

Candidate number:
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Testing:

8.1: Discussion of testing methods

What will I be testing?

Testing is a very important part of the project, and I will need to make sure that my program is not only functional, but usable, I will use testing to find any problems with my code whether that be related to valid, invalid, GUI or extreme data.

The valid data tests will focus on the functionality of views and general usage of the program versus the specification I originally laid out, such as views and the ability to add clients invalid data will be used for any data inputted that shouldn't work for a value, for example using alphabetic characters as a phone number and a month at 13 in a date check, I will also test for extreme data, such as a height that is unrealistic and finally I will test my GUI, this will test how the GUI functions when trying to meddle with it, such as pulling the columns around.

Methods used:

Acceptance:

Acceptance testing is where I will match my program versus the requirements set out by the clinic and to see if they are happy with the overall program.

White-box:

White-box testing is where, I, the developer do the tests for the program. This is important as I know my way around the code and what needs to be tested.

End-user:

End-user testing is where I will give the workers at the company my program and ask them to give me feedback and any bugs that they encounter.

Methods omitted:

Alpha:

This is performed by testers who are internal employees at the company and is done at an early version of the program, as this is close to the final product this won't be possible and alpha testing has been done for prototype instead.

Beta:

This is passed onto a limited number of employees who are not a part of the organization, as I do not have any suitable beta testers available this will not be possible.

Black-box:

Black-box testing is where someone with technical expertise who was not in any form part of the development of the program goes through the code and gives feedback. I do not have the resources to do such a test and thus will not be doing it.

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8.2: White box testing

Test plan:

Valid: When I am testing the functionality of the program

Invalid: Entering values that shouldn't be accepted into the program

GUI: The design of the GUI in the program as well as views

Extreme: Values that are too high or low to be input into the program

Test number	Purpose	Description	Data entered	Expected Result	Result	Test Type
Views						
1	Input incorrect login details	The username and password for a user of incorrect login details is entered and then the 'login button' is pressed	fakeuser fakepass	An error will popup stating it is an incorrect username and/or password	Success	Valid
2	The user is able to login	Write in an appropriate username and password and press enter	owneruser ownerpass	It will log into the program	Success	Valid
3	If valid details are logged in for the owner, it will show the all tabs	The username and password for the owner is entered and then the 'login button' is pressed	owneruser ownerpass	It logs in and gives full access	Success	Valid
4	If valid details are logged in for IT, it allows them to view staff and clients	The username and password for the IT is entered and then the 'login button' is pressed	itusername itpassword	It logs in and shows the staff and clients tab	Success	Valid

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5	If valid details are logged in for nurses, it allows them to view clients, appointments and medical records	The username and password for the nurse is entered and then the 'login button' is pressed	nurseuser nursepass	It logs in and show clients appointments and medical records	Success	Valid
Searching						
6	Open up the search drop down menu	Click the drop-down box in a table	-	It will open the drop box and show each of the possible columns	Success	Valid
7	Search for a ClientID with only part of the record	Enter only part of the ClientID in the search box and press enter	'7'	It will show ClientID '2' and '12'	Success	Valid
8	Search for a ClientID for a full record	Enter a full ClientID in the search box and press enter	'17'	It will only show ClientID '12'	Success	Valid
9	Searching for a non-existing ClientID	Write the value in the search bar and press enter	"TEST"	Nothing will show up in the treeview	Success	Valid
10	Search for a prefix with only part of the record	Enter only part of the prefix in the search box and press enter	'M'	It will show prefix's 'Mr', 'Mrs', 'Ms' and 'Mx'	Success	Valid
11	Search for a prefix for a full record	Enter a full prefix in the search box and press enter	'Mrs'	It will only show prefix's with 'Mrs'	Success	Valid
12	Searching for a non-existing prefix	Write the value in the search bar and press enter	"TEST"	Nothing will show up in the treeview	Success	Valid

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13	Search for a first name with only part of the record	Enter only part of the first name in the search box and press enter	'D'	It will show all clients whose first name contains 'Day'	Success	Valid
14	Search for a first name for a full record	Enter a full first name in the search box and press enter	'Dayyan'	It will only show the first name 'Dayyan'	Success	Valid
15	Searching for a non-existing first name	Write the value in the search bar and press enter	"TEST"	Nothing will show up in the treeview	Success	Valid
16	Search for a password with only part of the record	Enter only part of the password in the search box and press enter	'pass'	It will not show anything as passwords are hidden due to security, nothing will be in the drop-down menu	Success	Valid
17	Search for a password for a full record	Enter a full password in the search box and press enter	'ownerpass'	It will not show anything as passwords are hidden due to security, nothing will be in the drop-down menu	Success	Valid
18	Saving a client search to a text file	Write a search keyword and press search	-	It will save to a txt file	Success	Valid
19	Saving a staff member search to a text file	Write a search keyword and press search	-	It will save to a txt file	Success	Valid
20	Saving an appointment search to a text file	Write a search and press search	-	It will save to a txt file	Success	Valid
Validation						
21	Add an already existing ClientID	When adding a client, add one with an	'1'	You won't be able to add a ClientID as it is	Success	Invalid

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		ID that already exists		done automatically via an auto increment		
22	Edit a ClientID to an already existing one	When editing a ClientID, change it to an already existing one	"0" to "1"	You won't be able to edit a ClientID	Success	Invalid
23	Entering no first name when adding a client	When adding a client, don't write a first name	""	An error will appear	Success	Invalid
24	Entering no surname when adding a client	When adding a client, don't write a surname	""	An error will appear	Success	Invalid
25	Entering no date of birth when adding a client	When adding a client, don't write a date of birth	""	An error will appear	Success	Invalid
26	Entering a first name less than 3 characters long when adding a client	When adding a client, write a first name that is less than 3 characters long	"Da"	An error will appear	Success	Invalid
27	Entering a first name more than 20 characters long when adding a client	When adding a client, write a first name that is longer than 20 characters long	"aaaaaaaaaaaaaaaaaaa"	An error will appear	Success	Invalid
28	Entering a telephone number of an invalid length when adding a client	When adding a client, add a telephone number of invalid length	"0776786298"	An error will appear	Success	Invalid
29	Entering a first name with non-alphabetic characters when adding a client	When adding a client, write a first name that is non-alphabetic	"1111" & "%%%%"	An error will appear	Success	Invalid
30	Entering a surname with non-alphabetic characters when adding a client	When adding a client, write a surname that is non-alphabetic	"1111" & "%%%%"	An error will appear	Success	Invalid

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31	Entering a random string of characters as a date of birth when adding a client	When adding a client, write a random string of characters for your date of birth	"dsdjiwjdoij44"	An error will appear	Success	Invalid
32	Entering a date of birth in an invalid format when adding a client	When adding a client, write a date of birth of an invalid format	"31-01-2001" & "2001-13-31" & "2001-01:31"	An error will appear	Success	Invalid
33	Entering a postcode of an invalid format when adding a client	When adding a postcode, write one of an invalid format	"55341ER"	An error will appear	Success	Invalid
34	Entering a start date and time of an invalid format when adding an appointment	When adding an appointment, write a start date and time of an invalid format	"2019-03:06 12:00:00"	An error will appear	Success	Invalid
35	Entering a transaction date in an invalid format when outputting the date of a transaction	When outputting a transaction, write a transaction date of an invalid format	"11-03-2019" & "2019-13-11" & "2019-03:11"	An error will appear	Success	Invalid
36	Entering a difference of an invalid format when adding a transaction	When adding a transaction, use a difference of an invalid format	"/5"	An error will appear	Success	Invalid
37	Entering a non-numerical telephone number when adding a client	When adding a client, add a non-numerical telephone number	"aaaaaaaaaaa"	An error will appear	Success	Invalid
38	Entering a non-numerical height when editing a medical record	When editing a medical record, enter a non-	"meter"	An error will appear	Success	Invalid

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		numerical height				
39	Entering a height less than 1m when editing a medical record	When editing a medical record, enter a height that is less than 1m	"0.7"	An error will appear	Success	Extreme
40	Entering a height of more than 2.5m when editing a medical record	When editing a medical record, enter a height that is more than 2.5m	"3.0"	An error will appear	Success	Extreme
41	Entering a mass that is less than 30kg when editing a medical record	When editing a medical record, enter a mass that is less than 30kg	"29"	An error will appear	Success	Extreme
42	Editing a client record when no clients exist	Click edit a client in the clients table	""	An error will appear	Success	Invalid
43	Finding the BMI when the mass/height isn't inputted	Click a record and then click its mass	-	An error will appear	Success	Invalid
Functionality						
44	The user is able to view all records of a table	Check a tab and see if all records in the table are shown	-	All records will be shown	Success	Valid
45	The user is able to add a record	Input valid details into an add record form and press enter	Suitable data for clients	The data will be added to the table	Success	Valid
46	The user is able to edit a record	Input valid details into an edit record form and press enter	Suitable data for clients	The edited data will be changed in the table	Success	Valid
47	The user is able to delete a record	Highlight a record and press delete selected client	-	The data will be deleting from the treeview and the SQLite file	Success	Valid

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48	The user is able to search for a record	Input a search keyword and look for the search	"1" by ClientID	The search values will be shown in the treeview and a text file	Success	Valid
49	The user is able to get a transaction receipt	A valid date is input into the program	"2019-03-04"	The transaction receipt is saved in a text file in addition to the sum of those transactions on that date	Success	Valid
50	The user is able to calculate the BMI of a medical record	A medical record is highlighted and the calculate bmi button is pressed	-	An alert will appear of the BMI of the selected medical record	Success	Valid
Other						
51	The table automatically refreshes when a record is added, edited and deleted	Create, edit and delete a client	Full details of clients	The table automatically updates in each of the scenarios	Success	GUI
52	Other tables are automatically refreshed when affected by other tables connected by foreign keys	Create, edit and delete a client	Full details of a client	It will update the medical records table based on what is done to the clients table	Fail – doesn't update automatically, only works after you press search	GUI
53	Move a column around without it going off the screen	Grab the line in between the column and stretch it out of the treeview table	-	It should stop at the edge of the treeview	Fail – the columns stretch off the screen	GUI
54	Use the dropdown menu without the frame moving at all	Open a dropdown menu on any frame	-	The frame should say the same size	Fail – the frames enlarge/minimize very slightly	GUI

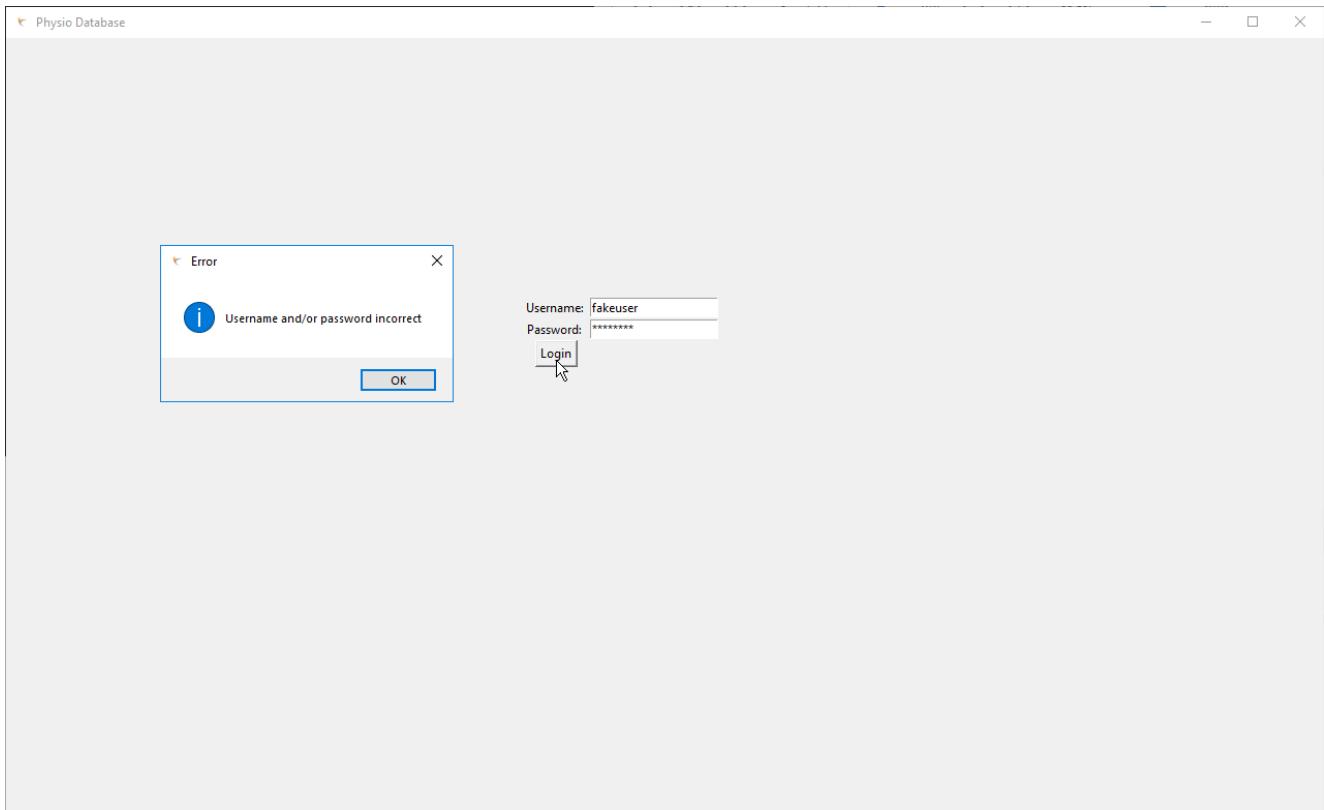
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Evidence:

Views

8.

As you can see below, when a user enters a value that doesn't show up as a username or password in the database an error appears



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2.

However, when a user enters corrects details it logs the user in.

The screenshot shows two windows of a Windows application titled "Physio Database".

The top window is a login screen. It has a title bar "Physio Database" with standard window controls. Below the title bar is a large empty area. In the center, there are three input fields: "Username: owneruser", "Password: *****", and a "Login" button with a cursor pointing at it.

The bottom window is a clients list screen. It has a title bar "Physio Database" with standard window controls. Below the title bar is a menu bar with tabs: "Clients", "Appointments", "Staff", "Medical Records", and "Finances". The "Clients" tab is selected. The main area contains a table with the following data:

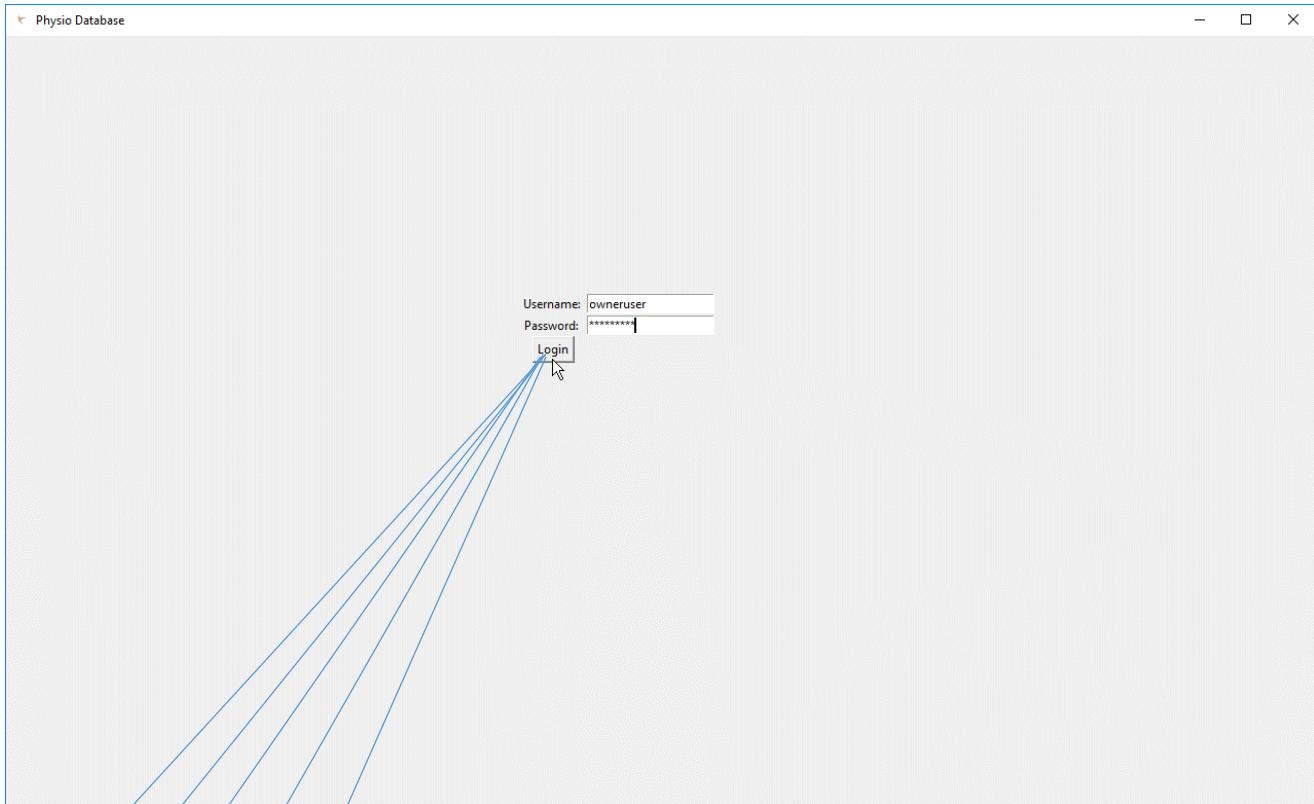
ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishopthorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER

To the right of the table, there is a search bar labeled "Search:" with a dropdown menu set to "ClientID", a "Search" button, and three other buttons: "Add a client", "Edit a client", and "Delete selected client".

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3.

As you can see, when an owner logs in all the tabs and buttons are available to him.



A screenshot of the "Clients" tab of the Physio Database application. At the top, there are tabs for "Clients", "Appointments", "Staff", "Medical Records", and "Finances". The "Clients" tab is selected. Below the tabs is a table with the following data:

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishopthorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER

On the right side of the table, there are search and action buttons: "Search", "Add a client", "Edit a client", and "Delete selected client".

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4.

As you can see, when IT logs in only two tabs show and the buttons for manipulating client records is gone

The image consists of two screenshots of a software application window titled "Physio Database".

Screenshot 1 (Top): Login Screen

This screenshot shows a login interface. It has fields for "Username" (containing "itusername") and "Password" (containing "*****"). Below these fields is a "Login" button. A blue arrow points from the "Clients" tab in the second screenshot down to this login area.

Screenshot 2 (Bottom): Client Record View

This screenshot shows a table of client records. The table has columns: ClientID, MedicalRecordID, Prefix, First Name, Surname, DOB, Telephone, Address, and Postcode. The data is as follows:

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishopthorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER

To the right of the table, there is a search bar labeled "Search:" with a placeholder "ClientID" and a "Search" button. A blue arrow points from the "Staff" tab in the second screenshot down to this search area.

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5.

When a nurse logs in, three tabs are available, and buttons are shown too

Physio Database

Clients Appointments Medical Records

Clients

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishopthorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER

Username: nurseuser
Password: *****

Login

Search

Add a client

Edit a client

Delete selected client

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Searching

6.

As you can see, the drop down menu functions and shows a list of all columns in the program

The screenshot shows a Windows application window titled "Physio Database". The window has a title bar with minimize, maximize, and close buttons. Below the title bar is a navigation bar with tabs: "Clients" (selected), "Appointments", and "Medical Records". Under the "Clients" tab, there is a sub-tab "Clients". The main area contains a data grid with the following columns: ClientID, MedicalRecordID, Prefix, First Name, Surname, DOB, Telephone, Address, and Postcode. The data grid contains 17 rows of client information. To the right of the grid is a context menu with the following options: "Search", "Add a client", "Edit a client", and "Delete selected client". A tooltip for the "Search" option lists the fields: ClientID, MedicalRecordID, Prefix, First Name, Surname, DOB, Telephone, Address, and Postcode. The "Search" field is currently active, showing "ClientID".

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishopthorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER

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7.

When a user searches for '7' in the ClientID column it lists all the results where it is found in a treeview and a text file

Physio Database									
Clients Appointments Medical Records									
Clients									
ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode	
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD	
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER	

clients.txt - Notepad

File Edit Format View Help

----- Searched for '7' by ClientID-----

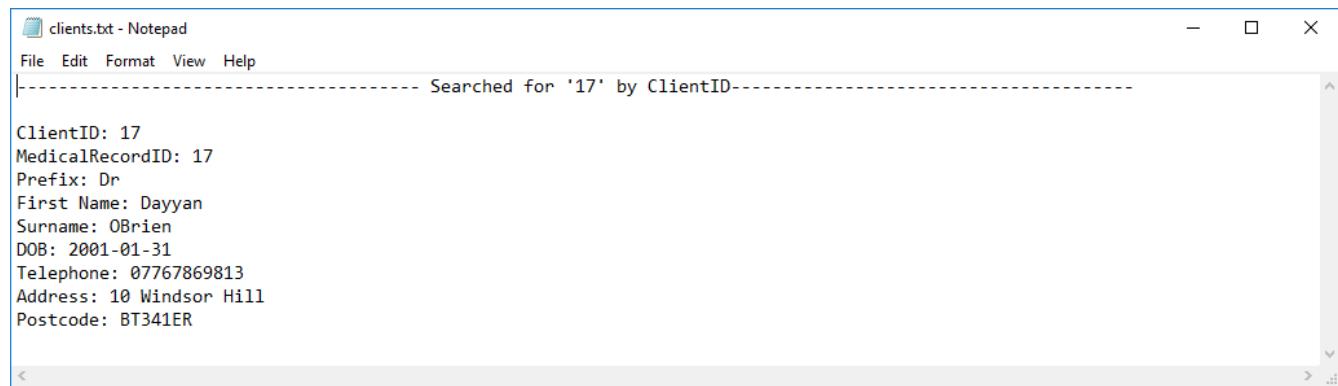
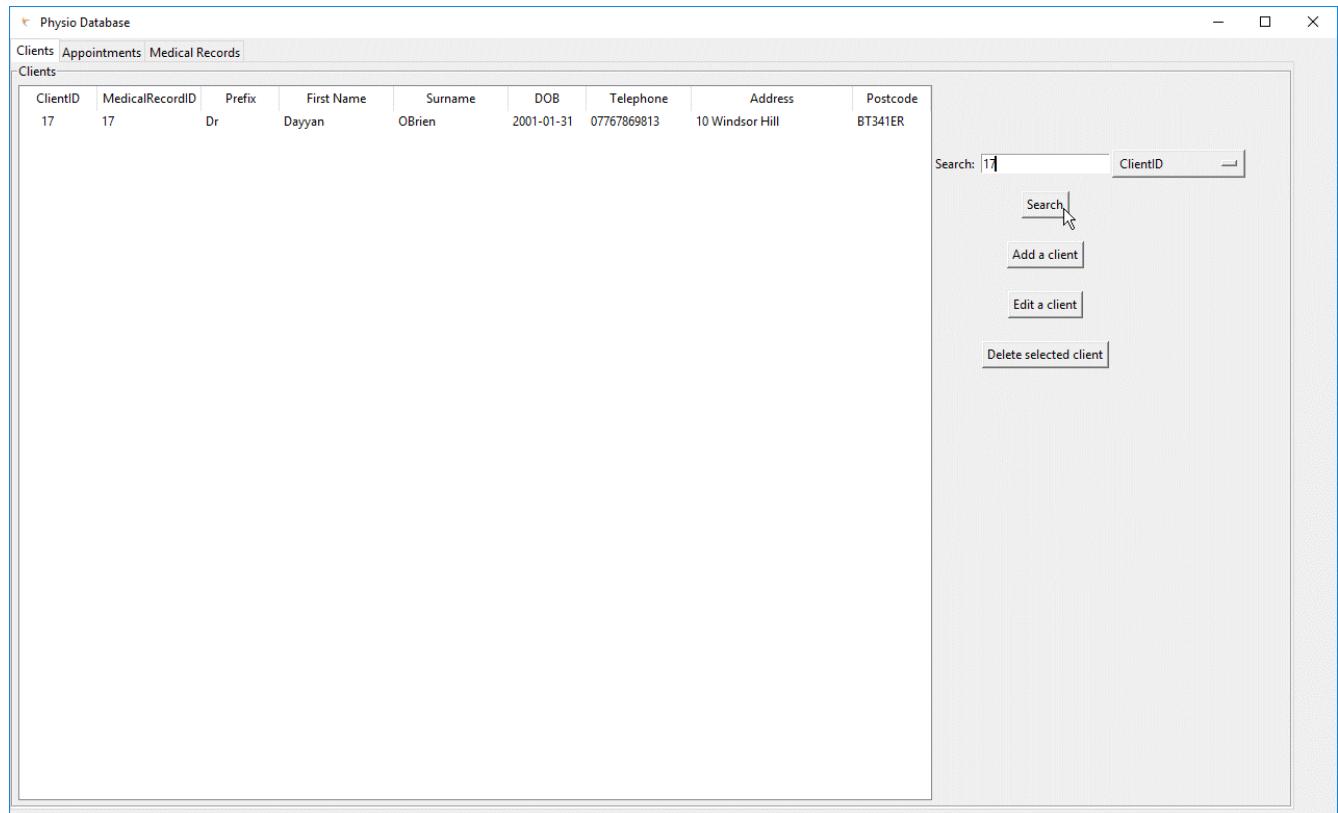
```
ClientID: 7
MedicalRecordID: 7
Prefix: Dr
First Name: Abigail
Surname: Dunn
DOB: 1977-08-31
Telephone: 07777827240
Address: 5 Manor Close
Postcode: LL54 0UD

ClientID: 17
MedicalRecordID: 17
Prefix: Dr
First Name: Dayyan
Surname: OBrien
DOB: 2001-01-31
Telephone: 07767869813
Address: 10 Windsor Hill
Postcode: BT341ER
```

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8.

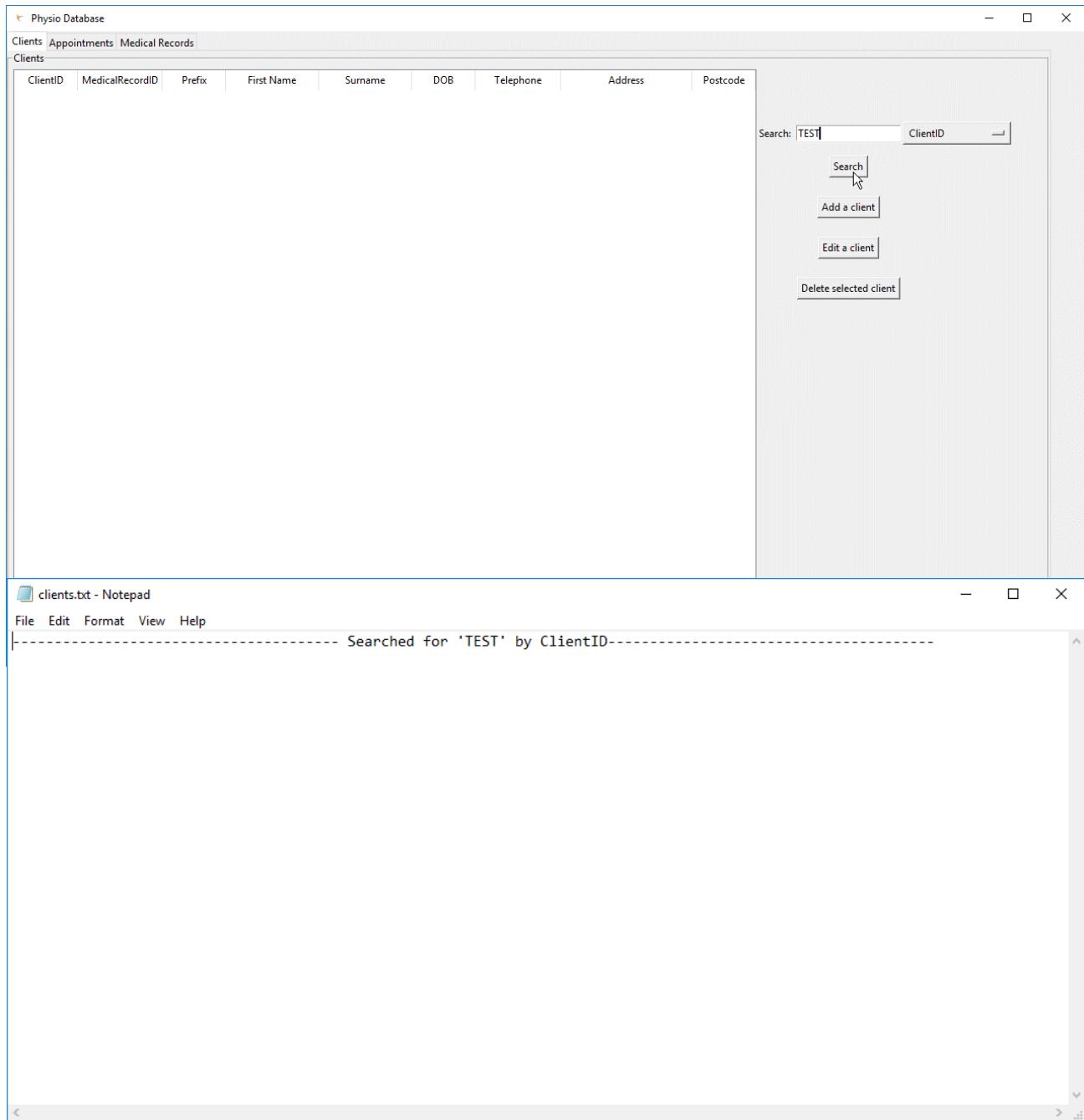
When a user searches for '17' in the ClientID column it lists all the results where it is found in a treeview and a text file



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9.

When a user searches for 'TEST' in the ClientID column it lists no results in the treeview and a text file



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10.

