C868 – Task 2 – Section C

Capstone Proposal Project Name: Scheduling Software Program

Student Name: Rebekah Midkiff

Table of Contents

Contents

Table of Contents 2

Scheduling Software Program Design and Testing 4

Design Documentation 4

Class Design 4

User Interface Design 10

Introduction 21

Purpose 21

Overview 29

Test Plan 30

Items 30

Features/Functions 30

Deliverables 30

Tasks 30

Needs 31

Pass and Fail Criteria 31

Source Code 31

User Guide 32

Introduction 32

Installation and Using the Application 32

Logging In 32

Navigation-Main Menu 33

Customers records screen 33

Appointments Screen 34

Update Appointment screen 35

Reports Screen 36

Scheduling Software Program Design and Testing

Design Documentation

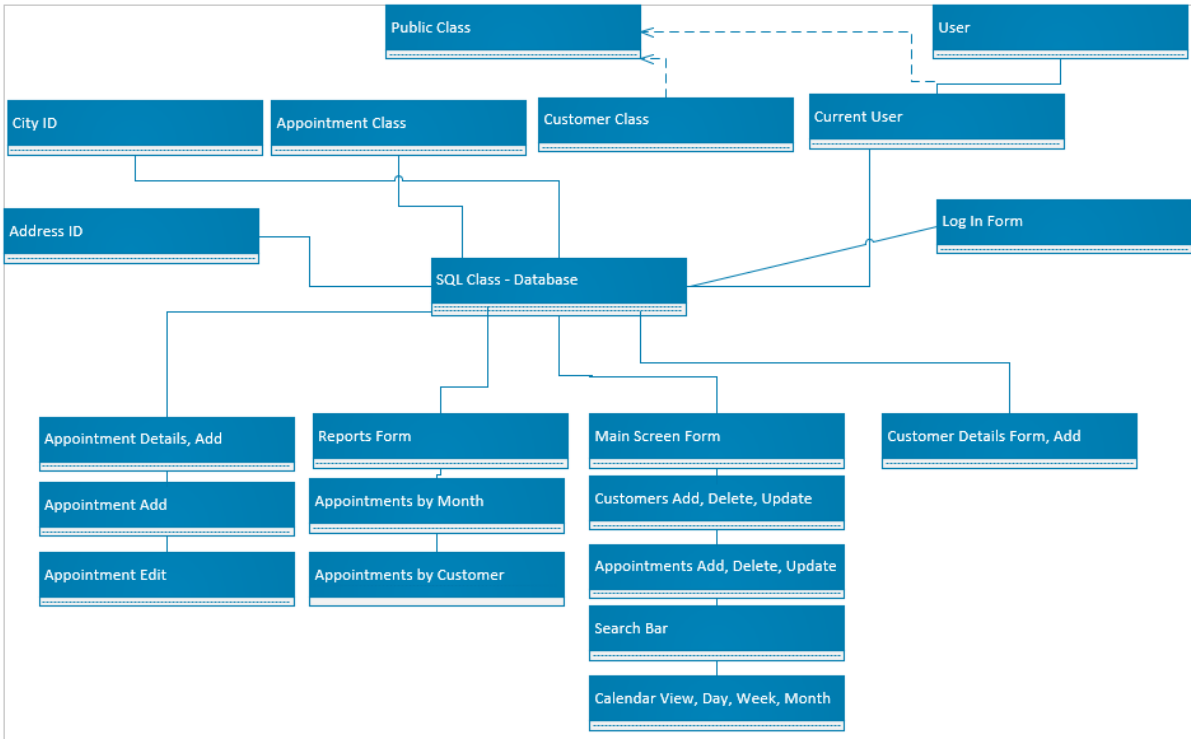
Class Design

Scheduling software contains six main classes, one of them is the main program class. Of the six classes included, five of them are models that will be used as a base class or by the SQL database class to gather and store data within the scheduling program. The other classes in the scheduling software program are either used as a user interface element or to manipulate the data that is calling to the SQL database class to store the changes that are made. The diagrams included below reflect the reference diagram and all related data points. The program has a total of sixteen classes which are AppointmentClass, CustomerClass, Person, PublicClass, SQLClass, User, Program, AppointmentByCustomer, AppointmentByMonth, AppointmentForm, CustomerForm, LoginForm, Form, Spanish, MainForm, and ReportsForm.

Public class is used as a parent class of CustomerClass, Person and User; these three classes have many differences, but all have properties they share. PublicClass is used throughout the program as a base class that methods are implemented from. It is also used for a new derived class of PublicClass several times in the program as seen in the example below which allows a new user that has been created to be accessed from the database. This also meets the polymorphism requirement in that the derived class inherits from my PublicClass which is the base class giving the derived class all the methods, fields and properties and events that are announced in PublicClass. These connect and share with the base class for possible future reports or requests it can use both for the different Users without additional modification.

```
public partial class ReportsForm : Form
{
    private static PublicClass universals = new PublicClass();
    string getUsers = "SELECT userName from user;";
    int userId;
    1 reference
    public ReportsForm()
    {
        InitializeComponent();
        DataTable users = new DataTable();
        universals.GetData(getUsers, users);
        userCB.DataSource = users;
        userCB.DisplayMember = "userName";
    }
```

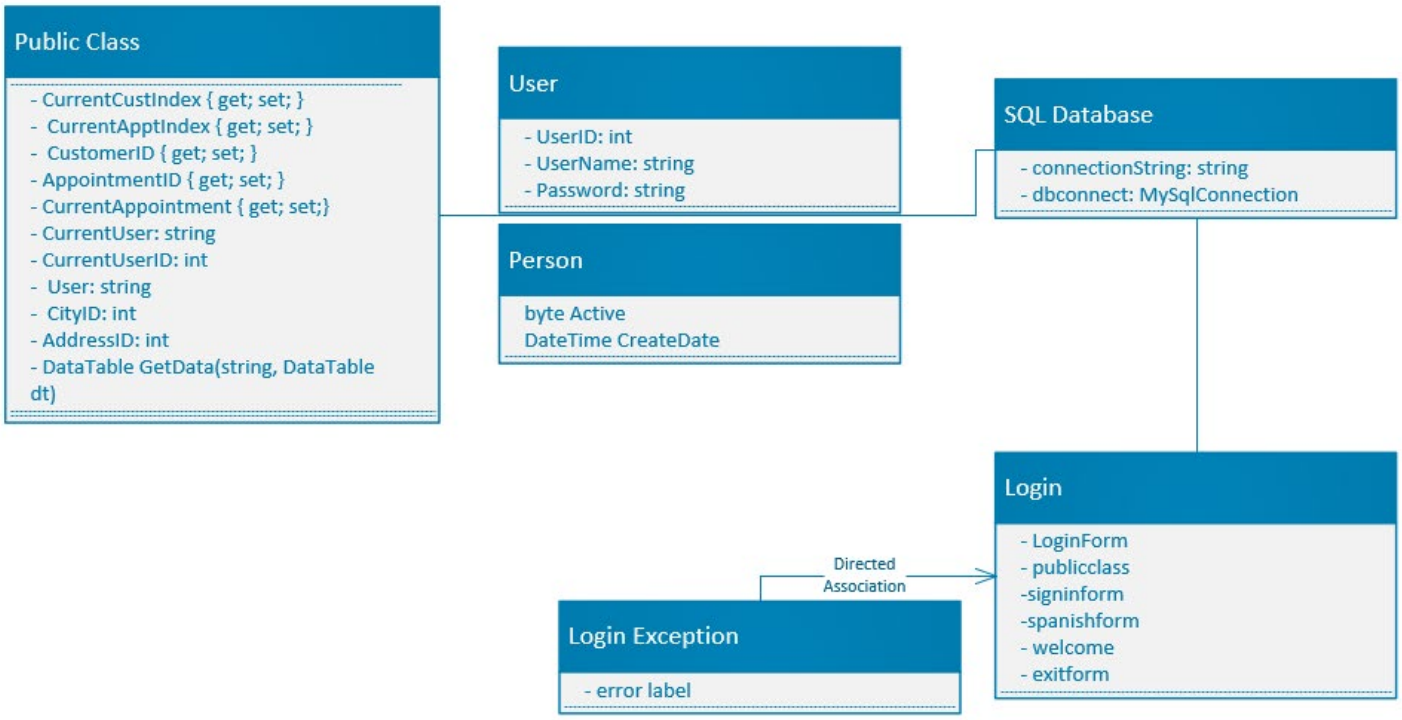
This polymorphic nature will help with creating users and the generated reports on shared properties. How the user and person class differ is that the user has login information to log into the scheduling software program while the person has the base information and ability to create additional users for future customers that adopt this scheduling software program. The functionality to add new users from the scheduling software program or edit users is not necessary for the scheduling software program right now. This will be handled by their IT staff and that will most likely be their SQL database Administrator. Below is an image of how all classes work together in a UML diagram. Future sections of this diagram will go into more detail and are explained.



Scheduling Software Program

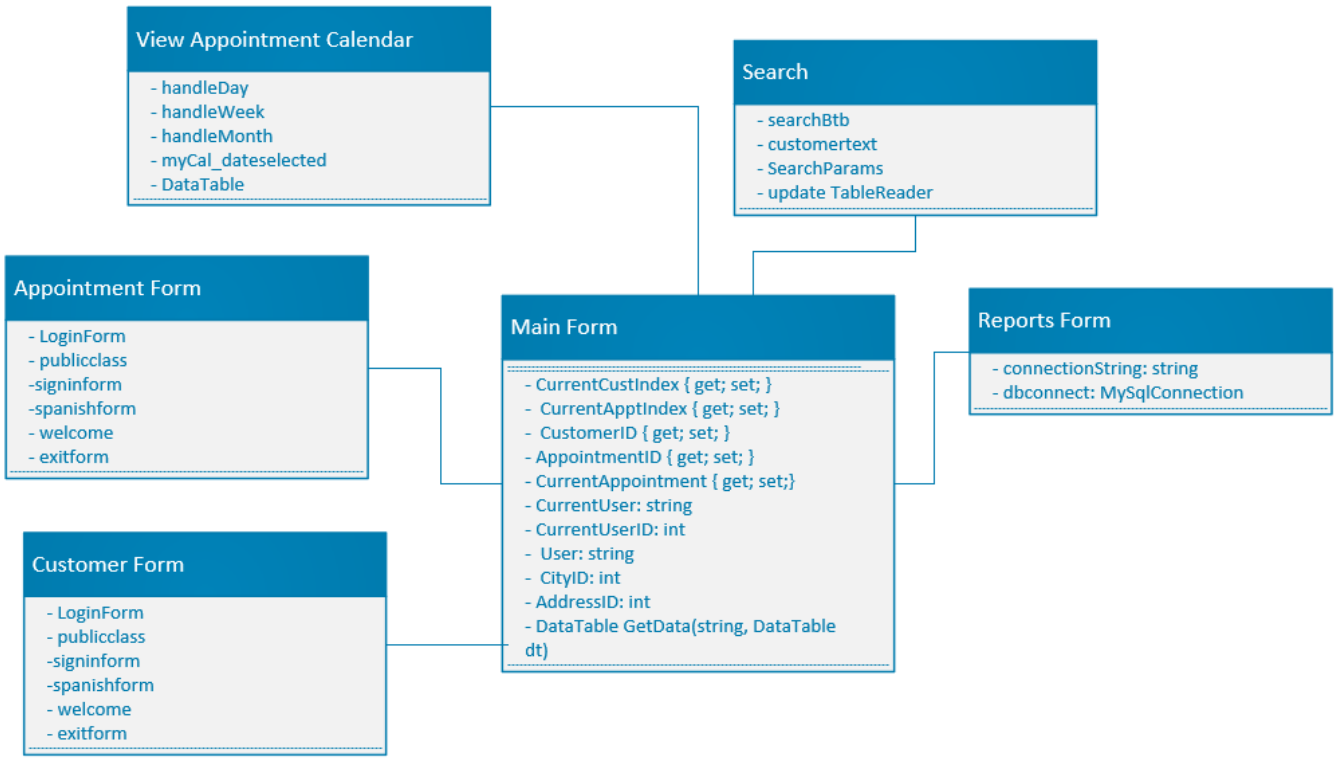
The image above reflects the flow that the scheduling software follows starting from the login which then proceeds to the main screen of the scheduling software program. On the main screen you have the three main user interface elements AppointmentForm, CustomerForm, and the ReportsForm section which includes AppointmentByMonth, AppointmentByCustomer, and AppointmentForm. Each of these will make a request to the SQL database which then will respond with the data that was requested and propagate that data into the modules shown above. This allows the data to then be viewed. The data can be edited and saved, and the data is available by the user interface sections in the application.

The start of the scheduling software program is the login form. From the diagram below you can see from the login form you have user and culture information localization property which allows the program to update the UI into the proper language and have a variable user to ensure that whomever is trying to access should be someone that has accessing to the scheduling program. A separate login expectation class was made to handle expectations of the class which is placed in LoginExpection.



