**INTI International College Penang School of Computing**

**3+0 Bachelor of Science (Hons) in Computer Science, in collaboration with Coventry University, UK**

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**Coursework cover sheet**

**Section A - To be completed by the student**

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| --- | --- |
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| Semester: APR2024 | |
| Lecturer: Mr. Shahriman Mohd Said | |
| Module Code and Title: 5001CEM Software Engineering | |
| Assignment No. / Title: Portfolio | % Of Module Mark: 10% |
| Hand out date: 25 April 2024 | Due date: 25 June 2024 |
| Penalties: No late work will be accepted. If you are unable to submit coursework on time due to extenuating circumstances, you may be eligible for an extension. Please consult the lecturer. | |
| Declaration: I/we the undersigned confirm that I/we have read and agree to abide by the University regulations on plagiarism and cheating and Faculty coursework policies and procedures. I/we confirm that this piece of work is my/our own. I/we consent to appropriate storage of our work for plagiarism checking. | |

**Section B - To be completed by the module leader**

|  |
| --- |
| Learning Outcomes  LO4 -Select, evaluate and use tools and techniques to successfully manage a large scale software  project, including configuration management and version control.  LO5 - Use a range of appropriate tools to contribute to the development of a solution to a real-world  problem.  LO6 - Select, evaluate and apply standards, tools and techniques for assuring software quality. |
| Lecturer’s Feedback |
| Internal Moderator’s Feedback |

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# **Introduction**

The "Call a Doctor" (CaD) system, developed and utilized by Sage Enterprise, is a ground-breaking tool intended to revolutionize the way individuals obtain healthcare. This method closes the gap between conventional healthcare and contemporary convenience by allowing patients to consult doctors from the comfort of their homes. Patients can easily locate and request home visits from clinics that have registered with CaD, which improves the efficiency and accessibility of healthcare services.

# **Methodology Used for this project.**

For this project, the Agile Methodology is indispensable. Agile project management places a strong emphasis on cross-functional cooperation and ongoing development. It guides teams through cycles of planning, implementation, and assessment and divides large projects into smaller, more manageable chunks.

The following are the main guiding principles for project management using the Agile methodology:

1. Evolution is welcomed at any stage of the process.
2. Products or services are delivered more frequently.
3. To achieve project success and optimal outcomes, all stakeholders and team members must remain motivated. Teams have all the necessary resources and support to complete the project.
4. In-person meetings are considered the most effective and efficient means of communication for project success.
5. The ultimate measure of success is a functioning final product.
6. Agile methods allow stakeholders and development teams to work at a steady and sustainable pace, fostering continuous progress.
7. A constant focus on technical excellence and solid planning will enhance agility.
8. Simplicity must be a priority at every stage of the project.
9. Self-organizing teams are more likely to generate the best ideas and projects while meeting the requirements.
10. Teams adjust their behaviour to boost productivity and efficiency.

# **Importance of the system in real world**

The Call a Doctor (CaD) system is extremely important. By providing patients with a centralized platform to request doctor visits at home, it streamlines and organizes the process of accessing medical care. The system automates tedious tasks such as managing appointment requests and verifying clinic registrations. This increases overall efficiency, reduces administrative burdens, and saves both patients and healthcare providers time and money.

The Call a Doctor (CaD) system holds great significance. Accessing medical treatment is made easier and more organized by giving patients a single platform to schedule house visits with doctors. Difficult processes like tracking down appointments and confirming clinic registrations are automated by the technology. This saves time and money for patients as well as healthcare professionals and improves overall efficiency while lowering administrative costs.

Collaboration and communication amongst the many parties involved in the healthcare process are improved by the CaD system. When there are any changes to the appointment schedule or the status of a patient's doctor request, they are promptly and clearly informed. Clinic managers, physicians, and patients can collaborate and communicate efficiently thanks to the system. This guarantees that all parties are in agreement, promotes cooperation, and boosts transparency.

The CaD system also aids in keeping precise records of doctor appointments and medicines. Clinic managers can quickly handle patient requests, monitor physician status, and make sure resources are allocated correctly thanks to technology. To make the most use of the medical resources that are available, the system can also help with scheduling changes or doctor reallocations based on demand. The solution lets administrator’s backup and safely store patient records to guarantee data integrity and accessibility for later use.   
All things considered, maintaining correct data, enhancing communication, and managing healthcare services are all made possible by the Call a Doctor system. In the end, it benefits patients as well as healthcare providers by improving the effectiveness, productivity, and cost-effectiveness of medical care delivery.

