# **D424 – Software Engineering**

# Task 3



Capstone Proposal Project Name:	Psychiatry Scheduler	
Student Name	Mitchall Shafar	

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# **Task 3 Design Document**

- D. Explain how the software product was tested, including the following:
  - a test plan for a unit test, including screenshots
  - unit test scripts
  - the results of the unit tests based on the provided test plan, including screenshots
  - summaries of changes resulting from completed tests

Remove the red instructions and any other example text before submitting.

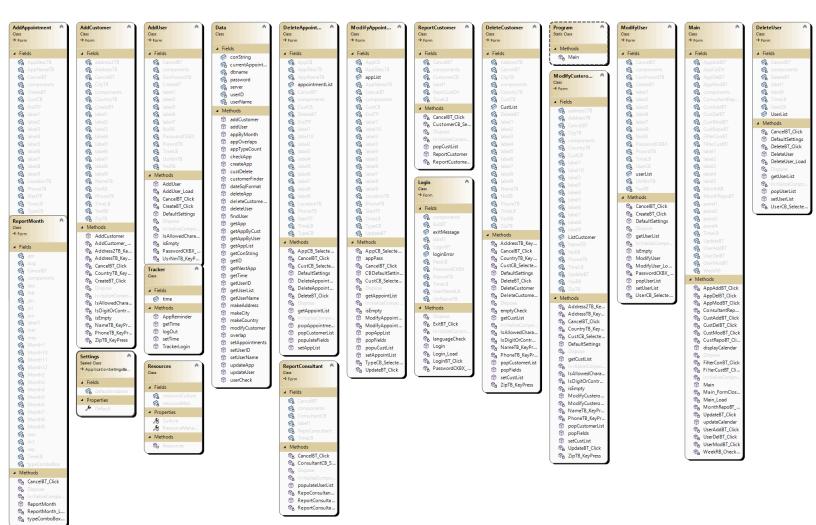
# **Application Design and Testing**

## **Class Design**

This class diagram illustrates the architecture and relationships of key components within a Minimum Viable Product (MVP) for a Psychiatry Scheduler developed using C#. The application is designed to facilitate the management and tracking of users and customers, with the added functionality of generating pertinent reports.

The primary entities within the application are the User and Customer modules, each responsible for managing their respective data and associated actions. Additionally, the Reports module enables the generation of reports utilizing the data stored within the User and Customer entities.

Utilizing C#, .Net, and Visual Studio 2022, the application is adept at efficiently executing various operations while maintaining a flexible and scalable architecture. The depicted diagram delineates the attributes, methods, and interrelationships among these foundational components, serving as a valuable reference for developers engaged in the development and maintenance of Psychiatry Scheduling software.

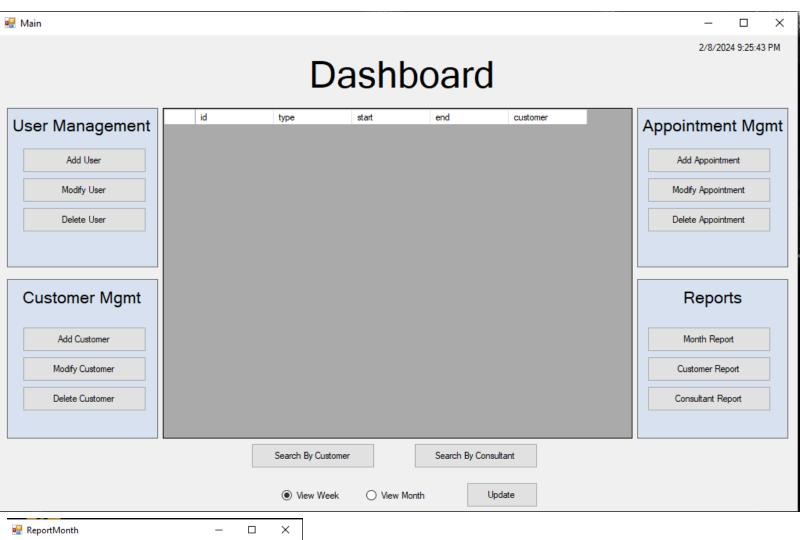


## **UI Design**

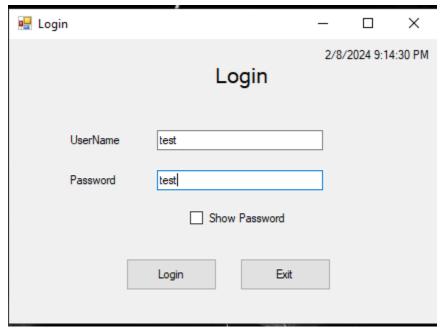
The User Interface (UI) design of the Psychiatry Scheduler prioritizes a seamless and user-friendly experience, empowering users to efficiently manage and monitor both users and customers. The UI journey commences with a secure login screen ensuring authorized access to the application. Upon successful login, users are greeted with a dashboard presenting a comprehensive overview of key functionalities.