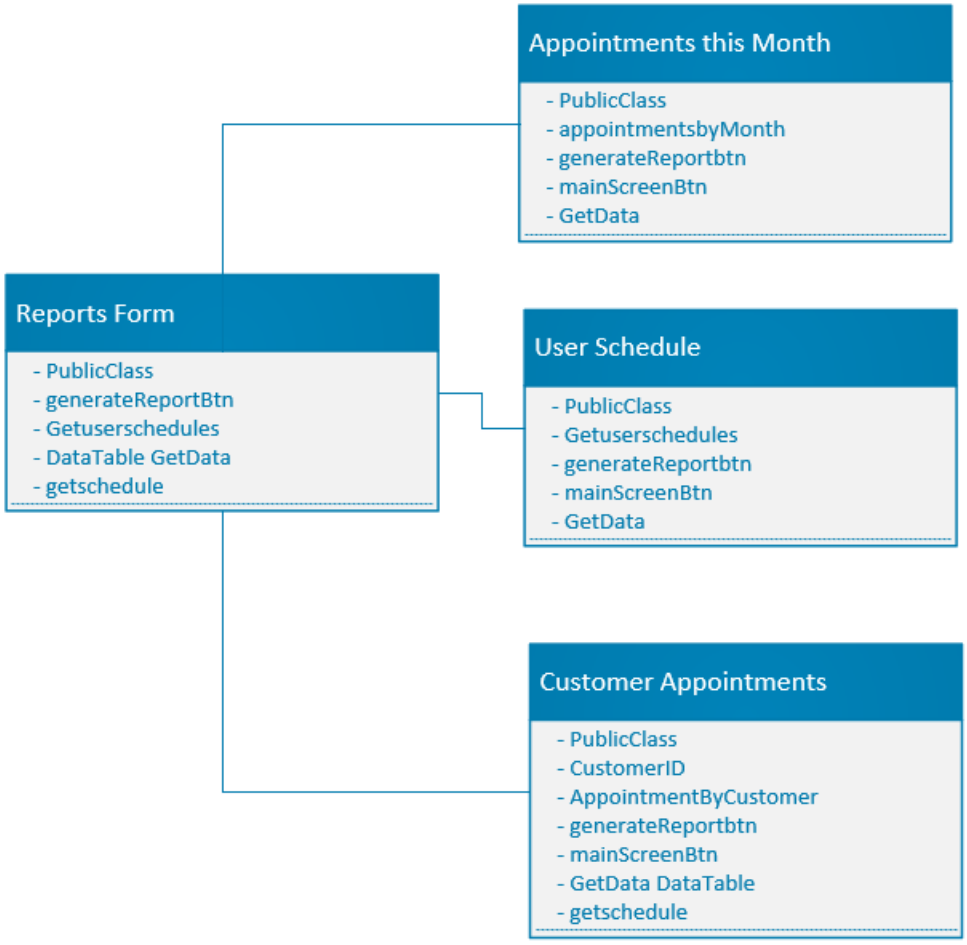
Scheduling Software Program

Once a user is signed in, they have access to the main form class. This class is the main entry and gives access to the other user interface classes in the diagram. While on the main screen of the scheduling software program you can access the appointments class form, the customer class form, and the reports class form. Using the customer add button, delete button, or edit button. Using the appointments add button, delete button, or edit button, and using the reports button. Which includes reports titled appointments this month, user schedule, or all customer appointments. The user will be able to access the appropriate forms and access the data associated with each form and report. While in these each of these forms you can add, edit and delete customers or appointments. The program also has a search feature that will allow the program user to search by the customer first or last name.



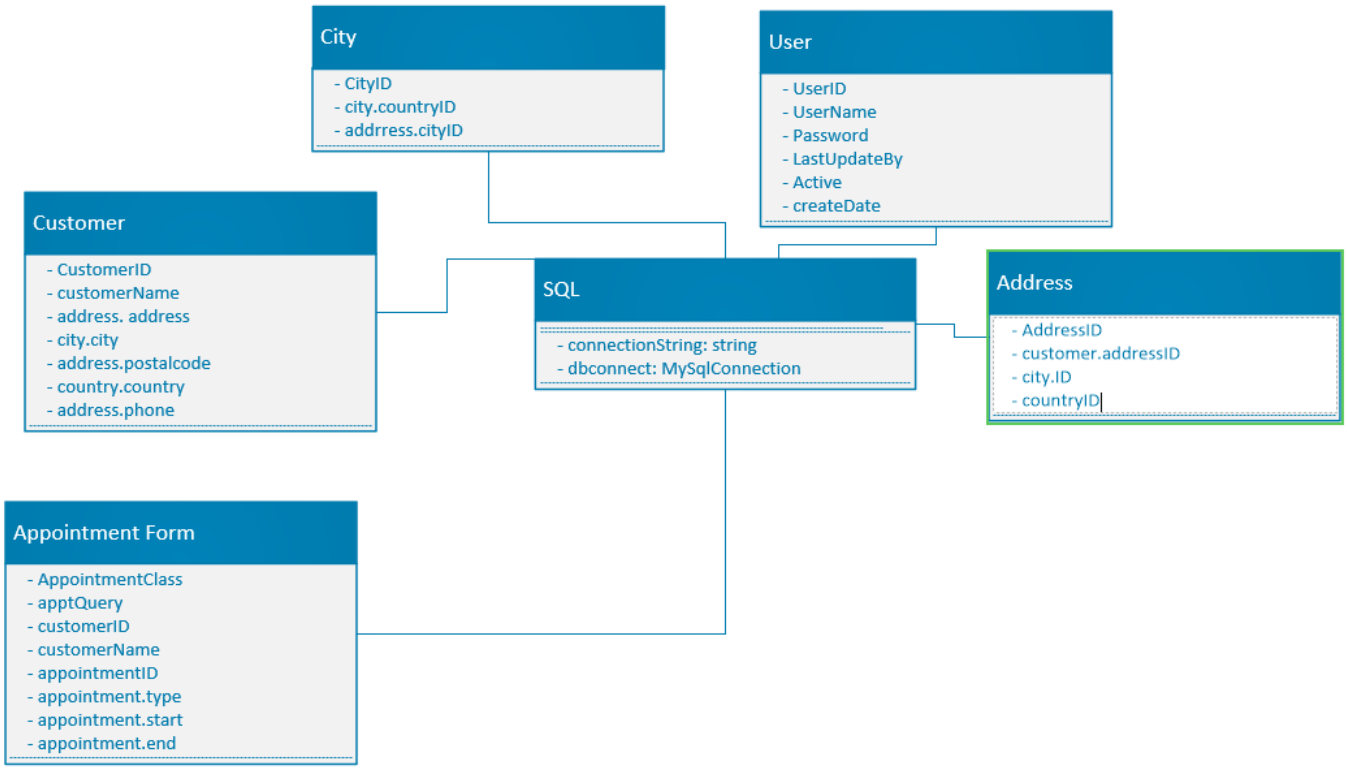
Scheduling Software Program

The add appointment button on the main screen will open the appointment form. This form has similar functionality as the customer form but its specific to the appointments that a customer is assigned to. The functionality of adding and editing appointment is part of the AppointmentForm because the main AppointmentForm can search.



All the add, edit, and delete functionality from a form will be sent to the SQL database class and within that the database will then be updated with the new data. Besides being invoked by the main three forms AppointmentClass, CustomerClass, and ReportsForm this is also directly used within the model classes. These models are important in order to keep data that is being place in organized object while also making it easy to update the data in the SQL database from the object.

Scheduling Software Program



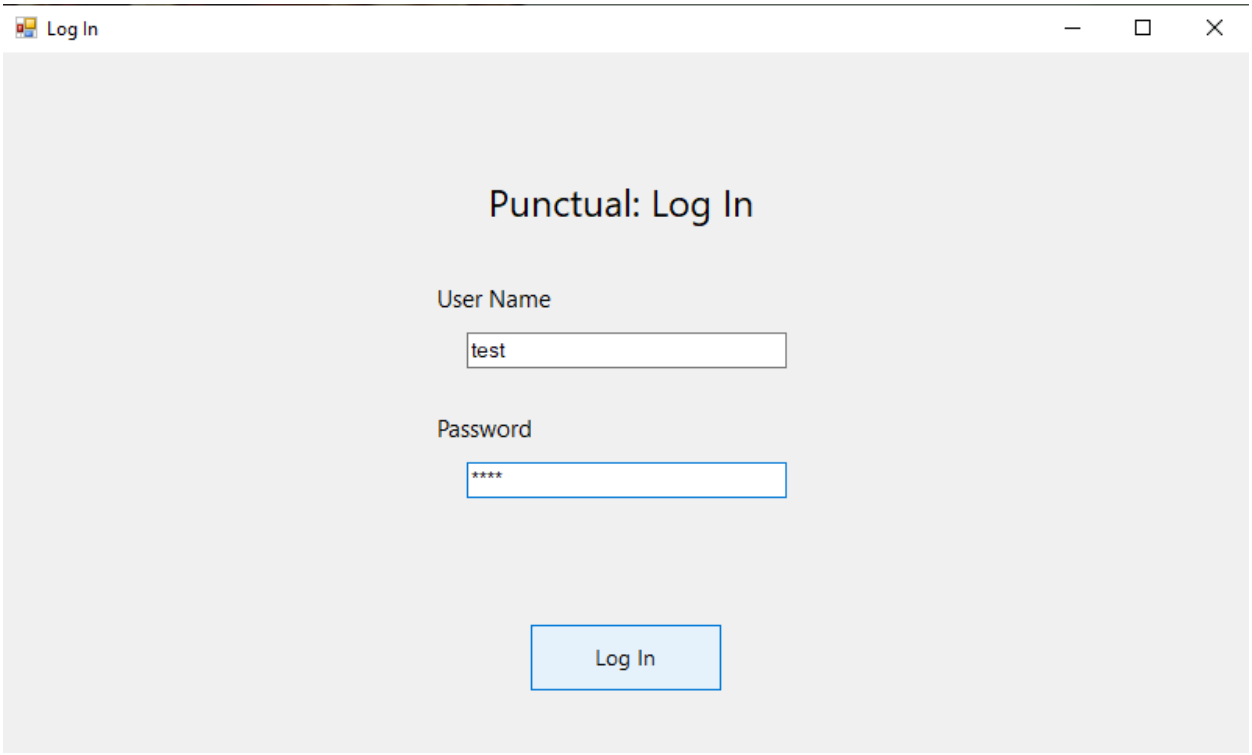
We have two unique model classes called the User and CustomerClass. Both of these classes uniquely inherit from the PublicClass and the abstract class Person. This is set in place because they share many sections of methods of code that can be handled similarly. Both classes can be used in place of a User object polymorphically for the methods and properties they share. This is beneficial because the code can be used with what they have in common with the PublicClass and the Person class by passing in the respected objects therefor no other modification will be needed. The unique properties and methods cannot be used for all of these classes. To explain a customer is a person, and a person is a user but a user is not a customer.

Scheduling Software Program

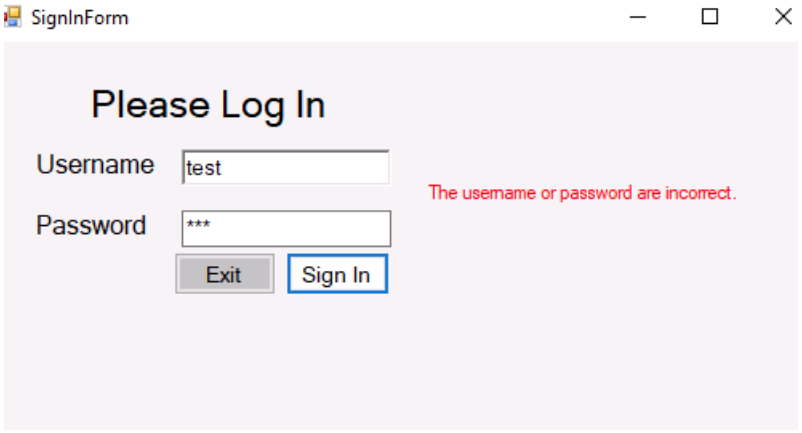
User Interface Design

The screen design has a focus on simplicity because that is one of the most important parts of the user interface development and user experience. All screens were created to make it easier for users to navigate and use the program. They are easy to use and intuitive controls were included to further bring out the usability and features of the scheduling software program. Listed below are high fidelity renders of the UI.

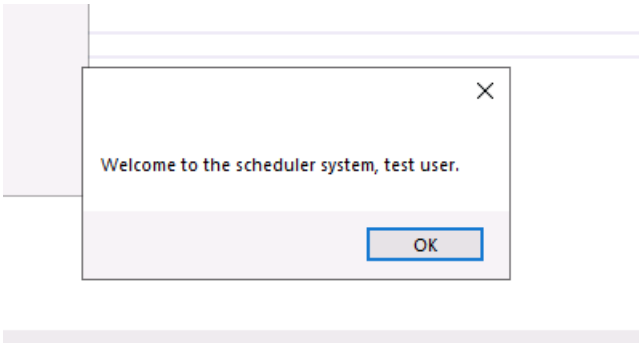
The first user interface screen of the scheduling program is the login form. This screen was designed so a user is self-aware of what needs to happen next. The title asks that a user please log in and has the text box for both the username and password of the user. Once the user has filled in their information the sign in button signifies what the user needs to do next, which is click the login button. Feedback is given directly to the user on the user interface to inform them of invalid credentials.



