**C868 – Software Capstone Project Summary**

**Task 2 – Section C**

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| **Capstone Proposal Project Name:** | http://www.idevnews.com/views/images/uploads/general/wgu_logo.png  Appointment Scheduler |
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Task 2 Part C – C868 Software Development Capstone

# Application Design and Testing

# Design Document

## Class Design

This application consists of the following classes: User, AdminUser, CurrentUser, ExceptionHanlder, and DateTimeHandler.

The User, AdminUser, and CurrentUser classes keep track of which user is currently logged into the application for record-keeping purposes. Also, only the admin user is able to delete data from the customer records database to prevent the accidental deletion of important data.

The ExceptionHandler class has functions that are called when an exception occurs, and the DateTimeHandler class ensures appointment times are converted to the current user's time zone.

Diagram

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Figure 1: Class Design

## UI Design

During the design of this application, simplicity was the priority. We want users to be able to easily navigate the application and perform tasks essential to their work. Below are high-fidelity mock-ups of the application which show the main pages of which the application consists.

Figure 2 is the first page the user will see, the login page. Figure 3 is the dashboard which is the home page of the application. Here the user can view the scheduled appointments by week or month, add/update/delete appointments, navigate to other pages, or log out. Figure 4 is the customer records page, and this page is where the user can add or update records. If the user is the admin then they can also delete records. The user is also able to search by name for specific customers on this page to easily locate the records they need to access. Lastly, figure 5 is the reports page. The user can select one of the options at the top of the page, and a report will be generated below.

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Figure 2: Login Page (High-Fidelity)

Graphical user interface, application

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Figure 3: User Dashboard (High-Fidelity)

Table

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Figure 4: Customer Records Page (High-Fidelity)

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Figure 5: Reports Page (High-Fidelity)

# Unit Test Plan

## Introduction

### Purpose

In order to ensure that the application meets functionality requirements, unit tests were performed on the login portion of the application. The main focus of the tests was confirming that only the admin user is able to delete data, not the standard users.

### Overview

In order to log into the application, a correct username and password must be submitted in order to gain access. The username and password also determine the type of user that is logged into the application, either a standard user or an admin user. The client Home & Hearth Realty requested that deletion of customer records only be permitted by the admin user to ensure the likelihood of accidental data deletion is minimized. Their relationship with their customers is of utmost importance, and they consider this feature to be essential to the application.

The unit test will check when a user logs into the application they are correctly assigned as either a standard user or an admin user and verify they have been given the proper user rights. The test will first attempt to log in as a standard user using the findUser function by supplying it with a username and password. The current user should then be assigned as a standard user, and the test will check that the standard user is unable to delete data. Then, the test will perform nearly the same function again but will log in as an admin user. It will then check that the current user is correctly assigned as an admin user and is able to delete data.

Below are screenshots of all functions that will be called and tested in the unit test.

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Figure 6: Login Page findUser Function

Graphical user interface, text

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Figure 7: Login Page setUserType Function

Text

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Figure 8: User Class canDeleteData Function

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Figure 9: AdminUser Class canDeleteData Function

## Test Plan

### Items

The code tests the User and AdminUser classes which both require a username and password. The function findUser, within the Login form, also requires a username and password in order to find a user in the database to assign as the current user.

### Features

In the unit test, two separate functions are used to ensure both the admin and standard users have proper user rights. The first function tests when a standard user logs in, the current user is successfully assigned as a standard user and is unable to delete data. The second function tests when the admin user logs in, the current user is assigned as the admin user and is able to delete data.

### Deliverables

If the code works as expected and the tests pass then the current user is successfully assigned and has the correct user rights associated with each type of user.

### Tasks

In order to run the test in Microsoft Visual Studio, start by opening the project then click the “Test” section at the top of the page. A dropdown menu will appear, and from here select “Test Explorer.” To run the test, click the green play button in the upper left of the Test Explorer window. If the test passes then a green check will appear to the left of the test name. Otherwise, a red “x” will be present.