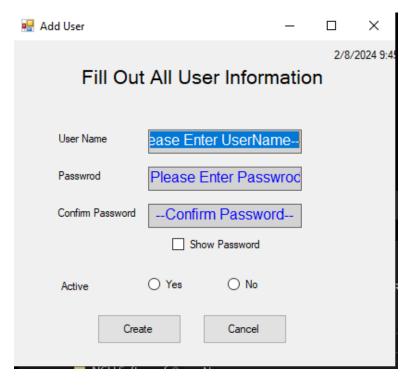
At the heart of the application lie robust features tailored to user and customer management, each furnished with dedicated pages. Through intuitive forms and actions, users can seamlessly add, modify, and remove consultants and customers. The UI design meticulously emphasizes a smooth and expedited experience, simplifying the process of overseeing consultants and customers.

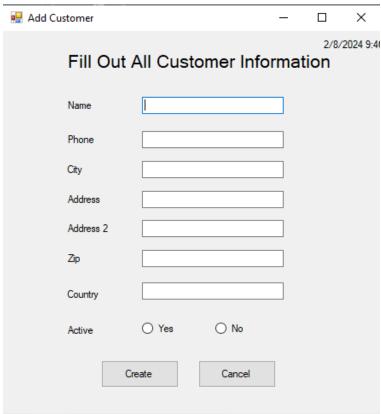
Beyond its foundational features, the application boasts a robust reports page, empowering users to generate pertinent reports derived from consultant and customer data. This feature equips users with invaluable insights, enabling informed, data-driven decisions to optimize their operations.

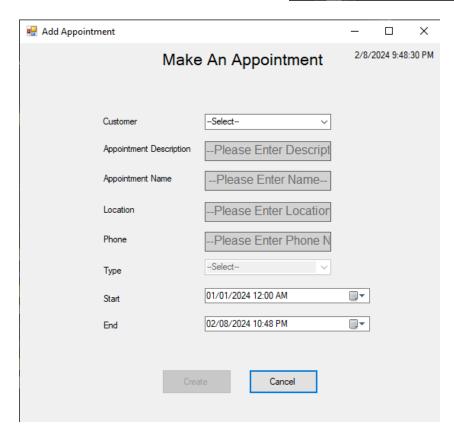












#### **Unit Test Plan**

#### Introduction

#### Purpose

The primary objective of the unit test plan is to guarantee the reliability and accuracy of the Psychiatry Scheduler's codebase. Employing a systematic testing approach, we meticulously isolated individual components to validate their functionality. This method facilitated the early detection and resolution of any defects, thereby guaranteeing the application's performance aligns with expectations and upholds stringent quality benchmarks.

#### Overview

Within the development process of the Psychiatry Scheduler, the unit test plan holds a pivotal role. This plan is meticulously crafted to validate particular segments of the application, honing in on its most vital and distinctive components. A spectrum of functions within the application underwent rigorous testing, encompassing authentication processes, examination of appointment timings, and the prevention of overlapping schedules. This comprehensive strategy not only affirmed the correct functioning of individual features but also ensured their seamless integration within the application as a whole. Noteworthy among the tested functions were user authentication, appointment timing accuracy, and the prevention of conflicting appointment schedules.

#### **Test Plan**

#### **Items**

- Development Environment: Visual studio was used for performing the unit tests.
   A separate project was added to the main project, with the new project dedicated solely to unit testing.
- Database: Setting up the database prior to the tests was necessary as well.
- Framework: These unit tests were done using the MSTest framework.
- Application source code: Was copied from gitlab to the local directory to be compiled and run the tests.

#### Features

- User Authentication: This test is used to make sure that the functionality for the login page is working correctly and that users are properly authenticated before being allowed into the application.
- Appointment Scheduling: This test is to ensure that appointments are scheduled
  with start and end times on the same day and make sure that they fall between
  business hours specified for the office that is using the application.
- Appointment Overlapping: This test is to make sure that appointments that are scheduled do not overlap with one another.

#### **Deliverables**

- Test Scripts: A collection of test scripts that are integrated within the project n a sub project folder.
- Test Results: A small report detailing the results of the unit tests that were conducted, including the tests that passed as well as the tests that failed.

#### **Tasks**

- Making sure that the environment is set up properly to conduct the desired tests.
- Making sure that all the test scripts that were outlined above are in place, such as user authentication, appointment scheduling, and appointment overlapping.
- Preparing the database so that the unit tests can be performed properly.
- Execute the unit tests using the Visual Studio IDE.
- Taking the test results and analyzing their results, making sure that what is expected to fail, fails, and what is expected to pass, passes.

#### Needs

- Software Requirements: Any libraries that are listed within the programs
  dependencies will be needed to allow the program to function correctly as well as
  the unit tests.
- Testing Tools: You will need Visual Studio 2022 as the unit test are written as a project within the actual Psychiatry Scheduler project and executed within the IDE.
- Access To Source Code And Test Scripts: Access to the source code for the
   Psychiatry Scheduler and the test scripts within the program are needed during the
   testing process. You may need a form of access control if you want to change the
   unit tests so you can roll it back later if needed.
- Test Data: The data that is loaded into the database, including, user information, consultant information, customer information, and appointment information.