When a user searches for 'M' in the prefix column it lists all the results where it is found in a treeview and a text file

The screenshot shows a Windows application window titled "Physio Database" with a tab bar containing "Clients", "Appointments", and "Medical Records". The "Clients" tab is selected, displaying a grid of client data with columns: ClientID, MedicalRecordID, Prefix, First Name, Surname, DOB, Telephone, Address, and Postcode. The data includes 8 rows of clients, mostly named "Kai", "Rove", "Aaliyah", "Price", "Russel", "Obama", "Cathal", and "Leo", with various addresses and postcodes. To the right of the grid is a search interface with a search bar containing "M", a dropdown menu set to "Prefix", a "Search" button with a cursor icon, and three buttons for "Add a client", "Edit a client", and "Delete selected client". Below the application window is a separate Notepad window titled "clients.txt - Notepad". The Notepad window contains a header "Searched for 'M' by Prefix---" followed by three client records formatted as key-value pairs:

```
ClientID: 1
MedicalRecordID: 1
Prefix: Mr
First Name: Kai
Surname: Holloway
DOB: 1934-07-11
Telephone: 07863701077
Address: 23 Ermin Street
Postcode: RH18 9WX

ClientID: 2
MedicalRecordID: 2
Prefix: Mr
First Name: Andrew
Surname: Rove
DOB: 1938-04-12
Telephone: 07920991649
Address: 19 Middlewich Road
Postcode: TN5 9JE

ClientID: 3
MedicalRecordID: 3
Prefix: Mrs
```

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18.

When a user searches for 'Mrs' in the prefix column it lists all the results where it is found in a treeview and a text file

The screenshot shows a Windows application window titled "Physio Database". Inside, there's a table with columns: ClientID, MedicalRecordID, Prefix, First Name, Surname, DOB, Telephone, Address, and Postcode. One row is visible with values: ClientID 3, MedicalRecordID 3, Prefix Mrs, First Name Aaliyah, Surname Price, DOB 1978-04-30, Telephone 07935747494, Address 34 Bishopthorpe Road, and Postcode SA44 7LU. Below the table is a search bar with "Mrs" typed into the "Prefix" field, and a "Search" button is highlighted with a mouse cursor. To the right of the search bar are buttons for "Add a client", "Edit a client", and "Delete selected client".

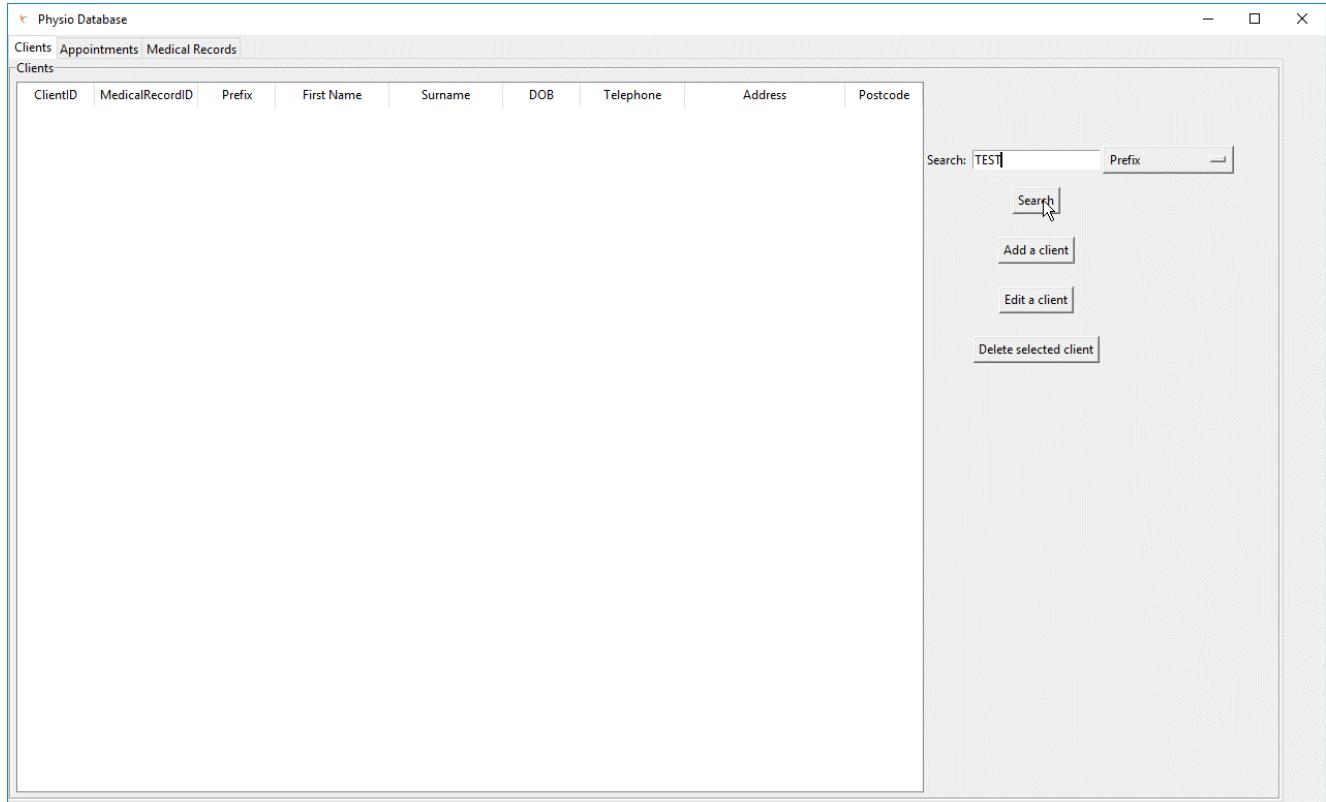
Below this window is another window titled "clients.txt - Notepad". The Notepad contains the following text:

```
ClientID: 3
MedicalRecordID: 3
Prefix: Mrs
First Name: Aaliyah
Surname: Price
DOB: 1978-04-30
Telephone: 07935747494
Address: 34 Bishopthorpe Road
Postcode: SA44 7LU
```

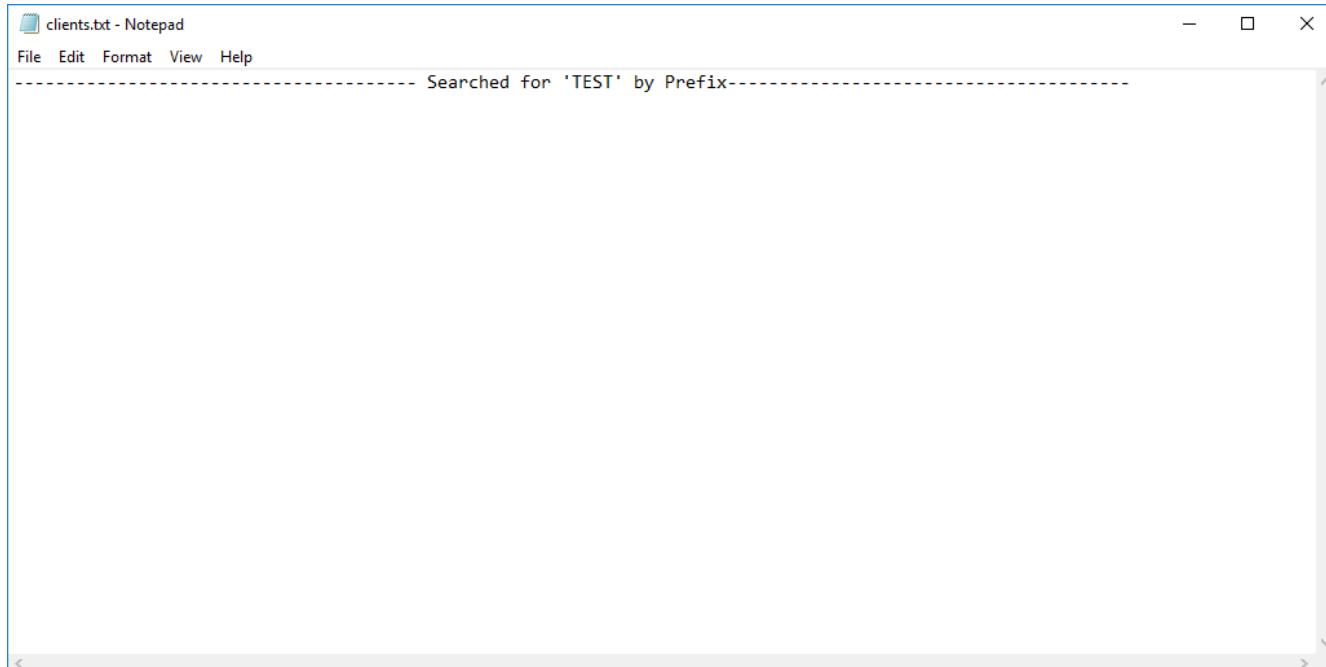
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12.

When a user searches for 'TEST' in the prefix column it lists no results in the treeview and a text file



The screenshot shows the 'Physio Database' application window. In the top navigation bar, the 'Clients' tab is selected. Below the navigation bar is a table header with columns: ClientID, MedicalRecordID, Prefix, First Name, Surname, DOB, Telephone, Address, and Postcode. A search bar at the top right contains the text 'TEST' in the 'Prefix' field. Below the search bar are four buttons: 'Search', 'Add a client', 'Edit a client', and 'Delete selected client'. The main area of the window is empty, indicating no results found for the search term.



The screenshot shows a 'Notepad' window titled 'clients.txt - Notepad'. The menu bar includes File, Edit, Format, View, and Help. The text area displays the message: '----- Searched for \'TEST\' by Prefix-----'. The window has standard Windows-style scroll bars on the right side.

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13.

When a user searches for 'D' in the first name column it lists all the results where it is found in a treeview and a text file

The screenshot shows two windows. The top window is 'Physio Database' with a title bar 'Physio Database'. It has tabs 'Clients', 'Appointments', and 'Medical Records', with 'Clients' selected. Below the tabs is a table with columns: ClientID, MedicalRecordID, Prefix, FirstName, Surname, DOB, Telephone, Address, and Postcode. Two rows of data are visible:

ClientID	MedicalRecordID	Prefix	FirstName	Surname	DOB	Telephone	Address	Postcode
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER

To the right of the table is a search interface with a 'Search:' input field containing 'D', a dropdown menu set to 'First Name', a 'Search' button, and four action buttons: 'Add a client', 'Edit a client', and 'Delete selected client'.

The bottom window is 'clients.txt - Notepad'. The title bar says 'clients.txt - Notepad'. The menu bar includes 'File', 'Edit', 'Format', 'View', and 'Help'. The content of the text file is:

```
----- Searched for 'D' by First Name -----  
ClientID: 2  
MedicalRecordID: 2  
Prefix: Mr  
First Name: Andrew  
Surname: Rove  
DOB: 1938-04-12  
Telephone: 07920991649  
Address: 19 Middlewich Road  
Postcode: TN5 9JE  
  
ClientID: 17  
MedicalRecordID: 17  
Prefix: Dr  
First Name: Dayyan  
Surname: OBrien  
DOB: 2001-01-31  
Telephone: 07767869813  
Address: 10 Windsor Hill  
Postcode: BT341ER
```

Candidate number:
3097

14.

When a user searches for 'Dayyan' in the first name column it lists all the results where it is found in a treeview and a text file

Physio Database

Clients Appointments Medical Records

Clients

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
17	17	Dr	Dayyan	O'Brien	2001-01-31	07767869813	10 Windsor Hill	BT341ER

Search: Dayyan First Name

Add a client

Edit a client

Delete selected client

clients.txt - Notepad

File Edit Format View Help

----- Searched for 'Dayyan' by First Name-----

ClientID: 17
MedicalRecordID: 17
Prefix: Dr
First Name: Dayyan
Surname: O'Brien
DOB: 2001-01-31
Telephone: 07767869813
Address: 10 Windsor Hill
Postcode: BT341ER

Candidate number:
3097

15.

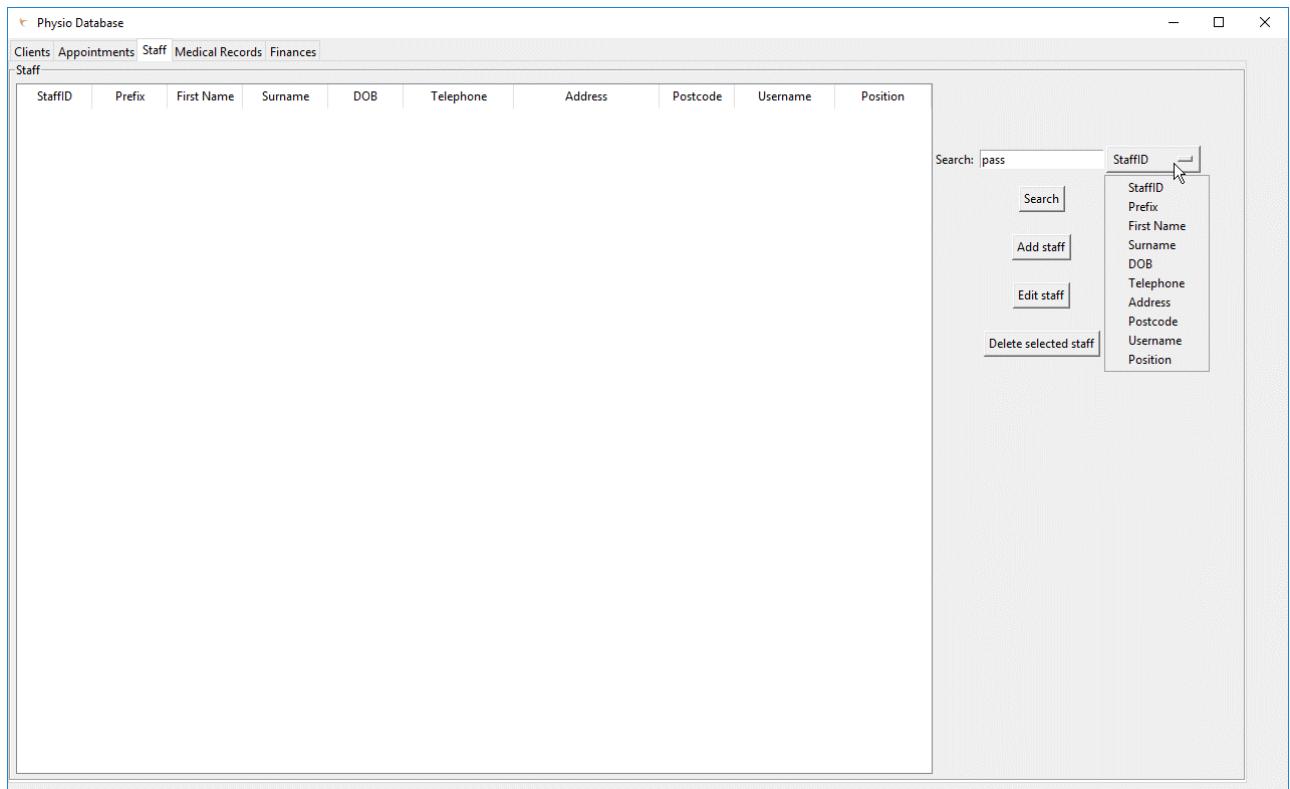
When a user searches for 'TEST' in the first name column it lists no results in the treeview and a text file

The screenshot displays two windows. The top window is 'Physio Database' with the 'Clients' tab selected. It has a grid view with columns: ClientID, MedicalRecordID, Prefix, First Name, Surname, DOB, Telephone, Address, and Postcode. A search bar at the top right contains 'TEST' in the 'First Name' field, with a 'Search' button next to it. Below the grid are buttons for 'Add a client', 'Edit a client', and 'Delete selected client'. The bottom window is 'clients.txt - Notepad', showing the text: '----- Searched for 'TEST' by First Name-----'.

Candidate number:
3097

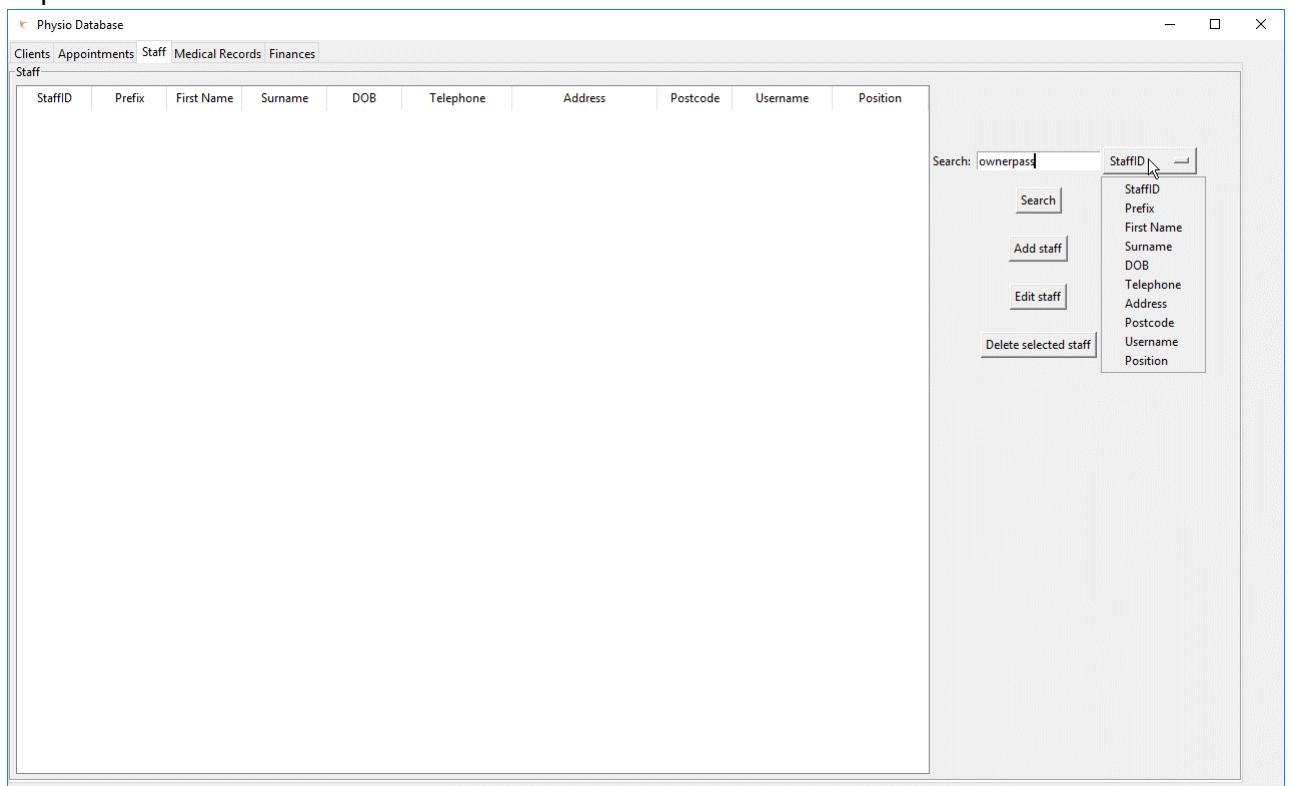
16.

As you can see no password are available in the dropdown box and thus passwords are impossible to search for



17.

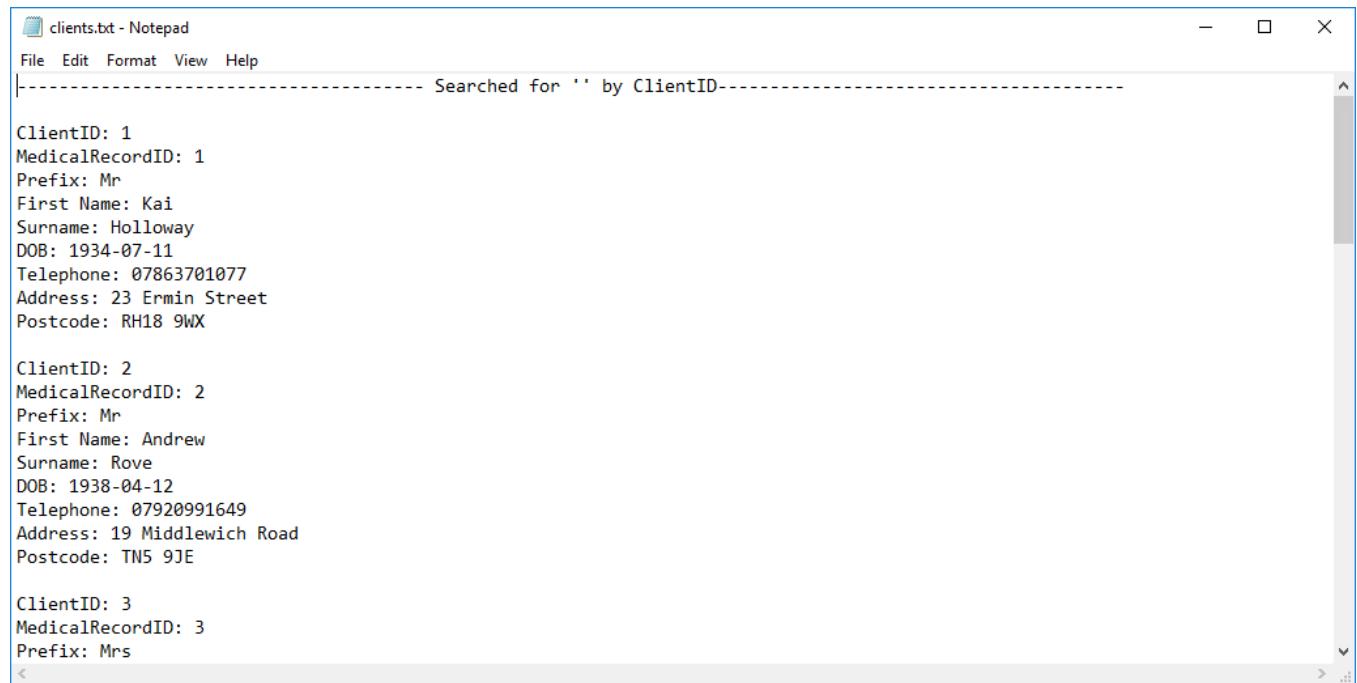
As you can see no password are available in the dropdown box and thus passwords are impossible to search for



Candidate number:
3097

18.

As you can see the program can successfully save client searches in a text file



clients.txt - Notepad

File Edit Format View Help

----- Searched for '' by ClientID-----

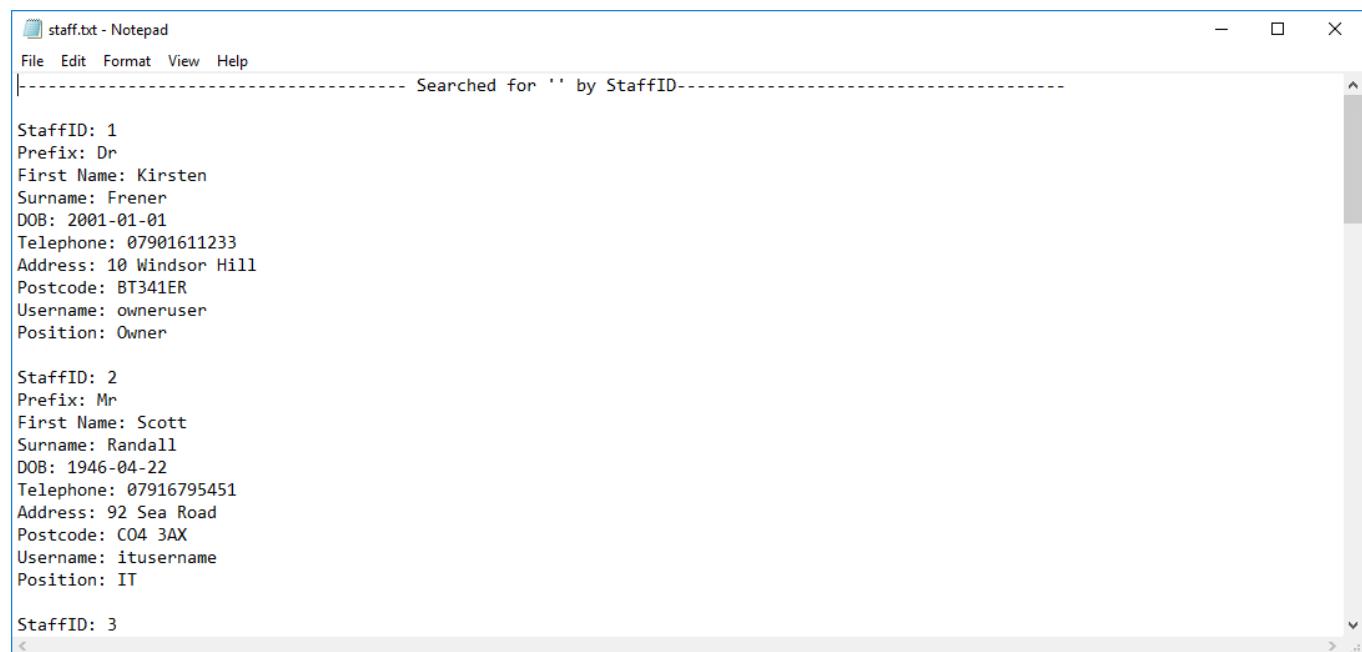
```
ClientID: 1
MedicalRecordID: 1
Prefix: Mr
First Name: Kai
Surname: Holloway
DOB: 1934-07-11
Telephone: 07863701077
Address: 23 Ermin Street
Postcode: RH18 9WX

ClientID: 2
MedicalRecordID: 2
Prefix: Mr
First Name: Andrew
Surname: Rove
DOB: 1938-04-12
Telephone: 07920991649
Address: 19 Middlewich Road
Postcode: TN5 9JE

ClientID: 3
MedicalRecordID: 3
Prefix: Mrs
```

19.

As you can see the program can successfully save staff searches in a text file



staff.txt - Notepad

File Edit Format View Help

----- Searched for '' by StaffID-----

```
StaffID: 1
Prefix: Dr
First Name: Kirsten
Surname: Frener
DOB: 2001-01-01
Telephone: 07901611233
Address: 10 Windsor Hill
Postcode: BT341ER
Username: owneruser
Position: Owner

StaffID: 2
Prefix: Mr
First Name: Scott
Surname: Randall
DOB: 1946-04-22
Telephone: 07916795451
Address: 92 Sea Road
Postcode: C04 3AX
Username: itusername
Position: IT

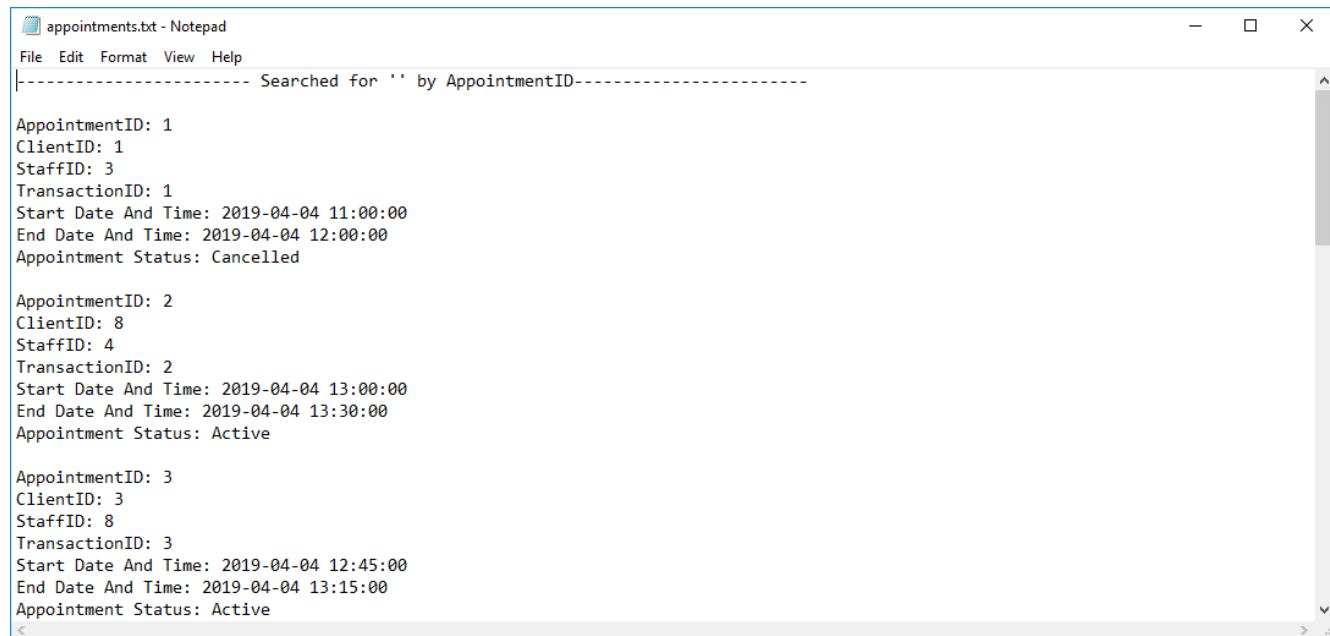
StaffID: 3
```

Candidate number:

3097

20.