# **Progress Cycle**

### **CYCLE 1**

**Meeting 1**

**Date:** 10/04/2024

**Method:** (Face to Face)

**Meeting Description:** Discussion of the intended purpose

**Attendance:** Harvind, Linkesh

A close-up of a paper

Description automatically generatedA spiral notebook with a pen and diagram

Description automatically generated

We discussed adding the feature to the system and use case diagram during this meeting depending on the assignment requirement.

### **CYCLE 2**

**Meeting 2**

**Date:** 01/05/2024

**Method:** (Face to face)

**Meeting Description:** Discussion of the system prototype

**Attendance:** Harvind, Linkesh

A close-up of a login page

Description automatically generated

We discussed the color schemes to employ as well as the design of the prototype.

### **CYCLE 3**

**Meeting 3**

**Date:** 18/05/2024

**Method:** (Face to Face)

**Meeting Description:** Discussion and development of a system prototype

**Attendance:** Harvind, Linkesh

For each function, pages were created at the meeting, and each page was assigned to the person in charge of developing the prototypes. I had the task of creating prototypes for the following pages: Main page, Register page, Forget password page, Clinic register page,

Patient register page, patient home page, Book appointment page.

The evidence of some of the prototypes I designed is below.

A screenshot of a login page

Description automatically generated

Diagram 1.0 Main Page

A screenshot of a computer

Description automatically generated

Diagram 1.1 Register Page

A blue form with white text

Description automatically generated

Diagram 1.2 Clinic Register Page

A screenshot of a registration form

Description automatically generated

Diagram 1.3 Patient Register Page

**Prototype Link:** <https://www.figma.com/design/7xrhQRkcFjIAyDGaHRXet9/Sage-mode?node-id=0-1&t=SFWPJs8yHJBS5yu6-0>

### **CYCLE 4**

**Meeting 4**

**Date:** 20/05/2024

**Method:** (Face to Face)

**Meeting Description:** Discussion and development of a system prototype

**Attendance:** Harvind, Linkesh

A few more pages were needed to finish our prototypes. I was tasked with creating prototypes for the following pages: Patient profile page, Patient edit profile page, Patient appointment summary page. We've finished our prototypes using this. Below is evidence of one of my designed prototypes.

A screenshot of a patient profile

Description automatically generated

Diagram 1.4 Patient Register Page

A close-up of a paper

Description automatically generated

Diagram 1.5 Parts of pages that we must develop.

### **CYCLE 5**

**Meeting 5**

**Date:** 01/06/2024

**Method:** (Online)

**Meeting Description:** Database Creation

**Attendance:** Harvind, Linkesh

A screenshot of a computer program

Description automatically generatedA screenshot of a computer

Description automatically generated

Diagram 1.0 Creating a Database Table

The task of building the last three database table in MySQL was assigned to me. I made the patient, prescription, and users database table to store the data used by the system, The main part of the database was constructed by Linkesh.

### **CYCLE 6**

**Meeting 6**

**Date:** 12/06/2024

**Method:** (Face to face)

**Meeting Description:** ERD Making

**Attendance:** Harvind, Linkesh

A notebook with writing on it

Description automatically generated

My main contribution to the development of the ERD included working with Linkesh, who built the MySQL database. We discussed many ideas at the meeting. To store the data used by the system, a database was constructed and I made the ERD using the database.