#### Pass/Fail Criteria

• User Authentication

- PASS: The user is successfully authenticated with the correct username and password.
- FAIL: The username and or password was incorrect and the user is not admitted into the program.

## • Appointment check

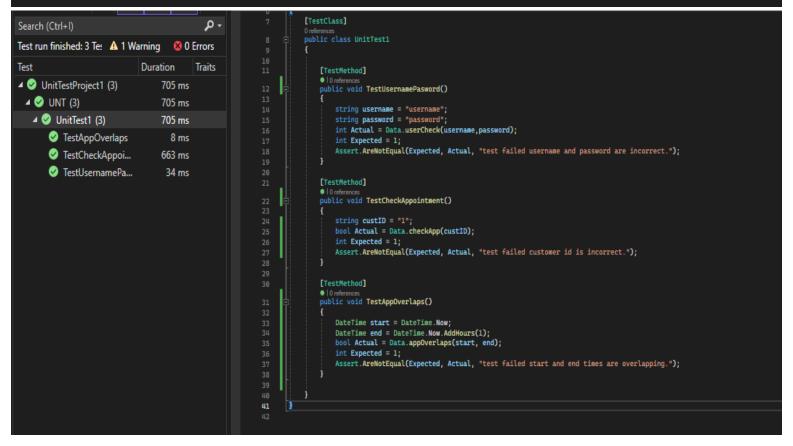
- PASS: If the customer ID is successfully matched to an appointment the test will pass.
- FAIL: If the customer ID is not matched to an appointment the test will fail.

#### Appointment Overlap

- PASS: If the appointment does not conflict with another appointment the test will pass.
- FAIL: If the appointment conflicts with another appointment the test will fail.
- If you are having difficulty with tests that you are expecting to pass, failing, or vise versa, please follow the troubleshooting steps below.
  - Pinpoint the origin: Analyze the unsuccessful test to uncover the fundamental reason behind the failure. Scrutinize error messages, logs, or pertinent data to grasp the essence of the issue.
  - Outline the problem: Generate a bug report or initiate a ticket to formally
    document the matter. Incorporate specifics like the failed test's identity, the
    encountered error message, steps for reproduction, and any additional
    relevant details.

#### **Specifications**

```
[TestClass]
             public class UnitTest1
                 [TestMethod]
                 public void TestUsernamePasword()
                      string username = "username";
                      string password = "password";
int Actual = Data.userCheck(username,password);
                      int Expected = 1:
                      Assert.AreNotEqual(Expected, Actual, "test failed username and password are incorrect.");
                 [TestMethod]
                 public void TestCheckAppointment()
                      string custID = "1";
                      bool Actual = Data.checkApp(custID);
                      int Expected = 1;
                      Assert.AreNotEqual(Expected, Actual, "test failed customer id is incorrect.");
                 [TestMethod]
                 public void TestAppOverlaps()
                     DateTime start = DateTime.Now;
DateTime end = DateTime.Now.AddHours(1);
bool Actual = Data.appOverlaps(start, end);
                      int Expected = 1;
                      Assert.AreNotEqual(Expected, Actual, "test failed start and end times are overlapping.");
       3
41
```



#### **Procedures**

- Test case formulation: Identified critical functionalities and features necessitating
  examination within the application. Developed comprehensive test cases
  encompassing diverse scenarios. Specified anticipated outcomes and delineated
  pass/fail criteria for each test case.
- Test environment arrangement: Configured the testing environment, incorporating requisite dependencies, libraries, and frameworks.
- Test execution: Employed the designated test runner (e.g., Mocha) to execute the
  test suite and document the results. Evaluated the outcomes, pinpointing any test
  failures. Refined test cases and application code iteratively to rectify identified
  issues or failures.
- Review and documentation of test outcomes: Documented the test findings,
   encompassing pass/fail verdicts, identified anomalies, and any adjustments made
   to the application code or test cases. Revised the test plan and test case
   documentation to reflect the ultimate test results.

#### **Results**

User Authentication: The test passed with the correct username and password. Ensuring that the software will let those who actually have the proper credentials can access the software

as they should be able to, and that those who do not have the proper credentials are not able to access the software where they are not supposed to.

Appointment Authentication: The test passed showing that there was indeed an appointment scheduled for the queried customer ID loaded into the unit test. Ensuring that the software is able to pull up the customers appointments based off of their customer ID.