As you can see the program can successfully save appointment searches in a text file



appointments.txt - Notepad

File Edit Format View Help

----- Searched for '' by AppointmentID-----

AppointmentID: 1
ClientID: 1
StaffID: 3
TransactionID: 1
Start Date And Time: 2019-04-04 11:00:00
End Date And Time: 2019-04-04 12:00:00
Appointment Status: Cancelled

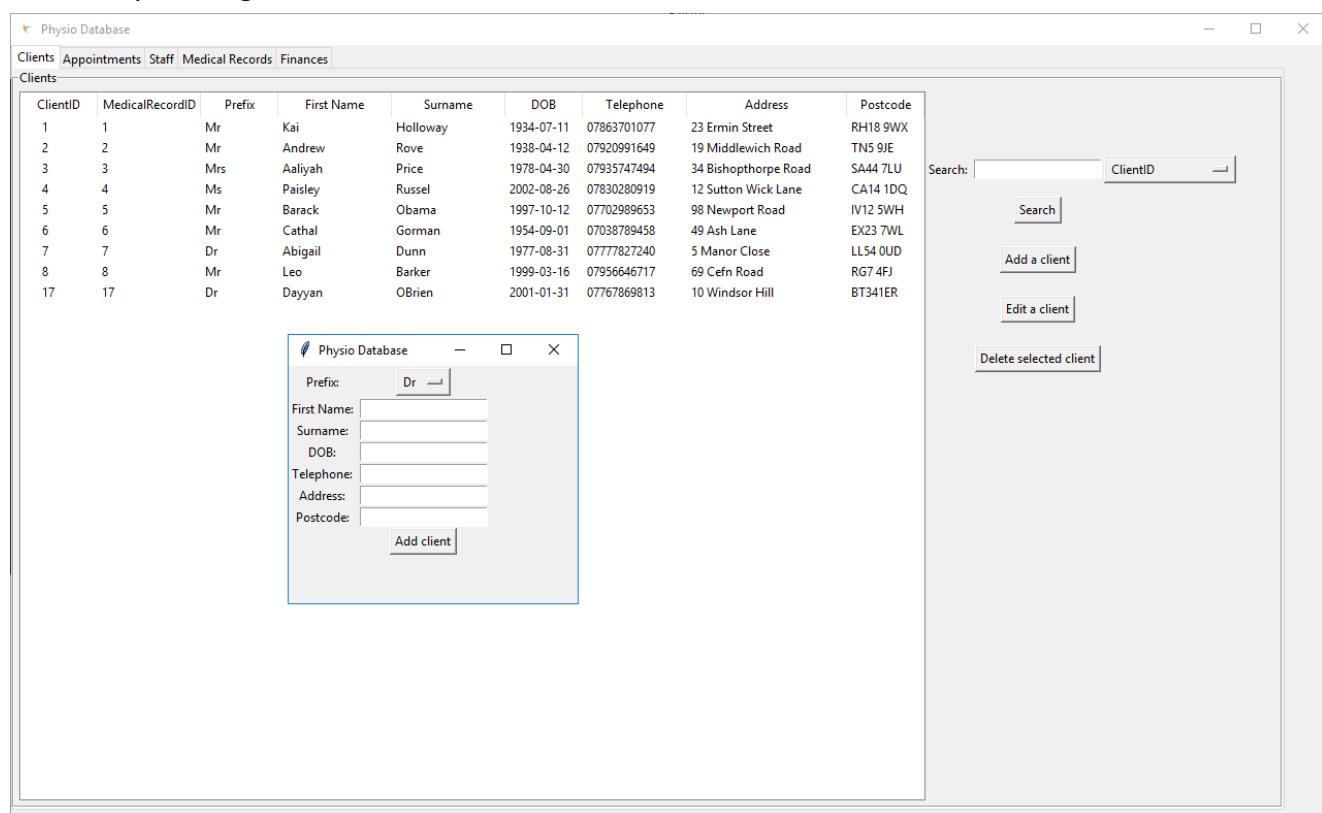
AppointmentID: 2
ClientID: 8
StaffID: 4
TransactionID: 2
Start Date And Time: 2019-04-04 13:00:00
End Date And Time: 2019-04-04 13:30:00
Appointment Status: Active

AppointmentID: 3
ClientID: 3
StaffID: 8
TransactionID: 3
Start Date And Time: 2019-04-04 12:45:00
End Date And Time: 2019-04-04 13:15:00
Appointment Status: Active

Validation

28.

As you can see, there is no area for me to input a ClientID, so it would be impossible to enter an already existing one



Physio Database

Clients | Appointments | Staff | Medical Records | Finances

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishopthorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	0770299653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsors Hill	BT341ER

Search: ClientID

Physio Database

Prefix: Dr

First Name:

Surname:

DOB:

Telephone:

Address:

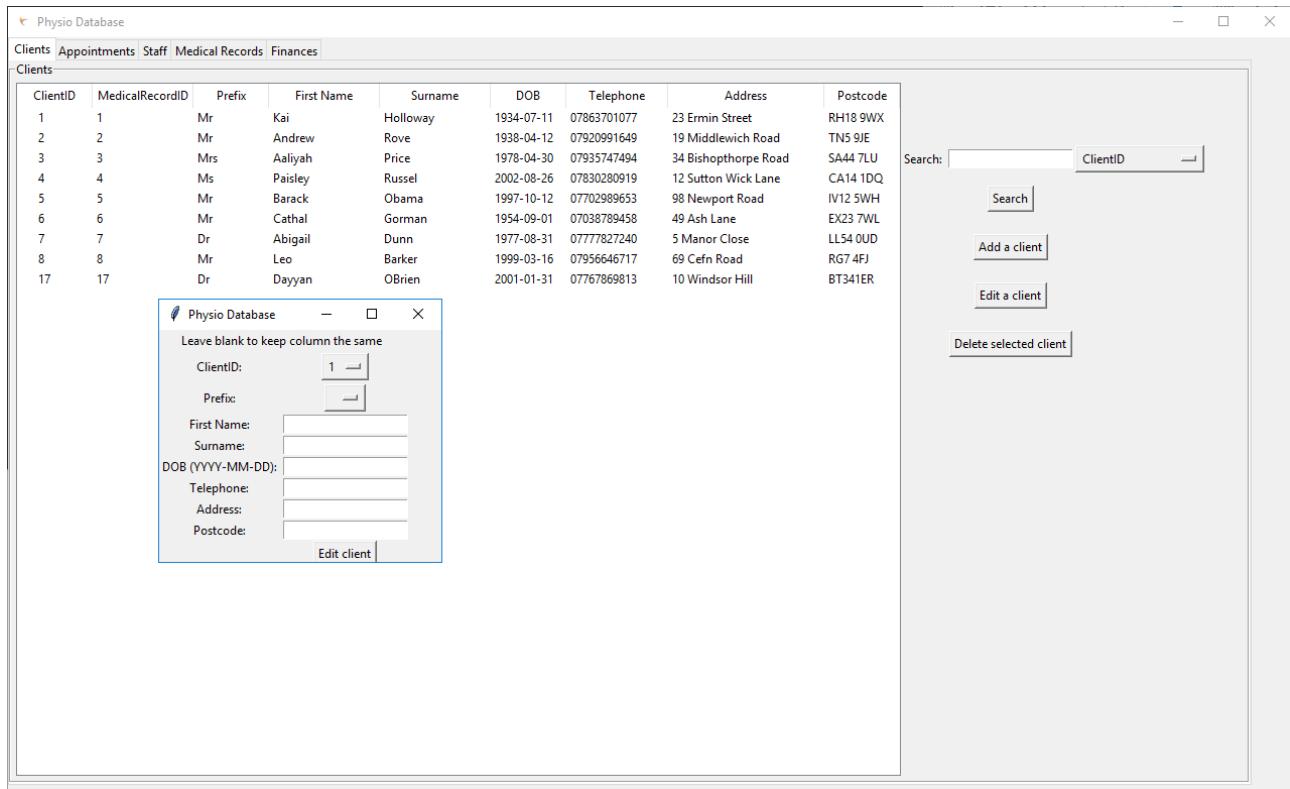
Postcode:

Candidate number:

3097

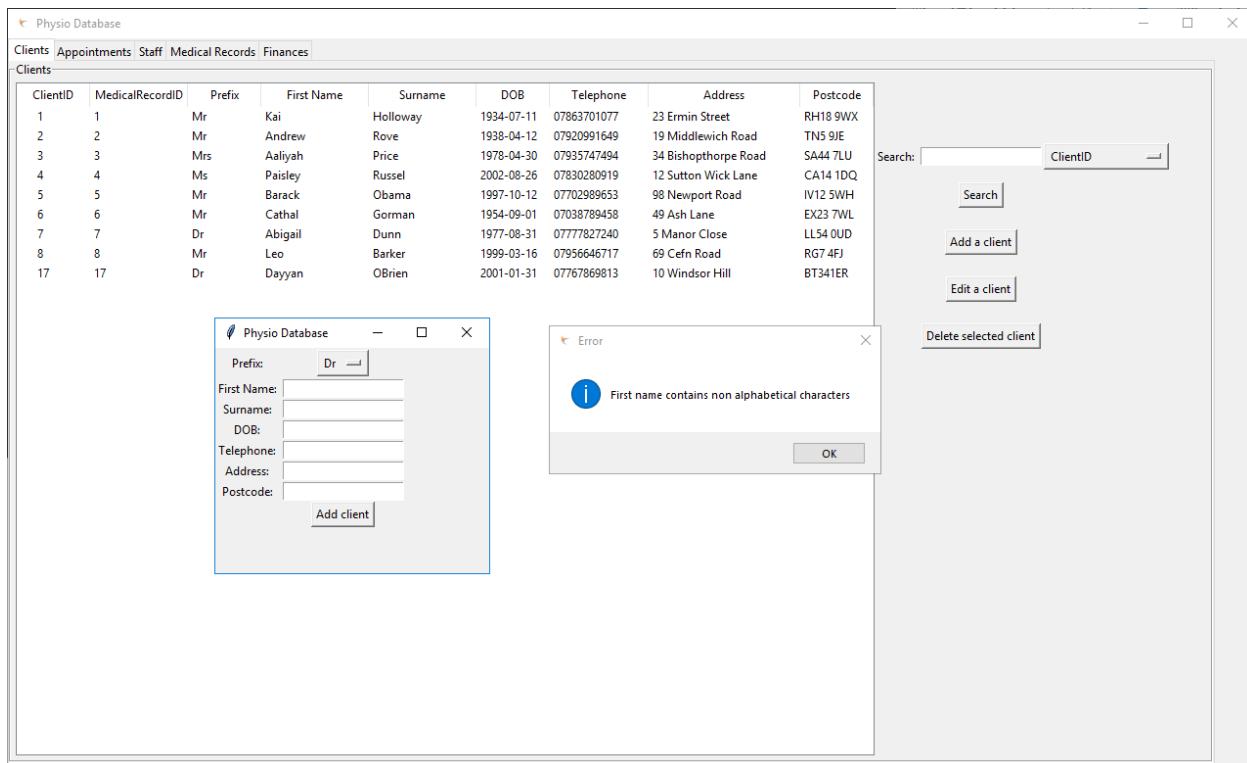
22.

As you can see, there is no option to choose what I want a new ClientID to be, only what ClientID to edit



23.

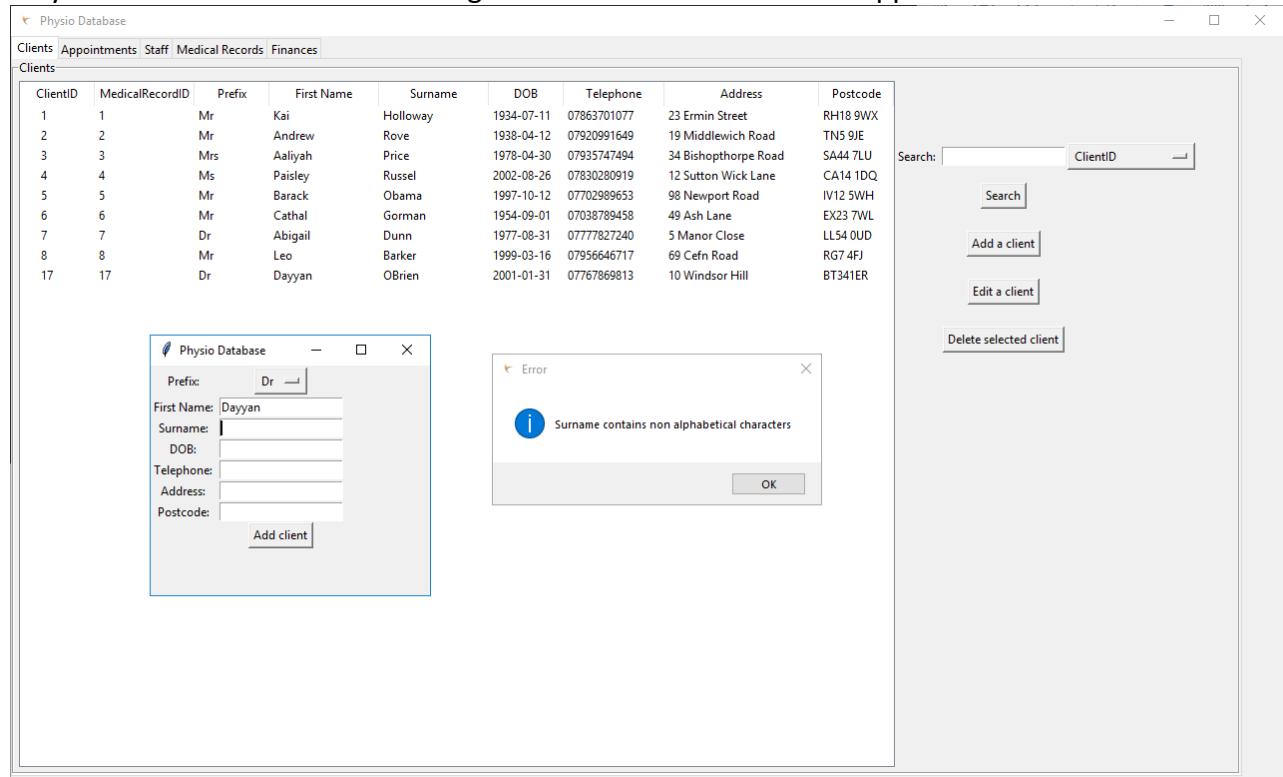
As you can see when I enter nothing in the first name box an error appears



Candidate number:
3097

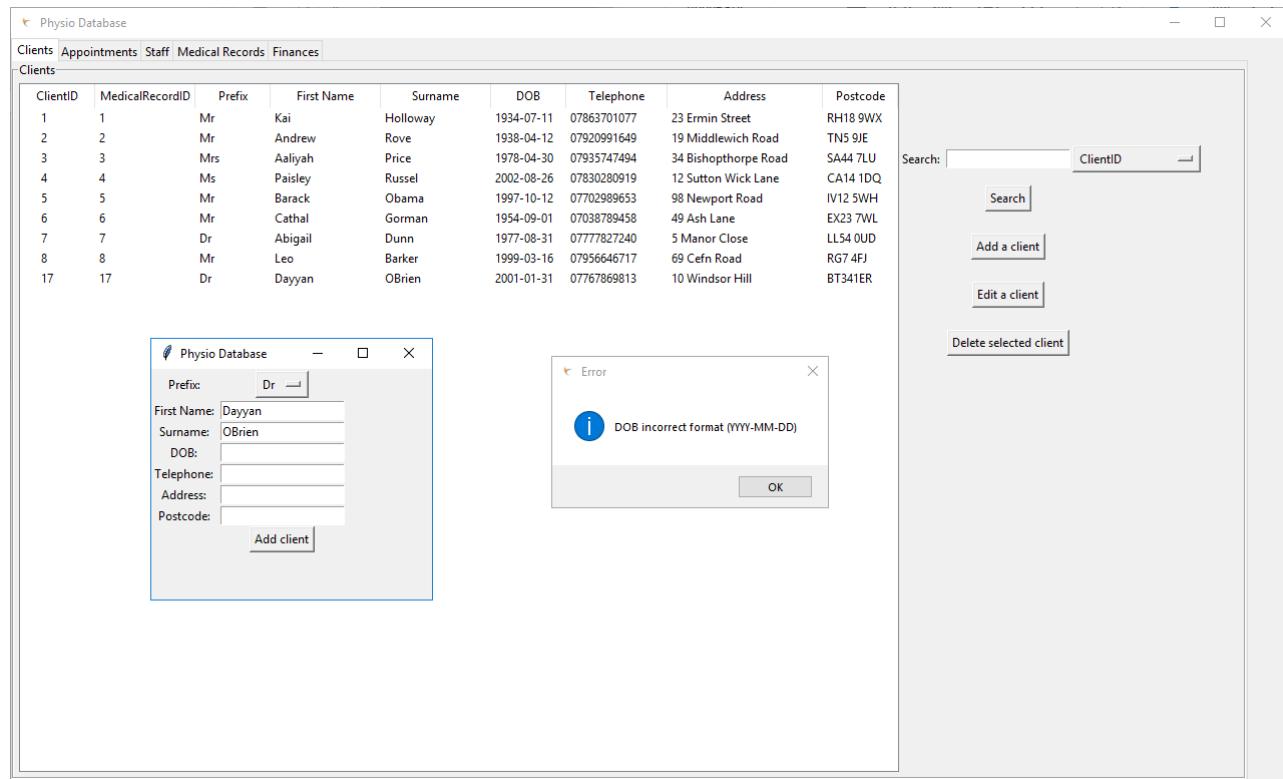
24.

As you can see when I enter nothing in the surname box an error appears



25.

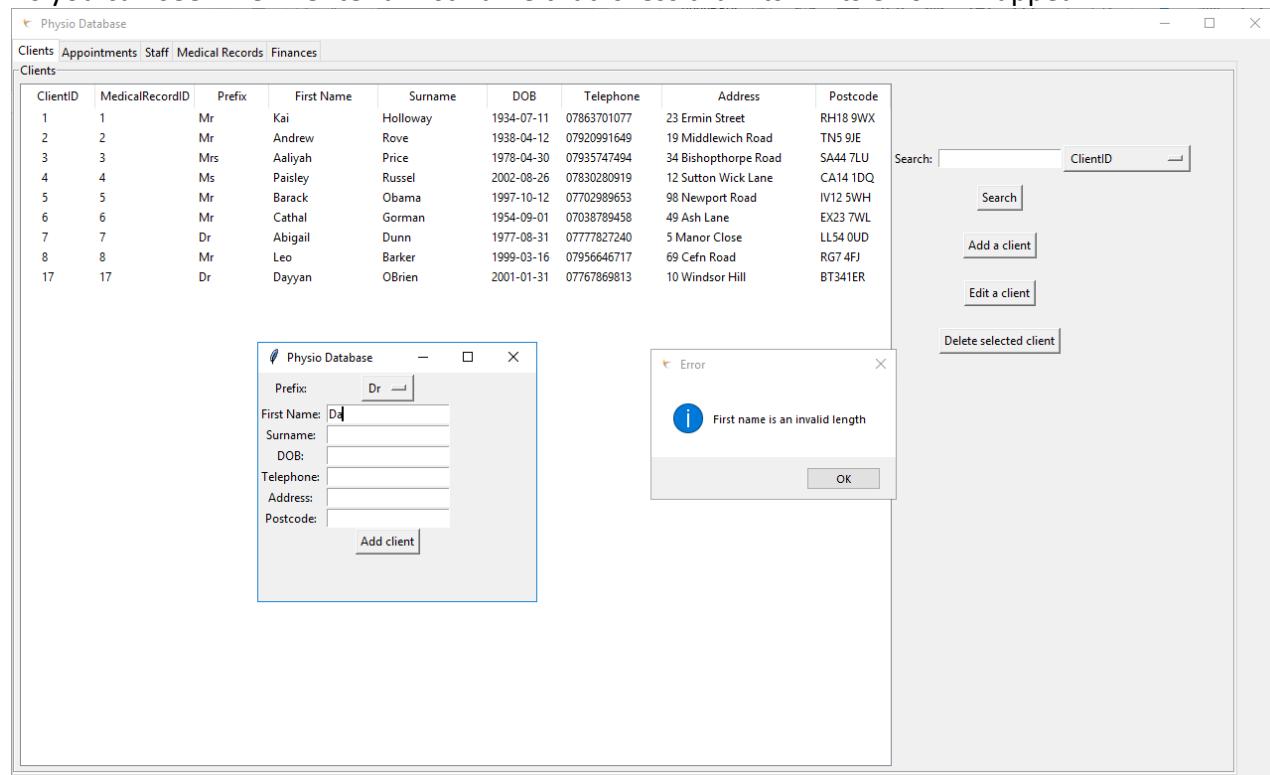
As you can see when I enter nothing in the DOB box an error appears



Candidate number:
3097

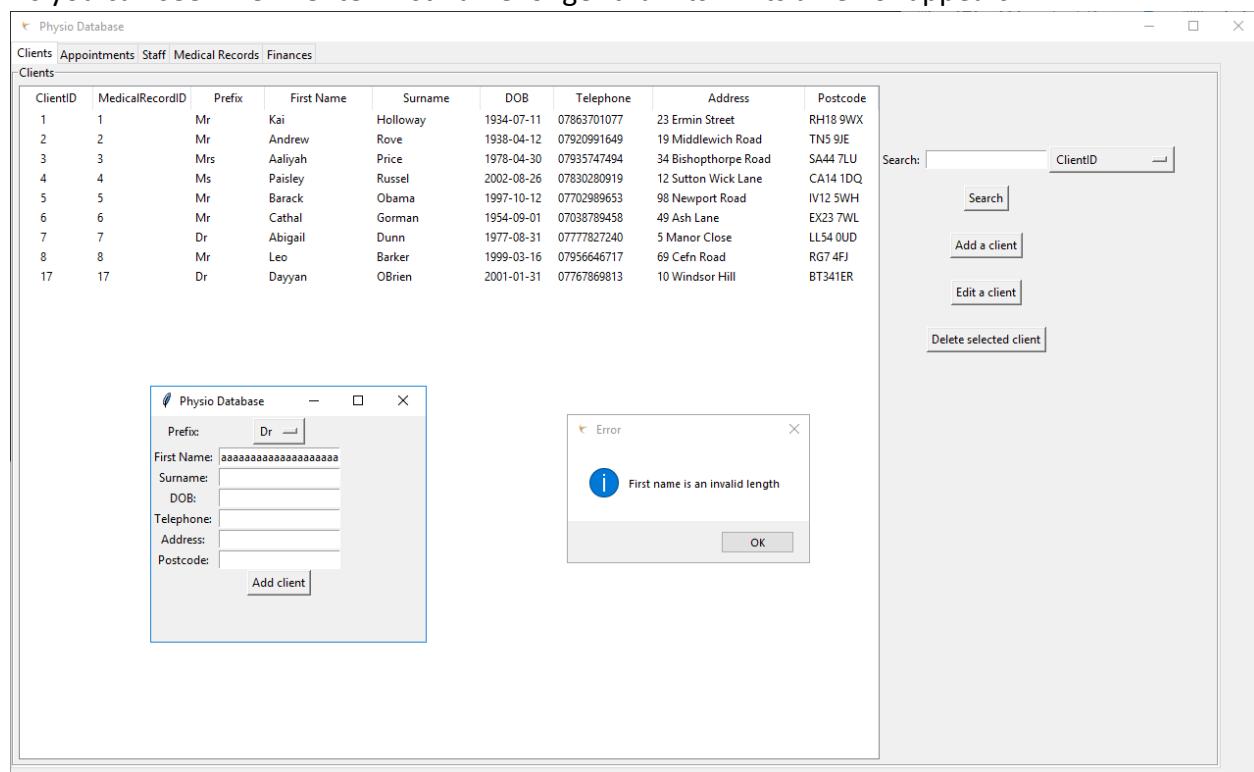
26.

As you can see when I enter a first name that is less than its limits error will appear



27.

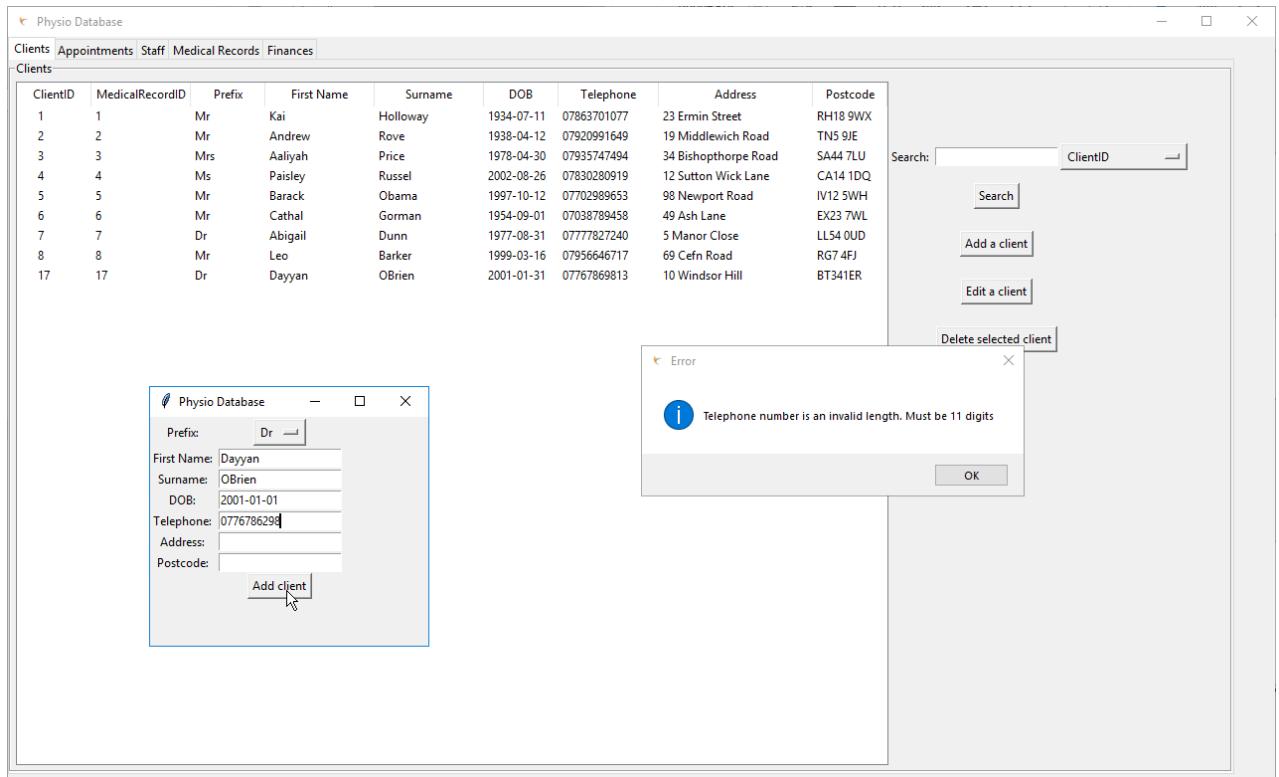
As you can see when I enter first name longer than its limits an error appears



Candidate number:
3097

28.

As you can see when I enter a telephone number that isn't exactly 11 characters an error will appear

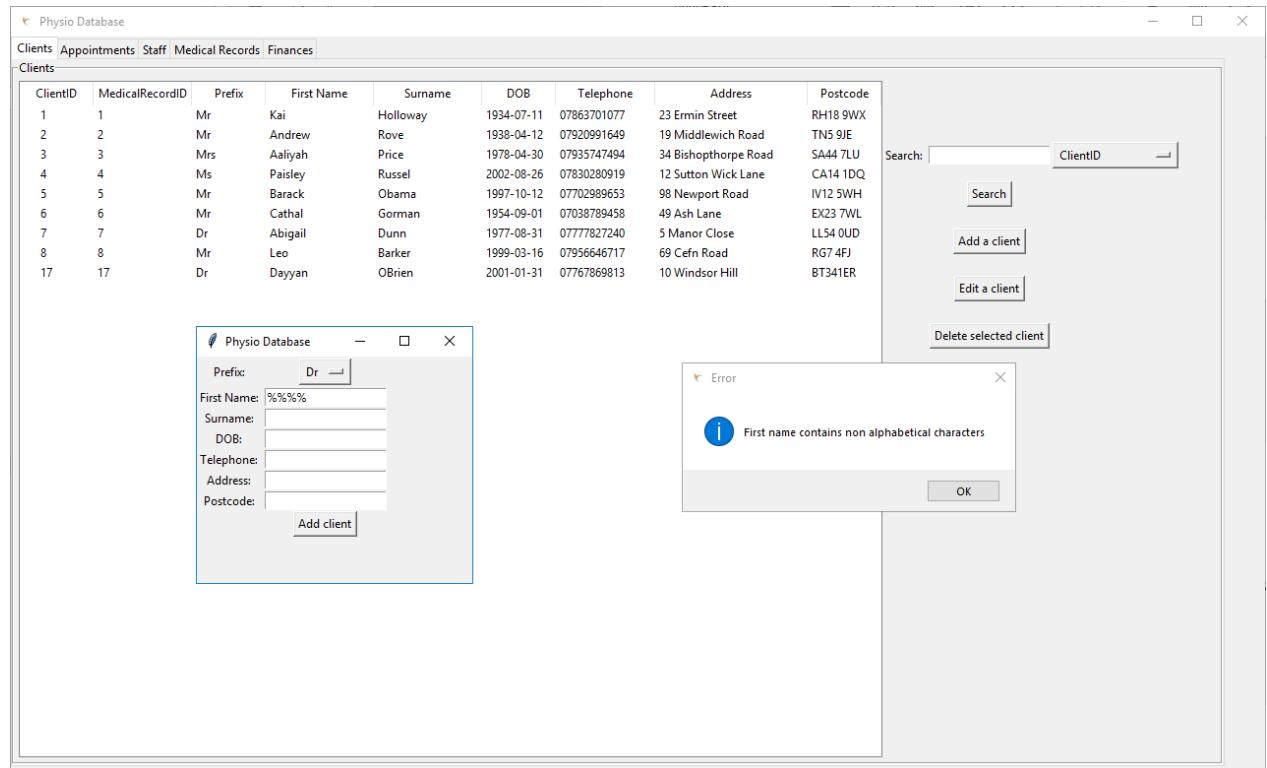
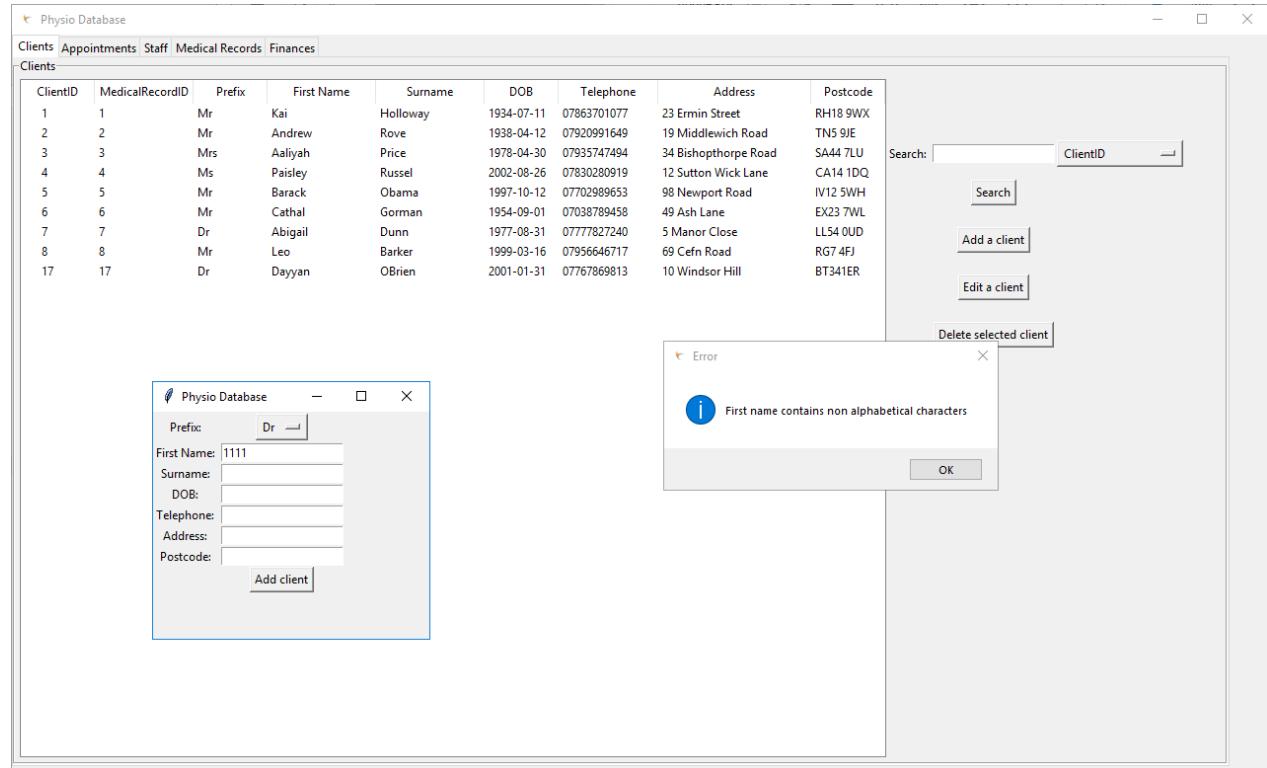


Candidate number:

3097

29.