### **ERD Diagram**

A screenshot of a computer

Description automatically generated

### **Database**

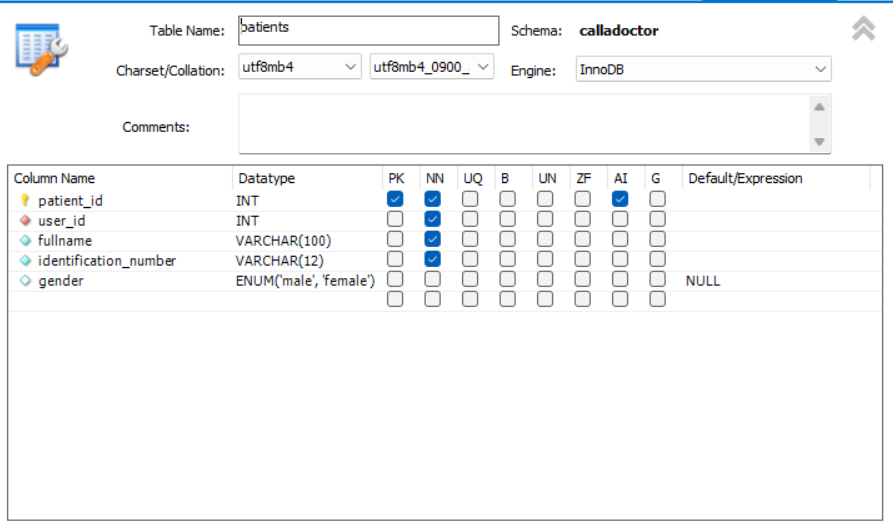


Diagram 1.0 Patient Table

A screenshot of a computer

Description automatically generated

Diagram 1.1 Prescription Table

A screenshot of a computer

Description automatically generated

Diagram 1.2 Users Table

### **CYCLE 7**

**Meeting 7**

**Date:** 18/06/2024

**Method:** (Face to face)

**Meeting Description:** Progression Checking and Problem Solvement

**Attendance:** Harvind, Linkesh

This meeting's goal was to assess the processes and move toward making minor adjustments. After completing most of the tasks and fixing a few small issues, I was now retrieving data from the database. I regularly update GitHub with the corrected code to ensure that my group members are aware of my work.

A person using a computer

Description automatically generated

# **Testing Process**

## **Main Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Description** | **Input** | **Output** | **Status** |
| When the user inputs their respective username and password the respective home page will be opened. (Doctor home page and patient home page) | Respective username and password. | The respective home page will open when the user input their respective username and password. | PASS |
| The forgot password page will be open when the forgot password hyperlink is clicked. | None | The forgot password page opened. | PASS |
| The register page will be open when the “click here” hyperlink is clicked. | None | The register page opened. | PASS |
| A validation will be shown if user didn’t input username or password. | None | A validation message “Please fill out all fields” shown. | PASS |
| A validation will be shown if user didn’t input username or password. | Gfbfg | A validation message “Invalid username or password” is shown. | Pass |

## **Register Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Description** | **Input** | **Output** | **Status** |
| The main page will be open when the “click here” hyperlink is clicked. | None | The main page is opened. | PASS |
| The patient register page will be open when the patient image button is clicked. | None | The patient register page is opened. | PASS |
| The clinic register page will be open when the clinic image button is clicked. | None | The clinic register page is opened. | PASS |

## **Forget Password Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Description** | **Input** | **Output** | **Status** |
| A validation will be shown when user didn’t fill out any fields. | None | A validation message “Please fill out all fields” is shown. | PASS |
| When a new password and confirm password is different it should show a validation message. | Different Passwords | A validation message “Password do not match” is shown. | Pass |
| After giving the correct username, same new password and confirm password is input it should show a validation message and update the new password in the database. | Same Password | A validation message “Password reset successfully” is shown and the new password is updated in the database. | Pass |

## **Clinic Register Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Description** | **Input** | **Output** | **Status** |
| When all field is filled out it should show a validation message and goes back to login page. | All fields | A validation message “Request for clinic registration page has been sent! Wait for approval.” is shown and it updated in database. | PASS |
| When some field or any field is not filled out it should show a validation message. | Some fields. | A validation message “All fields must be field out.” is shown. | PASS |
| When choose file button is clicked it should open file directory. | None | Opened file directory. | PASS |
| When back button is clicked it should open registration page. | None | Registration page is opened when back button is clicked. | PASS |

## **Patient Register Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Description** | **Input** | **Output** | **Status** |
| A validation will be shown when user didn’t fill out any fields. | Any fields | A validation message “Please fill all the fields” is shown. | PASS |
| A validation will be shown when user input different passwords in the field. | Different Password | A validation message “Password do not match” is shown. | Pass |
| A validation will be shown when user fill out all the fields. | All fields | A validation message “Registration successful” is shown. | Pass |