Scheduling Software Program

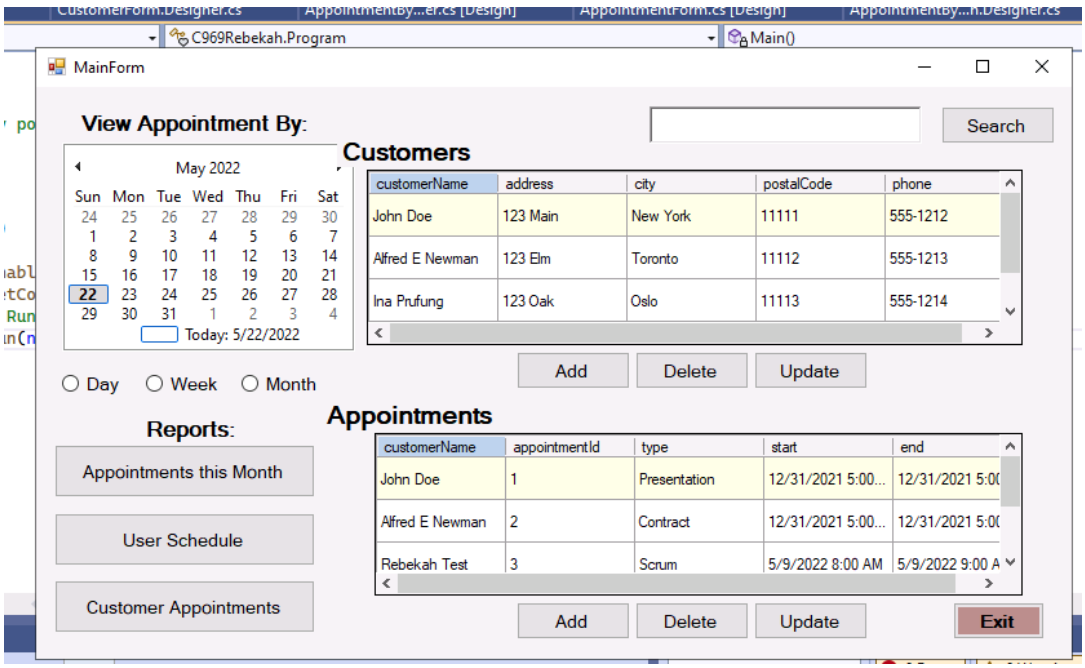


Once logged in the user receives a success message:



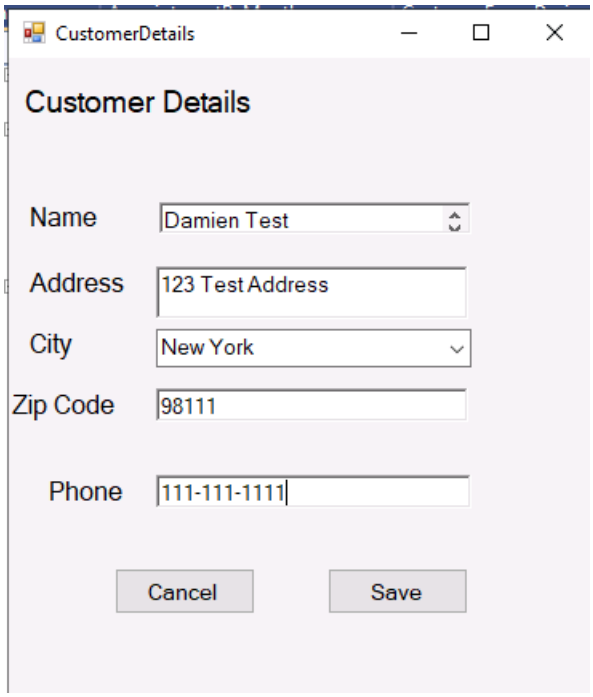
Scheduling Software Program

When a user has successfully logged into the scheduling program, they then land onto the main screen which has options available to navigate to different other forms within the program using the user interface, and it has a button to exit the scheduling program. The top of the form has a search button that can be used to search for a customer by their first or last name, doing so will update the customers list below with the customer that has the name that you searched for. If you do a blank search with no name entered the customer list will revert back showing everyone that is a customer in the program. The customers area of the main form has the complete list of customers within the program along with their address, city, zip code and phone number. You can click to add a customer here, delete a customer or update a customer's information from here. The appointments area of the screen has all the appointments, the appointment id, type of appointment, start date and time and the end date and time of the appointment. You can add appointments from the main form, you can delete appointments, or you can update the information within an appointment. The Reports on the lower left side of the main form has three reports buttons that can be clicked. The appointments this month report, the user schedule report, and the custom appointments form. The top left has a calendar that you can view appointments by day, week, or month if the radial button is clicked for those three options.



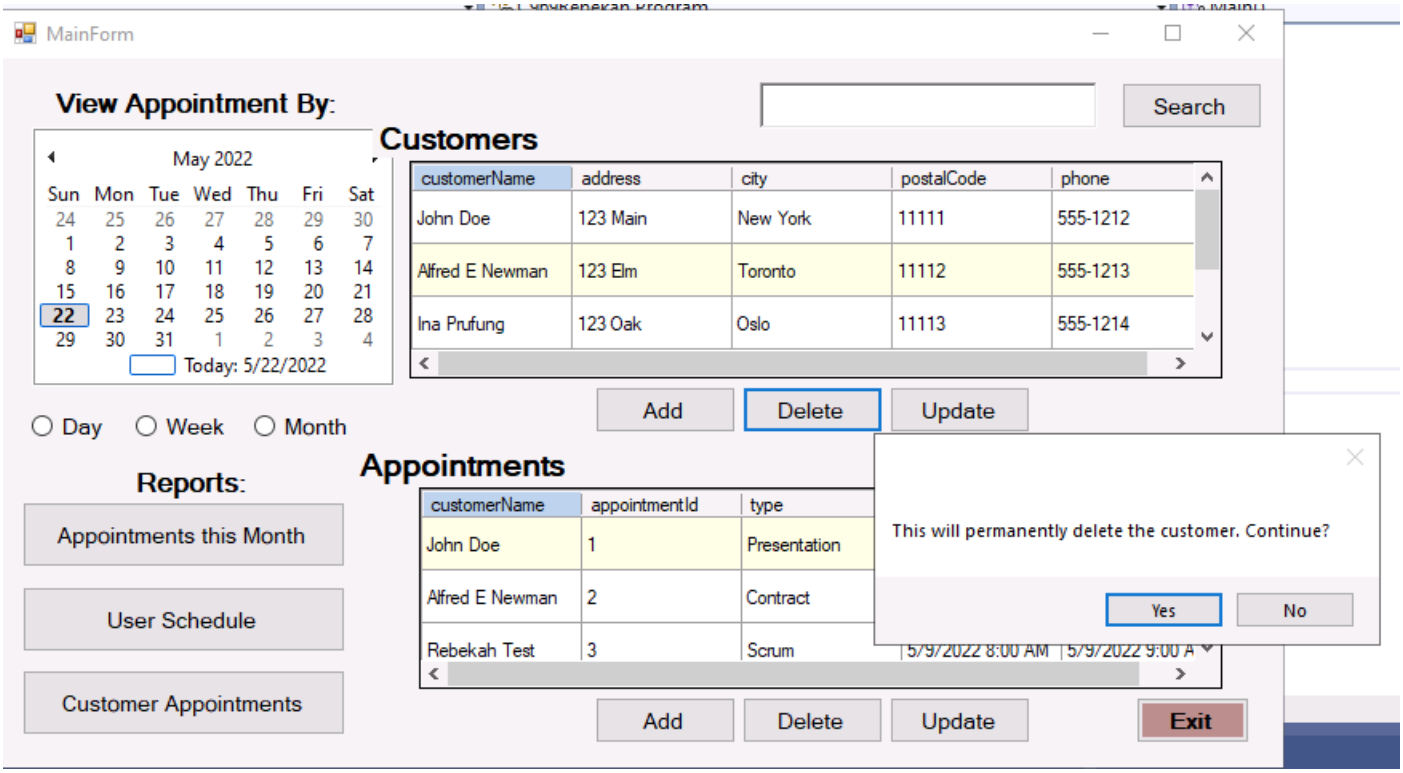
Scheduling Software Program

If the user selects the customer add button, they will be brought to the customer details form. It contains blank fields that will need to be filled in to add a customer to the program. The form will not allow you to save it if its incorrectly filled in or blank. You can cancel out of this form or add the customer details and save the form as you can see in the following screen shot.

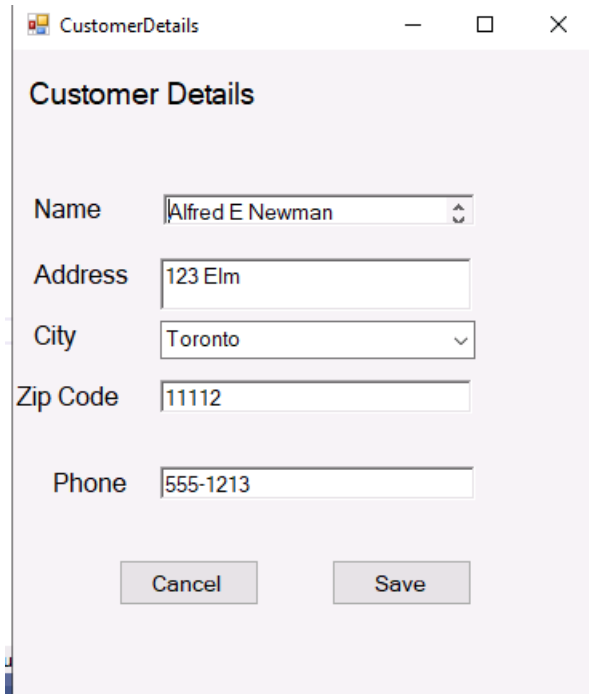


From the main form screen if you click to delete a customer you get a pop warning asking if you want to permanently delete the customer record which you can click yes or no too.

Scheduling Software Program

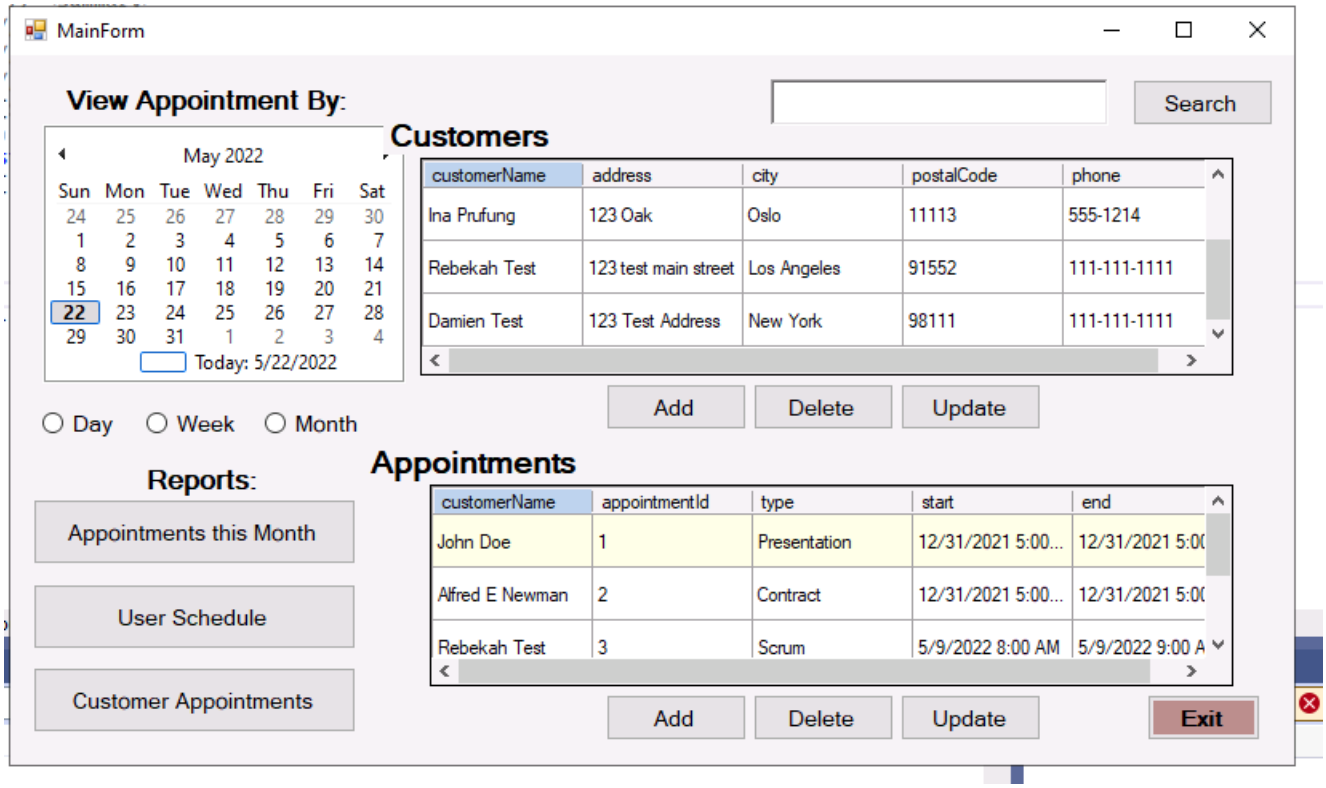


If you click customer update a customer details screen will open up and from that you have the option of updating the customers details and saving it or canceling out of the form.

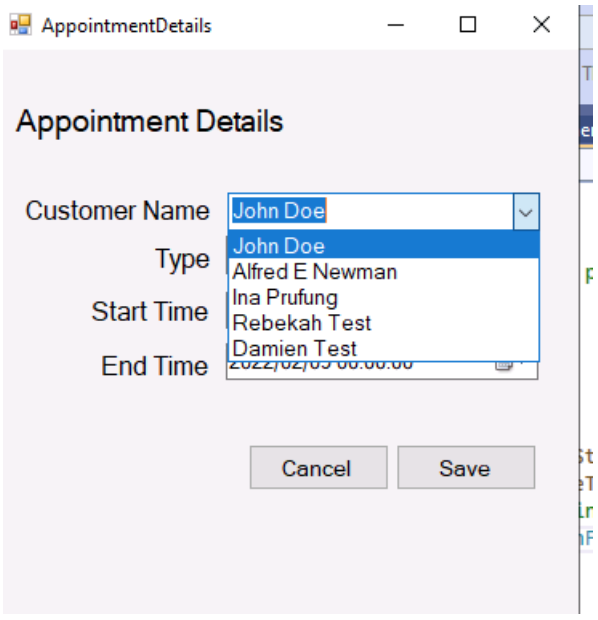


Once you either save or cancel from the customers or appointments screen the program will always take you back to the main form screen.