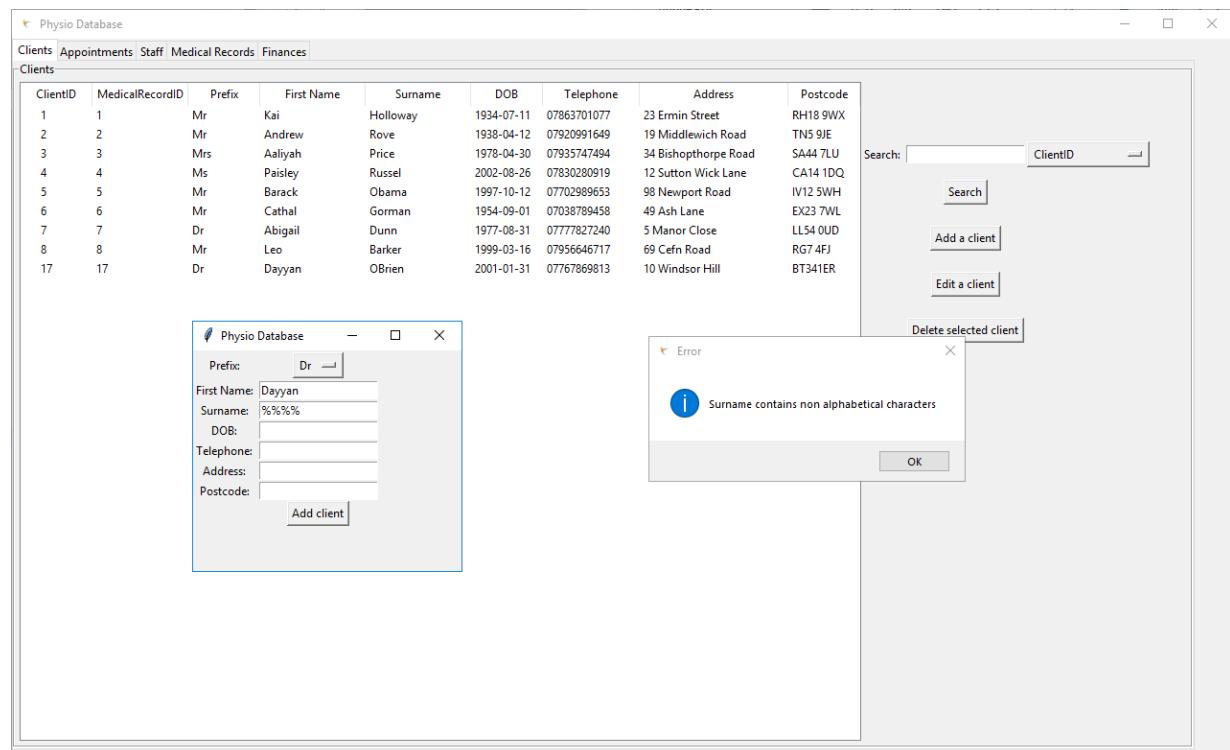
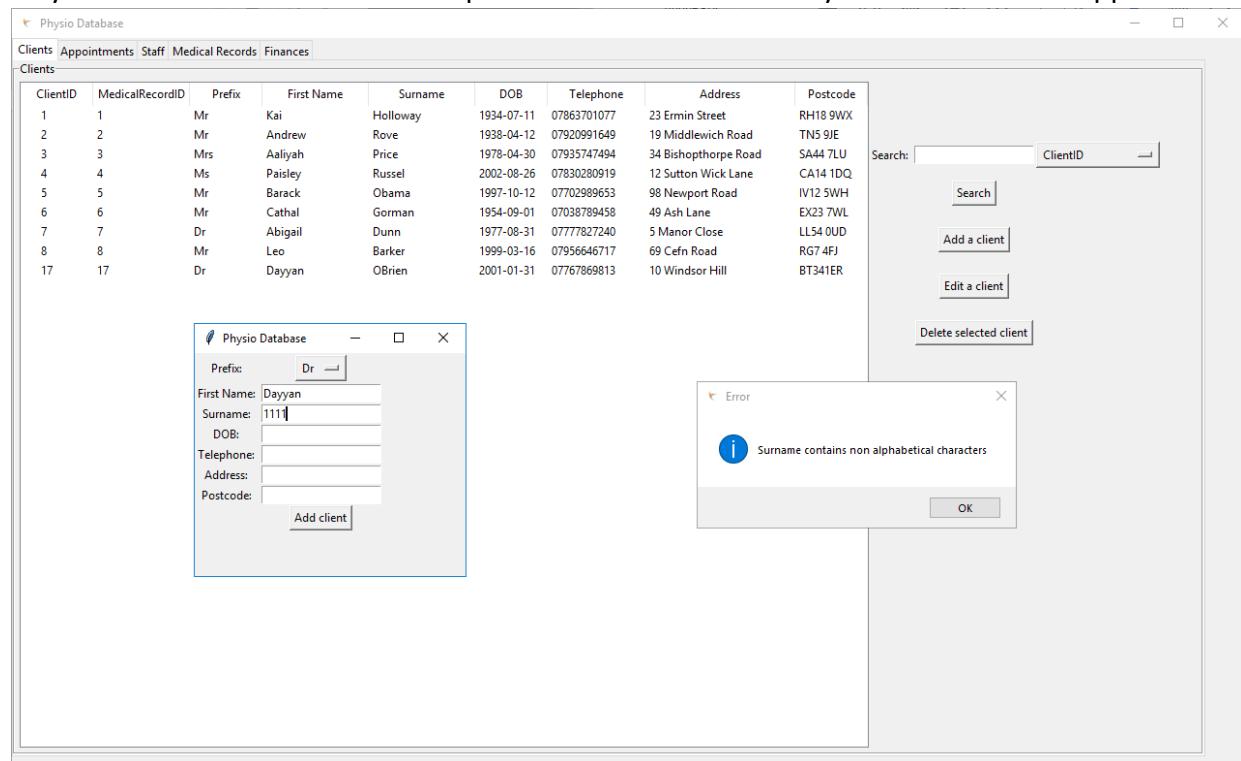
As you can see when I enter non-alphabetical characters for my first name an error appears



Candidate number:
3097

30.

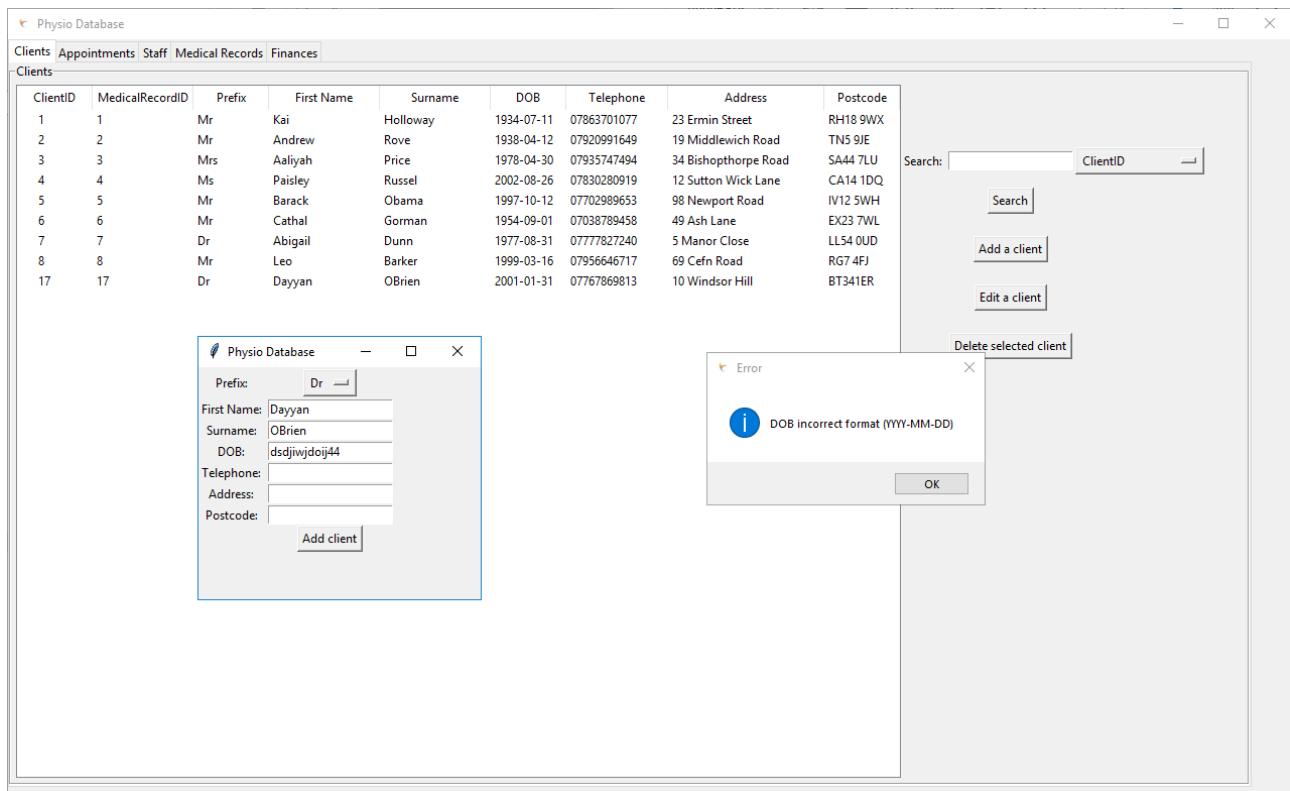
As you can see when I enter non-alphabetical characters for my surname an error appears



Candidate number:
3097

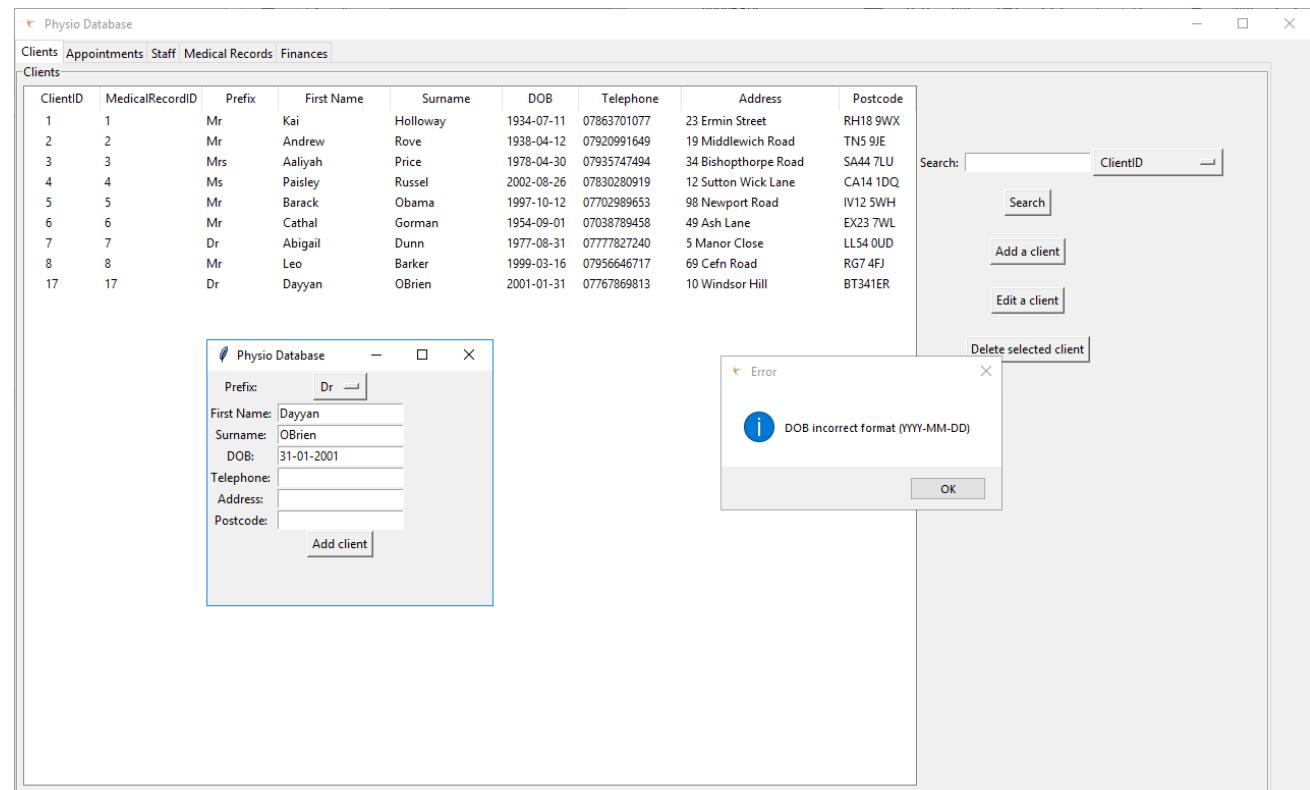
38.

As you can see when I enter a random string of characters for my DOB an error appears

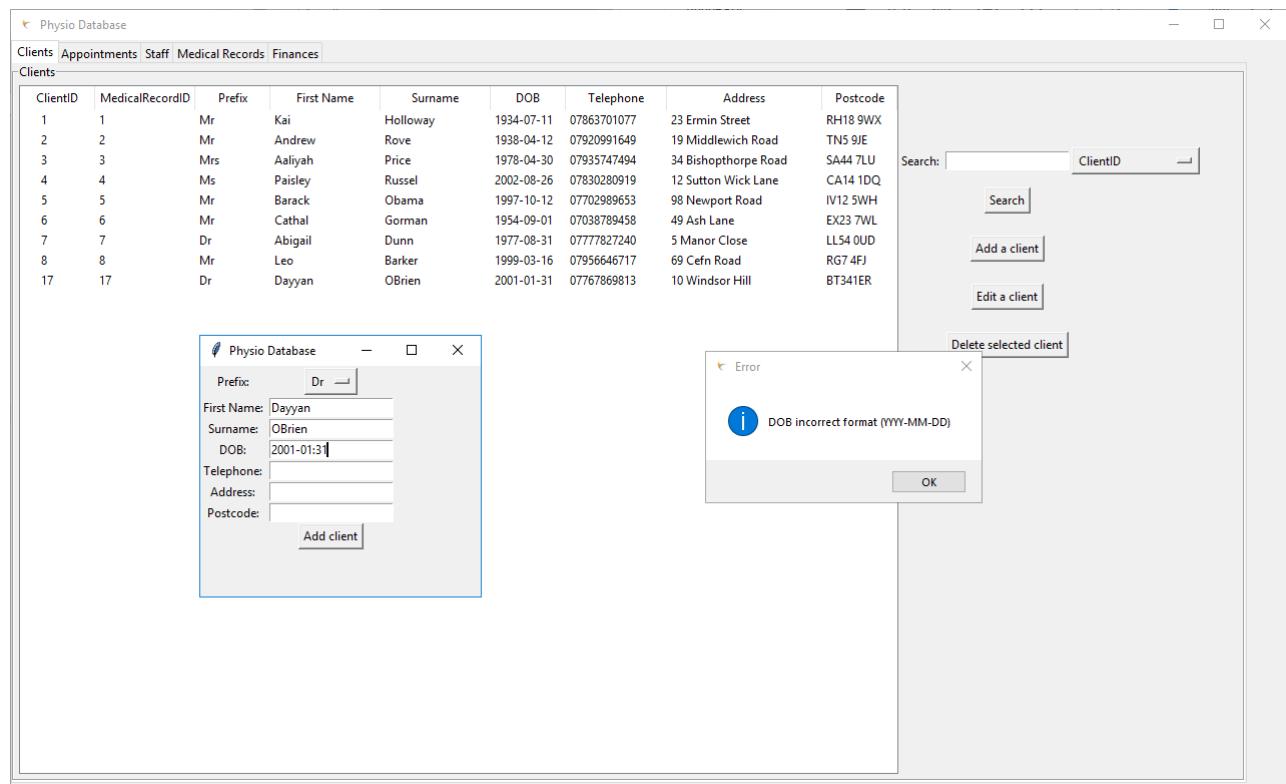
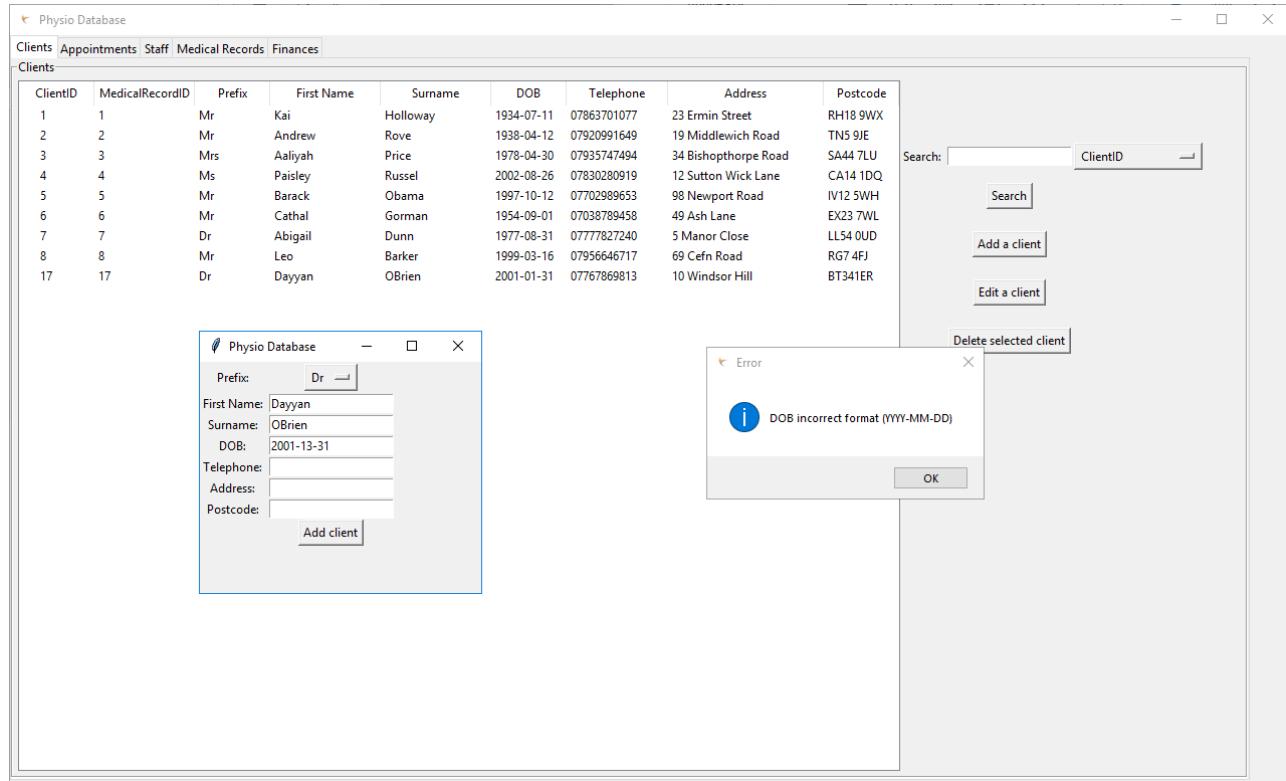


32.

As you can see the program is able to check for a variety of format issues and if one is detected an error appears



Candidate number:
3097



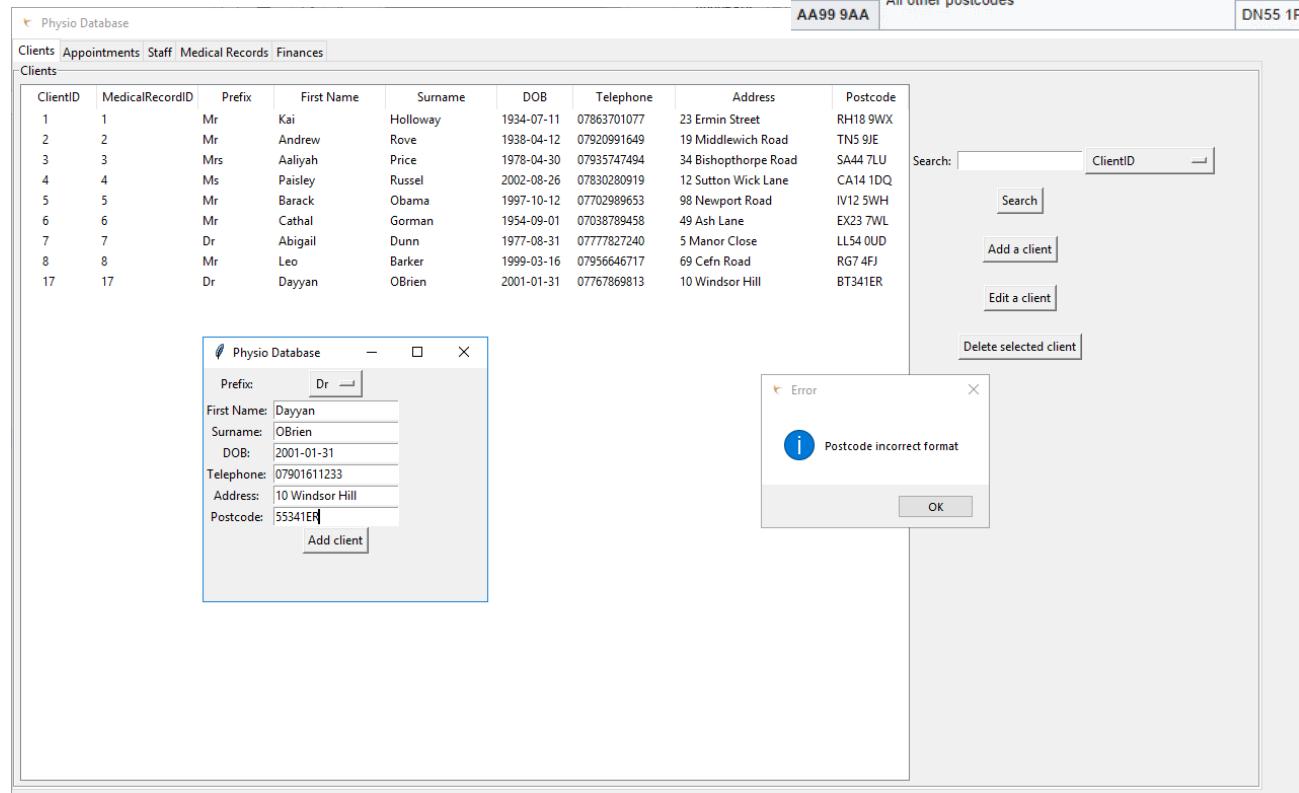
Candidate number:

3097

33.

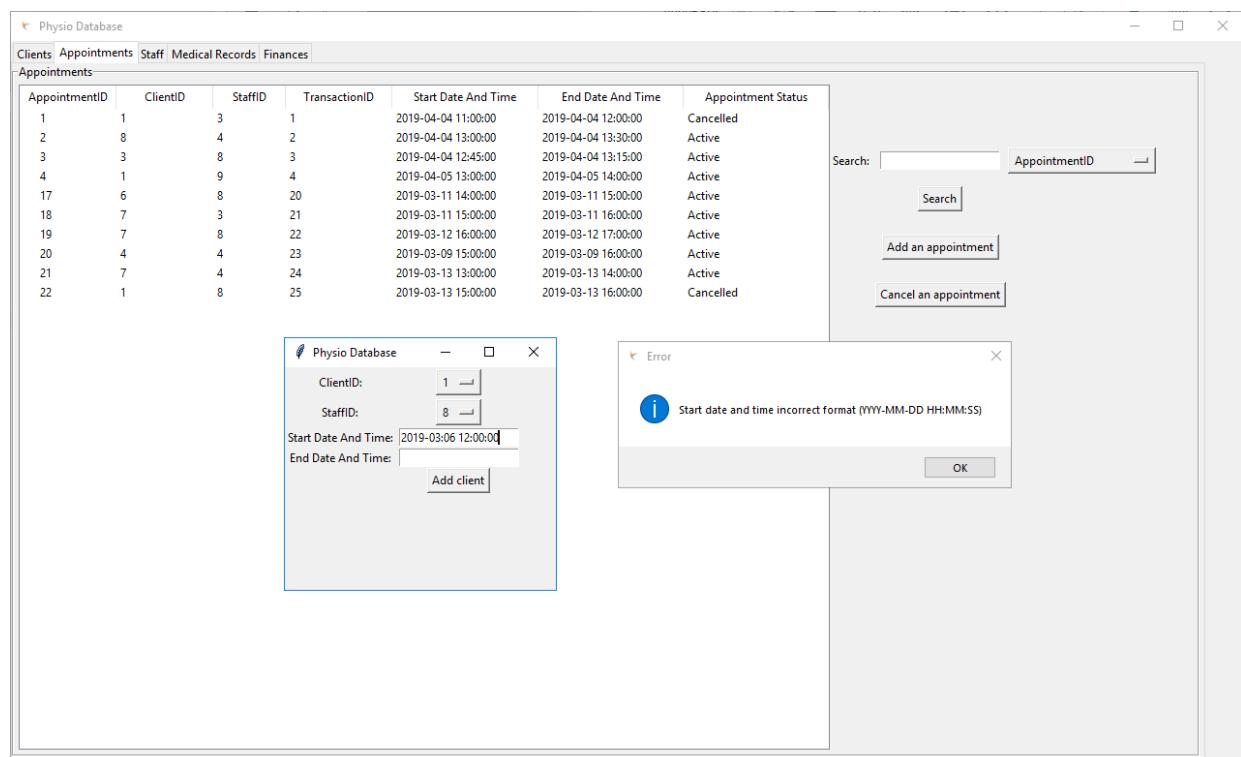
As you can see if the postcode does not match one of the formats that you see on the left an error will appear

Format	Coverage	Example
AA9A 9AA	WC postcode area; EC1–EC4, NW1W, SE1P, SW1	EC1A 1BB
A9A 9AA	E1W, N1C, N1P	W1A 0AX
A9 9AA		M1 1AE
A99 9AA	B, E, G, L, M, N, S, W	B33 8TH
AA9 9AA		CR2 6XH
AA99 9AA	All other postcodes	DN55 1PT



34.