Appointment Overlap: The test passed making sure that the scheduled appointment is not overlapping with any of the other appointments that are scheduled. Ensuring that the software will not schedule appointments that are overlapping with one another.

```
[TestClass]
Search (Ctrl+I)
                                                  ٠ م
                                                                             public class UnitTest1
Test run finished: 3 Tes A 1 Warning
                                        Ø 0 Errors
                                Duration
                                                                                 [TestMethod]
                                                                                 0 10 references
public void TestUsernamePasword()

■ W UnitTestProject1 (3)

                                      705 ms
 705 ms
                                                                                     string username = "username";

■ UnitTest1 (3)

                                      705 ms
                                                                                     string password = "passwor
                                                                                     int Actual = Data.userCheck(username, password);

✓ TestAppOverlaps

                                        8 ms
                                                                                     int Expected = 1;
                                                                                     Assert.AreNotEqual(Expected, Actual, "test failed username and password are incorrect.");
        TestCheckAppoi...
                                      663 ms
        TestUsernamePa...
                                       34 ms
                                                                                 [TestMethod]
                                                                                 0 | O references
public void TestCheckAppointment()
                                                                                     string custID = "1";
                                                                                     bool Actual = Data.checkApp(custID);
                                                                                     int Expected = 1;
                                                                                     Assert.AreNotEqual(Expected, Actual, "test failed customer id is incorrect.");
                                                                                 [TestMethod]
                                                                                 public void TestAppOverlaps()
                                                                                     DateTime start = DateTime.Now;
                                                                                     DateTime end = DateTime.Now.AddHours(1);
bool Actual = Data.appOverlaps(start, end);
                                                                                     int Expected = 1;
                                                                                     Assert.AreNotEqual(Expected, Actual, "test failed start and end times are overlapping.");
```

# **Summary**

there were no changes that needed to be made from the unit tests as they all passed without issue.

#### **HOSTED WEB APPLICATION**

https://github.com/MRAcadence/capstone-d424.git

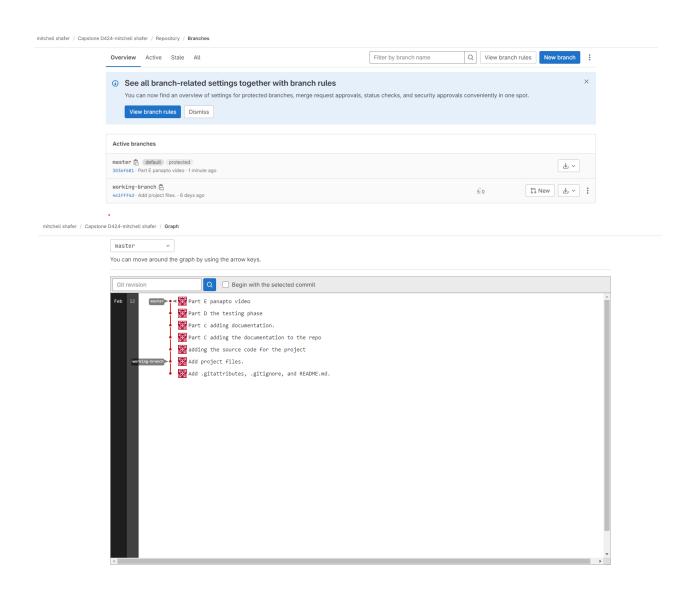
#### GITLAB REPOSITORY AND BRANCH HISTORY

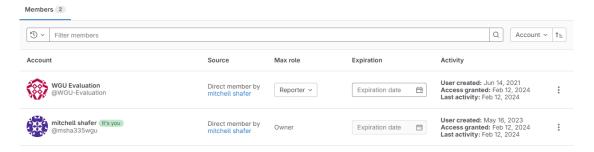
https://gitlab.com/msha335wgu/capstone-d424-mitchell-shafer

mitchell shafer / Capstone D424-mitchell shafer / Commits Author v Search by message [2] master v capstone-d424-mitchell-shafer Feb 13, 2024 Part E panapto video
MRAcadence authored just now 3036f681 🖺 🗁 Part D the testing phase
MRAcadence authored just now b37e3231 🖺 🗁 Part c adding documentation.

MRAcadence authored 2 minutes ago c7304f97 🖺 🗁 Part C adding the documentation to the repo MRAcadence authored 3 minutes ago f48cf822 🖺 🗁 adding the source code for the project
MRAcadence authored 54 minutes ago 6151d252 🖺 🗁 Feb 07, 2024 Add project files.

MRAcadence authored 6 days ago 4e1fff4d 🛱 🗁 Add .gitattributes, .gitignore, and README.md.
MRAcadence authored 6 days ago dc56ba26 🖺 🗁





# **User Guide For Maintenance**

- To run the project you must follow the link to the github repo and from there clone the repo to your local machine.
- Then navigating into Visual Studios 2022 you can select the .sln file and that will open the project into the solution view, where you will be able to run it.
- If you are missing any of the libraries or dependencies you must download the ones that are missing before the project will run correctly.
- Once the project is run it will auto generate the remaining files for you.

# **User Guide**

#### Introduction

This user guide will present a detailed over and walkthrough of the initial setup and steps to take to ensure the application is up and running without issues.

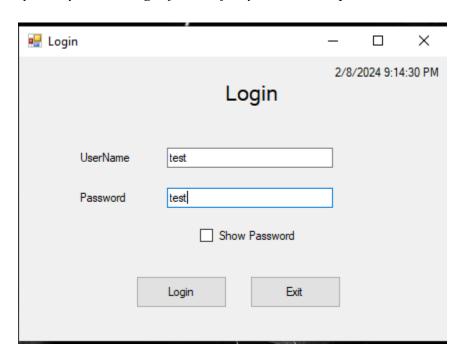
#### **Installation and Using the Application**

- Clone the project from github.
  - o select the
- Provide step-by-step sequences in the correct order.
- Follow the timing and sequencing of the actual operations.
- Provide visual stepping stones by using bullets or labeling steps.