Scheduling Software Program

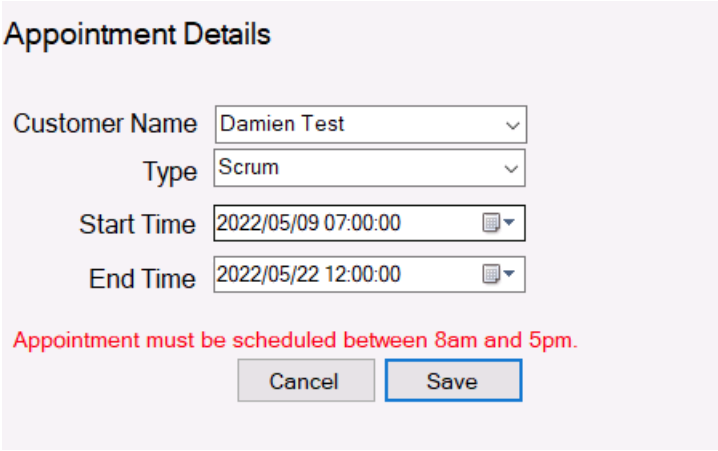


If you click appointments add, an appointments details screen opens up. From this there is a dropdown that contains all of the customers that have been registered and saved in the database from the customers' form. The names are prefilled in the dropdown and from that you can pick the customer that you would like to create a appointment for.



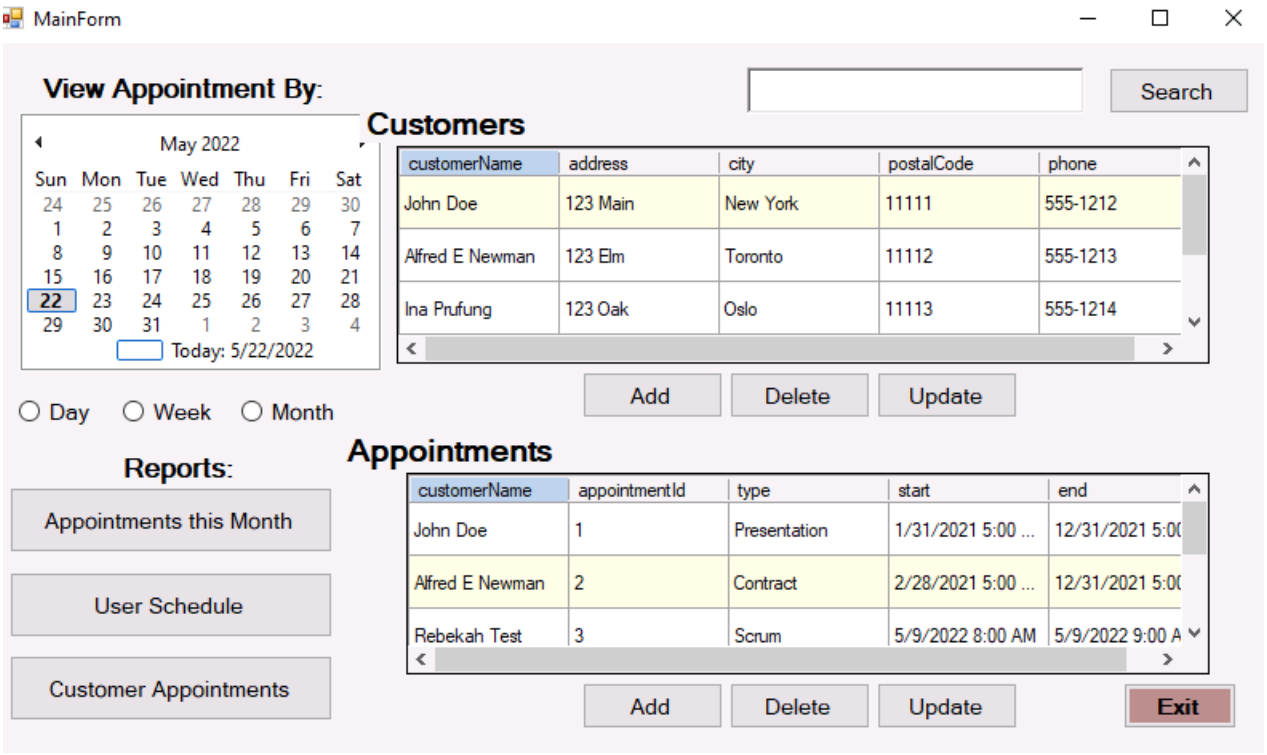
Scheduling Software Program

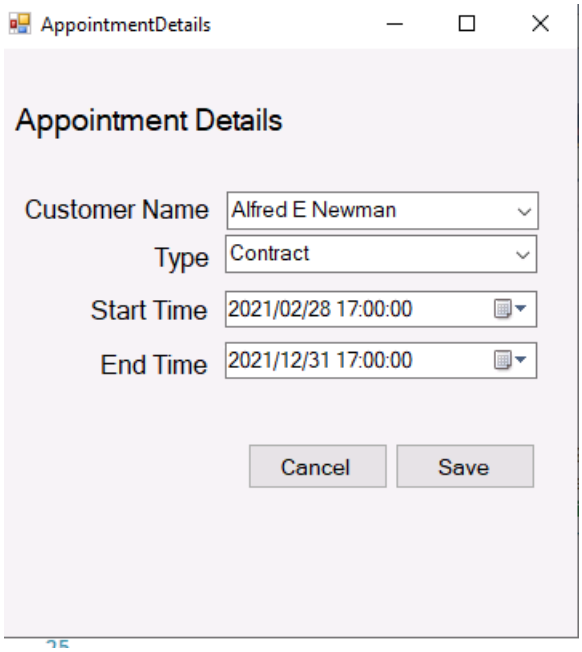
The appointment details form requires that you input an appointment during business hours, or it will not save. The appointment has to be between the hours of 8am to 5pm. If you try to schedule outside of that time frame you get a red warning that requires you to change the time in order to save the appointment details, or you can cancel out of the appointment details screen.



Scheduling Software Program

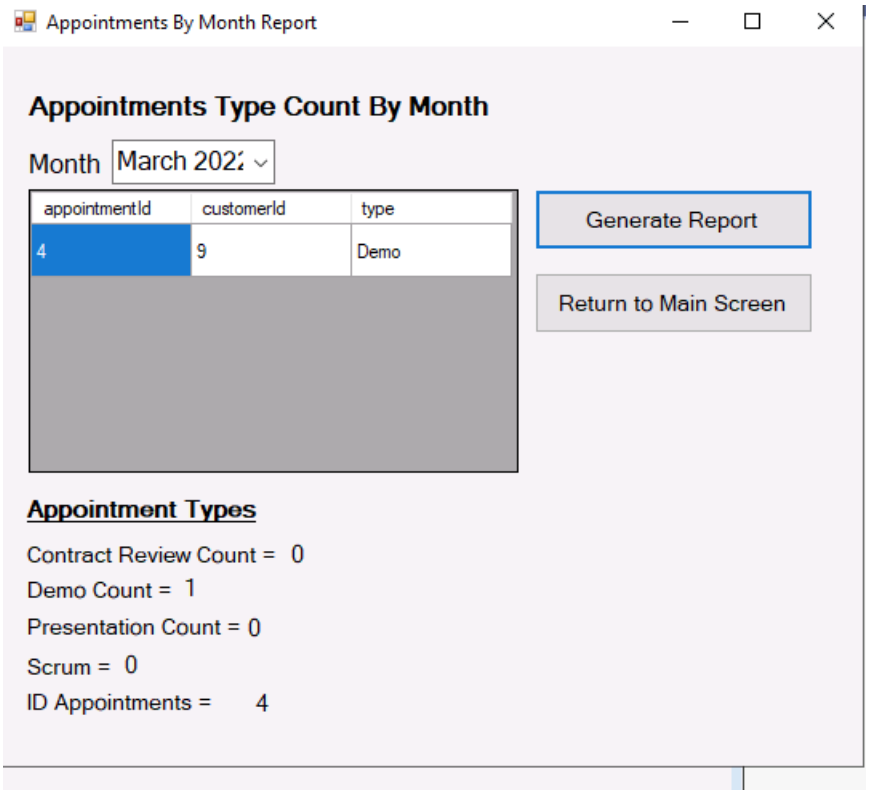
To edit an appointment from the main form you will need to have the appointment highlighted (yellow color in screen shot below) and from there you can click update appointments. A screen will open with that appointment's details and within the fields you can then update the information.





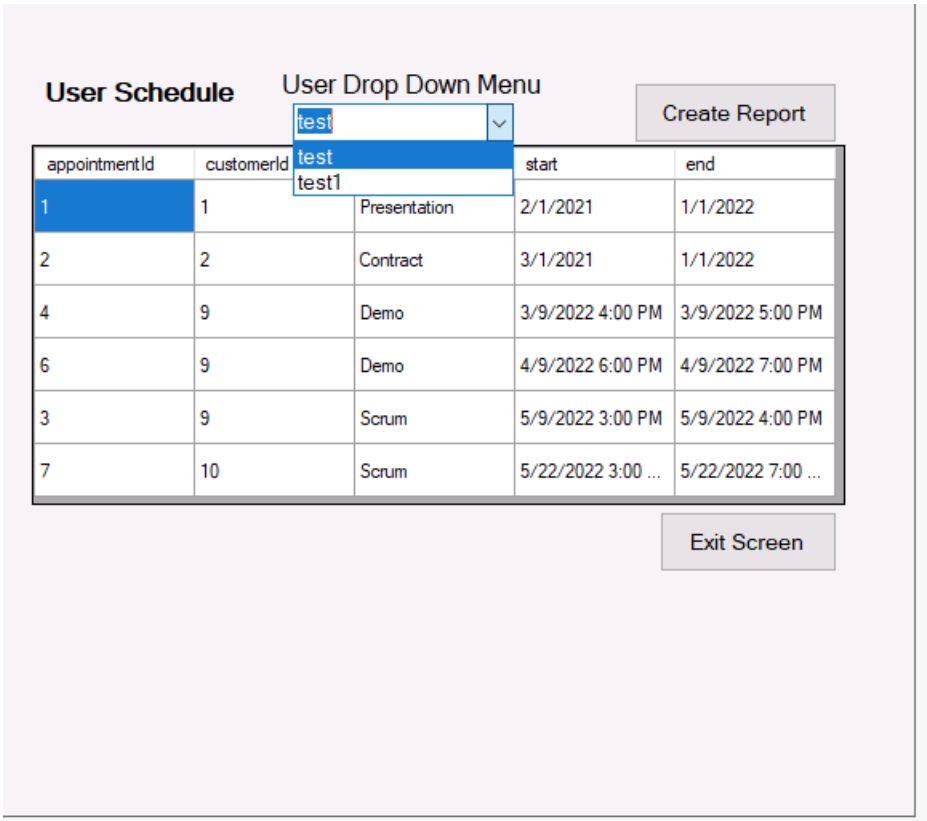
Scheduling Software Program

If the user selects one of the report buttons from the reports section on the main screen, they will be brought to the reports screen related to the button they selected. The user has three options. If they click the first button appointments this month, then the appointments type count by month form will open. From this they have a dropdown where they can pick the month that they would like to see appointments scheduled in and then click generate report. If no appointments are scheduled, they will get a pop up that says “no appointments scheduled this month”. If appointments are scheduled the report will show a list of the appointments scheduled for the month and count the appointments in a tally at the bottom of the form. It will also show the appointment ID. You can generate this report or return to the main screen. All the data is pulled in from the programs SQL database.



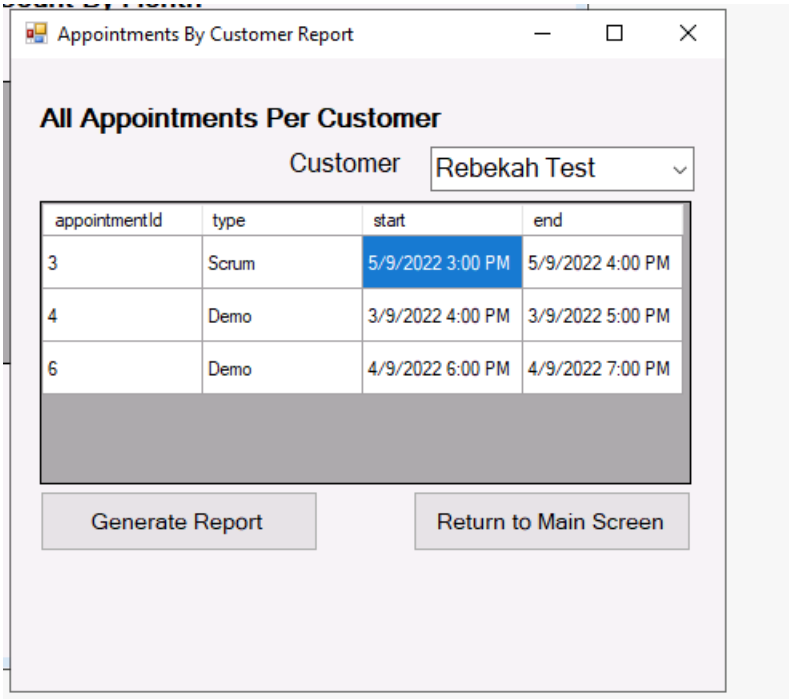
If the user schedule report form is clicked then you will see a list of appointments that are scheduled for the users registered for the program. You can have several users and multiple appointment and customers

scheduled for a user. You can click to create the report based on the user you select from the drop down or you can exit the screen.