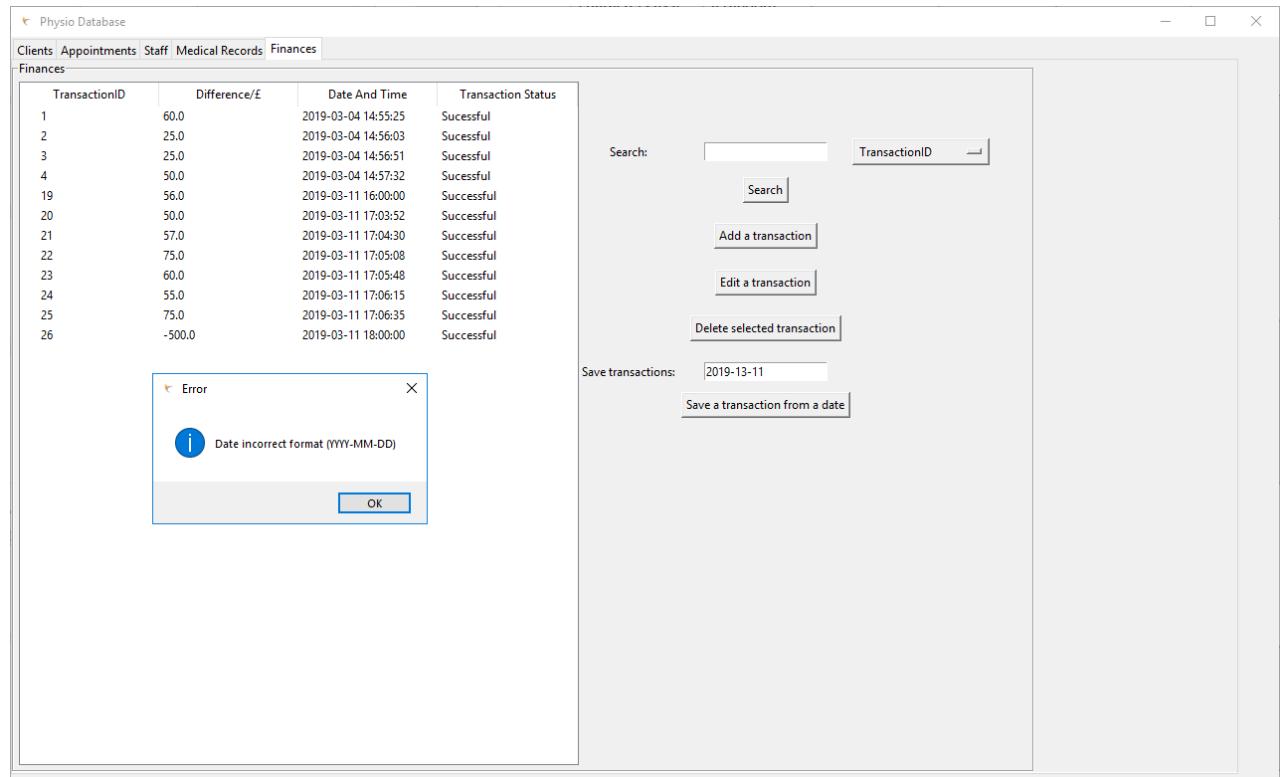
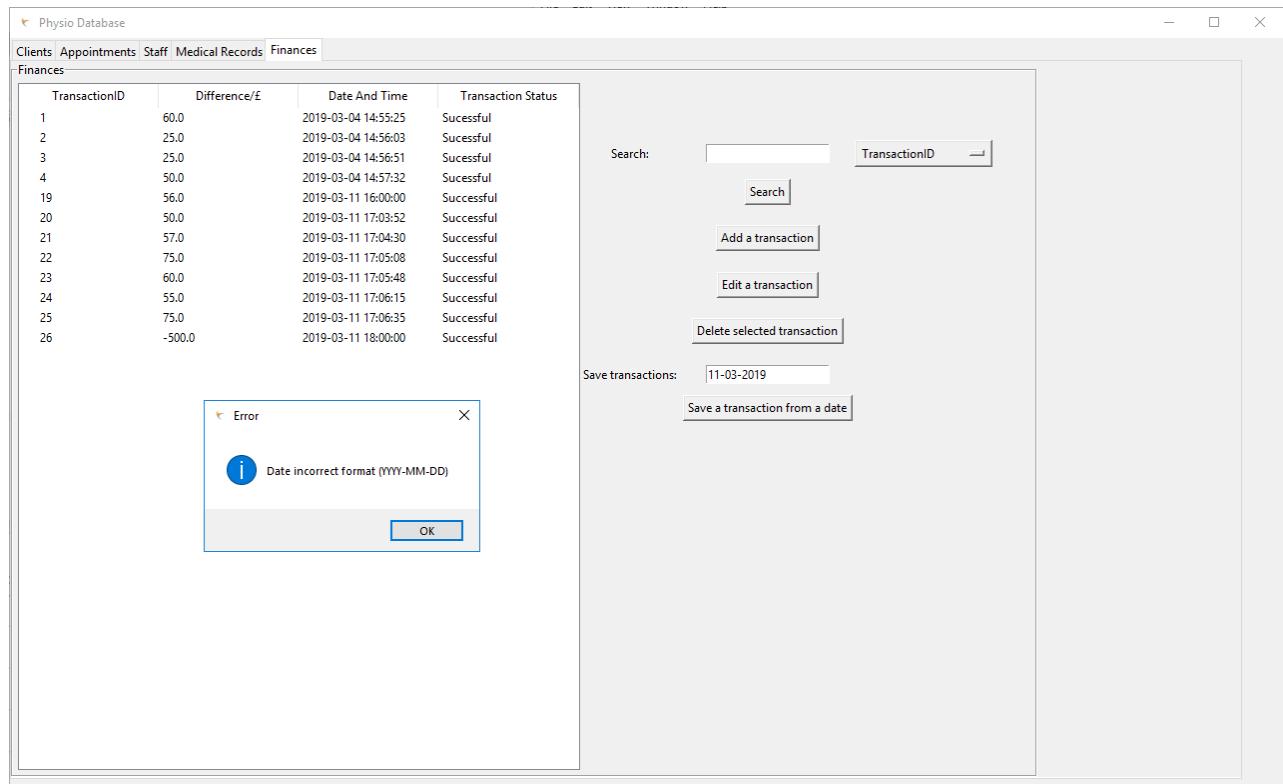
As you can see if I write a date and time that is an incorrect format an error will appear



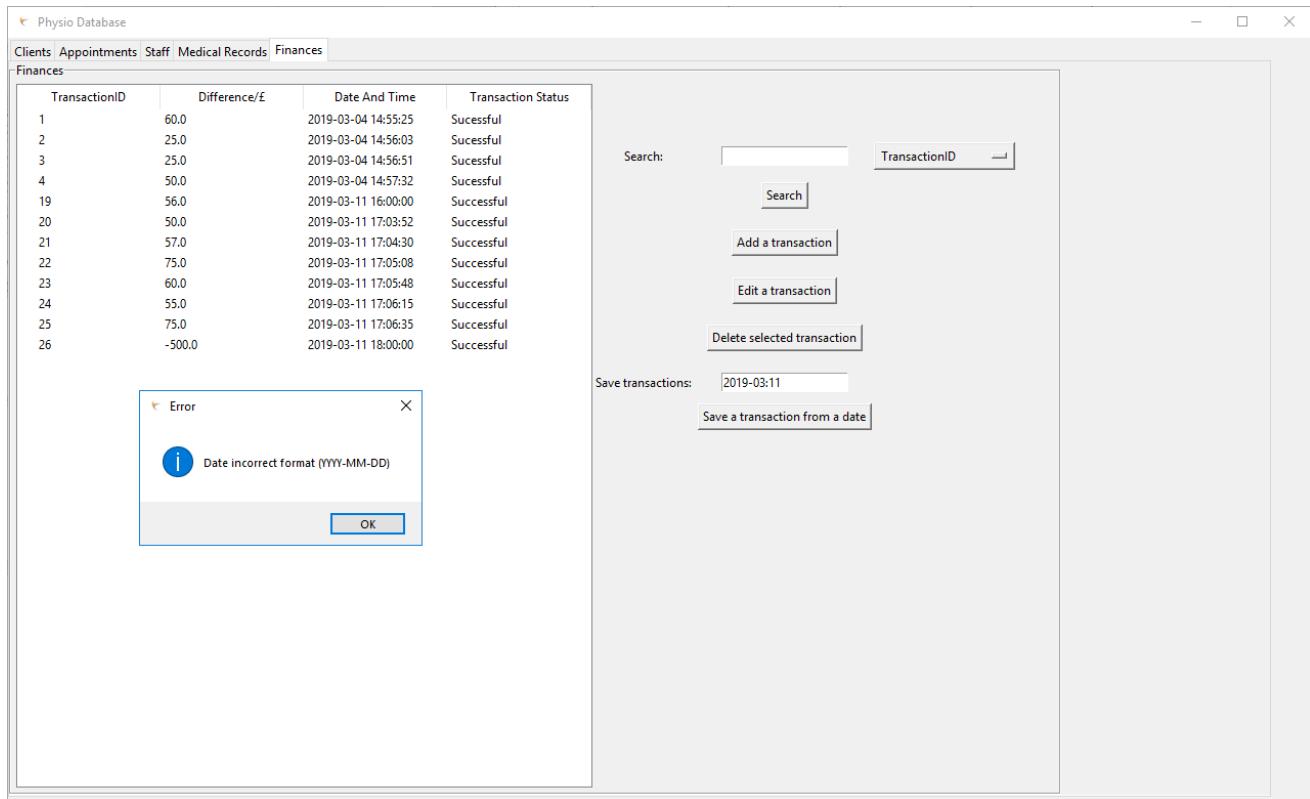
Candidate number:
3097

35.

As you can see when I enter a date of an incorrect format in the entry box an error will appear

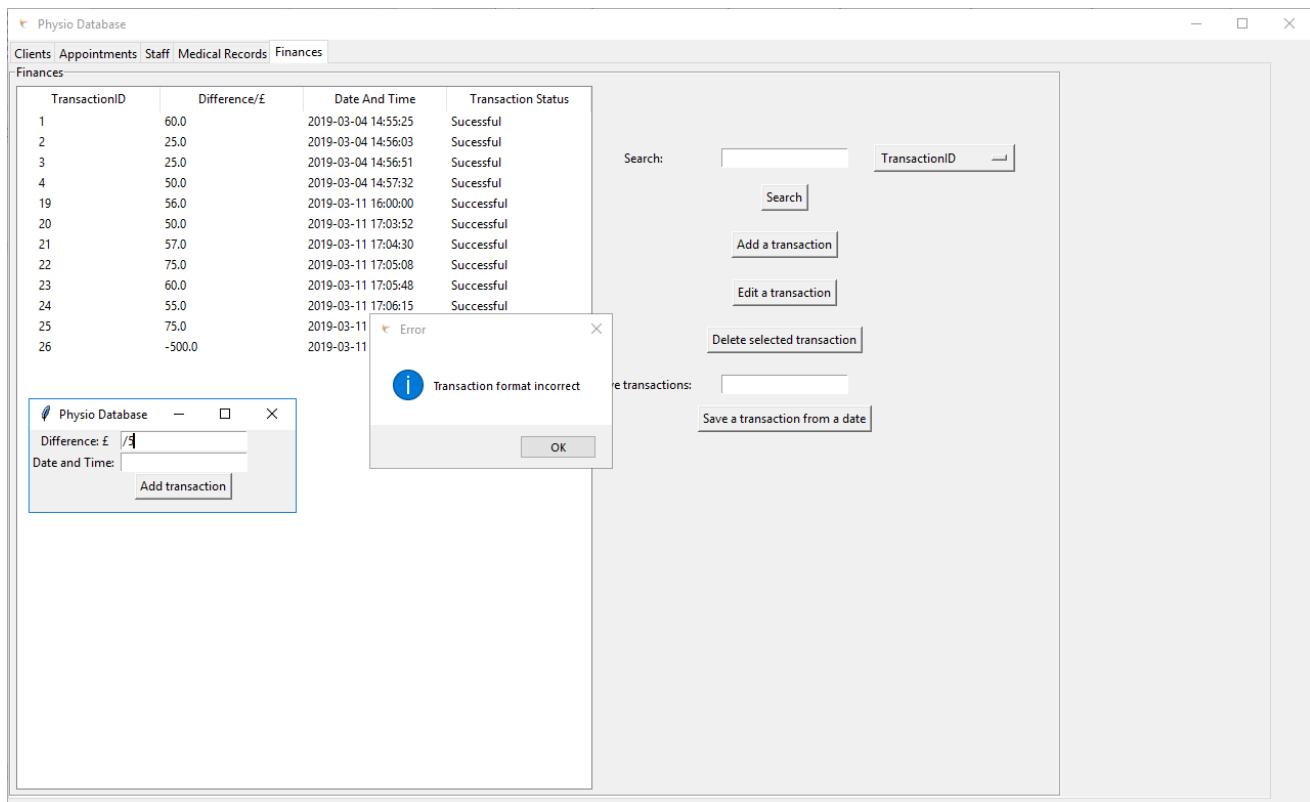


Candidate number:
3097



36.

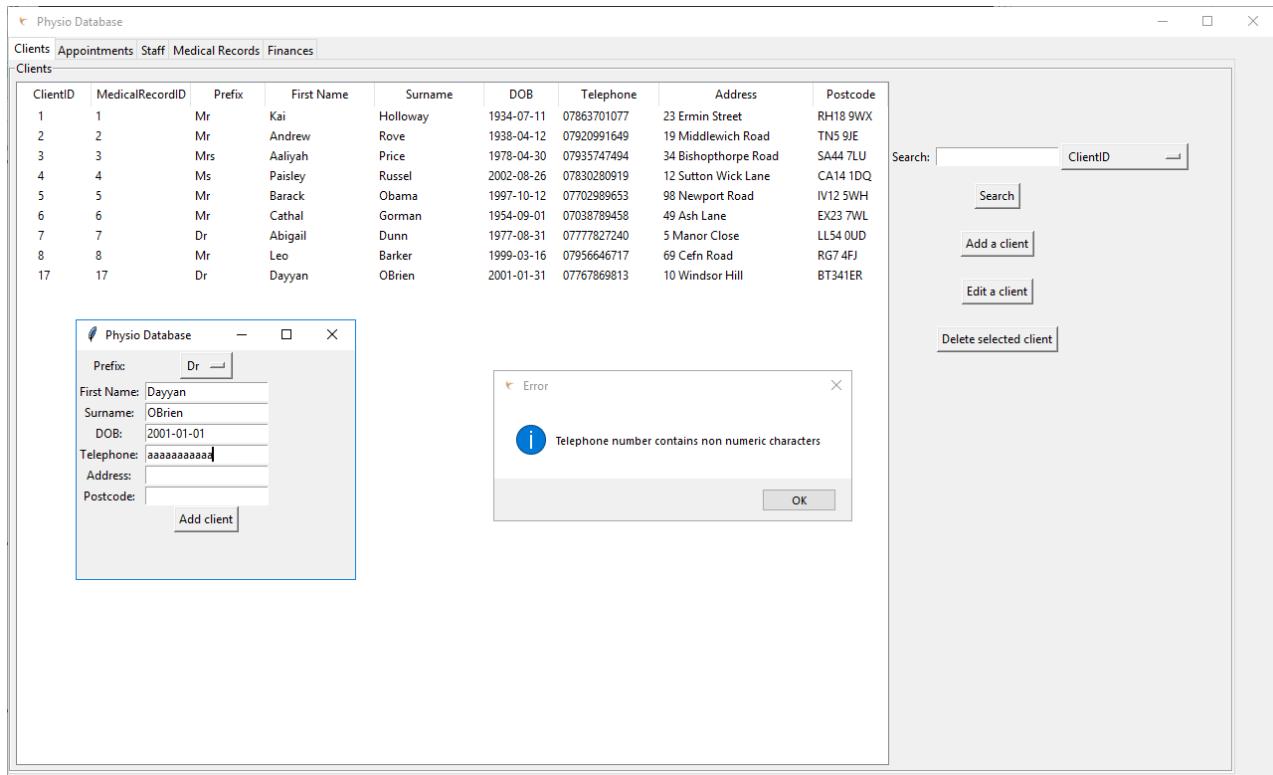
As you can see if I enter a transaction of an incorrect format an error will appear



Candidate number:
3097

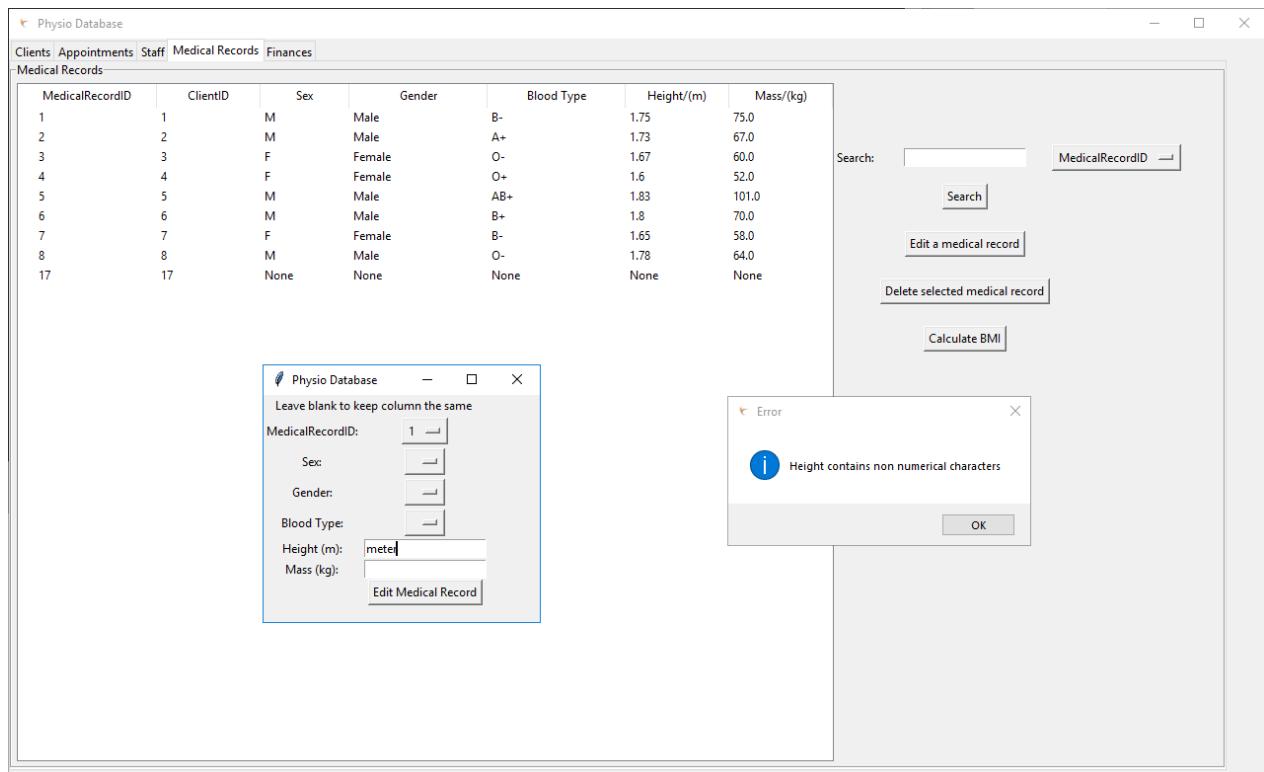
37.

As you can see if I enter a non-numerical telephone number an error will appear



38.

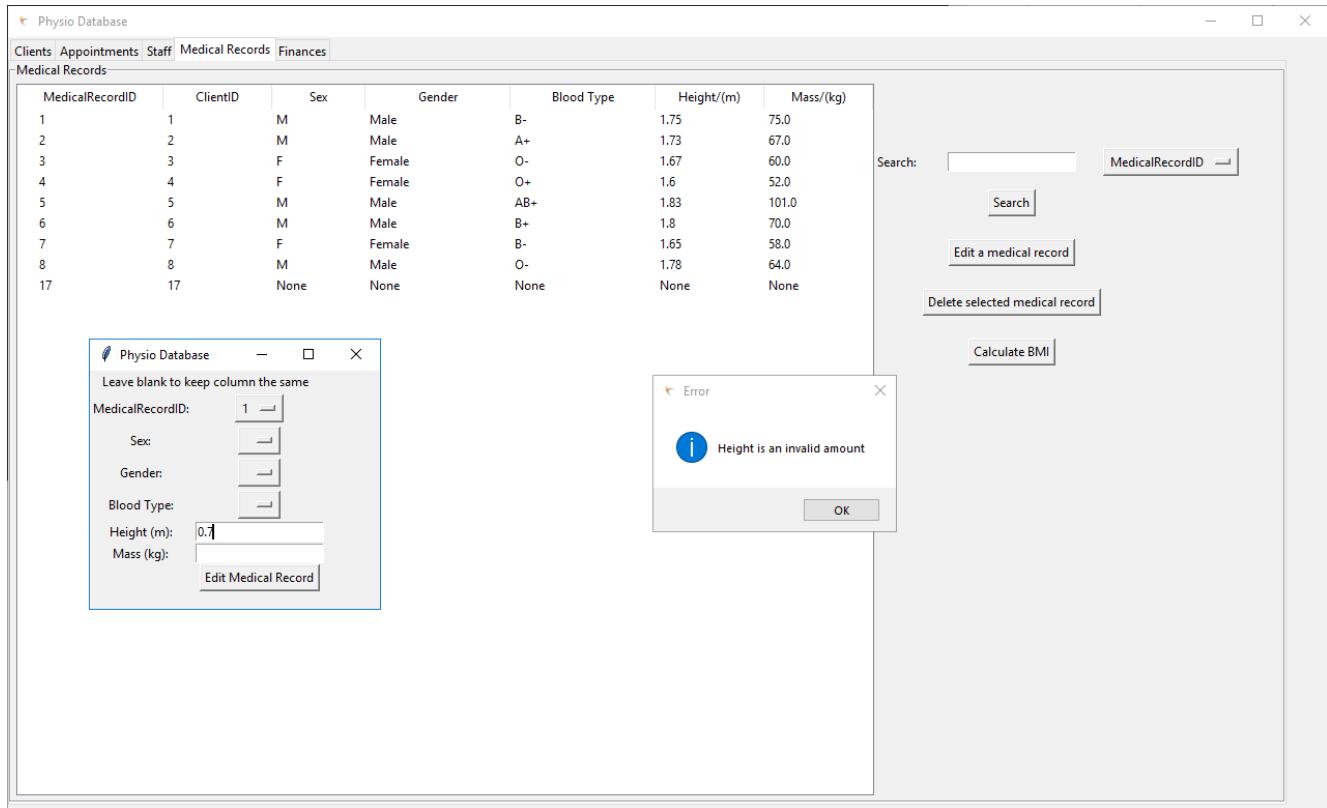
As you can see if I enter a non-numerical height number an error will appear



Candidate number:
3097

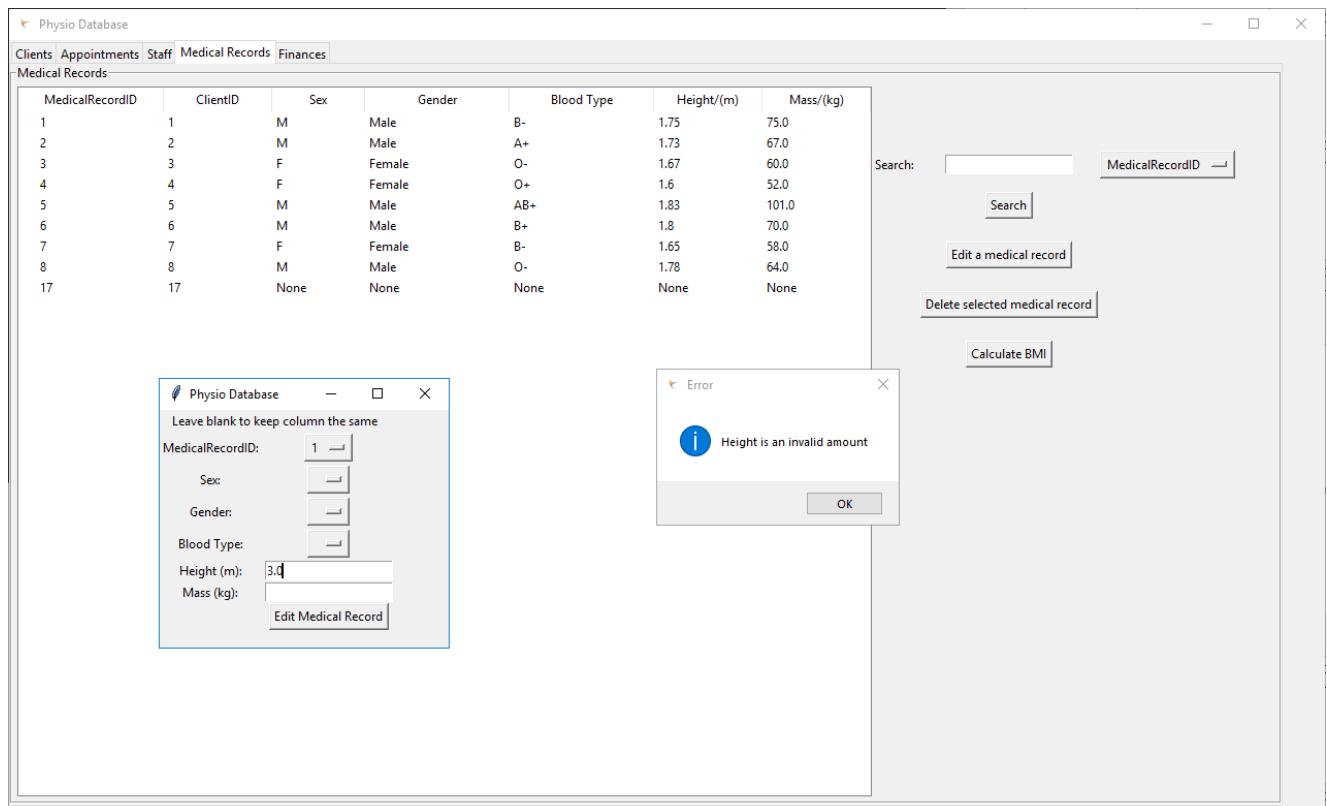
39.

As you can see if I enter a height that is too small an error will appear



40.

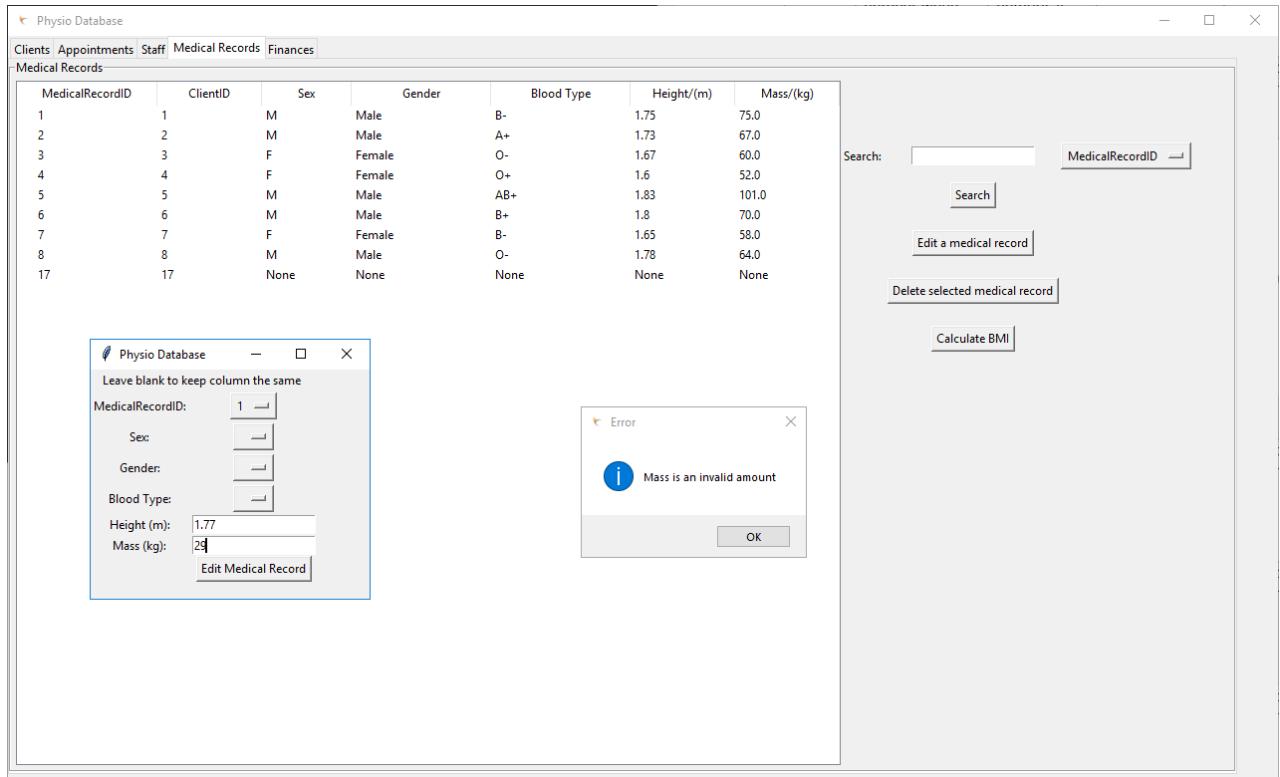
As you can see if I enter a height that is too large an error will appear



Candidate number:
3097

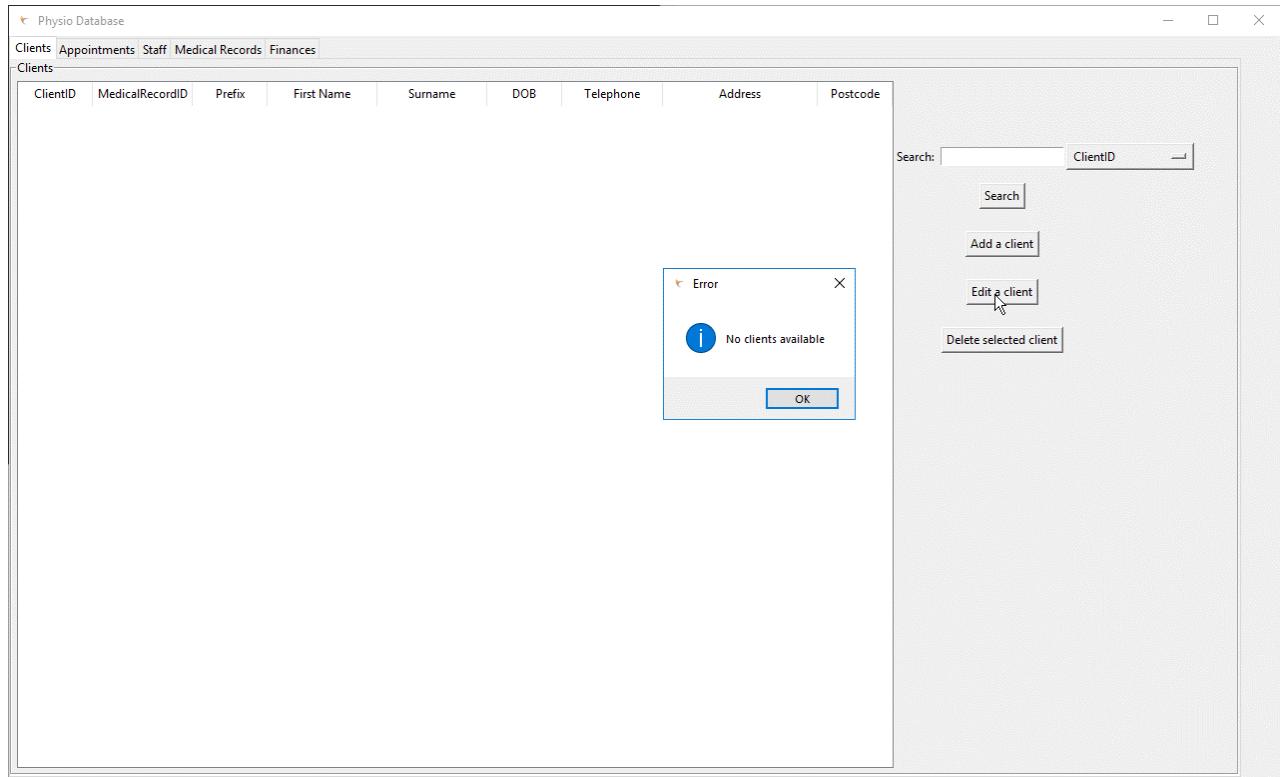
48.

As you can see if I enter a mass that is too small an error will appear



42.