## **Patient Home Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Description** | **Input** | **Output** | **Status** |
| Display the approved of reject appointments and pending appointment for the specific patient that login from the database. | None | A table displayed containing all approved of reject appointments and pending appointment for the specific patient. | PASS |
| When the patient clicks the delete button in the pending appointment table is shows a validation message. | None | A validation message “Do you want to delete this appointment?” is shown. | PASS |
| Navigate to request appointment page when click the book appointment button. | None | Opened request appointment page when click the book appointment button. | PASS |
| Navigate to profile page when click the profile button. | None | Opened profile page when click the profile button. | PASS |
| Navigate to appointment summary page when click the appointment summary button. | None | Opened appointment summary page when click the appointment summary button. | PASS |
| Navigate to login page when click the logout button. | None | Opened login page when click the logout button. | PASS |

## **Book Appointment Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Description** | **Input** | **Output** | **Status** |
| A validation will be shown when user didn’t choose any fields. | None | A validation message “Please select a clinic” is shown. | PASS |
| A validation will be shown when user didn’t fill the doctor field. | None | A validation message “Please select a doctor” is shown. | PASS |
| A validation will be shown when user didn’t fill the reason field. | None | A validation message “Please provide a reason” is shown. | PASS |
| A validation will be shown when user didn’t fill the time field. | None | A validation message “Please select a time for an appointment” is shown. | PASS |
| A validation will be shown when user fill out all the field. | None | A validation message “Appointment request sent successfully” is shown. | PASS |
| When the back button is clicked, it should navigate to patient home page. | None | Opened patient home page when click the back button. | PASS |

## **Patient Profile Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Description** | **Input** | **Output** | **Status** |
| Display the patient’s information that logged in. | None | The system will display the patient’s profile that logged in. | PASS |
| When patient click the “edit profile” button, the system should direct to patient edit profile page. | None | The system will close the patient profile page and open the patient edit profile page. | PASS |
| When patient click the “back” button, the system should direct back to patient home page. | None | The system will close the patient profile page and open back the patient home page. | PASS |

## **Patient Edit Profile Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Description** | **Input** | **Output** | **Status** |
| Display the patient’s information that logged in. Patient should be able to edit their address, phone number and email only. | Patient’s email, phone number and address. | The system will let the patient to edit their address, phone number and email only. | PASS |
| When patient click the “confirm” button, the system should save the current info and go back to the patient profile page. | None | The system will save the patient’s info and open back the patient profile page. | PASS |
| When the patient clicks the “back” button, the system should direct back to patient profile page. | None | The system will close the patient edit profile page and open back the patient profile page. | PASS |
| When patient click the “confirm” button without changing info, the system should still save the changes and go back to patient profile page. | None | The system will still save the changes and close the patient edit profile page. Then, open back the patient profile page. | PASS |

## **Patient Appointment Summary Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Description** | **Input** | **Output** | **Status** |
| Display the past appointments and upcoming appointment for the specific patient that login from the database. | None | A table displayed containing all past appointments and upcoming appointment for the specific patient. | PASS |
| When patient click the “back” button, the system should direct to patient home page. | None | The system will close the patient appointment summary page and open the patient home page. | PASS |

# **Automated Testing**

* + 1. Test for send\_appointment\_request in Patient Request Appointment Page

One essential tool for expediting the process of setting up patient appointments is the **“send\_appointment\_request”** button on the Patient Request Appointment page. A series of actions are started when a patient clicks this button to make sure the appointment request is correctly processed and entered the system. Maintaining an effective and user-friendly appointment booking system is essential for improving patient happiness and the overall operational efficacy of healthcare services.  
  
As soon as the **“send\_appointment\_request”** button is clicked, the patient's input data must be gathered and verified. This contains the desired time, date, and clinic as well as the reason for the appointment. The system makes sure that every field is filled out accurately and tells the patient right away if there is any missing or incorrect information. This step is crucial to preventing inaccurate or missing data from entering the system, which could result in misunderstandings or conflicts with scheduling. The necessity of user instruction and data quality in digital forms is highlighted by the validation process.  
  
The button initiates a function that handles the appointment request processing after the data has been verified. The function starts by changing the chosen date's format from **'mm/dd/yy'** to the **'yyyy-mm-dd'** format that the database requires. To guarantee consistency and compatibility with the database schema, this conversion is essential. The function then uses specified credentials to create a connection to the MySQL database. Using this secure connection, the system may communicate with the database and run SQL queries to effectively handle data.

The creation and execution of a SQL query to enter the appointment details into the database forms the basis of the **“send\_appointment\_request”** function. The initial status of the query is **"pending,"** and it contains the following information: clinic ID, doctor ID, patient ID, appointment date, appointment time, and reason for appointment. This insertion makes sure that the patient's request is available for the clinic administration to review and approve in addition to recording it. The integration of user actions with backend operations is demonstrated in this step, which guarantees that appointment requests are processed and stored in an organized manner.  
  