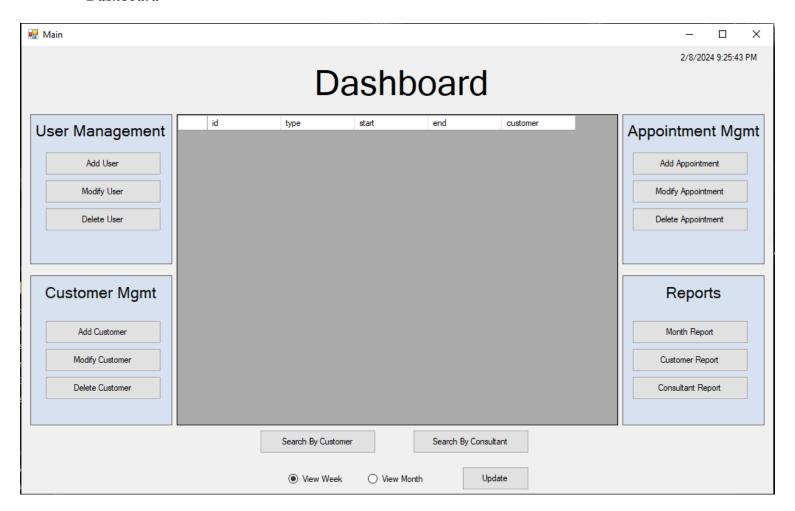
- Strive to be concise. Avoid lengthy paragraphs but include enough detail so false assumptions are not made.
- Use common terms and jargon appropriate for the audience (someone with basic IT background).
- Explain why steps are completed or what they will yield as well as "How to" instructions.
- Test the instructions to ensure they match the actual product.
- Format the material for ease of reading and use graphic aids to clarify point/steps.
- Write in the present tense and the active voice.

## Login and Signup (An example)

1. Enter in the temp username and password "test" and "test" to login for the first time, make sure to change this by deleting the test user from the database through the Psychiatry Scheduling software after you have set up a new user account.

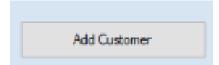


#### **Dashboard**

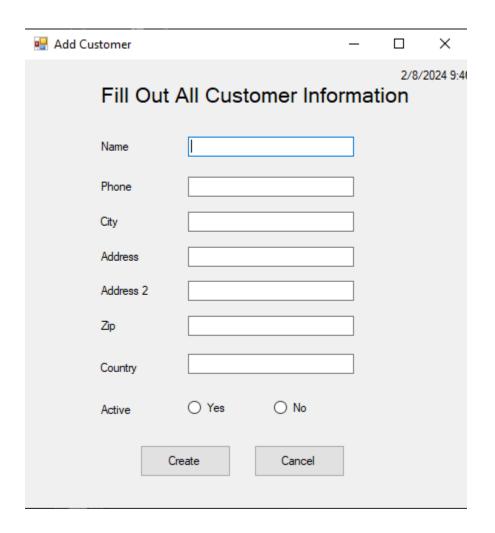


#### Create a New Customer

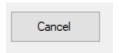
1. Once logged in, click on the "ADD CUSTOMER" button which will bring to a new form that prompts you to enter in all the required information for the new customer.



2. Once the information is completed in its entirety, you may select the "CREATE" button. At which point you will be returned to the "DASHBOARD".



3. If you wish to cancel the creation of a new customer you may select the "CANCEL" button at any time and be returned to the "DASHBOARD".



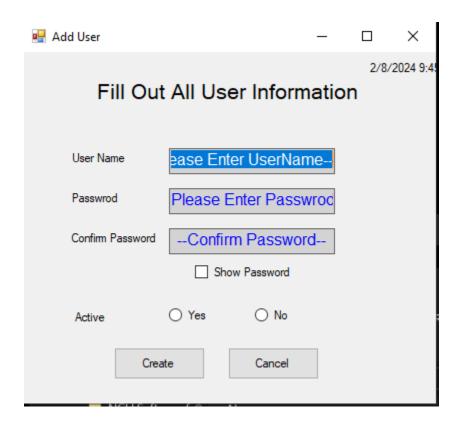
#### Create a New User

1. Once logged in, click on the "ADD USER" button which will bring to a new form that prompts you to enter in all the required information for the new customer.

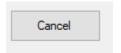


2. Once the information is completed in its entirety, you may select the "CREATE" button.

At which point you will be returned to the "DASHBOARD".

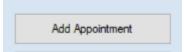


3. If you wish to cancel the creation of a new user you may select the "CANCEL" button at any time and be returned to the "DASHBOARD".