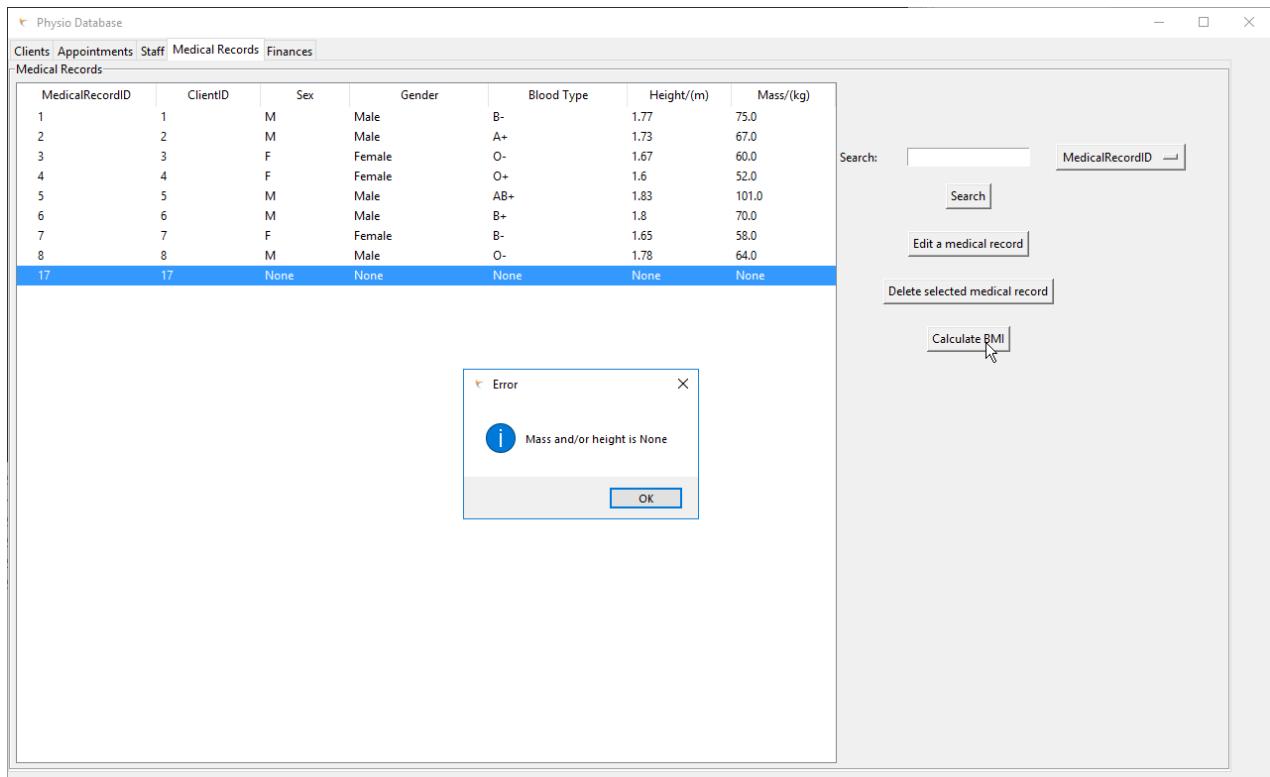
As you can see if I try to edit clients when none are available an error will appear



Candidate number:
3097

43.

As you can see if I try to edit the height or mass of a client that doesn't have values an error will appear



Candidate number:
3097

Functionality

44.

As you can see the user is able to see all the records in the table

The screenshot shows a Windows application window titled "Physio Database". The window has a menu bar with "Clients", "Appointments", "Staff", "Medical Records", and "Finances". The "Clients" tab is selected. Below the menu is a table with the following data:

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	0763701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishopthorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER

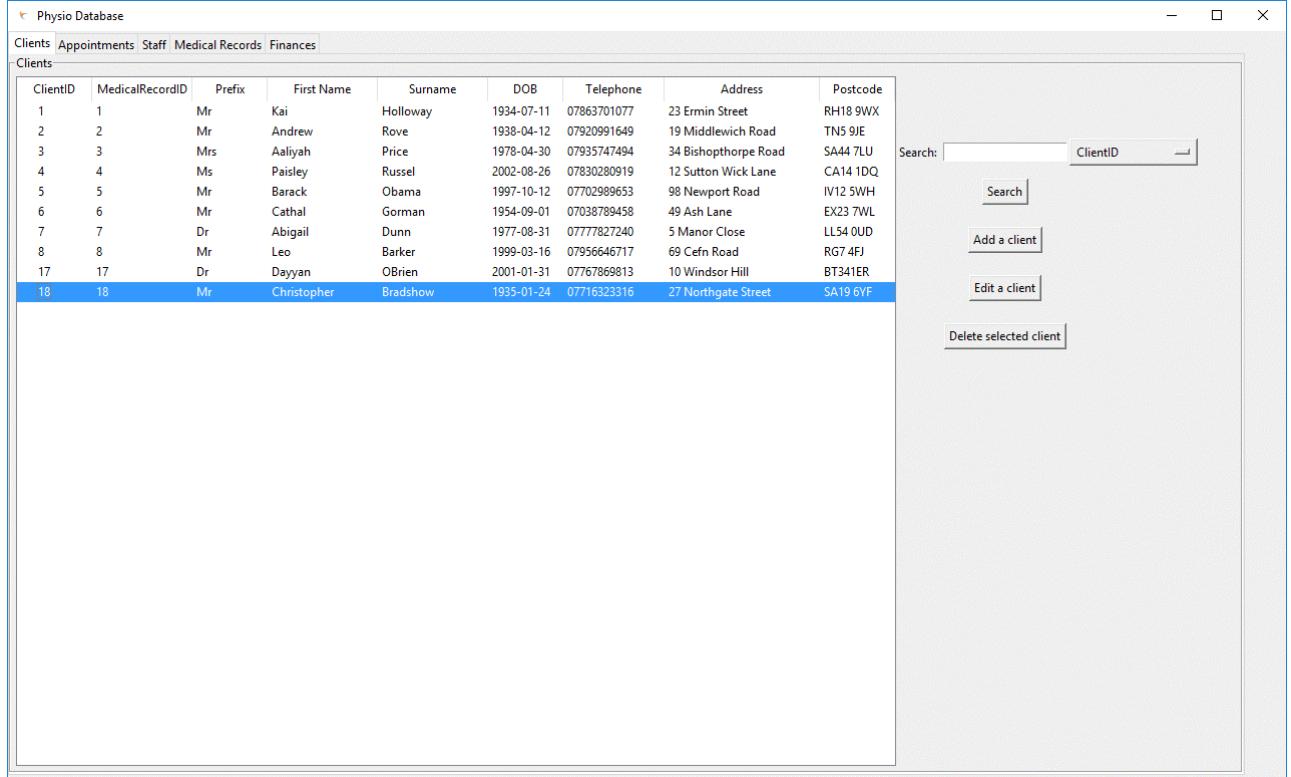
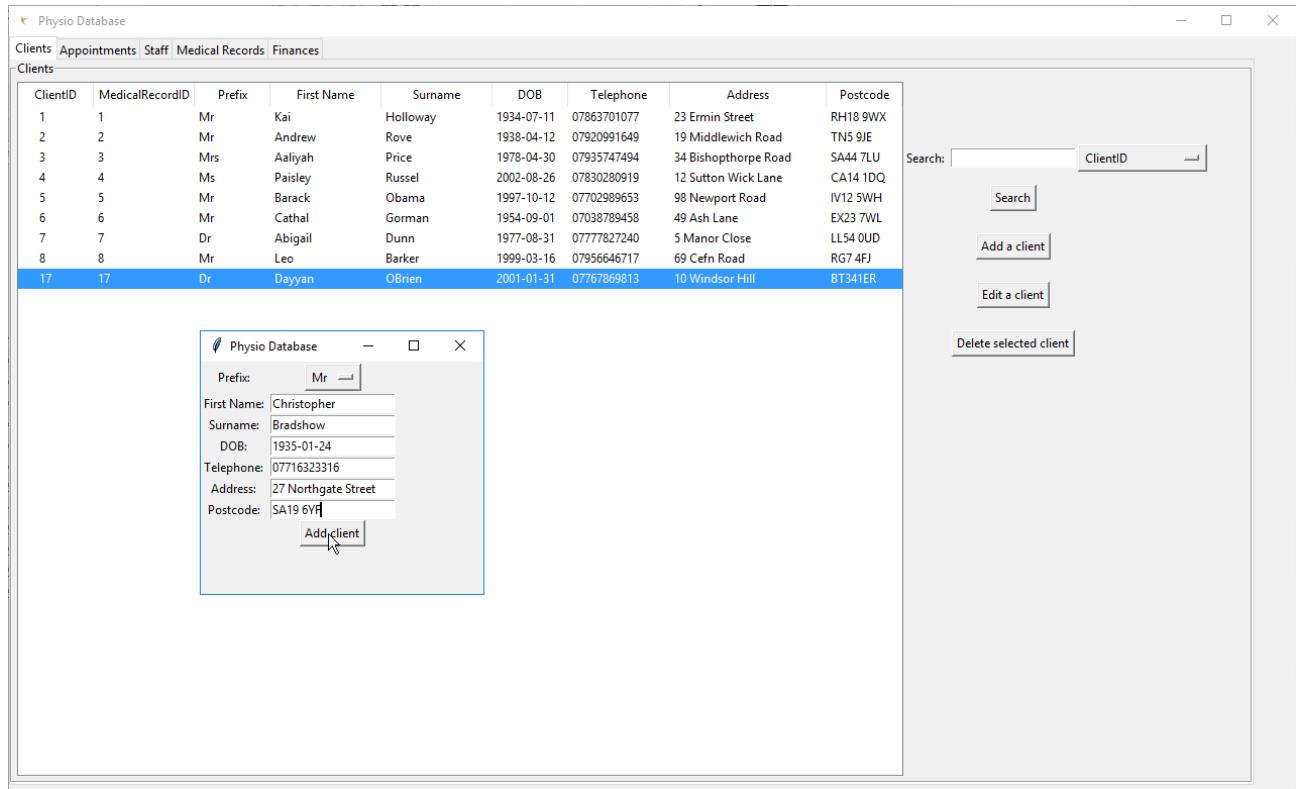
Below the table are several buttons:

- Search: A text input field with a dropdown arrow and a "Search" button.
- Add a client: A button to add a new client record.
- Edit a client: A button to edit an existing client record.
- Delete selected client: A button to delete the selected client record.

Candidate number:
3097

45.

As you can see if I enter appropriate information a record is added



Candidate number:
3097

46.

As you can see if I enter appropriate information a record is edited

The screenshot shows the Physio Database application window. The main area displays a table of client records:

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishopthorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER
18	18	Mr	Christopher	Bradshaw	1935-01-24	07716323316	27 Northgate Street	SA19 6YF

To the right of the table are buttons for search, add, edit, and delete operations. A modal dialog box is open over the table, prompting for edit information:

Leave blank to keep column the same

ClientID:	<input type="text" value="18"/>
Prefix:	<input type="text" value="Dr"/>
First Name:	<input type="text"/>
Surname:	<input type="text"/>
DOB (YYYY-MM-DD):	<input type="text"/>
Telephone:	<input type="text"/>
Address:	<input type="text"/>
Postcode:	<input type="text"/>

The screenshot shows the Physio Database application window. The main area displays the same table of client records as the previous screenshot, but the row for ClientID 18 has been updated. The 'First Name' and 'Surname' columns now contain 'Christopher' and 'Bradshaw' respectively, reflecting the changes made in the edit dialog.

Candidate number:
3097

47.

As you can see, if I highlight a record that I want to delete it will disappear off the list

Physio Database

Clients Appointments Staff Medical Records Finances

Clients								
ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishopthorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER
18	18	Dr	Christopher	Bradshow	1935-01-24	07716323316	27 Northgate Street	SA19 6YF

Search: ClientID

Physio Database

Clients Appointments Staff Medical Records Finances

Clients								
ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishopthorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER

Search: ClientID

Candidate number:
3097

48.

As you can see the user is able to search for records

The screenshot shows a Windows application window titled "Physio Database". The menu bar includes "File", "Clients", "Appointments", "Staff", "Medical Records", and "Finances". The "Clients" tab is selected, displaying a table with columns: ClientID, MedicalRecordID, Prefix, First Name, Surname, DOB, Telephone, Address, and Postcode. Two rows of data are visible:

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER

Below the table is a search interface with a "Search:" input field containing "1", a dropdown menu labeled "ClientID", a "Search" button, and three links: "Add a client", "Edit a client", and "Delete selected client".

The screenshot shows a Notepad window titled "clients.txt - Notepad". The menu bar includes "File", "Edit", "Format", "View", and "Help". The text content is as follows:

```
----- Searched for '1' by ClientID-----
ClientID: 1
MedicalRecordID: 1
Prefix: Mr
First Name: Kai
Surname: Holloway
DOB: 1934-07-11
Telephone: 07863701077
Address: 23 Ermin Street
Postcode: RH18 9WX

ClientID: 17
MedicalRecordID: 17
Prefix: Dr
First Name: Dayyan
Surname: OBrien
DOB: 2001-01-31
Telephone: 07767869813
Address: 10 Windsor Hill
Postcode: BT341ER
```

Candidate number:
3097

49.

As you can see, if I enter the date of a record I want to save, all records are saved in a text file with the sum at the bottom.

The screenshot shows the 'Finances' tab of the Physio Database application. A modal window titled 'Alert' is displayed, stating 'Transaction saved (financesbydate.txt)'. The main window shows a table of transactions:

TransactionID	Difference/£	Date And Time	Transaction Status
1	60.0	2019-03-04 14:55:25	Successful
2	25.0	2019-03-04 14:56:03	Successful
3	25.0	2019-03-04 14:56:51	Successful
4	50.0	2019-03-04 14:57:32	Successful
19	56.0	2019-03-11 16:00:00	Successful
20	50.0	2019-03-11 17:03:52	Successful
21	57.0	2019-03-11 17:04:30	Successful
22	75.0	2019-03-11 17:05:08	Successful
23	60.0	2019-03-11 17:05:48	Successful
24	55.0	2019-03-11 17:06:15	Successful
25	75.0	2019-03-11 17:06:35	Successful
26	-500.0	2019-03-11 18:00:00	Successful

On the right side of the main window, there are buttons for 'Search', 'Add a transaction', 'Edit a transaction', and 'Delete selected transaction'. Below these buttons is a 'Save transactions:' dropdown set to '2019-03-04' and a button labeled 'Save a transaction from a date' with a cursor pointing to it.

The screenshot shows the contents of the 'financesbydate.txt' file in Notepad. The file contains the following text:

```
financesbydate.txt - Notepad
File Edit Format View Help
-----
-----2019-03-04-----
| TransactionID | Difference | TransactionStatus |
-----
1 60.0 Successful
2 25.0 Successful
3 25.0 Successful
4 50.0 Successful

Overall difference: £160.0
```

Candidate number:
3097

50.

As you can see if I highlight a record and press 'calculate bmi' the BMI of that selected record is automatically calculated

Physio Database

Clients Appointments Staff Medical Records Finances

Medical Records

MedicalRecordID	ClientID	Sex	Gender	Blood Type	Height/(m)	Mass/(kg)
1	1	M	Male	B-	1.77	75.0
2	2	M	Male	A+	1.73	67.0
3	3	F	Female	O-	1.67	60.0
4	4	F	Female	O+	1.6	52.0
5	5	M	Male	AB+	1.83	101.0
6	6	M	Male	B+	1.8	70.0
7	7	F	Female	B-	1.65	58.0
8	8	M	Male	O-	1.78	64.0
17	17	None	None	None	None	None

Search:

The BMI of the selected client is 20.2

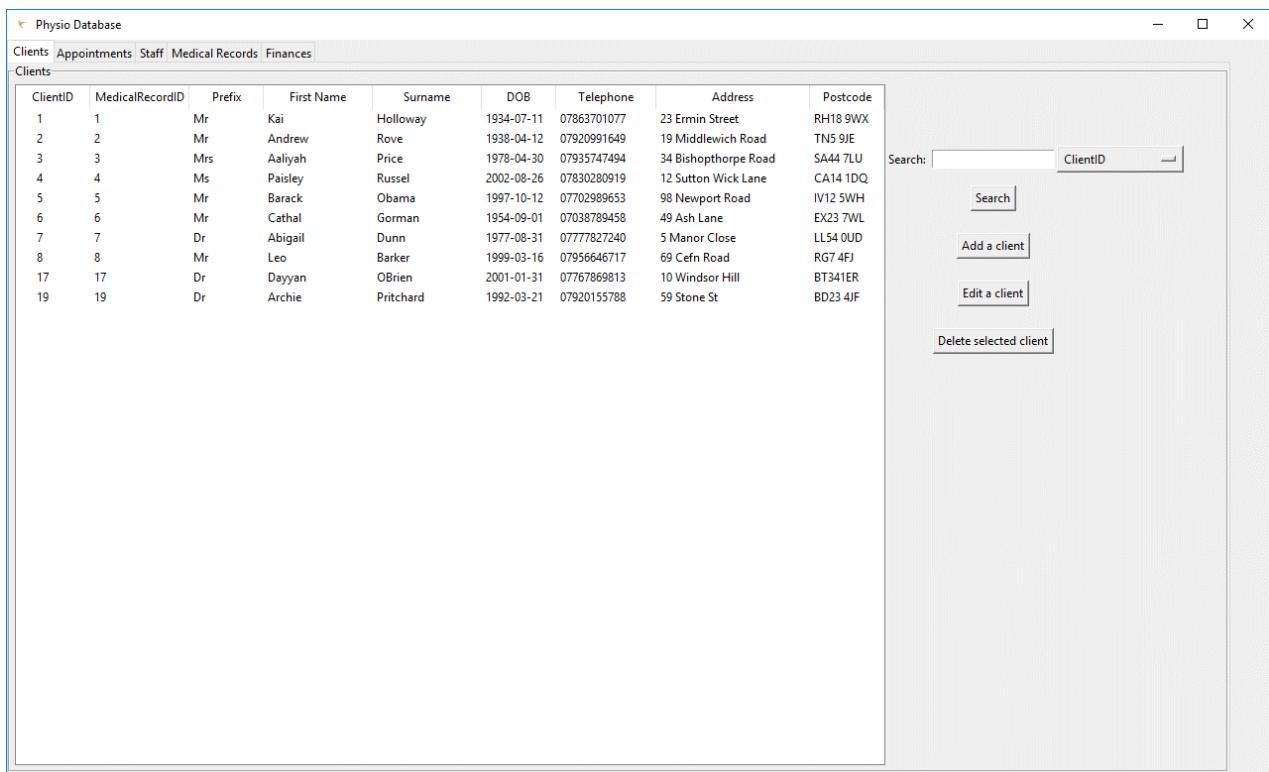
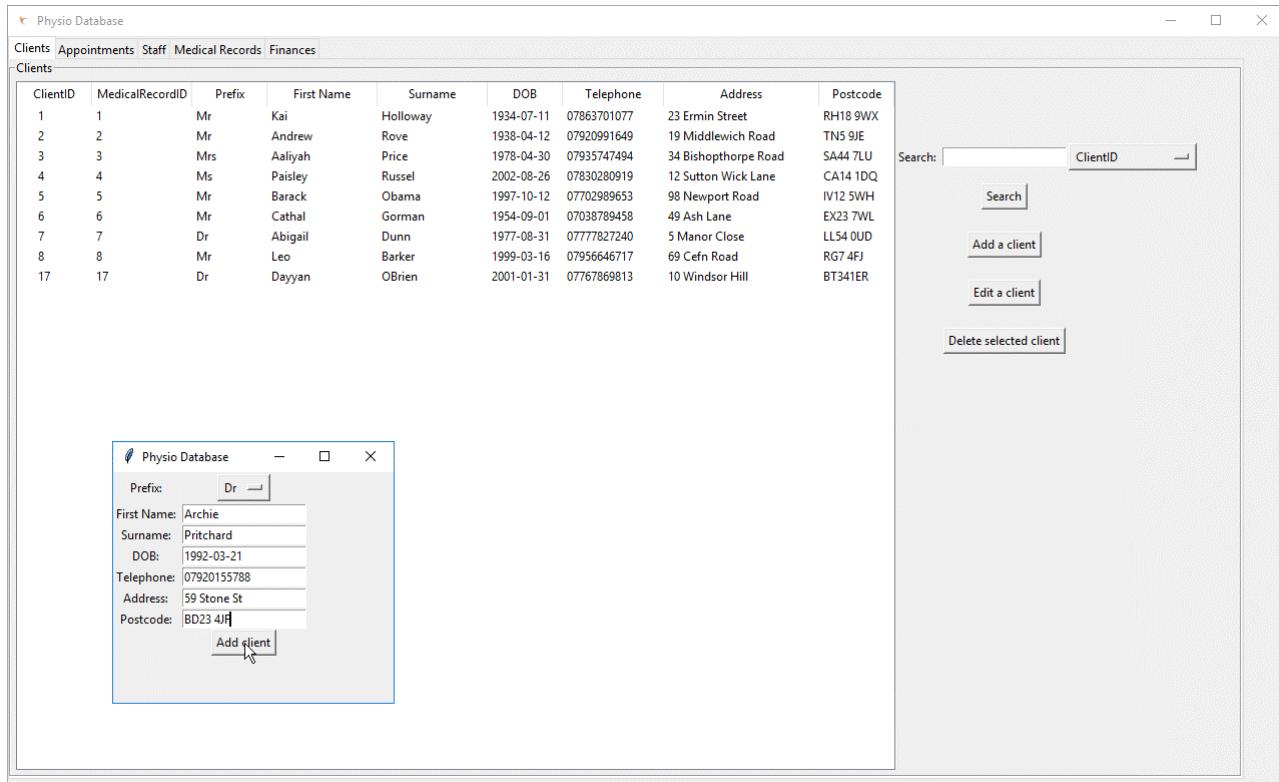
OK

Candidate number:
3097

Other

58.

As you can see the data is instantly added to the program without any action necessary



Candidate number:
3097

52.

However, if you check the medical records the respective ClientID doesn't show, to make it appear I have to press the search button.

The screenshot shows a Windows application window titled "Physio Database". The menu bar includes "Clients", "Appointments", "Staff", "Medical Records", and "Finances". The "Medical Records" tab is selected, displaying a table of client medical records. The table has columns: MedicalRecordID, ClientID, Sex, Gender, Blood Type, Height/(m), and Mass/(kg). The data is as follows:

MedicalRecordID	ClientID	Sex	Gender	Blood Type	Height/(m)	Mass/(kg)
1	1	M	Male	B-	1.77	75.0
2	2	M	Male	A+	1.73	67.0
3	3	F	Female	O-	1.67	60.0
4	4	F	Female	O+	1.6	52.0
5	5	M	Male	AB+	1.83	101.0
6	6	M	Male	B+	1.8	70.0
7	7	F	Female	B-	1.65	58.0
8	8	M	Male	O-	1.78	64.0
17	17	None	None	None	None	None

On the right side of the window, there is a search interface with a "Search:" input field, a "MedicalRecordID" dropdown, a "Search" button, and several action buttons: "Edit a medical record", "Delete selected medical record", and "Calculate BMI".

This screenshot shows the same "Physio Database" application window after the search button has been clicked. The "Search:" input field now contains the value "17", which corresponds to the ClientID of the last row in the table. The "Search" button is highlighted with a cursor icon, indicating it was just clicked. The rest of the interface and data remain the same as in the previous screenshot.

MedicalRecordID	ClientID	Sex	Gender	Blood Type	Height/(m)	Mass/(kg)
1	1	M	Male	B-	1.77	75.0
2	2	M	Male	A+	1.73	67.0
3	3	F	Female	O-	1.67	60.0
4	4	F	Female	O+	1.6	52.0
5	5	M	Male	AB+	1.83	101.0
6	6	M	Male	B+	1.8	70.0
7	7	F	Female	B-	1.65	58.0
8	8	M	Male	O-	1.78	64.0
17	17	None	None	None	None	None
19	19	None	None	None	None	None

Candidate number:
3097

53.

If you look to the edge of the treeview you can notice that I can drag records out of the frame.

The screenshot shows a Windows application window titled "Physio Database". The window has a title bar with icons for minimize, maximize, and close. Below the title bar is a menu bar with tabs: "Clients", "Appointments", "Staff", "Medical Records", and "Finances". The "Medical Records" tab is selected. To the left of the main content area is a vertical toolbar with icons for "New", "Edit", "Delete", "Search", and "Print". The main content area contains a grid table with the following data:

MedicalRecordID	ClientID	Sex	Gender	Blood Type	Height/(m)	Actions
1	1	M	Male	B-	1.77	75.0
2	2	M	Male	A+	1.73	67.0
3	3	F	Female	O-	1.67	60.0
4	4	F	Female	O+	1.6	52.0
5	5	M	Male	AB+	1.83	101.0
6	6	M	Male	B+	1.8	70.0
7	7	F	Female	B-	1.65	58.0
8	8	M	Male	O-	1.78	64.0
17	17	None	None	None	None	No
19	19	None	None	None	None	No

Below the grid are several buttons:

- Search: A button with a magnifying glass icon.
- MedicalRecordID: A text input field with a dropdown arrow.
- Search: A button labeled "Search".
- Edit a medical record: A button.
- Delete selected medical record: A button.
- Calculate BMI: A button.

Candidate number:

3097

54.

If you look at the blue lines I made to match up on the screen, you can see that they are in slightly different places in each occurrence, this shows that the dropdown menu slightly moves the frame.

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishophorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER
19	19	Dr	Archie	Pritchard	1992-03-21	07920155788	59 Stone St	BD23 4JF

ClientID	MedicalRecordID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode
1	1	Mr	Kai	Holloway	1934-07-11	07863701077	23 Ermin Street	RH18 9WX
2	2	Mr	Andrew	Rove	1938-04-12	07920991649	19 Middlewich Road	TN5 9JE
3	3	Mrs	Aaliyah	Price	1978-04-30	07935747494	34 Bishophorpe Road	SA44 7LU
4	4	Ms	Paisley	Russel	2002-08-26	07830280919	12 Sutton Wick Lane	CA14 1DQ
5	5	Mr	Barack	Obama	1997-10-12	07702989653	98 Newport Road	IV12 5WH
6	6	Mr	Cathal	Gorman	1954-09-01	07038789458	49 Ash Lane	EX23 7WL
7	7	Dr	Abigail	Dunn	1977-08-31	07777827240	5 Manor Close	LL54 0UD
8	8	Mr	Leo	Barker	1999-03-16	07956646717	69 Cefn Road	RG7 4FJ
17	17	Dr	Dayyan	OBrien	2001-01-31	07767869813	10 Windsor Hill	BT341ER
19	19	Dr	Archie	Pritchard	1992-03-21	07920155788	59 Stone St	BD23 4JF

Candidate number:
3097

8.3: End-user testing

I then gave my program to the clinic, this was then distributed to their staff for a period of a week. General feedback was good, with a strong emphasis of the intuitive GUI. The validation used throughout the program was also highly praised. There were few bugs reported and overall the program was said to be very stable. There were criticisms that the GUI was a little too bland and some colour could be used as well as a changing about of the buttons and the frame size. They also recommended that I allow tables to refresh from other tabs. They praised the wide array of features throughout the program. They were very pleased with all the validation used in the program to prevent any invalid data being entered into the program.

Overall, the feedback was very good and the staff at the clinic are very pleased with the program and believe it is a significant upgrade from the old database management system.

8.4: Acceptance testing

I also asked the owner of the company, Kirsten Frener about the program to see what she thinks about it.

She gave me very positive comments about the program. She told me that the GUI was easy to use, and it allows her to do everything that she wants. She commented however, that the GUI was too grey and could use colour, in addition the program should create a backup and use encryption for the usernames and passwords. She told me that the large amount of validation testing was extremely useful throughout the program and did a wide range of checks. The outputs were extremely effective and easy to copy over to other parts of the program and she told me that it was a helpful addition to the program as well as the outputs within the actual program to see the table. The BMI calculator is also very useful. There were very few bugs throughout the program and the entirety of the program was very quick to use.

Overall, she believes this is a massive upgrade over the previous system, she plans to implement the program as soon as possible with all the information from their old data.