The system notifies the patient that their request has been received once the appointment data has been successfully entered. An essential part of the user experience is this confirmation, which completes the interaction loop and provides reassurance. To further reinforce a smooth and simple user experience, the interface is made to automatically reroute the patient back to the main page. This reroutes aids in preserving the application's flow and gets the patient ready for more exchanges or to check their scheduled and confirmed appointments.  
  
All things considered, the **“send\_appointment\_request”** button encompasses a vital piece of functionality that combines data processing, user input validation, database interaction, and user feedback. It guarantees that requests for appointments are handled effectively, which improves patient satisfaction and helps the healthcare system run smoothly. This feature's careful planning and execution highlight how crucial it is to combine solid backend procedures with frontend interactions in order to produce a dependable and efficient digital healthcare solution.

* + 1. Test for fetch\_doctors in Admin Appointment Schedule Page

We may replicate dependencies by automating the testing of the **'fetch\_doctors'** function, which is called when the search icon is selected, using the unit test framework and **'unittest.mock'**. This approach ensures that the function runs correctly even in the absence of GUI elements or live database interaction. A detailed guide to configuring and running these tests may be found below.   
  
First, we define the test class and create the test environment. For the function's dependencies, such as the **"treeview"** widget, hour and minute **"comboboxes,"** and date entries, we create fake objects in the **"setUp()"** method. Using Tkinter, we also created a root window to mimic the GUI environment. By creating prototype objects, this configuration allows us to mimic how these dependencies would behave during testing.   
  
We define multiple methods in the **'TestFetchDoctors'** class that correspond to different test cases that the function is expected to handle. Through the configuration of the prototype objects to return certain values, each test case replicates a specific scenario. For example, we can alter the date entry's return value to mimic a user-selected date and time, and we can configure the dummy database cursor to return different outcomes depending on the query that was run.   
  
By constructing the prototype objects and their return values, we set up the prerequisites for every test case. For instance, we can imitate user input by setting the hour and minute **"comboboxes"** and the return value of the date entry's **"get\_date"** method. Additionally, we set up the simulated database cursor to return particular values for different types of queries.   
  
We specifically call the **'fetch\_doctors'** method within the test code after establishing the requirements. We use the assertions provided by the **'unittest.TestCase'** class to confirm the behaviour of the function. These claims confirm if the function behaved as expected. To confirm that the database cursor's execute method was called with the appropriate SQL query, for instance, we can use **'assert\_called\_with'**. Additionally, we can confirm that the add method of the **"treeview"** widget was called with the expected values, meaning that the physicians were correctly fetched and shown.   
  
In addition, we may imitate the **“messagebox.showinfo”** function to confirm that, in the event that no doctors are accessible, the proper message is shown. This guarantees that the function appropriately handles a variety of situations, such as no physicians available or database issues, and gives the user the anticipated response.   
  
We may ascertain whether the **“fetch\_doctors”** function operates as anticipated under various circumstances by running these test cases. By using an automated testing approach, problems can be found and fixed early on, guaranteeing the function's correctness and dependability under various conditions.   
  
In conclusion, setting up a prototype environment, creating test cases for different scenarios, calling the method, and using assertions to confirm its behaviour comprise the automated testing process for the **“fetch\_doctors”** function. This methodology guarantees the function's accurate handling of diverse inputs and situations, so instilling faith in its dependability and precision.

* + 1. Test for confirm\_delete\_appointment in Patient Profile Page

One of the most important features for efficiently handling appointment requests is the delete option located on the patient profile page. When a patient chooses to cancel an appointment, pressing this button starts a sequence of thoughtfully planned actions that guarantee a dependable and easy-to-use process. A confirmation dialog box asks the user to confirm that they really want to delete the appointment once they click the delete button. This confirmation phase is essential because it prevents unintentional deletions and gives the user a chance to change their mind before it's too late. By guaranteeing that only intentional deletions are handled and eliminating accidental data loss, this step improves the user experience.  
  