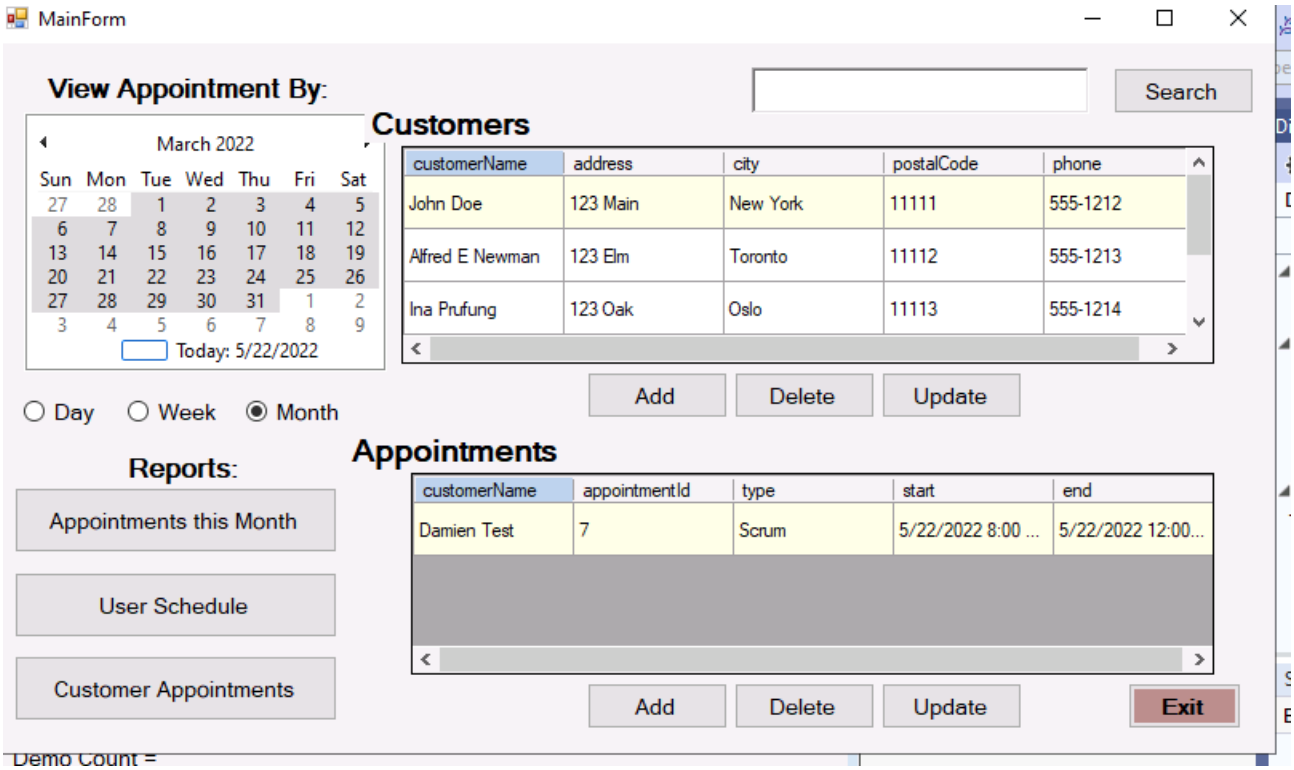


If the appointments per customer report is clicked, then a user can pick from the list of registered customers from a drop-down menu. From that they can generate a report that will show all the appointments that a particular customer has scheduled. All of this data is pulled in from the programs SQL database.

Scheduling Software Program



From the main form if you click the calendar, you can see appointments scheduled for the day that you click on within the calendar field, the week or within a month view. If an appointment is scheduled within that time frame it will be listed in the appointments view on the main screen of the main form. This data again is pulled in from the SQL database.



Scheduling Software Program

Unit Test Plan

Introduction

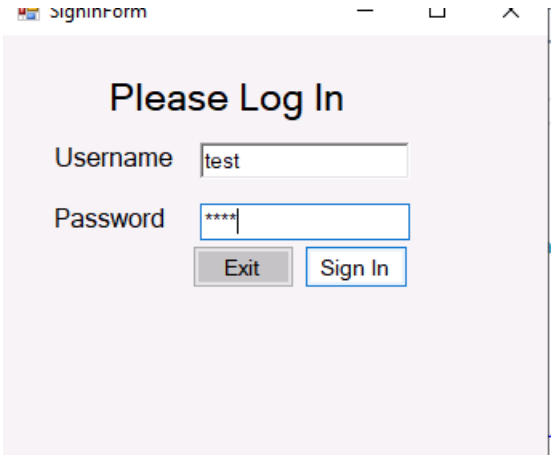
Purpose

Most of the testing that was completed for the scheduling software program was completed manually through the user interface of the program. I checked each feature extensively to ensure that the testing done on this scheduling program was completed through the user interface to ensure it operated correctly. I checked for data validation, error handling, and the functionality of each screen and component of the scheduling program. Screens were tested individually as a unit test before being added into the software scheduling program. Once every portion of the program was created and each unit was tested and added to the scheduling program, a final test was done to make sure all the forms, components of the program, user interface displayed correctly and the functionality of the code working with the data base was observed and worked together without any observable issues. The below gives all the details of each test that was completed for each unit. Any errors that I found were noted and given to my development team to have them corrected. Once all corrections were made the program was thoroughly tested again to ensure functionality was working and the program operated without issues. No errors were found during the final full test.

Login Screen

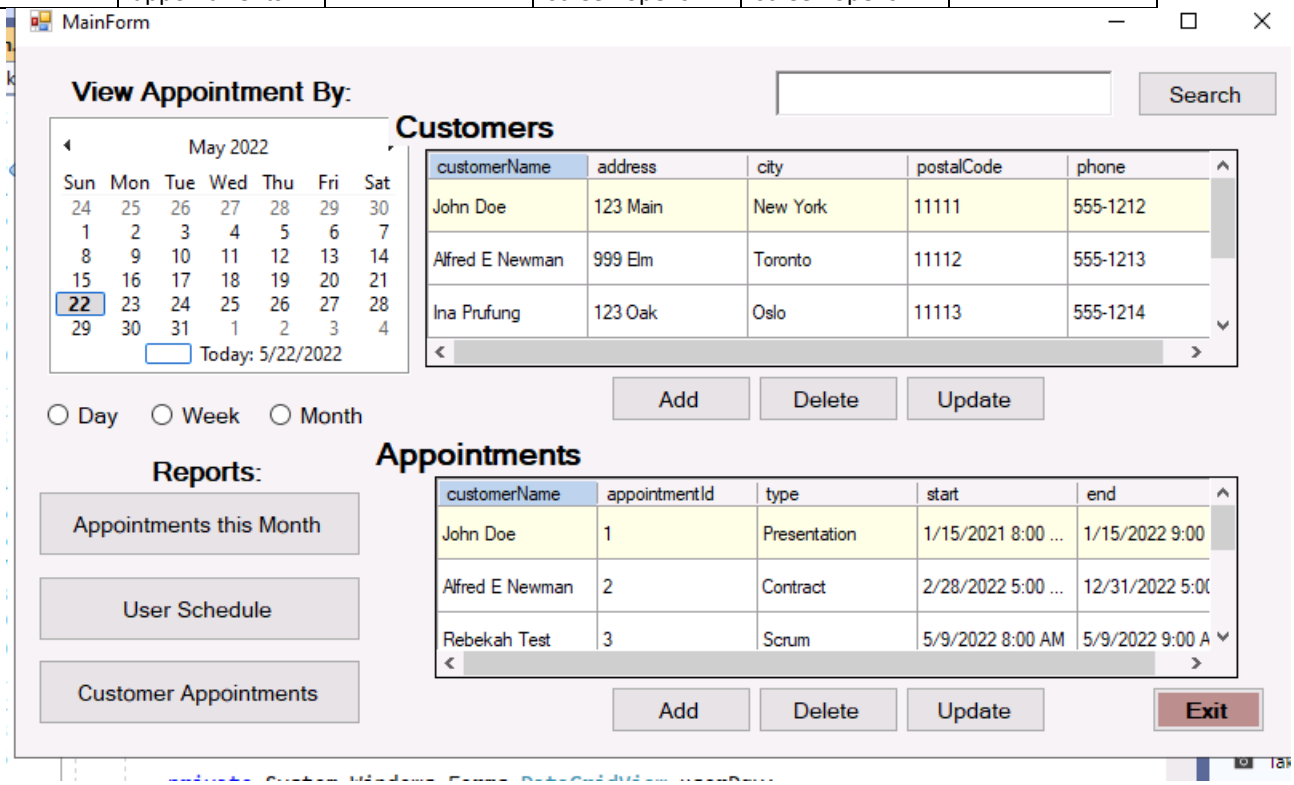
Test number	**Test Description**	**Test Data**	**Result Expected**	**Result Actual**	**Pass or Fail**
1	Test account log in	User: test Password: test	Login Success	Login Success	Pass
2	Login with null entry	User: null Password: null	Login Failed Error message displayed	Login Failed Error message displayed	Pass
3	Login with a typo	User: test Password: test1	Login Failed error message displayed	Login Failed error message displayed	Pass

Scheduling Software Program



Main Screen

Test number	Test Description	Test Data	Result Expected	Result Actual	Pass or Fail
1	Exit Button	None	Program close	Program close	Pass
2	Customer add Button	None	Customer add screen opens	Customer add screen opens	Pass
3	Appointments add Button	None	Appointments add screen opens	Appointments add screen opens	Pass
4	Reports Button: Appointments this month	None	Appointments this month screen opens	Appointments this month screen opens	Pass
5	Reports Button: User Schedule	None	User Schedule screen opens	User Schedule screen opens	Pass
6	Reports Button: Customer appointments	None	Customer appointments screen opens	Customer appointments screen opens	Pass

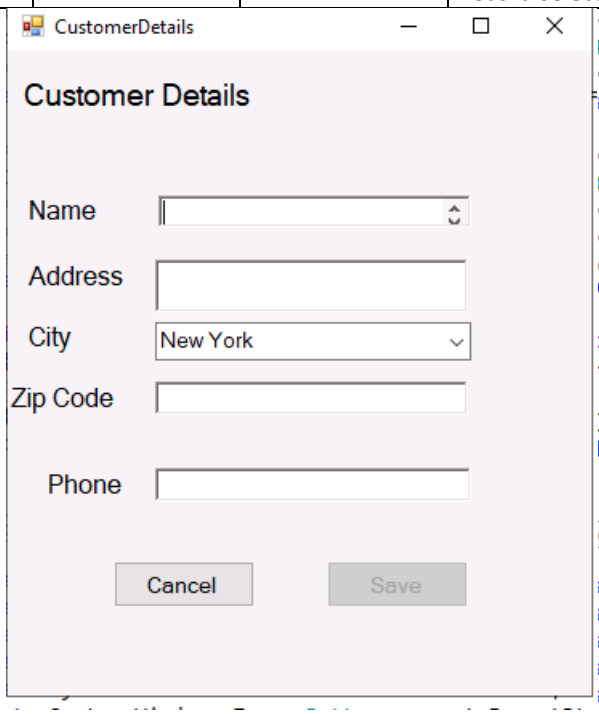


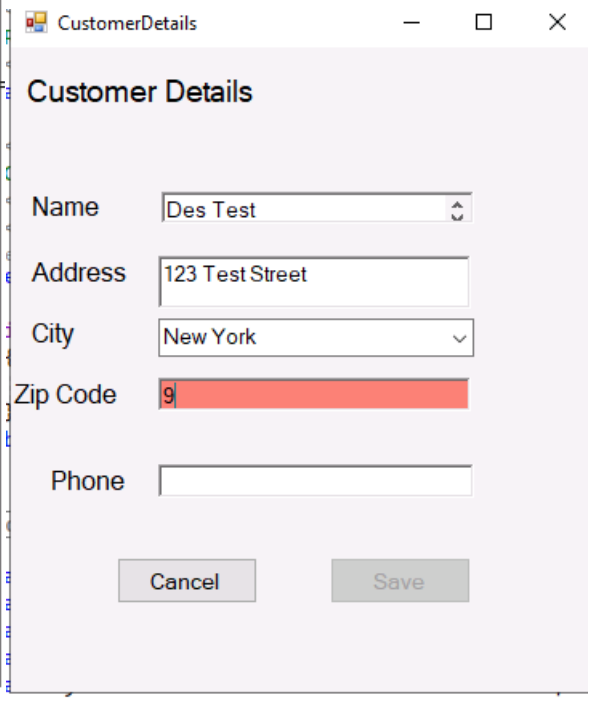
Scheduling Software Program

Customer Records Screen

Test number	Test Description	Test Data	Result Expected	Result Actual	Pass or Fail
1	Return to Main Screen Button	None	Return to Main Screen	Return to Main Screen	Pass
2	Add Button	None	Let you enter data in the fields below	Let you enter data in the fields below	Pass
3	Save a real data entry	Name: Rebekah Test, 123 test main street, Los Angeles, 91552, 111, 111, 1111	User added into SQL database with correct information	User added into SQL database with correct information	Pass
4	Save entry missing name	Name:	Save button is greyed out until all the information is entered	Save button is greyed out until all the information is entered	Pass
5	Save entry missing address	Name:	Save button is greyed out until all the information is entered	Save button is greyed out until all the information is entered	Pass
6	Save entry missing phone	Name: Des Test Phone: 111 - 1111	Save button is greyed out until all the information is entered. Once you enter a couple digits for the phone number the program has red text stating " Please enter phone as ### - ####	Save button is greyed out until all the information is entered. Once you enter a couple digits for the phone number the program has red text stating " Please enter phone as ### - ####	Pass
7	Save entry missing City	Name: Des Test, 123 Test, Vancouver Phone: 111 - 1111	Drop down defaults to a city so no possible way to save without a city	Drop down defaults to a city so no possible way to save without a city	Pass
8	Save entry missing zip code	Des Test, 123 Test, Vancouver Phone: 111 - 1111	Zip code is a red field until you enter digits. Save button is grayed out and does not allow you to save until zip is entered	Zip code is a red field until you enter digits. Save button is grayed out and does not allow you to save until zip is entered	Pass
10	Cancel button pressed	None	Return to main form	Return to main form	Pass