Candidate number:
3097

8.5: Evidence of completed success criteria

Clients

The program must allow the user to add a client to the clients table if all information added is valid - SUCCESS

See test 45

The program must validate all data inputted into the clients table - SUCCESS

See the validation section of white box testing

The program must list all clients in a table - SUCCESS

See test 44

The program must allow the user to search for a clients of a specific keyword in a specific column and output it into the program and into a text file - SUCCESS

See test 48

The program must allow a user to add a client and create a medical record connected to that client's primary key at the same time - SUCCESS

Clients	
ClientID	MedicalRecordID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
17	17
19	19
20	20

The program must allow a user to edit a client - SUCCESS

See test 46

The program must allow a user to delete a client - SUCCESS

See test 47

The program must list all client information in a clear fashion - SUCCESS

See test 44

Candidate number:
3097

Medical records

The program must validate all data inputted into the medical records table - SUCCESS

```
if self.sexvariable.get() == "":
    pass
else:
    self.cursor.execute("""UPDATE medicalrecords SET Sex = ? WHERE MedicalRecordID = ?""",
                        (self.sexvariable.get(), medicalrecordvariable,))

if self.gendervariable.get() == "":
    pass
else:
    self.cursor.execute("""UPDATE medicalrecords SET Gender = ? WHERE MedicalRecordID = ?""",
                        (self.gendervariable.get(), medicalrecordvariable,))

if self.bloodtypevariable.get() == "":
    pass
else:
    self.cursor.execute("""UPDATE medicalrecords SET BloodType = ? WHERE MedicalRecordID = ?""",
                        (self.bloodtypevariable.get(), medicalrecordvariable,))

match = re.search(pattern, self.height_box.get())
if self.height_box.get() == "":
    pass
elif match:
    if 1 < float(self.height_box.get()) < 2.5:
        self.cursor.execute("""UPDATE medicalrecords SET Height = ? WHERE MedicalRecordID = ?""",
                            (self.height_box.get(), medicalrecordvariable,))
    else:
        messagebox.showinfo("Error", "Height is an invalid amount")
else:
    messagebox.showinfo("Error", "Height contains non numerical characters")

match = re.search(pattern, self.mass_box.get())
if self.mass_box.get() == "":
    pass
elif match:
    if 30 < float(self.mass_box.get()) < 500:
        self.cursor.execute("""UPDATE medicalrecords SET Mass = ? WHERE MedicalRecordID = ?""",
                            (self.mass_box.get(), medicalrecordvariable,))
    else:
        messagebox.showinfo("Error", "Mass is an invalid amount")
else:
    messagebox.showinfo("Error", "Mass contains non numerical characters")
```

Candidate number:
3097

The program must list all medical records in a table - SUCCESS

MedicalRecordID	ClientID	Sex	Gender	Blood Type	Height/(m)	Mass/(kg)
1	1	M	Male	B-	1.77	75.0
2	2	M	Male	A+	1.73	67.0
3	3	F	Female	O-	1.67	60.0
4	4	F	Female	O+	1.6	52.0
5	5	M	Male	AB+	1.83	101.0
6	6	M	Male	B+	1.8	70.0
7	7	F	Female	B-	1.65	58.0
8	8	M	Male	O-	1.78	64.0
17	17	None	None	None	None	None
19	19	None	None	None	None	None
20	20	None	None	None	None	None

The program must allow the user to search for a medical records of a specific keyword in a specific column and output it into the program and into a text file - SUCCESS

MedicalRecordID	ClientID	Sex	Gender	Blood Type	Height/(m)	Mass/(kg)
3	3	F	Female	O-	1.67	60.0
8	8	M	Male	O-	1.78	64.0

Candidate number:
3097

The program must automatically create a medical record when a respective client is added and connect to that client - SUCCESS

MedicalRecordID	ClientID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8

The program must allow a user to edit a medical record - SUCCESS

The screenshot shows a Windows application window titled "Physio Database". The window has a menu bar with "Clients", "Appointments", "Staff", "Medical Records", and "Finances". The "Medical Records" tab is selected, displaying a table of medical records with columns: MedicalRecordID, ClientID, Sex, Gender, Blood Type, Height/(m), and Mass/(kg). The data is as follows:

MedicalRecordID	ClientID	Sex	Gender	Blood Type	Height/(m)	Mass/(kg)
1	1	M	Male	B-	1.77	75.0
2	2	M	Male	A+	1.73	67.0
3	3	F	Female	O-	1.67	60.0
4	4	F	Female	O+	1.6	52.0
5	5	M	Male	AB+	1.83	101.0
6	6	M	Male	B+	1.8	70.0
7	7	F	Female	B-	1.65	58.0
8	8	M	Male	O-	1.78	64.0

To the right of the table are several buttons: "Search", "Blood Type", "Edit a medical record", "Delete selected medical record", and "Calculate BMI". A search bar is also present.

An edit dialog box is open over the table, containing fields for "MedicalRecordID" (set to 1), "Sex" (set to F), "Gender" (set to Male), "Blood Type" (set to B-), "Height (m)" (set to 1.77), and "Mass (kg)" (set to 75.0). At the bottom of the dialog is a button labeled "Edit Medical Record".

Below the main table, there is another table with the same structure and data, showing additional rows (17, 19, 20) with "None" values in most fields.

Candidate number:
3097

The program must allow a user to delete a medical record - SUCCESS

A screenshot of a Windows application window titled "Physio Database". The window has a menu bar with "Clients", "Appointments", "Staff", "Medical Records", and "Finances". The "Medical Records" tab is selected. Below the menu is a sub-menu titled "Medical Records" with options: "Search", "Blood Type", "Edit a medical record", "Delete selected medical record", and "Calculate BMI".

The main area contains a table with the following data:

MedicalRecordID	ClientID	Sex	Gender	Blood Type	Height/(m)	Mass/(kg)
1	1	F	Male	B-	1.77	75.0
2	2	M	Male	A+	1.73	67.0
3	3	F	Female	O-	1.67	60.0
4	4	F	Female	O+	1.6	52.0
5	5	M	Male	AB+	1.83	101.0
6	6	M	Male	B+	1.8	70.0
7	7	F	Female	B-	1.65	58.0
8	8	M	Male	O-	1.78	64.0
17	17	None	None	None	None	None
19	19	None	None	None	None	None
20	20	None	None	None	None	None

A second screenshot of the "Physio Database" application window, identical to the first one. It shows the same table of medical records. The context menu options are visible on the right side of the screen, with the "Delete selected medical record" option highlighted by a mouse cursor.

MedicalRecordID	ClientID	Sex	Gender	Blood Type	Height/(m)	Mass/(kg)
1	1	F	Male	B-	1.77	75.0
2	2	M	Male	A+	1.73	67.0
3	3	F	Female	O-	1.67	60.0
4	4	F	Female	O+	1.6	52.0
5	5	M	Male	AB+	1.83	101.0
6	6	M	Male	B+	1.8	70.0
7	7	F	Female	B-	1.65	58.0
8	8	M	Male	O-	1.78	64.0
17	17	None	None	None	None	None
19	19	None	None	None	None	None

Candidate number:
3097

The program must list all medical record information in a clear fashion - SUCCESS

MedicalRecordID	ClientID	Sex	Gender	Blood Type	Height/(m)	Mass/(kg)
1	1	M	Male	B-	1.77	75.0
2	2	M	Male	A+	1.73	67.0
3	3	F	Female	O-	1.67	60.0
4	4	F	Female	O+	1.6	52.0
5	5	M	Male	AB+	1.83	101.0
6	6	M	Male	B+	1.8	70.0
7	7	F	Female	B-	1.65	58.0
8	8	M	Male	O-	1.78	64.0
17	17	None	None	None	None	None
19	19	None	None	None	None	None
20	20	None	None	None	None	None

Search: MedicalRecordID

The program must allow a user to calculate the BMI of a selected medical record - SUCCESS
See test 50.

Candidate number:
3097

Appointments

The program must allow the user to add an appointment to the appointments table if all information added is valid - SUCCESS

Physio Database

Clients Appointments Staff Medical Records Finances

Appointments

AppointmentID	ClientID	StaffID	TransactionID	Start Date And Time	End Date And Time	Appointment Status
1	1	3	1	2019-04-04 11:00:00	2019-04-04 12:00:00	Cancelled
2	8	4	2	2019-04-04 13:00:00	2019-04-04 13:30:00	Active
3	3	8	3	2019-04-04 12:45:00	2019-04-04 13:15:00	Active
4	1	9	4	2019-04-05 13:00:00	2019-04-05 14:00:00	Active
17	6	8	20	2019-03-11 14:00:00	2019-03-11 15:00:00	Active
18	7	3	21	2019-03-11 15:00:00	2019-03-11 16:00:00	Active
19	7	8	22	2019-03-12 16:00:00	2019-03-12 17:00:00	Active
20	4	4	23	2019-03-09 15:00:00	2019-03-09 16:00:00	Active
21	7	4	24	2019-03-13 13:00:00	2019-03-13 14:00:00	Active
22	1	8	25	2019-03-13 15:00:00	2019-03-13 16:00:00	Cancelled

Search: AppointmentID

Physio Database

Clients Appointments Staff Medical Records Finances

Appointments

AppointmentID	ClientID	StaffID	TransactionID	Start Date And Time	End Date And Time	Appointment Status
1	1	3	1	2019-04-04 11:00:00	2019-04-04 12:00:00	Cancelled
2	8	4	2	2019-04-04 13:00:00	2019-04-04 13:30:00	Active
3	3	8	3	2019-04-04 12:45:00	2019-04-04 13:15:00	Active
4	1	9	4	2019-04-05 13:00:00	2019-04-05 14:00:00	Active
17	6	8	20	2019-03-11 14:00:00	2019-03-11 15:00:00	Active
18	7	3	21	2019-03-11 15:00:00	2019-03-11 16:00:00	Active
19	7	8	22	2019-03-12 16:00:00	2019-03-12 17:00:00	Active
20	4	4	23	2019-03-09 15:00:00	2019-03-09 16:00:00	Active
21	7	4	24	2019-03-13 13:00:00	2019-03-13 14:00:00	Active
22	1	8	25	2019-03-13 15:00:00	2019-03-13 16:00:00	Cancelled
28	1	8	28	2019-03-15 15:00:00	2019-03-15 16:00:00	Active

Search: AppointmentID

Candidate number:

3097

The program must validate all data inputted into the appointments table - SUCCESS

```
try:
    datetime.strptime(self.startdateandtime_box.get(), '%Y-%m-%d %H:%M:%S')
try:
    datetime.strptime(self.enddateandtime_box.get(), '%Y-%m-%d %H:%M:%S')
    self.cursor.execute(
        """INSERT INTO appointments(ClientID, StaffID, StartDateAndTime, EndDateAndTime, AppointmentStatus) VALUES (?, ?, ?, ?, ?)""",
        (clientvariable, staffvariable, self.startdateandtime_box.get(),
         self.enddateandtime_box.get(), 'Active'))
    self.cursor.execute("""SELECT AppointmentID FROM appointments ORDER BY AppointmentID DESC LIMIT 1""")
    appointmentid = self.cursor.fetchone()
    appointmentid = appointmentid[0]
now = datetime.now()
now = now.strftime('%Y-%m-%d %H:%M:%S')
self.cursor.execute("""INSERT INTO transactions(DateAndTime, TransactionStatus) VALUES (?, ?)""", (now, "Successful"))
self.cursor.execute(
    """SELECT TransactionID FROM transactions ORDER BY TransactionID DESC LIMIT 1""")
transactionid = self.cursor.fetchone()
transactionid = transactionid[0]
self.cursor.execute("""UPDATE appointments SET TransactionID = ? WHERE AppointmentID = ?""",
                    (transactionid, appointmentid))
self.db.commit()
self.create_appointment_window.destroy()
AppointmentsFrame.update_table(self)
except ValueError:
    messagebox.showinfo("Error", "End date and time incorrect format (YYYY-MM-DD HH:MM:SS)")
except ValueError:
    messagebox.showinfo("Error", "Start date and time incorrect format (YYYY-MM-DD HH:MM:SS)")
```

The program must list all appointments in a table - SUCCESS

AppointmentID	ClientID	StaffID	TransactionID	Start Date And Time	End Date And Time	Appointment Status
1	1	3	1	2019-04-04 11:00:00	2019-04-04 12:00:00	Cancelled
2	8	4	2	2019-04-04 13:00:00	2019-04-04 13:30:00	Active
3	3	8	3	2019-04-04 12:45:00	2019-04-04 13:15:00	Active
4	1	9	4	2019-04-05 13:00:00	2019-04-05 14:00:00	Active
17	6	8	20	2019-03-11 14:00:00	2019-03-11 15:00:00	Active
18	7	3	21	2019-03-11 15:00:00	2019-03-11 16:00:00	Active
19	7	8	22	2019-03-12 16:00:00	2019-03-12 17:00:00	Active
20	4	4	23	2019-03-09 15:00:00	2019-03-09 16:00:00	Active
21	7	4	24	2019-03-13 13:00:00	2019-03-13 14:00:00	Active
22	1	8	25	2019-03-13 15:00:00	2019-03-13 16:00:00	Cancelled

Candidate number:
3097

The program must allow the user to search for an appointment of a specific keyword in a specific column and output it into the program and into a text file - SUCCESS

Physio Database						
Clients		Appointments		Staff		Medical Records
Appointments						
AppointmentID	ClientID	StaffID	TransactionID	Start Date And Time	End Date And Time	Appointment Status
2	8	4	2	2019-04-04 13:00:00	2019-04-04 13:30:00	Active
3	3	8	3	2019-04-04 12:45:00	2019-04-04 13:15:00	Active
4	1	9	4	2019-04-05 13:00:00	2019-04-05 14:00:00	Active
17	6	8	20	2019-03-11 14:00:00	2019-03-11 15:00:00	Active
18	7	3	21	2019-03-11 15:00:00	2019-03-11 16:00:00	Active
19	7	8	22	2019-03-12 16:00:00	2019-03-12 17:00:00	Active
20	4	4	23	2019-03-09 15:00:00	2019-03-09 16:00:00	Active
21	7	4	24	2019-03-13 13:00:00	2019-03-13 14:00:00	Active
24	1	8	28	2019-03-15 15:00:00	2019-03-15 16:00:00	Active

Search: Appointment Status

The program must allow a user to add an appointment and create a transaction connected to that appointment's primary key at the same time in addition to saving the date and time of that transaction - SUCCESS

24	1	8	28	2019-03-15 15:00:00	2019-03-15 16:00:00	Active
28	None			2019-03-30 21:13:29	Successful	

Candidate number:
3097

The program must allow a user to cancel an appointment – SUCCESS

AppointmentID	ClientID	StaffID	TransactionID	Start Date And Time	End Date And Time	Appointment Status
1	1	3	1	2019-04-04 11:00:00	2019-04-04 12:00:00	Cancelled
2	8	4	2	2019-04-04 13:00:00	2019-04-04 13:30:00	Active
3	3	8	3	2019-04-04 12:45:00	2019-04-04 13:15:00	Active
4	1	9	4	2019-04-05 13:00:00	2019-04-05 14:00:00	Active
17	6	8	20	2019-03-11 14:00:00	2019-03-11 15:00:00	Active
18	7	3	21	2019-03-11 15:00:00	2019-03-11 16:00:00	Active
19	7	8	22	2019-03-12 16:00:00	2019-03-12 17:00:00	Active
20	4	4	23	2019-03-09 15:00:00	2019-03-09 16:00:00	Active
21	7	4	24	2019-03-13 13:00:00	2019-03-13 14:00:00	Active
22	1	8	25	2019-03-13 15:00:00	2019-03-13 16:00:00	Cancelled
24	1	8	28	2019-03-15 15:00:00	2019-03-15 16:00:00	Active

AppointmentID	ClientID	StaffID	TransactionID	Start Date And Time	End Date And Time	Appointment Status
1	1	3	1	2019-04-04 11:00:00	2019-04-04 12:00:00	Cancelled
2	8	4	2	2019-04-04 13:00:00	2019-04-04 13:30:00	Active
3	3	8	3	2019-04-04 12:45:00	2019-04-04 13:15:00	Active
4	1	9	4	2019-04-05 13:00:00	2019-04-05 14:00:00	Active
17	6	8	20	2019-03-11 14:00:00	2019-03-11 15:00:00	Active
18	7	3	21	2019-03-11 15:00:00	2019-03-11 16:00:00	Active
19	7	8	22	2019-03-12 16:00:00	2019-03-12 17:00:00	Active
20	4	4	23	2019-03-09 15:00:00	2019-03-09 16:00:00	Active
21	7	4	24	2019-03-13 13:00:00	2019-03-13 14:00:00	Active
22	1	8	25	2019-03-13 15:00:00	2019-03-13 16:00:00	Cancelled
24	1	8	28	2019-03-15 15:00:00	2019-03-15 16:00:00	Cancelled

Candidate number:
3097

The program must list all appointment information in a clear fashion – SUCCESS

AppointmentID	ClientID	StaffID	TransactionID	Start Date And Time	End Date And Time	Appointment Status
1	1	3	1	2019-04-04 11:00:00	2019-04-04 12:00:00	Cancelled
2	8	4	2	2019-04-04 13:00:00	2019-04-04 13:30:00	Active
3	3	8	3	2019-04-04 12:45:00	2019-04-04 13:15:00	Active
4	1	9	4	2019-04-05 13:00:00	2019-04-05 14:00:00	Active
17	6	8	20	2019-03-11 14:00:00	2019-03-11 15:00:00	Active
18	7	3	21	2019-03-11 15:00:00	2019-03-11 16:00:00	Active
19	7	8	22	2019-03-12 16:00:00	2019-03-12 17:00:00	Active
20	4	4	23	2019-03-09 15:00:00	2019-03-09 16:00:00	Active
21	7	4	24	2019-03-13 13:00:00	2019-03-13 14:00:00	Active
22	1	8	25	2019-03-13 15:00:00	2019-03-13 16:00:00	Cancelled

Transactions

The program must allow the user to add a transaction to the transactions table if all information added is valid - SUCCESS

TransactionID	Difference/£	Date And Time	Transaction Status
1	60.0	2019-03-04 14:55:25	Successful
2	25.0	2019-03-04 14:56:03	Successful
3	25.0	2019-03-04 14:56:51	Successful
4	50.0	2019-03-04 14:57:32	Successful
19	56.0	2019-03-11 16:00:00	Successful
20	50.0	2019-03-11 17:03:52	Successful
21	57.0	2019-03-11 17:04:30	Successful
22	75.0	2019-03-11 17:05:08	Successful
23	60.0	2019-03-11 17:05:48	Successful
24	55.0	2019-03-11 17:06:15	Successful
25	75.0	2019-03-11 17:06:35	Successful
26	-500.0	2019-03-11 18:00:00	Successful
28	None	2019-03-30 21:13:29	Successful

Candidate number:
3097

Physio Database				
Clients Appointments Staff Medical Records Finances				
Finances	TransactionID	Difference/£	Date And Time	Transaction Status
1	60.0	2019-03-04 14:55:25	Successful	
2	25.0	2019-03-04 14:56:03	Successful	
3	25.0	2019-03-04 14:56:51	Successful	
4	50.0	2019-03-04 14:57:32	Successful	
19	56.0	2019-03-11 16:00:00	Successful	
20	50.0	2019-03-11 17:03:52	Successful	
21	57.0	2019-03-11 17:04:30	Successful	
22	75.0	2019-03-11 17:05:08	Successful	
23	60.0	2019-03-11 17:05:48	Successful	
24	55.0	2019-03-11 17:06:15	Successful	
25	75.0	2019-03-11 17:06:35	Successful	
26	-500.0	2019-03-11 18:00:00	Successful	
28	None	2019-03-30 21:13:29	Successful	
30	50.5	2019-03-11 19:00:00	Successful	

The program must validate all data inputted into the transactions table - SUCCESS

```
pattern = re.compile('^\d+(\.\d+)?')
match = re.search(pattern, self.difference_box.get())
if self.difference_box.get() == "":
    pass
else:
    if match:
        self.cursor.execute("""UPDATE transactions SET Difference = ? WHERE TransactionID = ?""",
                           (self.difference_box.get(), transactionvariable,))
    else:
        messagebox.showinfo("Error", "Transaction incorrect format (+/-DD)")

if self.dateandtime_box.get() == "":
    pass
else:
    try:
        datetime.strptime(self.dateandtime_box.get(), '%Y-%m-%d %H:%M:%S')
        self.cursor.execute("""UPDATE transactions SET DateAndTime = ? WHERE TransactionID = ?""",
                           (self.dateandtime_box.get(), transactionvariable,))
    except ValueError:
        messagebox.showinfo("Error", "Date and time incorrect format (YYYY-MM-DD HH:MM:SS)")
```

Candidate number:
3097

The program must list all transactions in a table - SUCCESS

TransactionID	Difference/£	Date And Time	Transaction Status
1	60.0	2019-03-04 14:55:25	Sucessful
2	25.0	2019-03-04 14:56:03	Sucessful
3	25.0	2019-03-04 14:56:51	Sucessful
4	50.0	2019-03-04 14:57:32	Sucessful
19	56.0	2019-03-11 16:00:00	Sucessful
20	50.0	2019-03-11 17:03:52	Sucessful
21	57.0	2019-03-11 17:04:30	Sucessful
22	75.0	2019-03-11 17:05:08	Sucessful
23	60.0	2019-03-11 17:05:48	Sucessful
24	55.0	2019-03-11 17:06:15	Sucessful
25	75.0	2019-03-11 17:06:35	Sucessful
26	-500.0	2019-03-11 18:00:00	Sucessful
28	None	2019-03-30 21:13:29	Sucessful
30	50.5	2019-03-11 19:00:00	Sucessful

Search: TransactionID

Save transactions:

The program must allow the user to search for a transactions of a specific keyword in a specific column and output it into the program and into a text file - SUCCESS

TransactionID	Difference/£	Date And Time	Transaction Status
4	50.0	2019-03-04 14:57:32	Sucessful
20	50.0	2019-03-11 17:03:52	Sucessful
26	-500.0	2019-03-11 18:00:00	Sucessful
30	50.5	2019-03-11 19:00:00	Sucessful

Search: Difference

Save transactions:

Candidate number:
3097

The program must allow a user to add a transaction - SUCCESS

Finances			
TransactionID	Difference/£	Date And Time	Transaction Status
1	60.0	2019-03-04 14:55:25	Successful
2	25.0	2019-03-04 14:56:03	Successful
3	25.0	2019-03-04 14:56:51	Successful
4	50.0	2019-03-04 14:57:32	Successful
19	56.0	2019-03-11 16:00:00	Successful
20	50.0	2019-03-11 17:03:52	Successful
21	57.0	2019-03-11 17:04:30	Successful
22	75.0	2019-03-11 17:05:08	Successful
23	60.0	2019-03-11 17:05:48	Successful
24	55.0	2019-03-11 17:06:15	Successful
25	75.0	2019-03-11 17:06:35	Successful
26	-500.0	2019-03-11 18:00:00	Successful
28	None	2019-03-30 21:13:29	Successful
30	50.5	2019-03-11 19:00:00	Successful

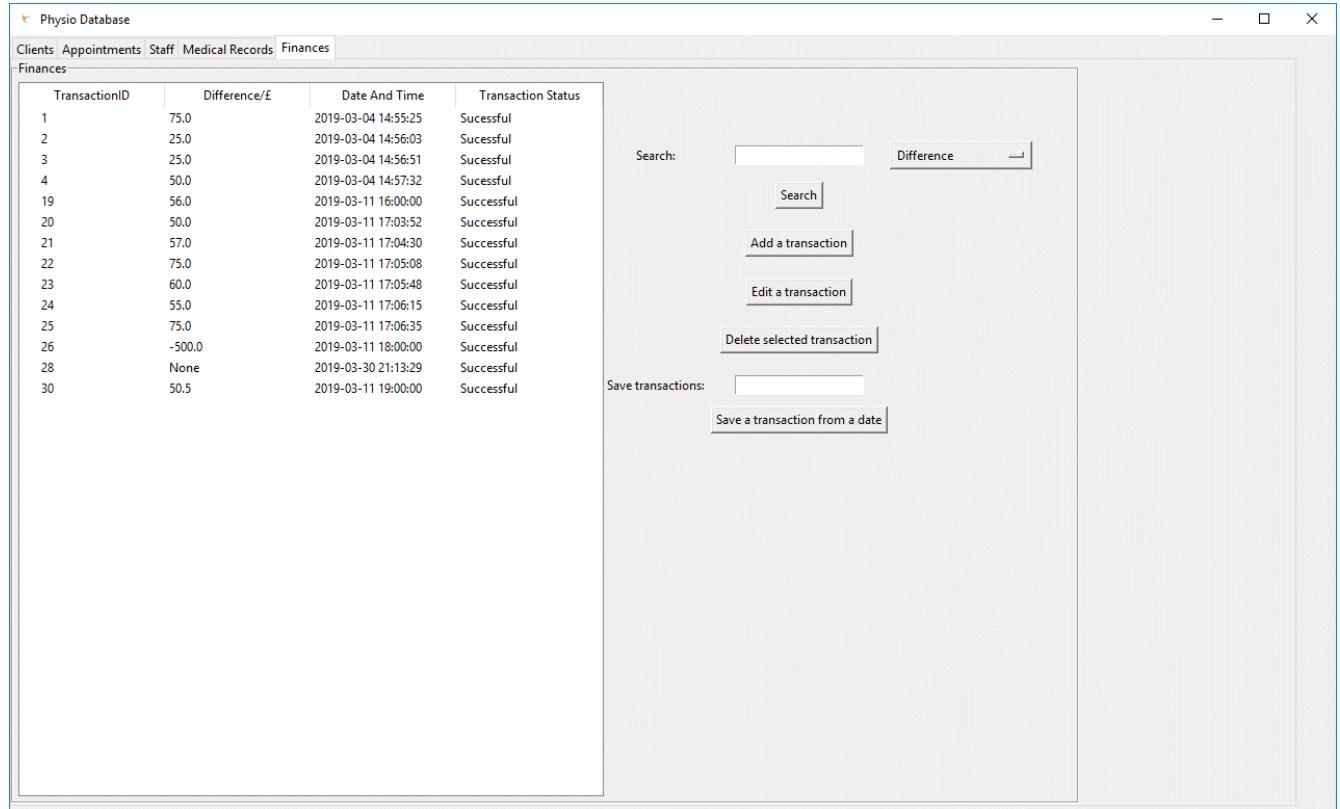
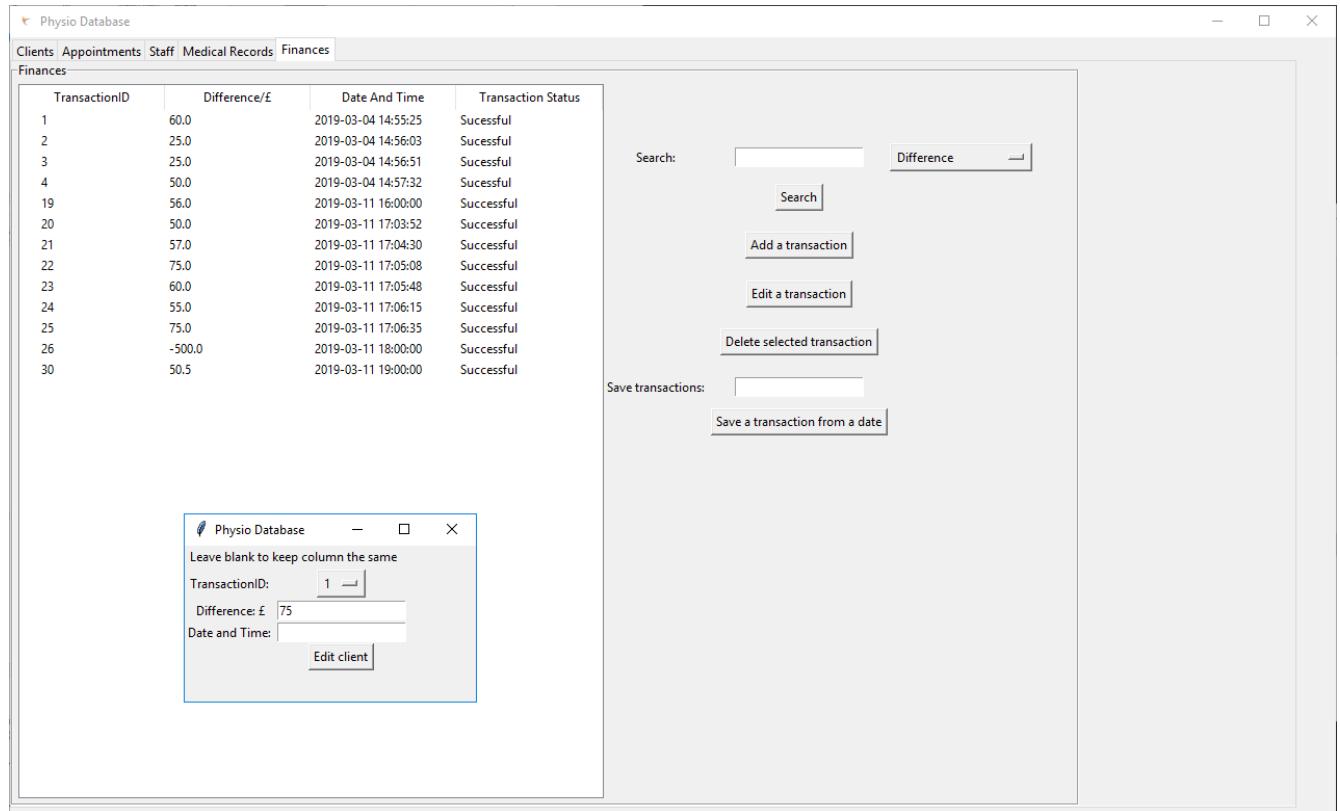
Finances			
TransactionID	Difference/£	Date And Time	Transaction Status
1	60.0	2019-03-04 14:55:25	Successful
2	25.0	2019-03-04 14:56:03	Successful
3	25.0	2019-03-04 14:56:51	Successful
4	50.0	2019-03-04 14:57:32	Successful
19	56.0	2019-03-11 16:00:00	Successful
20	50.0	2019-03-11 17:03:52	Successful
21	57.0	2019-03-11 17:04:30	Successful
22	75.0	2019-03-11 17:05:08	Successful
23	60.0	2019-03-11 17:05:48	Successful
24	55.0	2019-03-11 17:06:15	Successful
25	75.0	2019-03-11 17:06:35	Successful
26	-500.0	2019-03-11 18:00:00	Successful
28	None	2019-03-30 21:13:29	Successful
30	50.5	2019-03-11 19:00:00	Successful

Physio Database

Difference: £ 50.5
Date and Time: 2019-03-11 19:00:00
Add transaction

Candidate number:
3097

The program must allow a user to edit a transaction - SUCCESS



Candidate number:
3097

The program must allow a user to delete a transaction - SUCCESS

Physio Database

Clients Appointments Staff Medical Records Finances

Finances

TransactionID	Difference/£	Date And Time	Transaction Status
1	75.0	2019-03-04 14:55:25	Sucessful
2	25.0	2019-03-04 14:56:03	Sucessful
3	25.0	2019-03-04 14:56:51	Sucessful
4	50.0	2019-03-04 14:57:32	Sucessful
19	56.0	2019-03-11 16:00:00	Successful
20	50.0	2019-03-11 17:03:52	Successful
21	57.0	2019-03-11 17:04:30	Successful
22	75.0	2019-03-11 17:05:08	Successful
23	60.0	2019-03-11 17:05:48	Successful
24	55.0	2019-03-11 17:06:15	Successful
25	75.0	2019-03-11 17:06:35	Successful
26	-500.0	2019-03-11 18:00:00	Successful
28	None	2019-03-30 21:13:29	Successful
30	50.5	2019-03-11 19:00:00	Successful

Search: Difference

Save transactions:

Physio Database

Clients Appointments Staff Medical Records Finances

Finances

TransactionID	Difference/£	Date And Time	Transaction Status
1	75.0	2019-03-04 14:55:25	Sucessful
2	25.0	2019-03-04 14:56:03	Sucessful
3	25.0	2019-03-04 14:56:51	Sucessful
4	50.0	2019-03-04 14:57:32	Sucessful
19	56.0	2019-03-11 16:00:00	Successful
20	50.0	2019-03-11 17:03:52	Successful
21	57.0	2019-03-11 17:04:30	Successful
22	75.0	2019-03-11 17:05:08	Successful
23	60.0	2019-03-11 17:05:48	Successful
24	55.0	2019-03-11 17:06:15	Successful
25	75.0	2019-03-11 17:06:35	Successful
26	-500.0	2019-03-11 18:00:00	Successful
28	None	2019-03-30 21:13:29	Successful

Search: Difference

Save transactions:

Candidate number:
3097

The program must allow a user to output all transactions of a particular date and output the total sum of that date - SUCCESS

See test 49.