Upon receiving confirmation from the user, the **“confirm\_delete\_appointment”** method is triggered. To cancel the appointment, certain backend processes must be managed by this function. To make sure the right appointment is targeted, it starts by recording the appointment date of the request to be erased. Upon establishing a secure connection with the database, the function modifies the appointment's status to 'cancelled'. The database's consistency and integrity are guaranteed by the SQL query used to carry out this change. By designating the appointment as cancelled, the system makes sure that all appointments are appropriately reflected in its database, avoiding any inconsistencies that might result from inconsistent data.  
  
The database update is just the beginning of the delete button's capabilities. Upon effectively cancelling the appointment, the user receives instant response from the system via a message box verifying that the cancellation was successful. This feedback loop lets the patient know that their request was handled appropriately, which is crucial for preserving openness and confidence. The UI is also modified to consider the modifications. The cancelled appointment is taken out of the pending requests part of the list of appointment requests, which is refreshed. The patient will have a smooth and simple experience thanks to this real-time update, which guarantees that the user interface is accurate and up to date.

Moreover, the robustness and efficiency of the program are highlighted by the delete button's connection with the entire system architecture. It ensures that everything runs smoothly and effectively by bridging the gap between the user interface and backend activities. The delete button makes sure that the system is dependable and easy to use by managing the removal procedure thoroughly. It gives patients convenience in scheduling their visits and a feeling of control and flexibility over their relationships with healthcare providers.  
  
In summary, the patient profile page's delete button is a thoughtfully crafted feature that is essential to appointment scheduling. Appointment cancellations are handled accurately and efficiently thanks to its confirmation dialog, secure backend processes, quick user feedback, and real-time interface updates. This feature is essential to the patient appointment scheduling process since it not only improves the user experience but also upholds the integrity and dependability of the system.

* + 1. Test for open\_forgot\_password\_page in Main Page

For users who need to reset their passwords because they forgot their credentials, the main page's "forgot password" button is an essential feature. This button is intended to start a simple and safe procedure that walks the user through changing their password, making sure they can get back into their account without any further hassles.  
  
The **“open\_forgot\_password\_page”** function is initiated by the system when the lost password button is clicked. The user gets switched from the main login screen to the forgotten password window via this function. To make the switch, close the window that is now open during login and open a new one that is meant to be used for password recovery. This division of functions into distinct windows lowers the possibility of confusion and improves the user experience overall by maintaining a clear and concise user interface.  
  
The **“create\_forgot\_password\_window”** function generates the lost password window, which offers customers an easy-to-use interface to input their username and new password information. It has distinct labels for the username, new password, and password confirmation sections to help the user navigate. Two more buttons are included in the window: one to reset the password and another to return to the main login screen. These components guarantee that users have an easy-to-follow path and options to go back to the login page when necessary.  
  
The **“reset\_password”** function has all the essential features of the forgot password button. The system first verifies that all fields are filled in when a user selects the reset password button after completing the required forms. An error message alerting the user to the need to complete all fields is displayed if any are left unfilled. To avoid incomplete submissions and guarantee a smooth procedure, this validation phase is crucial.  
  
The function verifies that the new password and the confirmation password match once the input has been validated. If they don't match, the user is prompted to re-enter their passwords with matching ones and is displayed an error notice explaining the difference. Ensuring sure the user sets the password they intended and preserving data integrity depend on this step.  
  
In the event that the passwords match, the function talks to the database. Using pre-configured credentials, it creates a secure connection to the MySQL database and queries it to confirm that the supplied username indeed exists. The function modifies the user's password in the database with the new password entered if the username is located. The user receives a success message after the update is successful, verifying that the password reset procedure was finished. After that, the user is taken back to the main login page where they can enter their new login information and shut the forgotten password box.  
  
An error message notifying the user that the specified username does not exist is presented if the username cannot be in the database. Users may swiftly recognize and fix their errors with the aid of this instant feedback, making for a more seamless and effective user experience.  
  
The system ensures that the application stays stable and dependable throughout this process by gently handling any possible database failures and informing the user with the relevant error messages. This thorough approach to password reset management not only improves system security but also guarantees that users who need to reset their passwords will have a good and helpful experience. As a result, the forgot password button is essential to preserving user access and pleasure and enhancing the application's overall security and usability.

* + 1. Test for accept\_appointment in Admin Clinic Home Page

One essential element intended to facilitate the effective management of appointment requests is the accept button on the admin clinic homepage. A systematic procedure is started when a clinic administrator hits the accept button to guarantee that the chosen appointment request is approved and updated in the system. This feature is necessary to keep the clinic's appointment management system responsive and well-organized, which improves overall operational efficiency.  
  