11	Click Delete Button	None	Popup warning you will permanently delete the customer. Continue?	Popup warning you will permanently delete the customer. Continue?	Pass
12	While editing record - save with missing information	Any information missing from test above	The save button is grayed out until data is filled. Cannot save without. Only option is to cancel and return to main form screen.	The save button is grayed out until data is filled. Cannot save without. Only option is to cancel and return to main form screen.	Pass
13	While editing record - save with updated information	Name: Alfred E Newman, 123 Elm street, Toronto, 11112, 555-1213	The data was updated with new information	The data was updated with new information	Pass
14	Delete button clicked with no record selected	None	Error message is a popup saying you need a record selected	Error message is a popup saying you need to select a record	Pass



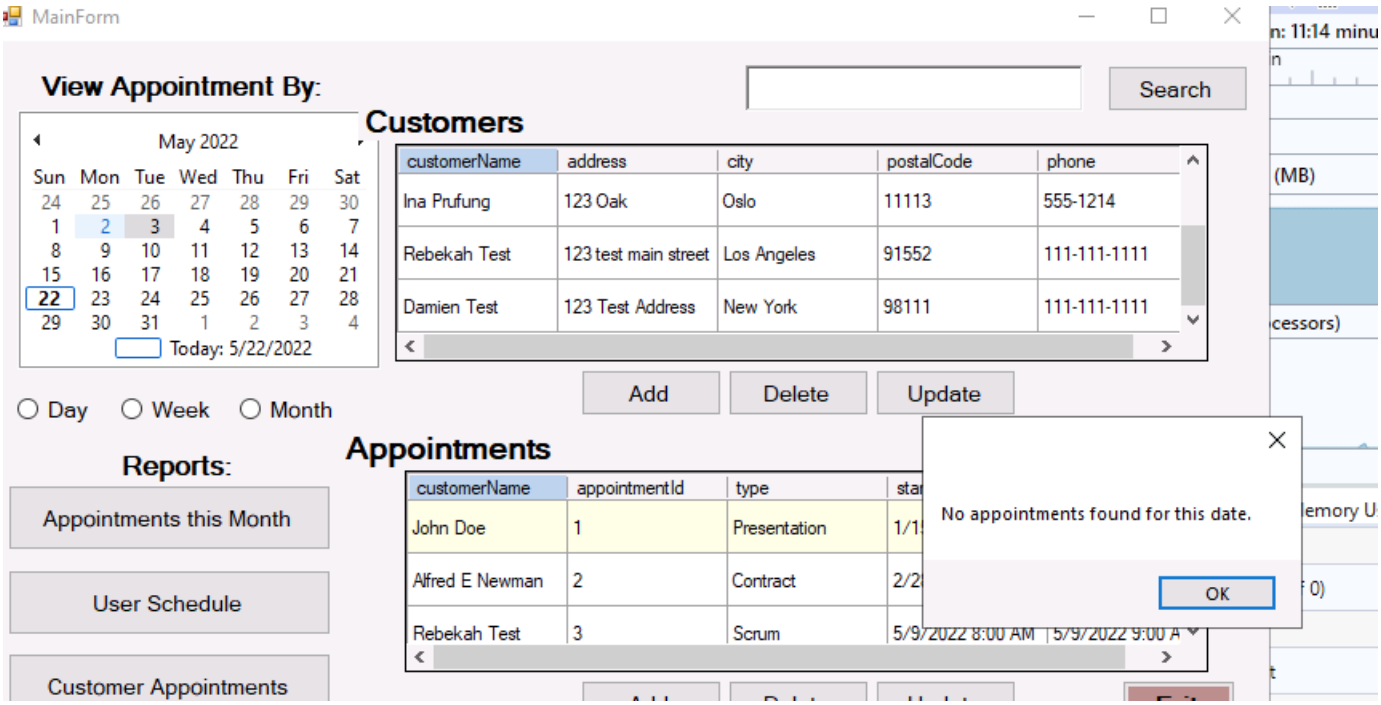


Appointments Screen

Test number	Test Description	Test Data	Result Expected	Result Actual	Pass or Fail
1	Add Button pressed	None	Opened up Appointments Details Form	Opened up Appointments Details Form	Pass
2	Delete Button pressed	John Doe, 1, presentation, 1/31/2021	Popup warning you will permanently	Popup warning you will permanently	Pass

			delete the appointment. Continue?	delete the appointment. Continue?	
3	Update Button pressed with no appointment selected	None	Popup informing user to please select an appointment to update	Popup informing user to please select an appointment to update	Pass
4	Update Button pressed with record selected	A record selected	Bring up edit appointment screen	Bring up edit appointment screen	Pass
5	Delete Button pressed no record selected	None	Popup informing user to please select an appointment to update	Popup informing user to please select an appointment to update	Pass
6	Delete button pressed with record selected	Appointment with ID 7 selected	Popup asking if you are sure you want to delete yes or no	Popup asking if you are sure you want to delete yes or no	Pass
7	Select no on delete pop up	Appointment with ID 7 selected	Return back to appoints screen without deleting record	Return back to appoints screen without deleting record	Pass
8	Select yes on delete pop up	Appointment with ID 7 selected	Delete record with appointmentID 7	Delete record with appointmentID 7	Pass
9	Click radio button Dates	None	Show a search that you can search by date	Show a search that you can search by date	Pass
10	Search a valid range of dates	Start date of start of the month and end date of end of the month	Show all appointments for the month	Show all appointments for the month	Pass
11	Search a range of dates without appointments	Searched from May 2 to May 2	Show no records on screen	Show no records on screen	Pass
12	Search a date range that does not have appointments	Searched from May 2 to May 3rd	Popup saying no appointments found for this date	Popup saying no appointments found for this date	Pass

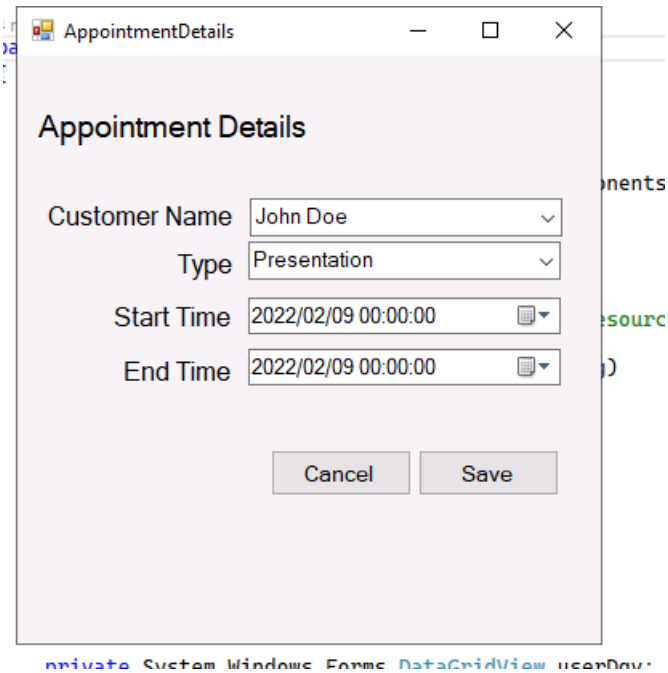
Scheduling Software Program

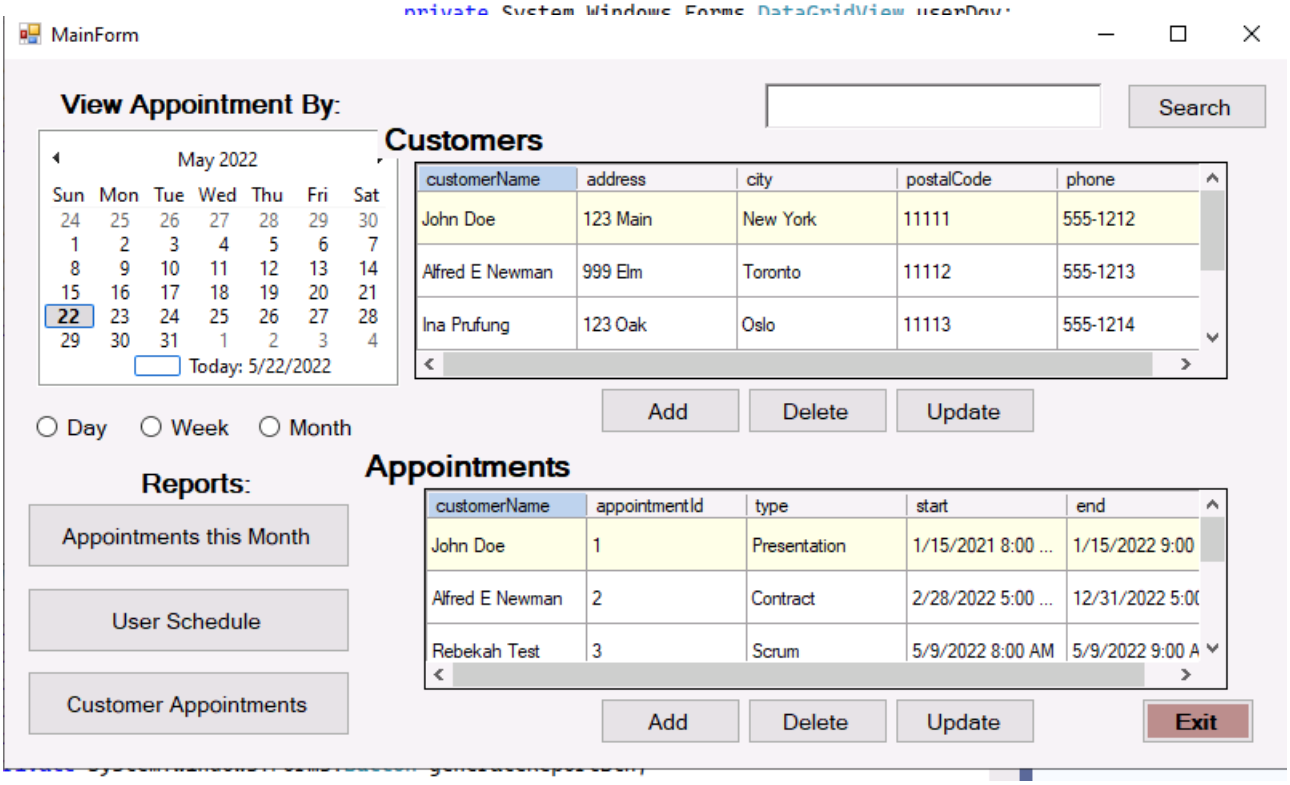


Add Appointment Screen

Test number	Test Description	Test Data	Result Expected	Result Actual	Pass or Fail
1	Cancel button	None	Return to Main Screen	Return to Main Screen	Pass
2	Saved data with valid information	Customer: John Doe Type: Presentation Start: 8 AM today End: 5 PM today	Create appointment with information provided	Create appointment with information provided	Pass

Scheduling Software Program

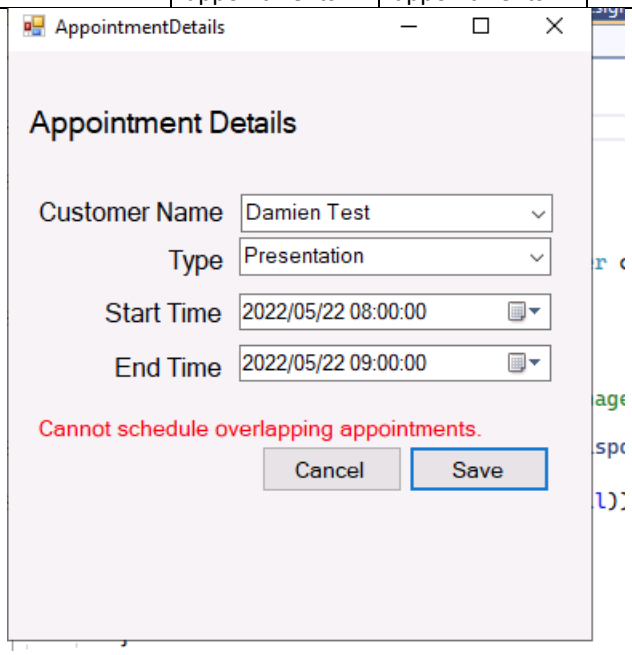




Update Appointment Screen

Test number	Test Description	Test Data	Result Expected	Result Actual	Pass or Fail
1	Cancel button pressed	None	Return to the main screen	Return to the main screen	Pass
2	Change data to different valid information	Change appoint Damien customer from scrum to presentation for appointment type	Update appointment with new appointment type	Update appointment with new appointment type	Pass
3	Change date to be overlapping	Change start and end time to be 8	Popup information you	Popup information you	Pass