### Needs

To run tests, it is required to have at least version 16.5.2 of Microsoft Visual Studio 2019 installed. The user should also be using Windows 10 operating system, as it is the anticipated OS to be used by end-users.

### Pass/Fail Criteria

The tests are considered successful if the current user is correctly assigned as either a standard user or as an admin user. The tests fail if there is an error with correctly assigning the current user object, thus the findUser and setUserType functions will need to be investigated further to remedy the failure.

## Specifications

Below is a screenshot of the test code. It contains two functions to test both the standard user and admin user as well as the rights associated with each.

Text

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Figure 10: Unit Test Code

## Procedures

1. Ensure that the TestUser function in the unit test file contains a valid username and password for a standard user.
2. Ensure that the TestAdmin function in the unit test file contains the valid username and password for the admin user.
3. Run the test using the “Test Explorer.”
4. If the tests fail, document the bug and submit a bug report to the development team for remediation. If the test passes then the code is functional and ready to be integrated.

## Results

Below are the results of the tests that show both of the functions had passed.

Graphical user interface, text

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Figure 11: Test Results (Pass)

# C4. Source Code

The attached zip file named “Delmain-Capstone.zip” contains the source code for the application.

# C5. QuickStart

To install the application, open the “Delmain-Capstone” folder and run the “setup.exe” file. To log into the application as an administrator, use the username “admin” and password “adminpass” to gain access to the application. To log in as a standard user, use the username “user1” and password “password” to gain access.

# User Guide

## Introduction

This user guide will provide steps on how to install/run the application as well as how to use and navigate it. The main tasks the application can perform are: view the weekly and monthly schedule, add/update/delete appointments, view and search customer records, add/update/delete customer records, and view reports.

## Installation and Using the Application

To install the application onto your machine, run the “setup.exe” file in the “Delmain-Capstone” folder.

A screenshot of a computer

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***Logging In***

1. When you run the program, the first page to appear is the login page. Enter your credentials into the “Username” and “Password” fields.
   1. For testing purposes, two accounts have been created. The Admin account (username = “admin” password = “adminpass”) and a standard user account (username = “user1” password = “password”). Omit the quotation marks when entering username and password.
2. After entering the username and password, click the “Login” button.

Graphical user interface, application

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Figure 12: Login Page with Admin Credentials

***Navigating the Dashboard***

After a successful login, the user will be redirected to the dashboard which is the main page of the application. From here, the user can view their scheduled appointments, add/update/delete appointments, navigate to other pages, or log out.

Graphical user interface, application

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Figure 13: Dashboard

**Schedule and Appointments**

The main component of the dashboard is the schedule which displays upcoming appointments for the currently logged-in user in a grid layout. At the top of the grid, the user can choose to view the schedule either by week (default) or by month. Below the grid are buttons that allow the user to add, update, and delete appointments. All changes made appear automatically in the schedule grid after saving.

Add Appointment

1. To add an appointment, click the "Add" button on the dashboard under the schedule. A form to fill out new appointment information will pop up.

Graphical user interface, application

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Figure 14: Add Appointment Page

1. Fill out all fields on the form correctly in order to add the new appointment to the schedule.
   1. Customer ID must match the ID of a customer currently in the database. To view customer records or make changes to the customer records, please see the “Customer Records” section below.
   2. Appointment start time and end time must be on the same day and during normal business hours (9:00 A.M. – 5:00 P.M.). The start time must also be before the appointment's end time.
2. After filling out the form, click the “Add” button to add the new appointment to the schedule and navigate back to the dashboard.

Update Appointment

1. To update an existing appointment, select an appointment in the schedule grid by clicking on it (the row will be highlighted), then click the "Update" button located below the grid. A form containing the appointment information will pop up.