The system initially verifies whether an appointment request is selected from the list shown in the table before pressing the accept button. The administrator is prompted to choose an appointment to accept if none has been chosen, as shown by the error message that appears. This validation phase is essential to avoid any mistakes and guarantees that the admin has a clear and intentional desire to accept a particular appointment request.  
  
The **“accept\_appointment”** function is triggered by the button once an appointment request has been selected. This function looks up the specific appointment ID from a dictionary that associates table row IDs with appointment IDs. The function carries the appointment ID and passes it together with the status **'accepted'** to the **“update\_appointment\_status”** function. After establishing a secure connection to the MySQL database with the supplied credentials, the **“update\_appointment\_status”** function runs a SQL query to change the specified appointment's status to **"accepted."**  
  
To guarantee that the appointment status is updated accurately and consistently, the database interaction is managed with accuracy. The system instantly notifies the clinic administrator through a success message that the appointment has been accepted if the update process is successful. By providing the administrator with regular updates on the results of their decisions, this feedback loop guarantees accountability and transparency while also improving the user experience.

Refreshing the appointment requests table to reflect the revised state of the accepted appointment is another feature of the accept button. In order to maintain the user interface current and remove the accepted appointment from the list of pending requests, this refresh process is essential. This real-time update keeps the admin's information relevant and accurate, allowing them to efficiently handle the clinic's appointment schedule.  
  
All things considered, the accept button encompasses a wide range of functions that include user input, backend processing, and user review. It guarantees that requests for appointments are handled effectively, which helps the clinic run smoothly and improves the general user experience for patients as well as clinic administrators. The accept button is essential to keeping the appointment management system responsive and dependable by managing the acceptance process in an organized and trustworthy manner.