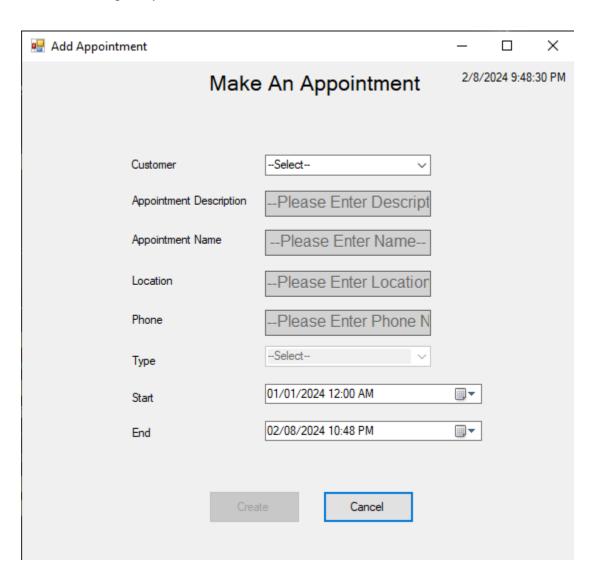
## Create a New Appointment

1. Once logged in, click on the "ADD APPOINTMENT" button which will bring to a new form that prompts you to enter in all the required information for the new appointment.

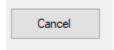


2. Once the information is completed in its entirety, you may select the "CREATE" button.

At which point you will be returned to the "DASHBOARD".

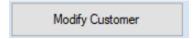


3. If you wish to cancel the creation of a new user you may select the "CANCEL" button at any time and be returned to the "DASHBOARD".

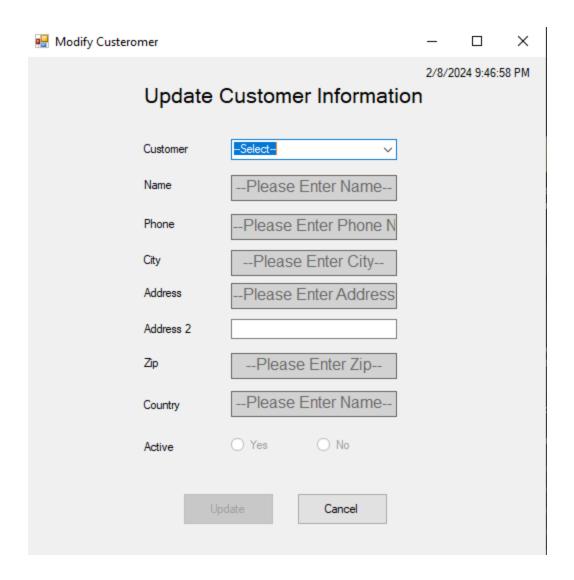


# Modify a Current Customer

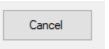
1. Once logged in, click on the "MODIFY CUSTOMER" button which will bring to a new form that prompts you to enter in all the required information for the modified customer.



2. Once the information is completed in its entirety, you may select the "UPDATE" button. At which point you will be returned to the "DASHBOARD".



3. If you wish to cancel the modification of the customer you may select the "CANCEL" button at any time and be returned to the "DASHBOARD".

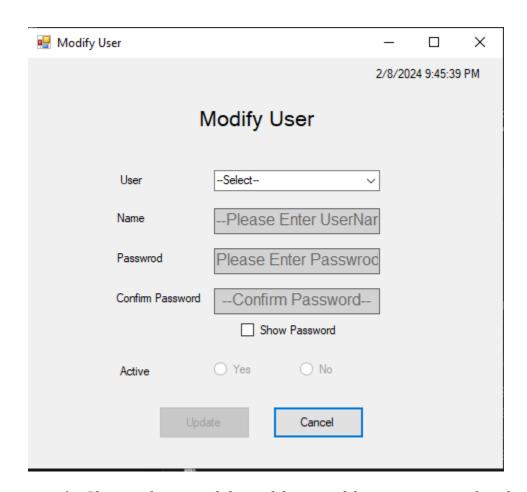


# Modify a Current User

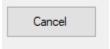
1. Once logged in, click on the "MODIFY USER" button which will bring to a new form that prompts you to enter in all the required information for the modified user.



2. Once the information is completed in its entirety, you may select the "UPDATE" button. At which point you will be returned to the "DASHBOARD".

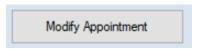


3. If you wish to cancel the modification of the user you may select the "CANCEL" button at any time and be returned to the "DASHBOARD".

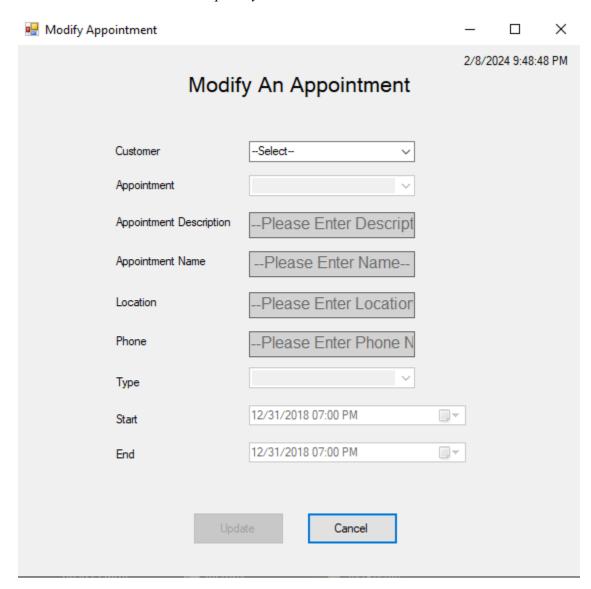


## Modify a Current Appointment

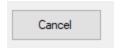
1. Once logged in, click on the "MODIFY APPOINTMENT" button which will bring to a new form that prompts you to enter in all the required information for the modified appointment.