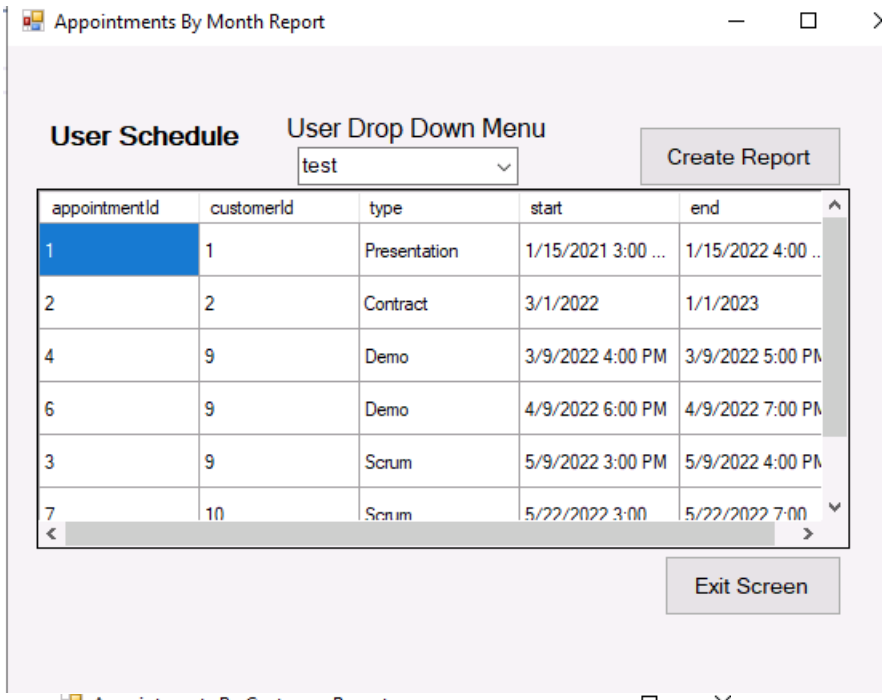
	with a different appointment	AM to 5 PM 05/02/2021	cannot have overlapping appointments	cannot have overlapping appointments	

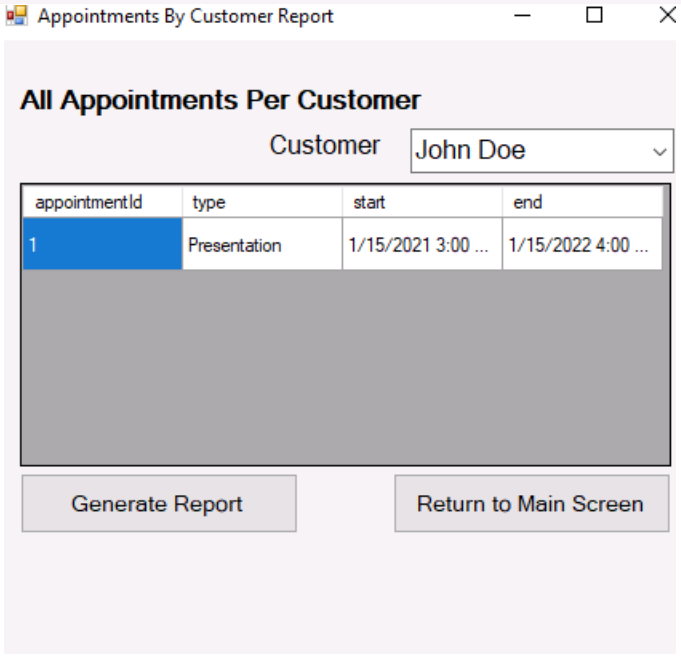


Appointments this Month Reports Screen

Test number	Test Description	Test Data	Result Expected	Result Actual	Pass or Fail
1	Close button	None	Return to the Main Screen	Return to the Main Screen	Pass
2	Select Appointments this Month Button	None	Show Report of appoints by type for the previous, current, and next months	Show Report of appoints by type for the previous, current, and next months	Pass
3	Select User schedule Button	None	Show report of all the appointments for each user.	Show report of all the appointments for each user.	Pass
4	Select Customer Appointments Button	None	Show report of customers with all their appoints that are scheduled	Show report of customers with all their appoints that are scheduled	Pass

Scheduling Software Program





Overview

Testing was completed by the dev team for each of its coding units, each set of the units were then added to the core program, and a final test was completed to ensure accuracy. Each individual section of the scheduling software program was tested in view controller pairs because each was considered one unit.

Errors were documented within the main bug report. After errors were reported and documented they were then assigned to dev team members from the development team to resolve each of the issues. All tests were done within the program's user interface.

Test Plan

Items

- Visual Studio 2022
- .Net Framework 4.8
- Access to test account to access the Application

Features/Functions

The functions that were tested with all the methods from all controllers. Tests were complete using the application user Interface. A complete use of the user interface was done to thoroughly test the methods. Date integrity was examined from the tests and validation of the data was done from the controllers. Any handling of errors and messages come from the controller interface from the application was included as part of the test plan.

Deliverables

All of the tests that were completed in the tables above reflect the pass and fail mark for each test that was completed. Information is also given on which type of test was completed, they data that was used, and what the results we expected to get, and the actual observed results of each test. The data was then added to the document for the client to reference.

Tasks

1. Do the test case.
2. Log test failures and assign to the special members of the development team for remediation.
3. Complete test cases.
4. Repeat steps 1-3 until all test cases are passed.

Scheduling Software Program

Needs

To complete the test there will be a need for a Windows 11 operating system environment. The machine will also require visual studio 2022 and .Net framework 4.8 installed. The machine will need access to a network connection to reach the MySQL database.

Pass and Fail Criteria

The tables above reflecting the test plan do reflect a record for the pass and fail criteria within the actual results and expected results column. A pass will be recorded if both columns match. A failure or fail will reflect that the actual and expected results did not match. Discrepancies will be reported in the bug report log and then assigned to the development team members inside the development team to resolve.

Source Code

The scheduling software program source code has been attached into the submission portal on WGU student website.

Scheduling Software Program

User Guide

Introduction

This is the user guide for all users of the Scheduling Software Application. Scheduling Software Program is a lightweight C# application designed for minimal backend setup and minimum install steps to get the program running. Follow the instruction below for how to setup and use the Scheduling Software Program.

Installation and Using the Application

For the program to run correctly and to ensure it installs we need to ensure that the client machine meets minimum requirements. The client machine needs to be running any version of Windows 10 or 11 OS. The .net runtime may need to be installed but most machines will have this installed previously when they installed their windows operating system. The administration team that handles the user access for the scheduling software program will need to ensure that the additional users for the program will also have access to a MySQL Workbench. To run the program please install the exe file from the debug folder of the visual studio zip file that has been sent to you.

1. The application will be sent in a .zip format. Right click the zip file and click on extract all.

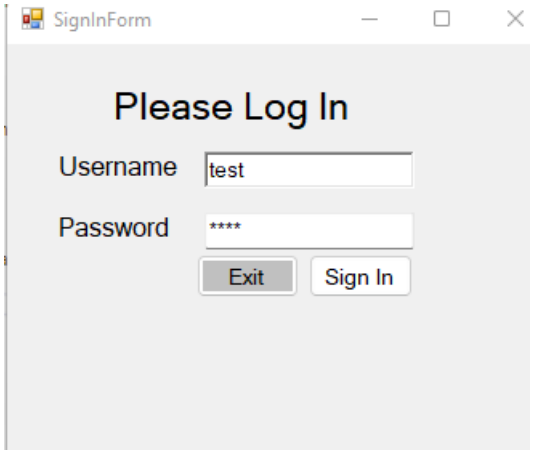
2. The extract dialog will come up. Pick the location you want to extract the file.

3. Open the folder Scheduling Software Program that you extracted and double click the application named Scheduling Software Program.

Logging In

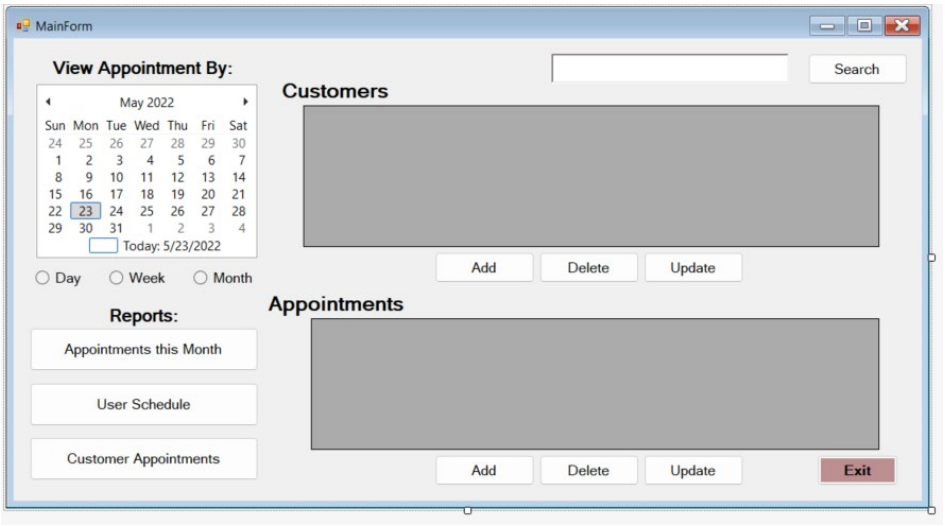
1. You will need to fill in the text field with the username and password.
    a. **For the test the username will be ‘test’ and the password will be ‘test’. You will enter these values without the quotation marks.**

2. Click login button this will navigate you to the Main screen.



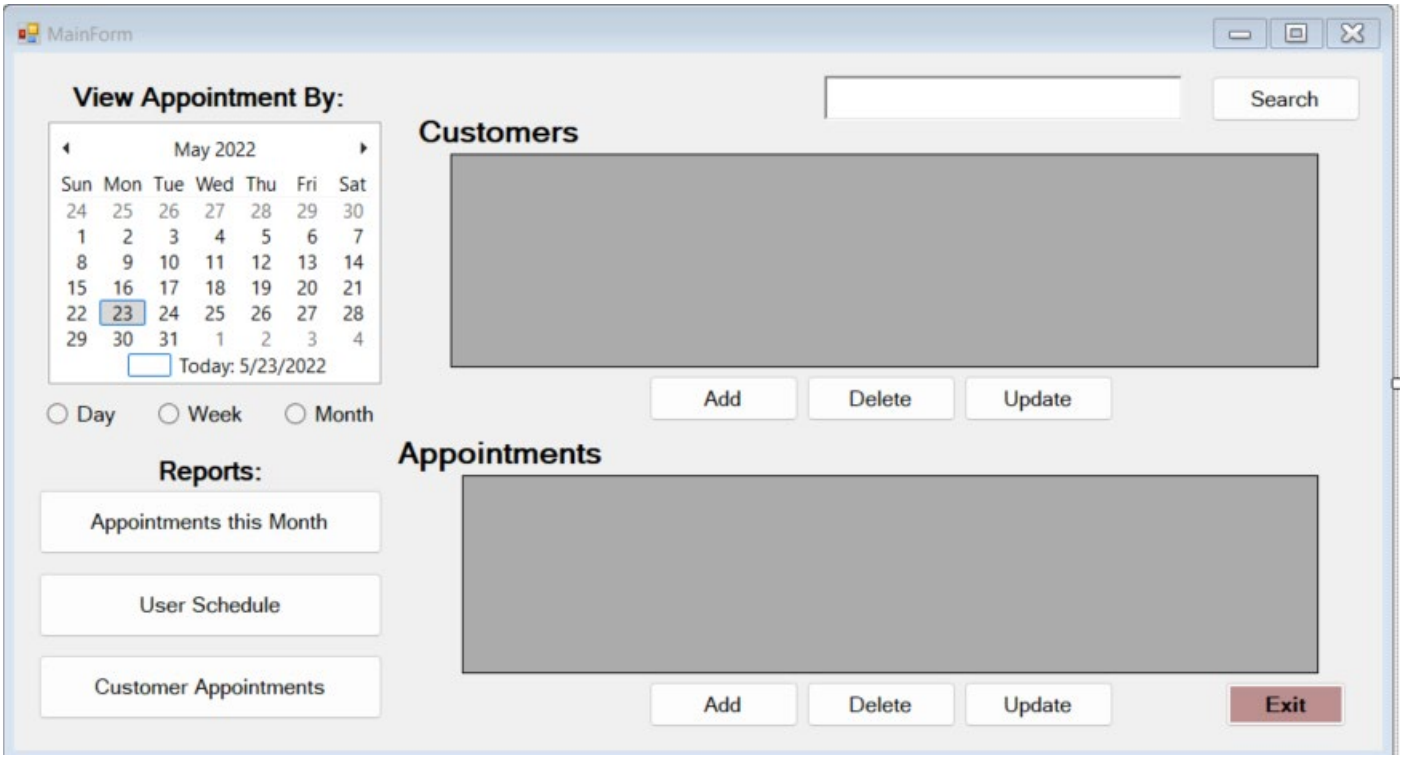
Navigation-Main Menu

1. To exit the scheduling software program, you can press exit button from the right bottom of the page to exit the application.