The program must list all transaction information in a clear fashion - SUCCESS

The screenshot shows a software application window titled "Physio Database". The window has a menu bar with "Clients", "Appointments", "Staff", "Medical Records", and "Finances". The "Finances" tab is selected, showing a table of transaction history. The table has columns: TransactionID, Difference/£, Date And Time, and Transaction Status. The data in the table is as follows:

TransactionID	Difference/£	Date And Time	Transaction Status
1	75.0	2019-03-04 14:55:25	Sucessful
2	25.0	2019-03-04 14:56:03	Sucessful
3	25.0	2019-03-04 14:56:51	Sucessful
4	50.0	2019-03-04 14:57:32	Sucessful
19	56.0	2019-03-11 16:00:00	Successful
20	50.0	2019-03-11 17:03:52	Successful
21	57.0	2019-03-11 17:04:30	Successful
22	75.0	2019-03-11 17:05:08	Successful
23	60.0	2019-03-11 17:05:48	Successful
24	55.0	2019-03-11 17:06:15	Successful
25	75.0	2019-03-11 17:06:35	Successful
26	-500.0	2019-03-11 18:00:00	Successful
28	None	2019-03-30 21:13:29	Successful

Below the table are several buttons:

- Search: [Search] button
- Difference: [Difference] dropdown
- Add a transaction
- Edit a transaction
- Delete selected transaction
- Save transactions: [Save a transaction from a date] button

Candidate number:

3097

Staff

The program must allow the user to add a staff to the staff table if all information added is valid - SUCCESS

Physio Database

Clients Appointments Staff Medical Records Finances

Staff

StaffID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode	Username	Position
1	Dr	Kirsten	Frerer	2001-01-01	07901611233	10 Windsor Hill	BT341ER	owneruser	Owner
2	Mr	Scott	Randall	1946-04-22	07916795451	92 Sea Road	CO4 3AX	itusername	IT
3	Dr	Freya	Winter	1951-08-31	07750976324	1 Foregate Street	KT11 1EF	nurseuser	Nurse
4	Dr	Adam	Pochinki	1966-08-30	07744443297	97 Crown Street	SO32 5EL	physiouser	Physiotherapist
5	Mr	Jay	Baldwin	1977-01-03	07814692250	77 East Street	SN9 2TX	receptionistuser	Receptionist
6	Mrs	Laura	Lyons	1959-10-29	07825964889	14 Warren St	YO8 2NG	llyons886	IT
7	Ms	Chloe	Coleman	1973-11-28	07005303213	21 Folestone Road	BA14 0PA	Starman	Nurse
8	Dr	Hayden	Oliver	1972-02-22	07819248729	19 City Walls Rd	SY7 2DD	Agescits1972	Physiotherapist
9	Mr	Jamie	Webb	1986-04-25	07842073019	43 Bouvierie Road	SY4 3UB	Haters1986	Receptionist

Search: StaffID

Physio Database

Position: Nurse

Prefix: Dr

First Name: Ethan

Surname: Shaw

DOB (YYYY-MM-DD): 1937-10-26

Telephone: 07753920719

Address: 29 Wrexham Rd

Postcode: LL55 7SD

Username: ethanuser

Password: ethanpass

Physio Database

Clients Appointments Staff Medical Records Finances

Staff

StaffID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode	Username	Position
1	Dr	Kirsten	Frerer	2001-01-01	07901611233	10 Windsor Hill	BT341ER	owneruser	Owner
2	Mr	Scott	Randall	1946-04-22	07916795451	92 Sea Road	CO4 3AX	itusername	IT
3	Dr	Freya	Winter	1951-08-31	07750976324	1 Foregate Street	KT11 1EF	nurseuser	Nurse
4	Dr	Adam	Pochinki	1966-08-30	07744443297	97 Crown Street	SO32 5EL	physiouser	Physiotherapist
5	Mr	Jay	Baldwin	1977-01-03	07814692250	77 East Street	SN9 2TX	receptionistuser	Receptionist
6	Mrs	Laura	Lyons	1959-10-29	07825964889	14 Warren St	YO8 2NG	llyons886	IT
7	Ms	Chloe	Coleman	1973-11-28	07005303213	21 Folestone Road	BA14 0PA	Starman	Nurse
8	Dr	Hayden	Oliver	1972-02-22	07819248729	19 City Walls Rd	SY7 2DD	Agescits1972	Physiotherapist
9	Mr	Jamie	Webb	1986-04-25	07842073019	43 Bouvierie Road	SY4 3UB	Haters1986	Receptionist
11	Dr	Ethan	Shaw	1937-10-26	07753920719	29 Wrexham Rd	LL55 7SD	ethanuser	Nurse

Search: StaffID

Candidate number:
3097

The program must validate all data inputted into the staff table - SUCCESS

```

if self.first_name_box.get().isalpha():
    if 20 > len(self.first_name_box.get()) > 2:
        if self.surname_box.get().isalpha():
            if 20 > len(self.surname_box.get()) > 2:
                pattern = r'((19|20)\d{4})/(.)([0-9]{1}|[012])[-.](0[1-9]|1[2][0-9])3[01])'
                match = re.search(pattern, self.dob_box.get())
                if match:
                    if 10 < len(self.telephone_box.get()) < 12:
                        if self.telephone_box.get().isdigit():
                            if 50 > len(self.address_box.get()) > 5:
                                pattern = r'([GIR][ABE-Z-[QVWX][A-Z-][IJKZ][0-9]?)[((A-Z-[QVWX][A-Z-][IJKZ][0-9]?))((A-Z-[QVWX][A-Z-][IJKZ][0-9]?)[(A-B-E-HMNPFRVWXY]))((?=( ))?[0-9][A-Z-[CIRNOV][21] *'
                                match = re.search(pattern, self.postcode_box.get())
                                if match:
                                    if len(self.username_box.get()) > 6:
                                        if len(self.password_box.get()) > 6:
                                            try:
                                                self.cursor.execute(
                                                    """INSERT INTO Staff(Prefix, FirstName, Surname, DOB, Telephone, Address,
                                                       Postcode, Username, LoggedIn, Password) VALUES (?,?,?,?,?,?,?,?,?,?)""",
                                                    (self.variable.get(), self.prefix_box.get(),
                                                     self.surname_box.get(),
                                                     self.dob_box.get(), self.telephone_box.get(),
                                                     self.address_box.get(),
                                                     self.postcode_box.get(), self.username_box.get(),
                                                     self.positionvariable.get(), False,
                                                     self.password_box.get()))
                                                self.db.commit()
                                                self.create_staff_window.destroy()
                                                StaffFrame.update_table(self)
                                            except sqlite3.IntegrityError:
                                                messagebox.showinfo("Error", "Username not unique")
                                            else:
                                                messagebox.showinfo("Error", "Password too short")
                                        else:
                                            messagebox.showinfo("Error", "Username too short")
                                    else:
                                        messagebox.showinfo("Error", "Postcode incorrect format")
                                else:
                                    messagebox.showinfo("Error", "Address is an invalid length")
                            else:
                                messagebox.showinfo("Error", "Telephone number contains non numeric characters")
                            else:
                                messagebox.showinfo("Error", "Telephone number is an invalid length. Must be 11 digits")
                        else:
                            messagebox.showinfo("Error", "DOB incorrect format")
                    else:
                        messagebox.showinfo("Error", "Surname is an invalid length")
                else:
                    messagebox.showinfo("Error", "Surname contains non alphabetical characters")
            else:
                messagebox.showinfo("Error", "First name is an invalid length")
        else:
            messagebox.showinfo("Error", "First name contains non alphabetical characters")
    else:
        messagebox.showinfo("Error", "First name contains non alphabetical characters")
else:
    messagebox.showinfo("Error", "First name contains non alphabetical characters")

```

The program must list all staffs in a table - SUCCESS

StaffID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode	Username	Position
1	Dr	Kirsten	Frener	2001-01-01	07901611233	10 Windsor Hill	BT341ER	owneruser	Owner
2	Mr	Scott	Randall	1946-04-22	07916795451	92 Sea Road	CO4 3AX	itusername	IT
3	Dr	Freya	Winter	1951-08-31	07750976324	1 Foregate Street	KT11 1EF	nurseuser	Nurse
4	Dr	Adam	Pochinki	1966-08-30	07744443297	97 Crown Street	SO32 5EL	physiouser	Physiotherapist
5	Mr	Jay	Baldwin	1977-01-03	07814692250	77 East Street	SN9 2TX	receptionistuser	Receptionist
6	Mrs	Laura	Lyons	1959-10-29	07825964889	14 Warren St	YO8 2NG	llyons886	IT
7	Ms	Chloe	Coleman	1973-11-28	07005303213	21 Folestone Road	BA14 0PA	Starmac	Nurse
8	Dr	Hayden	Oliver	1972-02-22	07819248729	19 City Walls Rd	SY7 2DD	Agescits1972	Physiotherapist
9	Mr	Jamie	Webb	1986-04-25	07842073019	43 Bouvierie Road	SY4 3UB	Haters1986	Receptionist
11	Dr	Ethan	Shaw	1937-10-26	07753920719	29 Wrexham Rd	LL55 7SD	ethanuser	Nurse

Search: StaffID

Candidate number:
3097

The program must allow the user to search for a staff of a specific keyword in a specific column and output it into the program and into a text file - SUCCESS

StaffID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode	Username	Position
2	Mr	Scott	Randall	1946-04-22	07916795451	92 Sea Road	CO4 3AX	itusername	IT
3	Dr	Freya	Winter	1951-08-31	07750976324	1 Foregate Street	KT11 1EF	nurseuser	Nurse
4	Dr	Adam	Pochinki	1966-08-30	07744443297	97 Crown Street	SO32 5EL	physiouser	Physiotherapist
5	Mr	Jay	Baldwin	1977-01-03	07814692250	77 East Street	SN9 2TX	receptionistuser	Receptionist
6	Mrs	Laura	Lyons	1959-10-29	07825964889	14 Warren St	YO8 2NG	llyons86	IT
7	Ms	Chloe	Coleman	1973-11-28	07005303213	21 Folestone Road	BA14 0PA	Starman	Nurse
8	Dr	Hayden	Oliver	1972-02-22	07819248729	19 City Walls Rd	SY7 2DD	Agescits1972	Physiotherapist
9	Mr	Jamie	Webb	1986-04-25	07842073019	43 Bouverie Road	SY4 3UB	Haters1986	Receptionist
11	Dr	Ethan	Shaw	1937-10-26	07753920719	29 Wrexham Rd	LL55 7SD	ethanuser	Nurse

Candidate number:
3097

The program must allow a user to add a staff member - SUCCESS

StaffID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode	Username	Position
1	Dr	Kirsten	Frener	2001-01-01	07901611233	10 Windsor Hill	BT341ER	owneruser	Owner
2	Mr	Scott	Randall	1946-04-22	07916795451	92 Sea Road	CO4 3AX	itusername	IT
3	Dr	Freya	Winter	1951-08-31	07750976324	1 Foregate Street	KT11 1EF	nurseuser	Nurse
4	Dr	Adam	Pochinki	1966-08-30	07744443297	97 Crown Street	SO32 5EL	physiouser	Physiotherapist
5	Mr	Jay	Baldwin	1977-01-03	07814692250	77 East Street	SN9 2TX	receptionistuser	Receptionist
6	Mrs	Laura	Lyons	1959-10-29	07825964889	14 Warren St	YO8 2NG	Ilyons886	IT
7	Ms	Chloe	Coleman	1973-11-28	07005303213	21 Folestone Road	BA14 0PA	Starman	Nurse
8	Dr	Hayden	Oliver	1972-02-22	07819248729	19 City Walls Rd	SY7 2DD	Agescits1972	Physiotherapist
9	Mr	Jamie	Webb	1986-04-25	07842073019	43 Bouvierie Road	SY4 3UB	Haters1986	Receptionist

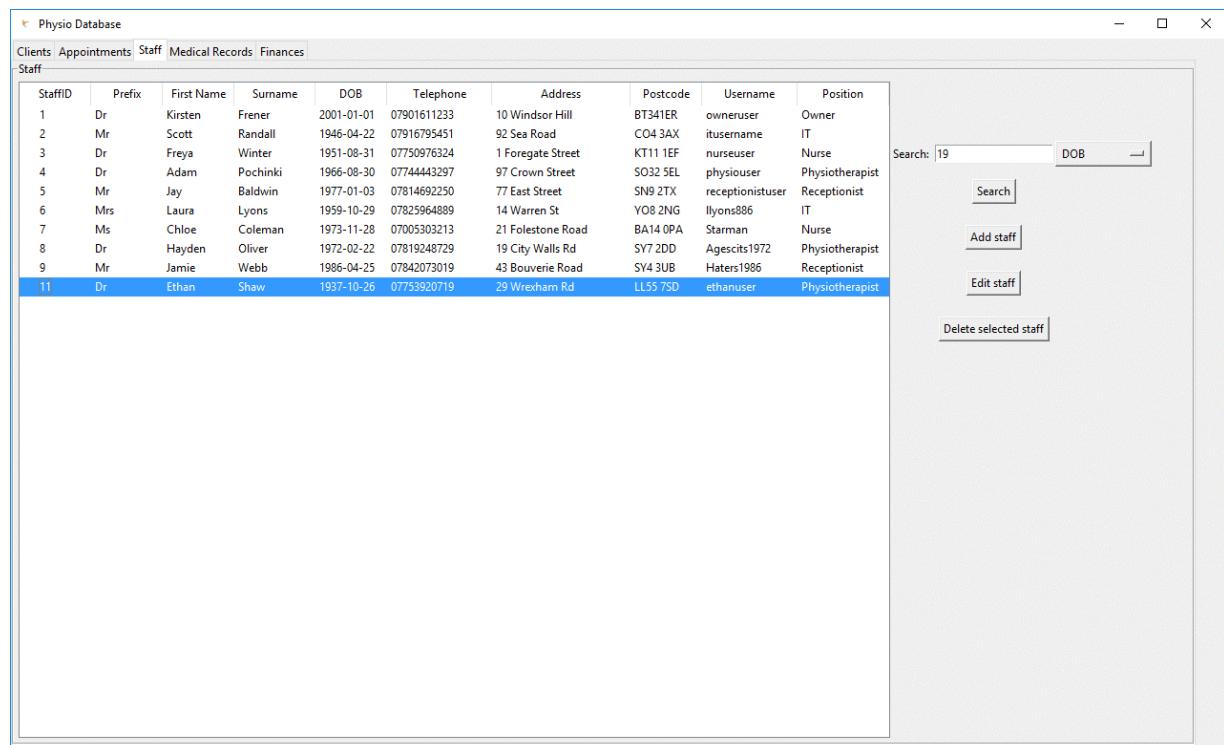
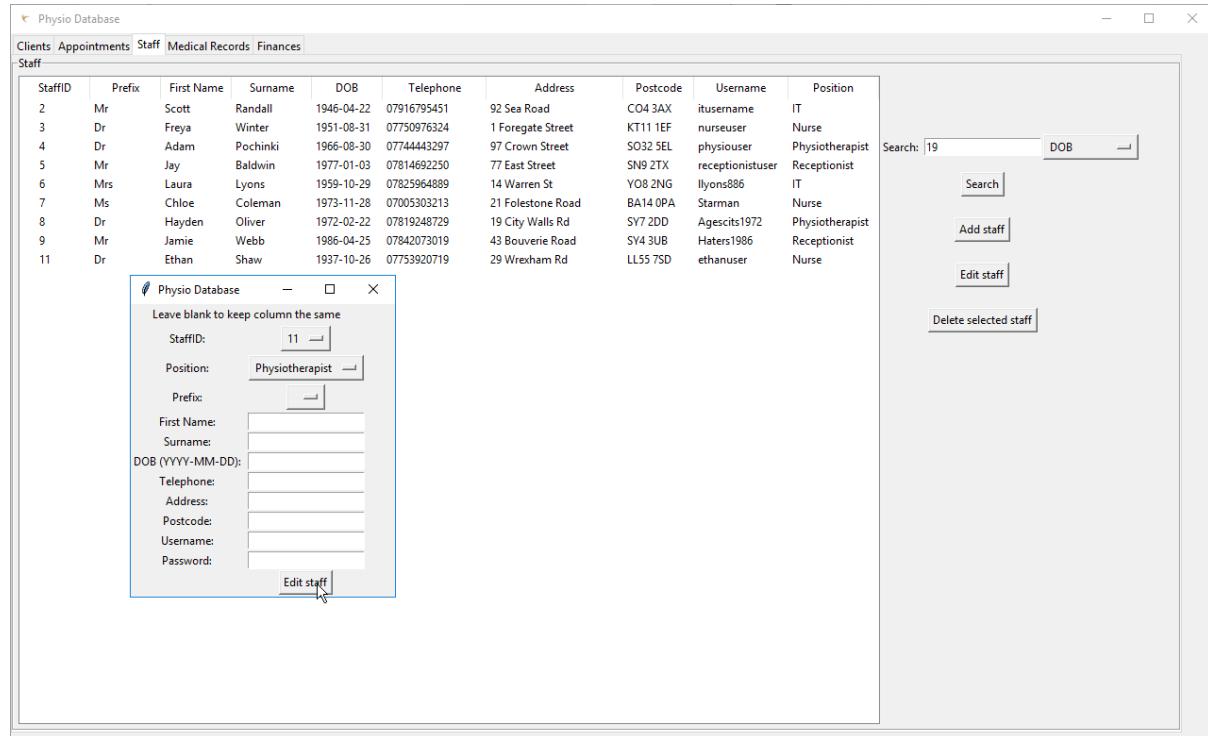
Position:	<input type="text" value="Nurse"/>
Prefix:	<input type="text" value="Dr"/>
First Name:	<input type="text" value="Ethan"/>
Surname:	<input type="text" value="Shaw"/>
DOB (YYYY-MM-DD):	<input type="text" value="1937-10-26"/>
Telephone:	<input type="text" value="07753920719"/>
Address:	<input type="text" value="29 Wrexham Rd"/>
Postcode:	<input type="text" value="LL55 7SD"/>
Username:	<input type="text" value="ethanuser"/>
Password:	<input type="text" value="ethanpass"/>
<input type="button" value="Add staff"/>	

StaffID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode	Username	Position
1	Dr	Kirsten	Frener	2001-01-01	07901611233	10 Windsor Hill	BT341ER	owneruser	Owner
2	Mr	Scott	Randall	1946-04-22	07916795451	92 Sea Road	CO4 3AX	itusername	IT
3	Dr	Freya	Winter	1951-08-31	07750976324	1 Foregate Street	KT11 1EF	nurseuser	Nurse
4	Dr	Adam	Pochinki	1966-08-30	07744443297	97 Crown Street	SO32 5EL	physiouser	Physiotherapist
5	Mr	Jay	Baldwin	1977-01-03	07814692250	77 East Street	SN9 2TX	receptionistuser	Receptionist
6	Mrs	Laura	Lyons	1959-10-29	07825964889	14 Warren St	YO8 2NG	Ilyons886	IT
7	Ms	Chloe	Coleman	1973-11-28	07005303213	21 Folestone Road	BA14 0PA	Starman	Nurse
8	Dr	Hayden	Oliver	1972-02-22	07819248729	19 City Walls Rd	SY7 2DD	Agescits1972	Physiotherapist
9	Mr	Jamie	Webb	1986-04-25	07842073019	43 Bouvierie Road	SY4 3UB	Haters1986	Receptionist
11	Dr	Ethan	Shaw	1937-10-26	07753920719	29 Wrexham Rd	LL55 7SD	ethanuser	Nurse

Candidate number:

3097

The program must allow a user to edit a staff member - SUCCESS



Candidate number:

3097

The program must allow a user to delete a staff member - SUCCESS

Physio Database										
Clients		Appointments		Staff		Medical Records		Finances		
Staff										
StaffID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode	Username	Position	
1	Dr	Kirsten	Frener	2001-01-01	07901611233	10 Windsor Hill	BT341ER	owneruser	Owner	
2	Mr	Scott	Randall	1946-04-22	07916795451	92 Sea Road	CO4 3AX	itusername	IT	
3	Dr	Freya	Winter	1951-08-31	07750976324	1 Foregate Street	KT11 1EF	nurseuser	Nurse	
4	Dr	Adam	Pochinki	1966-08-30	07744443297	97 Crown Street	SO32 5EL	physiouser	Physiotherapist	
5	Mr	Jay	Baldwin	1977-01-03	07814692250	77 East Street	SN9 2TX	receptionistuser	Receptionist	
6	Mrs	Laura	Lyons	1959-10-29	07825964889	14 Warren St	YO8 2NG	Ilyons886	IT	
7	Ms	Chloe	Coleman	1973-11-28	07005303213	21 Folestone Road	BA14 0PA	Starman	Nurse	
8	Dr	Hayden	Oliver	1972-02-22	07819248729	19 City Walls Rd	SY7 2DD	Agescits1972	Physiotherapist	
9	Mr	Jamie	Webb	1986-04-25	07842073019	43 Bouverie Road	SY4 3UB	Haters1986	Receptionist	
11	Dr	Ethan	Shaw	1937-10-26	07753920719	29 Wrexham Rd	LL55 7SD	ethanuser	Physiotherapist	

Physio Database										
Clients		Appointments		Staff		Medical Records		Finances		
Staff										
StaffID	Prefix	First Name	Surname	DOB	Telephone	Address	Postcode	Username	Position	
1	Dr	Kirsten	Frener	2001-01-01	07901611233	10 Windsor Hill	BT341ER	owneruser	Owner	
2	Mr	Scott	Randall	1946-04-22	07916795451	92 Sea Road	CO4 3AX	itusername	IT	
3	Dr	Freya	Winter	1951-08-31	07750976324	1 Foregate Street	KT11 1EF	nurseuser	Nurse	
4	Dr	Adam	Pochinki	1966-08-30	07744443297	97 Crown Street	SO32 5EL	physiouser	Physiotherapist	
5	Mr	Jay	Baldwin	1977-01-03	07814692250	77 East Street	SN9 2TX	receptionistuser	Receptionist	
6	Mrs	Laura	Lyons	1959-10-29	07825964889	14 Warren St	YO8 2NG	Ilyons886	IT	
7	Ms	Chloe	Coleman	1973-11-28	07005303213	21 Folestone Road	BA14 0PA	Starman	Nurse	
8	Dr	Hayden	Oliver	1972-02-22	07819248729	19 City Walls Rd	SY7 2DD	Agescits1972	Physiotherapist	
9	Mr	Jamie	Webb	1986-04-25	07842073019	43 Bouverie Road	SY4 3UB	Haters1986	Receptionist	

Candidate number:
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The program must list all staff information in a clear fashion - SUCCESS

Physio Database										
Clients		Appointments		Staff		Medical Records		Finances		
Staff										
1	Dr	Kirsten	Frener	2001-01-01	07901611233	10 Windsor Hill	BT341ER	owneruser	Owner	
2	Mr	Scott	Randall	1946-04-22	07916795451	92 Sea Road	CO4 3AX	itusername	IT	
3	Dr	Freya	Winter	1951-08-31	07750976324	1 Foregate Street	KT11 1EF	nurseuser	Nurse	
4	Dr	Adam	Pochinki	1966-08-30	07744443297	97 Crown Street	SO32 5EL	physiouser	Physiotherapist	
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6	Mrs	Laura	Lyons	1959-10-29	07825964889	14 Warren St	YO8 2NG	Ilyons886	IT	
7	Ms	Chloe	Coleman	1973-11-28	07005303213	21 Folestone Road	BA14 0PA	Starman	Nurse	
8	Dr	Hayden	Oliver	1972-02-22	07819248729	19 City Walls Rd	SY7 2DD	Agescits1972	Physiotherapist	
9	Mr	Jamie	Webb	1986-04-25	07842073019	43 Bouverie Road	SY4 3UB	Haters1986	Receptionist	

Usernames and passwords should be stored in this table however passwords will not be able to be seen within the program - SUCCESS

Username	Position
owneruser	Owner
itusername	IT
nurseuser	Nurse
physiouser	Physiotherapist
receptionistuser	Receptionist
Ilyons886	IT
Starman	Nurse
Agescits1972	Physiotherapist
Haters1986	Receptionist

Candidate number:
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Overall

The program must be in third normalised form – SUCCESS

The database structure is below and as you can see it is in third normalised form.

CLIENTS(ClientID, *MedicalRecordID*, Prefix, FirstName, Surname, DOB, Telephone, Address)

STAFF(StaffID, Prefix, FirstName, Surname, DOB, Telephone, Address, Position, Username, Password, LoggedIn)

TRANSACTIONS(TransactionID, Difference, DateAndTime, TransactionStatus)

**APPOINTMENTS(AppointmentID, *StaffID*, *TransactionID*, *MedicalRecordID*,
StartTimeAndTime, EndDateAndTime, AppointmentStatus)**

MEDICALRECORDS(MedicalRecordID, *ClientID*, Sex, Gender, Height, Mass)

The database must be stored in SQL - SUCCESS

The code clearly uses SQL to manipulate data

The program must implement views - SUCCESS

See the view section of testing

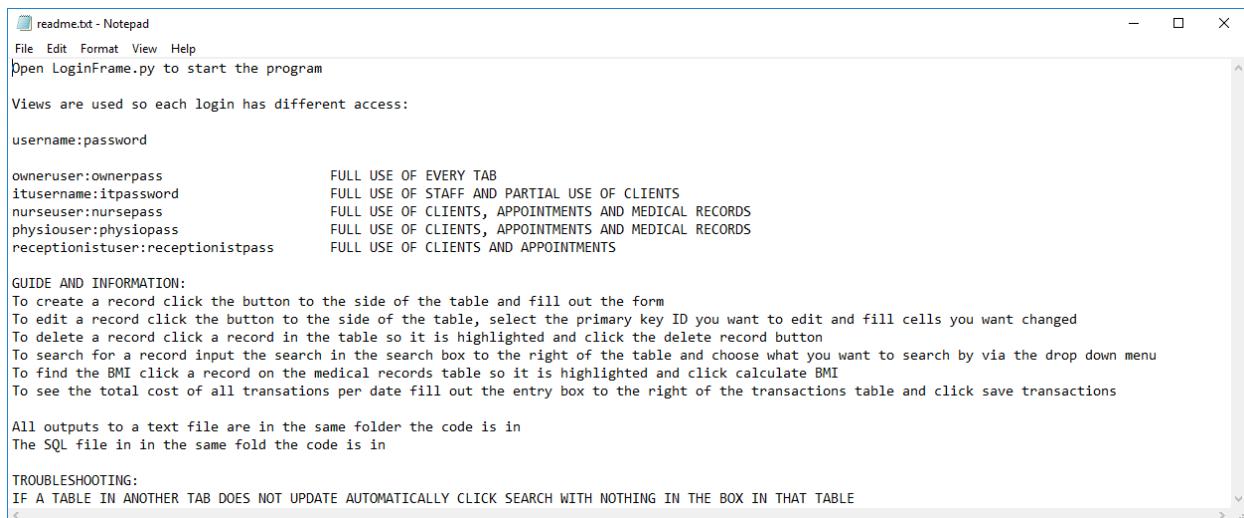
The program must contain a GUI - SUCCESS

See any screenshot of the program

The program must be fast - SUCCESS

Logging in, switching between tabs, adding records, editing records, deleting records, searching for records, getting a records BMI and saving records are all instant

The program must contain a readme.txt to guide any new users on how to use the program and how to troubleshoot - SUCCESS



File Edit Format View Help
Open LoginFrame.py to start the program

Views are used so each login has different access:

username:password

owneruser:ownerpass	FULL USE OF EVERY TAB
itusername:itpassword	FULL USE OF STAFF AND PARTIAL USE OF CLIENTS
nurseuser:nursepass	FULL USE OF CLIENTS, APPOINTMENTS AND MEDICAL RECORDS
physiouser:physiopass	FULL USE OF CLIENTS, APPOINTMENTS AND MEDICAL RECORDS
receptionistuser:receptionistpass	FULL USE OF CLIENTS AND APPOINTMENTS

GUIDE AND INFORMATION:
To create a record click the button to the side of the table and fill out the form
To edit a record click the button to the side of the table, select the primary key ID you want to edit and fill cells you want changed
To delete a record click a record in the table so it is highlighted and click the delete record button
To search for a record input the search in the search box to the right of the table and choose what you want to search by via the drop down menu
To find the BMI click a record on the medical records table so it is highlighted and click calculate BMI
To see the total cost of all transactions per date fill out the entry box to the right of the transactions table and click save transactions

All outputs to a text file are in the same folder the code is in
The SQL file is in the same fold the code is in

TROUBLESHOOTING:
IF A TABLE IN ANOTHER TAB DOES NOT UPDATE AUTOMATICALLY CLICK SEARCH WITH NOTHING IN THE BOX IN THAT TABLE

The program must be intuitive and easy to understand, and it shouldn't be difficult to use any of the functions - SUCCESS

Based on the feedback it is clear people think that the program that I have created is intuitive.

Candidate number:
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8.6: Possible improvements

A few suggestions were given by staff as well as myself that would improve the overall program. If I was given more time on programming this, I would have added this functionality. The first suggestion that came to mind that I missed was using encryption. Encryption would make the program much more secure and would significantly reduce the harm in any attacks aimed at the system. I would specifically encrypt login details and medical records as this is the most sensitive area of the program and is currently stored in plain text. Other suggestions have also been made to improve security, I could implement an automatic backup, which saves the SQLite database every day and stores it on a cloud storage website so the clinic can easily come back from any data loss. In addition to this I wouldn't increment my primary key by 1 every time, this can be a severe security risk as the hacker could simply enter the program by using the primary key of clients, instead of this I should randomly generate a key of a sufficient length. You can see where issues like this went wrong in things such as the Moonpig Bug. I also would add a large array of quality of life fixes, I would improve the overall look of the GUI, adding some colour to it and inserting a scroll bar into the tables instead of having to use the mouse wheel. I would fix the GUI bugs that I have discovered while testing the program and thus allow tables to automatically refresh when effected from another tab instead of having to manually update it. Finally, I would add significantly more validation to the program, specifically ones involving dates, for example if a date is before or after x.