All the above mentioned details in syntax are important to complete password.

## Examples

- password mysecretpassword, mysecretpassword
- add user url:http://kalafongpims.herokuapp.com/editProfile
- URL : :http://kalafongpims.herokuapp.com as Medical Staff This is a medical research dataset  
PENTEC Software User Manual 0.1.0 14

## Possible errors

- You do not have the login credentials
- You don't have the role of admin
- Passwords dont match

## Solutions

- Go to admin(Dr Snyman) and request he add you to the database of users.
- Go to admin(Dr Snyman) and request he make you admin.
- Re-enter your password carefully.

## Related operations none

#### 7.1.4 list form

**Functional description** This operation list all the available forms in the PENTEC-PIMS database.

##### Formal description

- Syntax: list form (form name) as [Forms] [A schema to save the details of all medical forms in the system]

- Parameters:

schema (Required when chosen) : Forms Schema

pentec\_pims (Required) : This is the name of the database in mongoose that we are using.

details (Required) :All the above mentioned details in syntax are important to complete list form.

##### Examples

- list form Gynaecology Form
- list form url:http://kalafongpims.herokuapp.com/forms
- URL : :http://kalafongpims.herokuapp.com as Medical Staff This is a medical research dataset  
PENTEC Software User Manual 0.1.0 14

##### Possible errors

- You do not have the login credentials
- The form you are looking for does not exist

##### Solutions

- Go to admin(Dr Snyman) and request he add you to the database of users.
- Go to admin(Dr Snyman) and request he create the form.

**Related operations** none

#### 7.1.5 save form

**Functional description** This operation allows you to save a form to the PENTEC-PIMS database.

##### Formal description

- Syntax: save form (data, form name) as [Forms] [A schema to save the details of all forms created in the system]

- Parameters:

schema (Required when chosen) : Forms Schema

pentec\_pims (Required) : This is the name of the database in mongoose that we are using.

details (Required) :All the above mentioned details in syntax are important to complete save form.

##### Examples

- save form discharge form, JSON Object
- save form url:http://kalafongpims.herokuapp.com/formbuilder
- URL : :http://kalafongpims.herokuapp.com as Medical Staff This is a medical research dataset  
PENTEC Software User Manual 0.1.0 14

**Possible errors** none

**Solutions** none

**Related operations** list form, add form

### 7.1.6 send notification

**Functional description** This operation allows you to notify a patient of their follow up via email.

#### Formal description

- Syntax: add notification (username, email, message, date) as [Users] [A schema to save the details of all medical staff that can access the system]

- Parameters:

schema (Required when chosen) : Users Schema

pentec\_pims (Required) : This is the name of the database in mongoose that we are using.

details (Required) :All the above mentioned details in syntax are important to complete send notification.

#### Examples

- add notification John Doe,john@gmail.com, " John Please come for your checkup",2015
- add notification url:http://kalafongpims.herokuapp.com/sendNotification
- URL : :http://kalafongpims.herokuapp.com as Medical Staff This is a medical research dataset  
PENTEC Software User Manual 0.1.0 14

#### Possible errors

- You cant find the users name
- User does not have an email address

#### Solutions

- Patient does not exist in the system
- Notification cannot be sent to user

**Related operations** remove user

### 7.1.7 list department

**Functional description** This operation lists all the departments on the splash screen from the PENTEC-PIMS database.

#### Formal description

- Syntax: list department (name of department, link) as [Departments] [A schema to save the details of all departments in the system and display them on the splash screen]

- Parameters:

schema (Required when chosen) : Departments Schema

pentec\_pims (Required) : This is the name of the database in mongoose that we are using.

details (Required) :All the above mentioned details in syntax are important to complete list user.

#### Examples

- list department Gynaecology, www/d/
- list department url:http://kalafongpims.herokuapp.com/splash
- URL : :http://kalafongpims.herokuapp.com as Medical Staff This is a medical research dataset  
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**Possible errors** None

**Solutions** None

**Related operations** none

### 7.1.8 exit

**Functional description** This operation adds a user to the PENTEC-PIMS database.

#### Formal description

- Syntax: add user (none) as [none] [none]

- Parameters:

schema (Required when chosen) : Users Schema

pentec\_pims (Required) : This is the name of the database in mongoose that we are using.

details (Required) : All the above mentioned details in syntax are important to complete exit.

#### Examples

- exit [press logout button]
- exit url:http://kalafongpims.herokuapp.com/home
- URL : :http://kalafongpims.herokuapp.com as Medical Staff This is a medical research dataset  
PENTEC Software User Manual 0.1.0 14

**Possible errors** none

**Solutions** none

**Related operations** login

## 7.2 Login

### 7.2.1 authenticate

**Functional Description** This function authenticates a user and logs them into the system.

#### Formal Description

- Syntax: authenticate([username], [password], [callback])

- Parameters:

username (Required): This is the username of the user, it will usually be the user's name or a unique number assigned to them.

password (Required): This is the password of the user and is used to authenticate the user.

callback (Optional): This is the callback function and is used to keep the processes synchronous.

#### Examples

- authenticate("John", 1234)
- authenticate("john", 1234, thisIsAFunction())

#### Possible Errors & Solutions

- Problem: Your login does not exist.
- Solution: Contact supervisor.
- Problem: Your password is incorrect.
- Solution: Contact supervisor.
- Problem: You are trying to access an admin page but it takes you to a regular user page.
- Solution: Request supervisor to change your rank.

**Related operations** checkAdmin

### 7.2.2 check admin

**Functional Description** Determines if the user is an administrator.

#### Formal Description

- Syntax: `checkAdmin([username], [password], [callback])`

- Parameters:

`username` (Required): This is the username of the user, it will usually be the user's name or a unique number assigned to them.