2. Once the information is completed in its entirety, you may select the "UPDATE" button. At which point you will be returned to the "DASHBOARD".

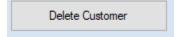


3. If you wish to cancel the modification of the appointment you may select the "CANCEL" button at any time and be returned to the "DASHBOARD".

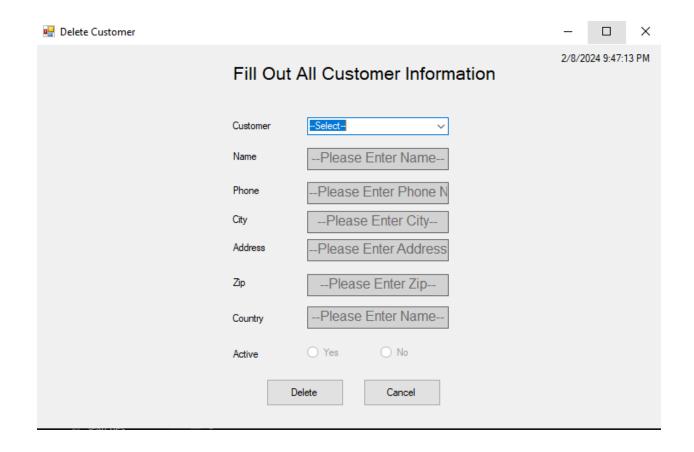


#### Delete a Current Customer

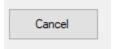
1. Once logged in, click on the "DELETE CUSTOMER" button which will bring to a new form that prompts you to enter in all the required information for the customer you wish to delete.



2. Once the information is completed in its entirety, you may select the "CREATE" button. At which point you will be returned to the "DASHBOARD".



3. If you wish to cancel the deletion of a customer you may select the "CANCEL" button at any time and be returned to the "DASHBOARD".

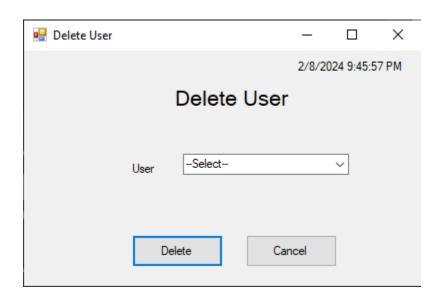


#### Delete a Current User

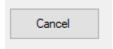
1. Once logged in, click on the "DELETE USER" button which will bring to a new form that prompts you to enter in all the required information for the user you wish to delete.



2. Once the information is completed in its entirety, you may select the "CREATE" button. At which point you will be returned to the "DASHBOARD".

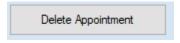


3. If you wish to cancel the deletion of the user appointment you may select the "CANCEL" button at any time and be returned to the "DASHBOARD".

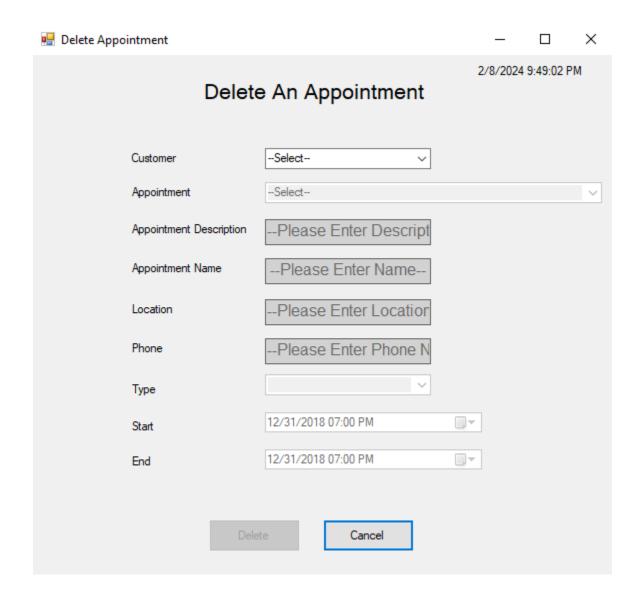


## Delete a Current Appointment

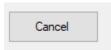
1. Once logged in, click on the "DELETE APPOINTMENT" button which will bring to a new form that prompts you to enter in all the required information for the appointment you wish to delete.



2. Once the information is completed in its entirety, you may select the "CREATE" button. At which point you will be returned to the "DASHBOARD".



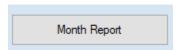
3. If you wish to cancel the deletion of the appointment you may select the "CANCEL" button at any time and be returned to the "DASHBOARD".