Customers records screen

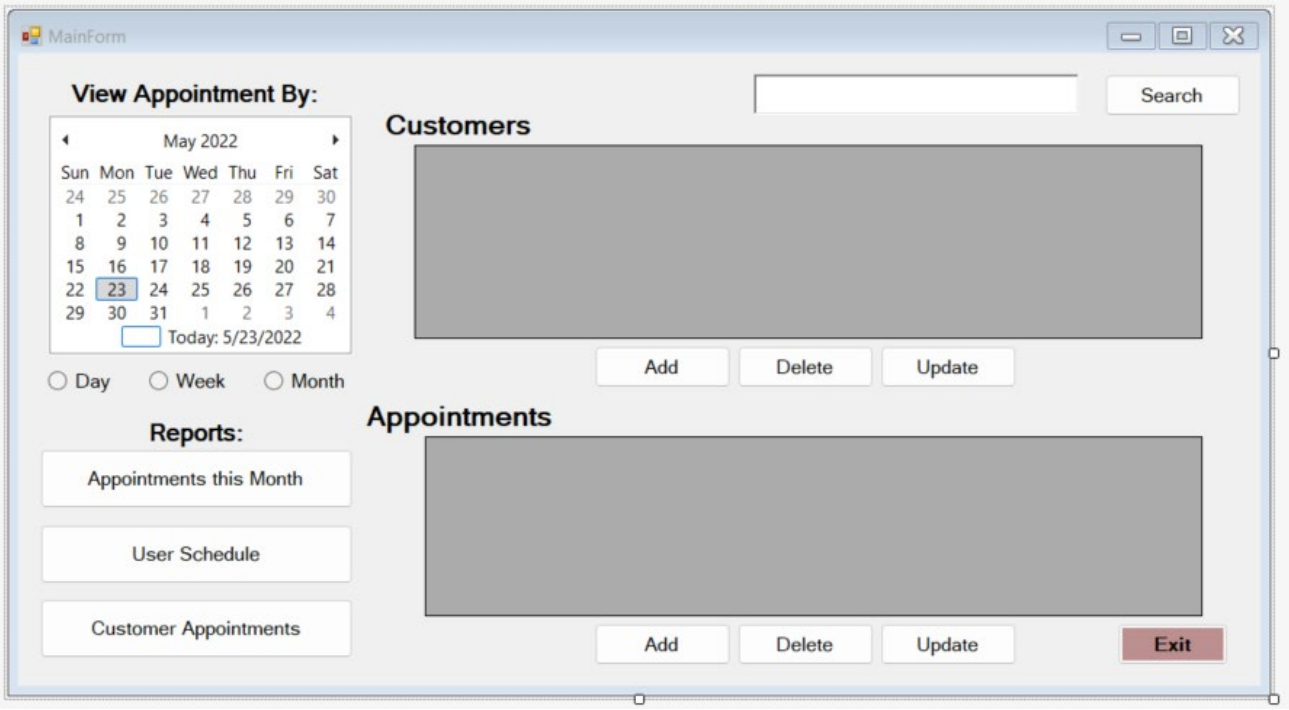
1. You can view all customer from the main screen and from this screen you can add, delete or update customer records



2. Click the Add button to add a customer record.
3. Click the save button when all fields are completed. The customer ID field will be generated by the system and is unable to be updated manually.
4. Click the cancel button if you do not want to make a new customer record.
5. When you have a customer, record selected by click on it click the update button to update the customer data.
6. To delete a customer when you have a record selected click the delete button. It will bring up a confirmation dialog. Hit yes to delete the customer and hit no if you decide you do not want to delete a customer or perhaps mistakenly clicked delete.
7. To search the customer records please type in the first or the last name of the customer and click search. The results will show all customers with that name.

Appointments Screen

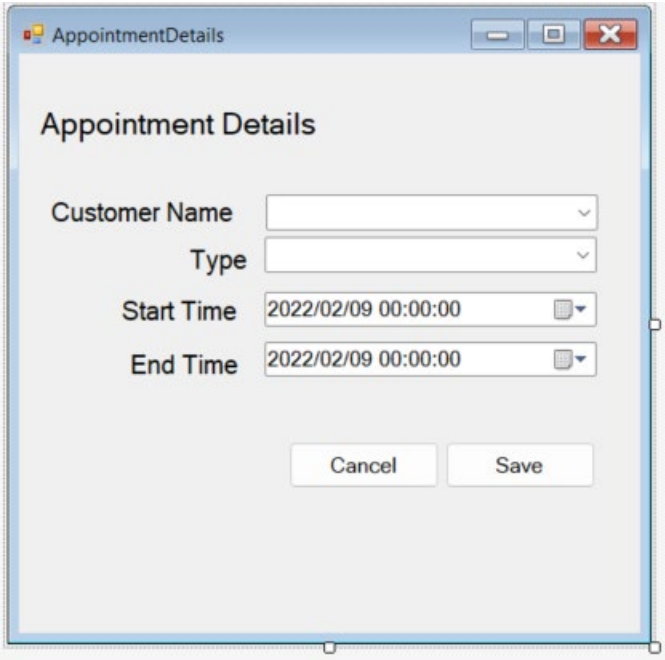
1. Appointments can also be viewed from the main screen



2. The appointments data and add appointments screen has similar options to the customer records page. The Add and update button function similarly to customer records page but opens the add/update appointment screen. Look further down in the user guide for information on that screen.
    a. Don't forget to update an appointment you must have the appointment selected and that will be reflected with yellow highlight to the row.

Update Appointment screen

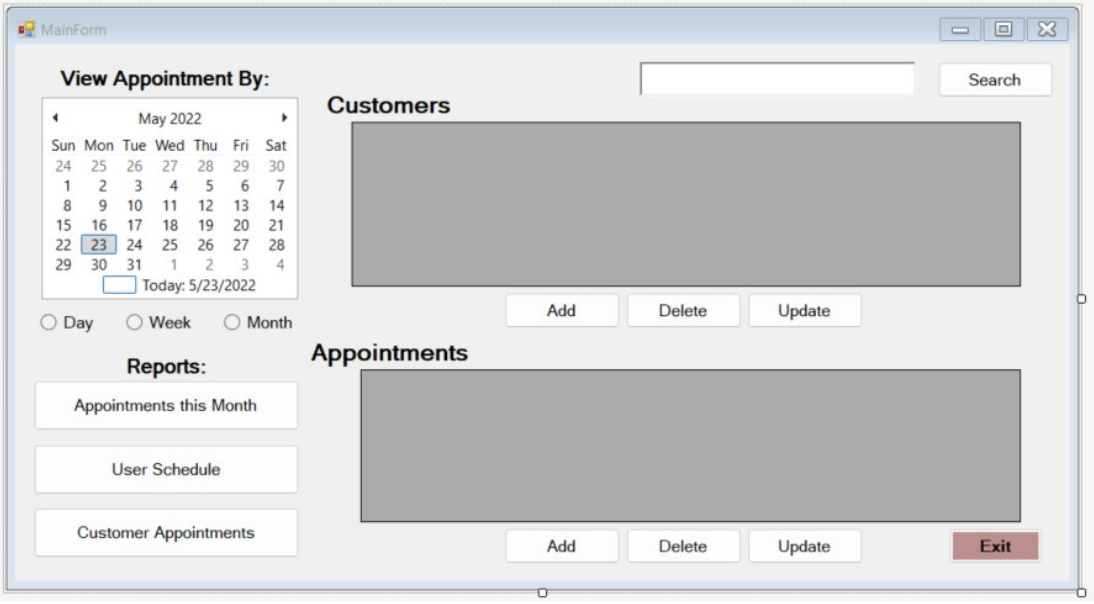
1. Click the update button to update an appointment screen.
2. Enter the customer's name, pick the type of appointment from the drop down, enter the start, and end date and time and ensure you are picking a time within the business hour of 8am to 5pm. Click the save button to save the new appointment.



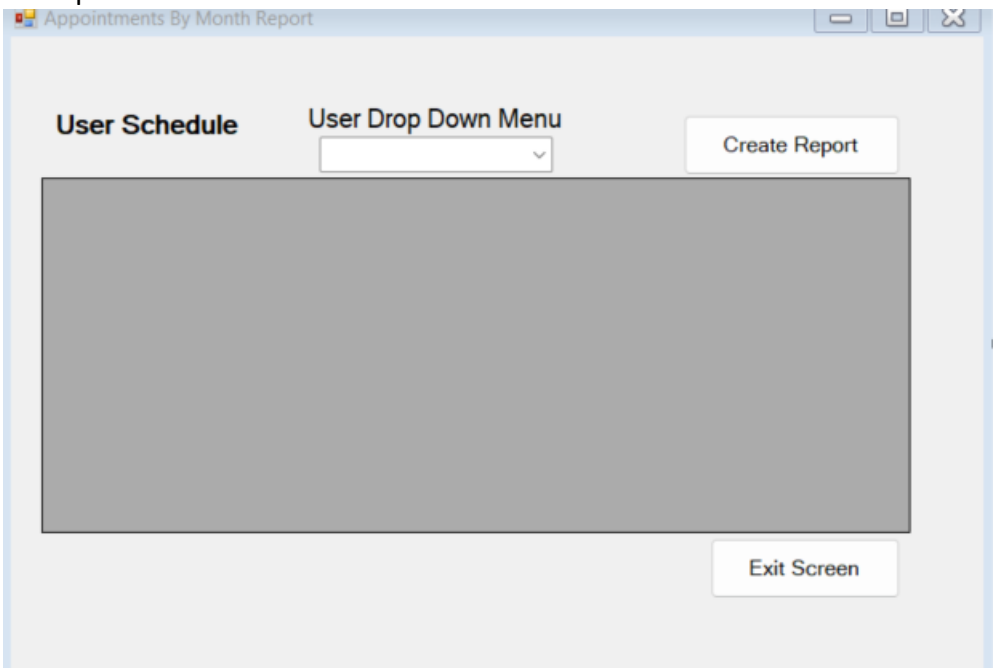
3. The update appointment dialog has similar functionally but auto populates with the appointment's current information.

Reports Screen

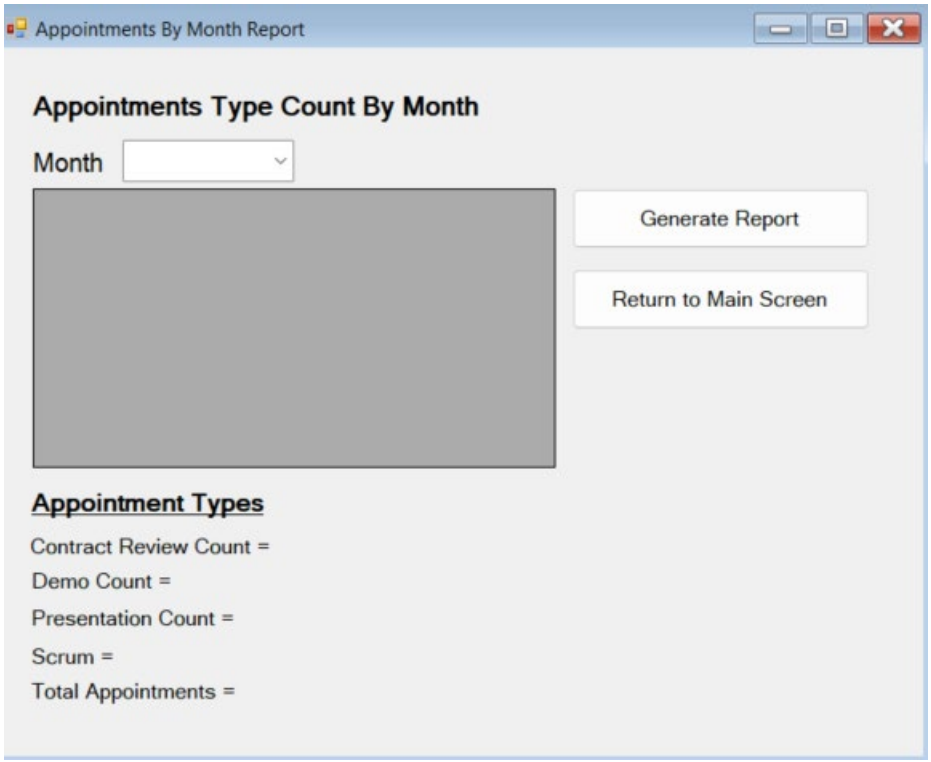
1. The three reports forms available can be accessed from the main screen.
    a. Appointments this month report
    b. User schedule report
    c. Customer appointments report

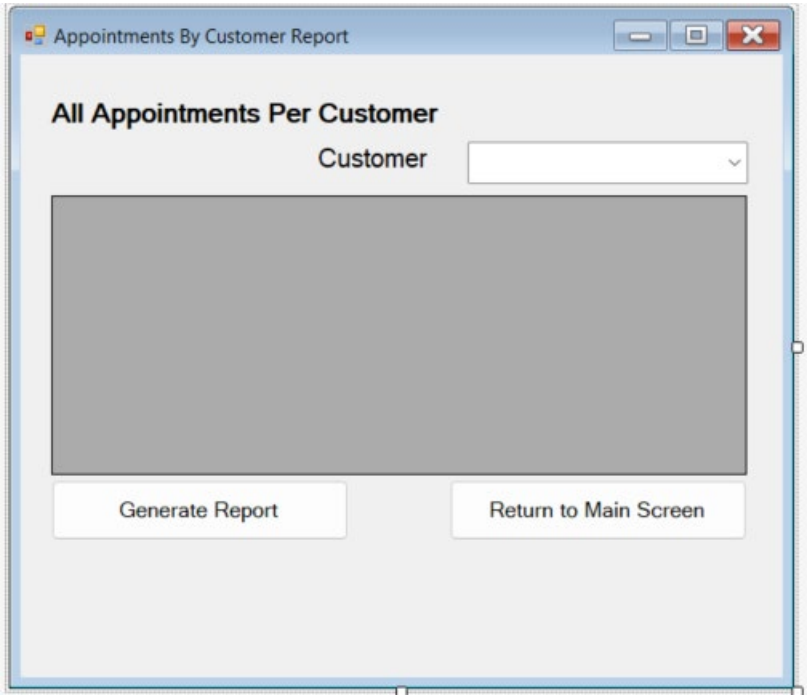


2. To generate a report, click on the button of the report you want to be generated. The report will have a title at the top, follow by the options available along with a create report button multiple rows and columns of information inside the report box.
3. User Schedule Report



4. Appointments Type Count by Month report.
   a. Pick the moth that you want to see appointments counted for and generate report



5. Appointments by Customer report.
   a. Pick the customer you want to see a list of appointments they are scheduled for from the drop down menu and click generate report.

Scheduling Software Program