`password` (Required): This is the password of the user and is used to authenticate the user.

`callback` (Optional): This is the callback function and is used to keep the processes synchronous.

#### Examples

- `checkAdmin("John", 1234)`
- `checkAdmin("john", 1234, thisIsAFunction())`

**Possible Errors & Solutions**     • Problem: You are trying to access an admin page but takes you to a regular user page.

- Solution: Request supervisor to change your rank.

**Related operations** `authenticate`

### 7.2.3 recaptcha

**Functional Description** This function is a security feature to ensure the user is not an automated bot or machine.

#### Formal Description

- Syntax: `recapture([action], [callback])`

- Parameters:

`action` (Required): This is the action taken by the user in the form of a check on the checkbox.

`callback` (Optional): This is the callback function and invoked by the click event and allows the user to log into the system.

#### Examples

- `recaptcha(event(Click), thisIsACallbackFunction())//allow user to log in`

**Possible Errors & Solutions**     • Problem: Error message "Please check the recaptcha box before logging in"

- Solution: Locate the recaptcha box at the bottom of the log in box and click it.

**Related operations** `authenticate`

## 7.3 Statistics

### 7.3.1 get daterange

**Functional Description** This function allows the user to select a time period that he would like his data to reflect.

#### Formal Description `/hfill`

- Syntax: `getDatarange([startDate], [endDate], [callback])`

- Parameters:

startDate (Required) This is the start date that has been selected.

endDate (Required) This is the end date that has been selected.

callback (Optional) This is the callback function and is used to keep the processes synchronous.

### Examples

- `getDatarange(startDate : "10/10/2014", endDate: "10/10/2015")`
- `getDatarange(startDate : "10/10/2014", endDate: "10/10/2015", callback)`

### Possible Errors & Solutions

- Problem: No date selected
- Solution: Reselect the date on the date time picker and click apply then select other procedures and click query.
- Problem: No procedures in the dates selected
- Solution: Graph will show user there are no procedures in that period.

### Related operations

- `get interval`
- `get graph`

#### 7.3.2 get interval

**Functional Description** This function gets the interval based data in the dropdownlist and certain selectors and uses it to query the database.

### Formal Description /hfill

- Syntax: `getInterval([selectors], [callback])`

- Parameters:

interval [statistics],[selectors](Required) These are the selectors put in place to customize the procedures that are selected.

callback (Required) This is the callback function and is used to keep the processes synchronous.

### Examples

- `getInterval(Weekly,Average Age,startDate : "10/10/2014", age: 25, endDate: "10/10/2015")`
- `getInterval(Yearly, Average Age,startDate : "10/10/2014", age: 25, endDate: "10/10/2015", callback)`

### Possible Errors & Solutions

- Problem: Invalid selectors
- Solution: Choose a valid selector.
- Problem: No operations during that selector
- Solution: Graph will correctly depict the scenario.

### Related operations

- `get datarange`
- `get graph`



### 7.3.3 get graph

**Functional Description** This function gets data selected from the input boxes and after querying the database returns them in a format which can be converted into a graph.

**Formal Description** /hfill

- Syntax: `getGraph([startDate],[endDate],[interval],[statistic], [callback])`

- Parameters:

`startDate` (Required) This is the start date that has been selected.

`endDate` (Required) This is the end date that has been selected.

`interval` (Required) This is the interval that has been selected.

`statistic` (Required) This is the statistic that has been selected.

`callback` (Optional) This is the callback function and is used to keep the processes synchronous.

**Examples**

- `getGraph(startDate : "10/10/2014", procedure: "all", endDate: "10/10/2015","Weekly", "Average Age", )`
- `getGraph(startDate : "10/10/2014", procedure: "all" ,endDate: "10/10/2015", callback)`

**Possible Errors & Solutions**     • Problem: Data does not exist

- Solution: Graph shows the appropriate message.
- Problem: Invalid selectors
- Solution: Choose a valid selector.

**Related operations**

- `get interval`
- `get datarange`

### 7.3.4 get statistics

**Functional Description** This function allows the user to select a specific statistic he would like his data to reflect.

**Formal Description** /hfill

- Syntax: `getStatistics([stats], [callback])`

- Parameters:

`stats` (Required) This is the statistics that has been selected.

`callback` (Optional) This is the callback function and is used to keep the processes synchronous.

**Examples**

- `getStatistics(stats:"Elective Procedures")`

**Possible Errors & Solutions**     • Problem: No statistic value selected

- Solution: Error message asking you to select a statistic value will show.
- Problem: No procedures in the dates selected
- Solution: Graph will show user there are no procedures in that period and ask you to select dates.

**Related operations**

- `get interval`
- `get graph`
- `get datarange`

## 8 Troubleshooting

### 8.1 Introduction

This section contains a series of tables that describe possible solutions to problems that may occur when using your PC. Each table contains:

- Symptoms that describe the sign or warning message for the type of problem.
- Possible solutions that describe what you should do to try to solve the problem.

Troubleshooting	
Symptoms	Possible solution
You press the login button and nothing happens	1. You entered the wrong user-name/password combination. 1.1 Click show password to see what you have typed. 1.2 Recheck your email from admin to ensure you are using the correct user-name/password combination. 1.3 You have not clicked the re-captcha box.
Aland Islands	AX. 1.4 You have not entered a user-name or password.
Cannot add new user	2. You have to fill all the textboxes
Cannot edit profile	Make sure you have internet connection
Cannot query statistics	Make sure you have selected an option for each dropdown-list. Ensure you have clicked the query button.