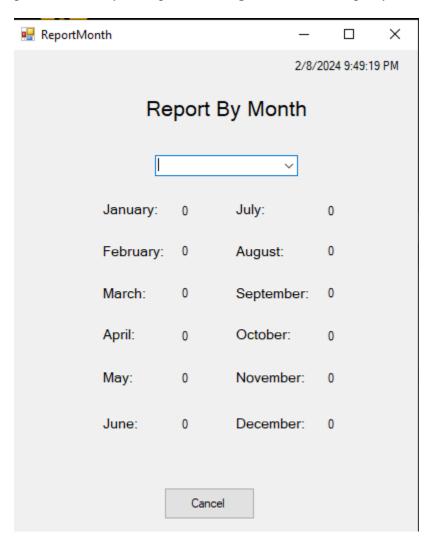
# Reports

#### REPORT BY MONTH

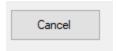
1. To access the reporting feature, from the Schedule module, click on "MONTH REPORT" near the bottom right of the page.



2. Once you are in the report page you may make the selection you want from the dropdown list and your report will be generated based upon your selection.

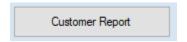


3. At any time if you wish to cancel the report generation or want to back out to the main dashboard you may click the cancel button at any time.

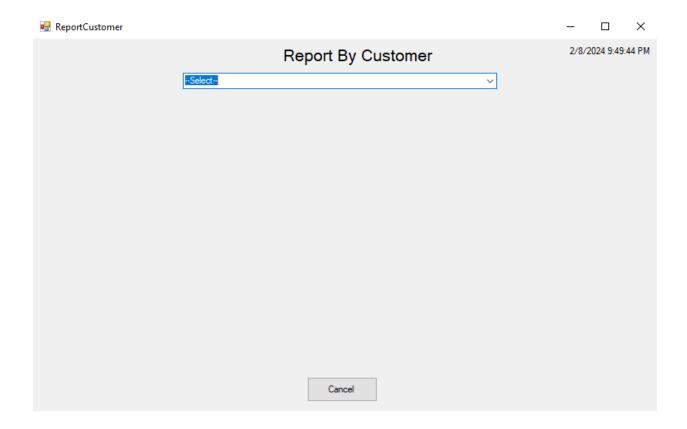


#### REPORT BY CUSTOMER

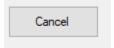
1. To access the reporting feature, from the Schedule module, click on "CUSTOMER REPORT" near the bottom right of the page.



2. Once you are in the report page you may make the selection you want from the dropdown list and your report will be generated based upon your selection.

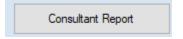


3. At any time if you wish to cancel the report generation or want to back out to the main dashboard you may click the cancel button at any time.

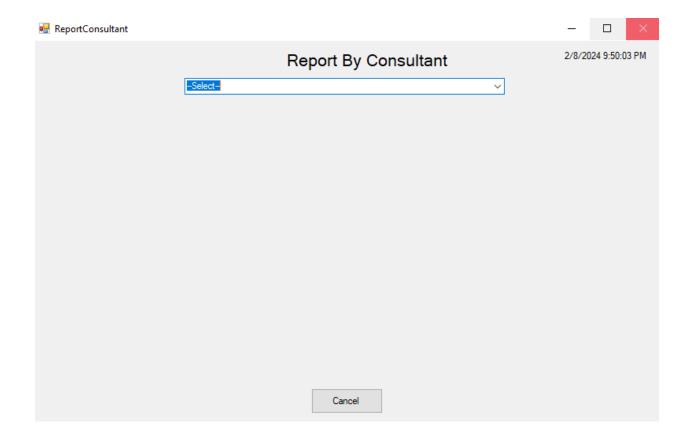


#### REPORT BY CONSULTANT

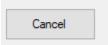
4. To access the reporting feature, from the Schedule module, click on "CONSULTANT REPORT" near the bottom right of the page.



5. Once you are in the report page you may make the selection you want from the dropdown list and your report will be generated based upon your selection.



6. At any time if you wish to cancel the report generation or want to back out to the main dashboard you may click the cancel button at any time.



#### REPORT BY WEEK

1. To access the reporting feature, from the Main Dashboard, click on "VIEW WEEK" Radio button near the bottom center of the page.



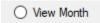
2. Then select the "UPDATE" button.



3. This will now fill the data grid view on the main dashboard with the listed appointments for the current week.

#### REPORT BY MONTH

1. To access the reporting feature, from the Main Dashboard, click on "VIEW MONTH" Radio button near the bottom center of the page.



2. Then select the "UPDATE" button.



3. This will now fill the data grid view on the main dashboard with the listed appointments for the current month.

## SEARCH BY CONSULTANT

1. If you wish to search by consultant you may click the "SEARCH BY CONSULTANT" button near the bottom center of the main dashboard.

Search By Consultant

2. This will bring you to the "REPORT BY CONSULTANT" page. To see how to use this feature please reference the above section "REPORT BY CONSULTANT".

#### SEARCH BY CUSTOMER

1. If you wish to search by consultant you may click the "SEARCH BY CUSTOMER" button near the bottom center of the main dashboard.

Search By Customer

2. This will bring you to the "REPORT BY CUSTOMER" page. To see how to use this feature please reference the above section "REPORT BY CUSTOMER".

#### PANOPTO VIDEO LINK

https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=31dd6e31-ec70-47e0-affe-b11
50020d60f