Graphical user interface

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Figure 15: Update Appointment Page

1. On this page, you can make the necessary changes to the appointment. Be sure to enter the correct information in order to save the changes.
   1. Customer ID must match the ID of a customer currently in the database. To view customer records or make changes to the customer records, please see the “Customer Records” section below.
   2. Appointment start time and end time must be on the same day and during normal business hours (9:00 A.M. – 5:00 P.M.). The start time must also be before the appointment's end time.
2. After making the necessary changes, click the “Update” button to update the appointment in the schedule and navigate back to the dashboard.

Delete Appointment

1. To delete an existing appointment, select an appointment in the schedule grid by clicking on it (the row will be highlighted), then click the “Delete” button located below the grid.
2. A popup box will appear to confirm that you would like to delete the selected appointment. If so, click the “Yes” button.

Graphical user interface, application

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Figure 16: Delete Appointment Warning Popup

***Customer Records***

To view customer records, click on the “Customer Records” button on the right-hand side of the dashboard. You will then be redirected to the customer records page.

Table

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Figure 17: Customer Records Page

On this page, you have a grid that displays the data for all customers in the database. There is also a search bar that will search for a specific customer by either first or last name, and buttons at the bottom of the page to add, update, or delete records. If you would like to navigate back to the home page, then click the “Back” button.

Add Record

1. To add a new customer to the database, click the "Add" button at the bottom of the page. A form to fill out new customer information will pop up.

Graphical user interface

Description automatically generated

Figure 18: Add Customer Record Page

1. Fill out all fields on the form correctly in order to add the new customer to the database.
   1. The phone number must be entered as seven digits with no hyphens.
   2. The dropdown of cities will only contain cities in which the company Home & Hearth has offices or services. If you need a city added that is not available in the dropdown menu, please contact your database administrator.
2. After filling out the form, click the “Add” button to add the new customer record to the database and navigate back to the Customer Records page.

Update Record

1. To update an existing record, select a record in the grid by clicking on it (the row will be highlighted), then click the "Update" button located below the grid. A form containing the appointment information will pop up.
   1. Alternatively, you can search for a specific customer record in the search box to update. Please double-check that the selected (highlighted) row is the correct record before continuing.

Graphical user interface

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Figure 19: Update Customer Record Page

1. On this page, you can make the necessary changes to the record. Be sure to enter the correct information in order to save the changes.
   1. The phone number must be entered as seven digits with no hyphens.
   2. The dropdown of cities will only contain cities in which the company Home & Hearth has offices or services. If you need a city added that is not available in the dropdown menu, please contact your database administrator.
2. After making the necessary changes, click the “Update” button to update the customer record in the database and navigate back to the Customer Records page.

Delete Record

1. To delete an existing record, select a record in the grid by clicking on it (the row will be highlighted), then click the “Delete” button located below the grid.
   1. Alternatively, you can search for a specific customer record in the search box to delete. Please double-check that the selected (highlighted) row is the correct record before continuing.
2. A popup box will appear to confirm that you would like to delete the selected record. If so, click the “Yes” button.
   1. Only the admin user is able to delete customer records from the database. If you need assistance deleting a record, please contact the administrator.
   2. Note: deleting a customer record will delete all appointments associated with that customer.

Graphical user interface, application, table

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Figure 20: Delete Customer Record Warning Popup

***Reports***

To view and generate reports, click on the “Reports” button on the right-hand side of the dashboard. You will then be redirected to the reports page.

Graphical user interface

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Figure 21: Reports Page

To generate a report, click on the radio button of the report you wish to view. When you have finished viewing reports, click the “Back” button to navigate back to the dashboard.

* The “Realtor Schedules” option will display all appointments in chronological order for each realtor, grouped by realtor ID.
* The “Number of Appointments per Day” option will display the total number of appointments scheduled each day. Note: this is not an individual total.
* The “Number of Appointment Types per Month” will display how many of each type of appointment is scheduled for each month. It will display the month as well as year. Note: this is not an individual total.