* + 1. Code

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| --- |
| import tkinter as tk  from tkinter import messagebox, ttk  from tkcalendar import Calendar  from datetime import datetime  import mysql.connector  from mysql.connector import Error  import subprocess  import sys  import customtkinter as ctk  *# Ensure command line arguments are properly passed*  if len(sys.argv) > 2:      patient\_id = int(sys.argv[1])      patient\_fullname = sys.argv[2]  else:      patient\_id = 1  *# Default patient\_id*      patient\_fullname = "PATIENT"  *# Database connection details*  db\_config = {      'user': 'root',      'password': 'calladoctor1234',      'host': 'localhost',      'database': 'calladoctor'  }  *# Function to fetch the list of approved clinics from the database*  **def** fetch\_clinics():      try:          connection = mysql.connector.connect(\*\*db\_config)          cursor = connection.cursor()          cursor.execute("SELECT clinic\_id, clinic\_name FROM clinics WHERE is\_approved = 1")          clinics = cursor.fetchall()          cursor.close()          connection.close()          return {clinic\_name: clinic\_id for clinic\_id, clinic\_name in clinics}      except Error as e:          print(**f**"The error '{e}' occurred")          return {}  *# Function to fetch the list of doctors for a selected clinic from the database*  **def** fetch\_doctors(clinic\_id):      try:          connection = mysql.connector.connect(\*\*db\_config)          cursor = connection.cursor()          cursor.execute("SELECT doctor\_id, fullname FROM doctors WHERE clinic\_id = %s", (clinic\_id,))          doctors = cursor.fetchall()          cursor.close()          connection.close()          return doctors      except Error as e:          print(**f**"The error '{e}' occurred")          return []  *# Event handler for when a clinic is selected from the dropdown*  **def** on\_clinic\_select(event):      selected\_clinic\_name = clinic\_var.get()      selected\_clinic\_id = clinics[selected\_clinic\_name]      doctors = fetch\_doctors(selected\_clinic\_id)      doctor\_var.set('')      doctor\_menu['values'] = [doctor\_name for doctor\_id, doctor\_name in doctors]      doctor\_dict.clear()      doctor\_dict.update({doctor\_name: doctor\_id for doctor\_id, doctor\_name in doctors})  *# Function to send the appointment request to the database*  **def** send\_appointment\_request():      clinic\_name = clinic\_var.get()      clinic\_id = clinics.get(clinic\_name)      doctor\_name = doctor\_var.get()      doctor\_id = doctor\_dict.get(doctor\_name)      reason = reason\_entry.get("1.0", tk.END).strip()      date = cal.get\_date()      hour = hour\_var.get()      minute = minute\_var.get()      time = **f**"{hour}:{minute}"  *# Validate the input fields*      if not clinic\_id:          messagebox.showerror("Error", "Please select a clinic.")          return      if not doctor\_id:          messagebox.showerror("Error", "Please select a doctor.")          return      if not reason:          messagebox.showerror("Error", "Please provide a reason for the appointment.")          return      if not date:          messagebox.showerror("Error", "Please select a date for the appointment.")          return      if not hour or not minute:          messagebox.showerror("Error", "Please select a time for the appointment.")          return  *# Convert date format from 'mm/dd/yy' to 'yyyy-mm-dd'*      date\_obj = datetime.strptime(date, '%m/%d/%y')      formatted\_date = date\_obj.strftime('%Y-%m-%d')      try:  *# Insert the appointment request into the database*          connection = mysql.connector.connect(\*\*db\_config)          cursor = connection.cursor()          cursor.execute("""              INSERT INTO appointments (clinic\_id, doctor\_id, patient\_id, appointment\_date, appointment\_time, reason, appointment\_request\_status)              VALUES (%s, %s, %s, %s, %s, %s, 'pending')          """, (clinic\_id, doctor\_id, patient\_id, formatted\_date, time, reason))          connection.commit()          cursor.close()          connection.close()          messagebox.showinfo("Success", "Appointment request sent successfully!")          go\_back\_to\_patient\_home()  *# Go back to patient home after sending the request*      except Error as e:          messagebox.showerror("Error", **f**"Failed to send appointment request: {e}")  *# Function to navigate back to the patient home page*  **def** go\_back\_to\_patient\_home():      root.destroy()      subprocess.run(['python', 'patienthome.py', str(patient\_id), patient\_fullname])  *# Create main window*  root = tk.Tk()  root.title("Request Appointment")  root.geometry("600x630")  *# Fetch clinics to populate the dropdown*  clinics = fetch\_clinics()  doctor\_dict = {}  *# Clinic dropdown*  clinic\_label = tk.Label(root, text="Clinics Available:")  clinic\_label.pack(pady=5)  clinic\_var = tk.StringVar()  clinic\_menu = ttk.Combobox(root, textvariable=clinic\_var, width=50)  clinic\_menu['values'] = list(clinics.keys())  clinic\_menu.bind("<<ComboboxSelected>>", on\_clinic\_select)  clinic\_menu.pack(pady=5)  *# Doctor dropdown*  doctor\_label = tk.Label(root, text="Doctors:")  doctor\_label.pack(pady=5)  doctor\_var = tk.StringVar()  doctor\_menu = ttk.Combobox(root, textvariable=doctor\_var, width=50)  doctor\_menu.pack(pady=5)  *# Reason text box*  reason\_label = tk.Label(root, text="Reason:")  reason\_label.pack(pady=5)  reason\_entry = tk.Text(root, height=4, width=50)  reason\_entry.pack(pady=5)  *# Date picker*  date\_label = tk.Label(root, text="Date:")  date\_label.pack(pady=5)  cal = Calendar(root, selectmode='day', year=datetime.now().year, month=datetime.now().month, day=datetime.now().day)  cal.pack(pady=5)  *# Time picker*  time\_label = tk.Label(root, text="Select Time:")  time\_label.pack(pady=5)  time\_frame = tk.Frame(root)  time\_frame.pack(pady=5)  hour\_var = tk.StringVar()  hour\_menu = ttk.Combobox(time\_frame, textvariable=hour\_var, width=3)  hour\_menu['values'] = [**f**"{hour**:02d**}" for hour in range(9, 18)]  hour\_menu.pack(side=tk.LEFT, padx=5)  minute\_var = tk.StringVar()  minute\_menu = ttk.Combobox(time\_frame, textvariable=minute\_var, width=3)  minute\_menu['values'] = ["00", "15", "30", "45"]  minute\_menu.pack(side=tk.LEFT, padx=5)  *# Send appointment request button*  send\_request\_button = ctk.CTkButton(root, text="Send appointment request", command=send\_appointment\_request)  send\_request\_button.pack(pady=10)  *# Back button*  back\_button = ctk.CTkButton(root, text="Back", command=go\_back\_to\_patient\_home)  back\_button.pack(pady=5)  *# Start the main loop*  root.mainloop() |

# **GitHub**

Contribution:

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