Evaluation

Customer Requirements

In this section I will evaluate whether or not each of the objectives set in the specification has been fulfilled by my system to determine whether or not the system has met my clients requirements. If my system hasn't met a particular objective I will explain why this is the case. If the system has met an objective, evidence as to why will be provided.

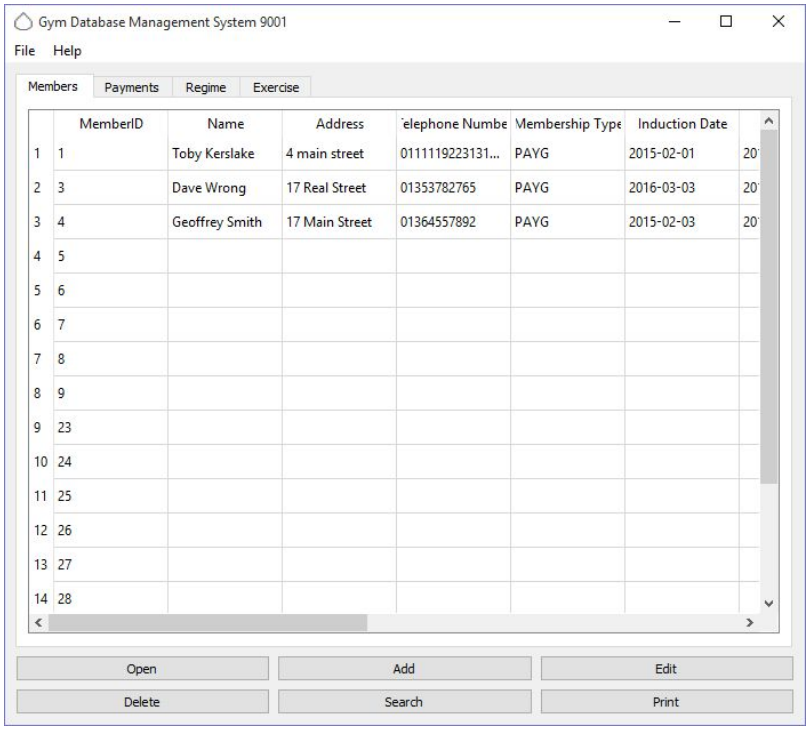
Simple Gui

Objective: Easy to use Simple Gui with clearly labelled buttons to choose an option.

Fulfilled?:

This objective has been fulfilled. I have achieved this by designing an interface that didn't have an intimidating amount of windows and used clearly labelled push buttons with plain english titles as opposed to technical jargon that can be easily accessible by users that have little prior knowledge of computer systems.

Evidence:

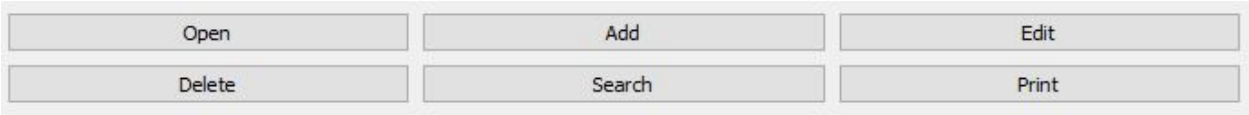


As you can see above the implementation contains no technical jargon and clearly labelled push buttons. My client agreed saying "The Interface was clearly laid out".

Gui Buttons
Objective: There should be buttons for opening a table, add to it, editing it, deleting an item, creating an invoice or physical record, and searching for something specific.

Fulfilled?: This objective has been fulfilled. I have achieved this by implemented 6 push buttons for opening a table, add to it, editing it, deleting an item, creating an invoice or physical record, and searching for something specific. These buttons have been clearly labelled with concise english terms and no technical language.

Evidence:



This has clearly been achieved by the push buttons presented above and this sentiment is agreed with by my clients saying “All of the buttons were labelled well in non_technical language”.

Dialog Windows
Objective: Each of these buttons should open up either drop down menus or entirely new windows, depending on which is more user friendly, and display further options within those commands.

Fulfilled?: This objective has been fulfilled. I have achieved this by creating 5 separate dialogs that are opened when the user click the add, edit, delete, search, or print push buttons. The Open push button goes straight to an inherited open dialog from the pyqt library. Each of these dialogs then present different input options for the user to enter.

Evidence: Each of the buttons opened up a new dialog presenting several interactable options for the user as presented by screenshots in the Testing and User Manual sections. My client also agreed saying “Upon clicking the buttons new windows would open”.

Input Interface
Objective: The interface for entering new information should be easy to use and clearly labelled for adding each attribute to the specified table.

Fulfilled?: This objective has been fulfilled. I have achieved this by creating input forms in the form of the Add and Edit dialogs that allow the user to easily enter appropriate information in a clearly labelled format.

Evidence: The easy to use interface has been presented in the testing and user manual sections and my client agreed that it is “well laid out and easy to enter information”.

Search Function
Objective: There should be an easy/efficient way to switch and search between all of the tables in the database.

Fulfilled?: This objective has been fulfilled. I have achieved this by implementing a search function that searches through a table selected by a user for any specific term they simply input into a line edit.

Evidence: The search function has been presented in the testing and user manual sections and my client agreed that “The search function works easily and has no lag”.

Security
Objective: Avoid more novice users accidentally deleting items by having a secondary password for higher level access.

Fulfilled?: This objective has been partially fulfilled. I have achieved this by implementing a secondary password dialog to be required when opening the delete dialog which requires a different password only known by higher level users. It could be improved if the user was able to reset and change the password in case of a security risk.

Evidence: The password and delete dialogs have been presented in the testing and user manual sections and my client agreed that it “works well but the system doesn’t allow me to change the password”.

Online Backups
Objective: Store backups of the database online using a system like dropbox or GitHub so that in the event of data corruption there would be recent version to backup to.

Fulfilled?: This objective has not been fulfilled. This is due to time constraints as well as the difficulty that came from trying to implement the python dropbox library.

Evidence: The Online back ups were not implemented to their is no evidence for this section

Local Backups
Objective: Storing the latest version of the spreadsheet locally also adds an extra layer

of security as the most recent version won't be easily accessible except by people with direct access to the workstation.

Fulfilled?: This objective has been partially fulfilled. This has been achieved by allowing the user to make local backups manually by simply copying and pasting the database files to a location they desire. This wasn't done automatically due to time constraints.

Evidence: There is no evidence for this objective since it was not implemented but the User Manual section details how to manually backup databases.

Reports
Objective: Easy to create reports containing all of a specific client's information in an organised manner on as little paper as legibly possible.

Fulfilled?: This has been partially fulfilled.This has been achieved by allowing the user to create a report on a member which is then easily printable via a printer by the user but the printed forms aren't presented in the best way as they are printed at a small font size.

Evidence: The report function has been presented in the testing and user manual sections but my client believes that it " works well but maybe prints to small".

Invoices
Objective: Easy to create invoices for members based off of the information stored in the tables.

Fulfilled?: This has been partially fulfilled.This has been achieved by allowing the user to create an invoice for a member which is then easily printable via a printer by the user but the printed forms aren't presented in the best way as they are printed at a small font size.

Evidence: The report function has been presented in the testing and user manual sections but my client believes that it " works well but maybe prints to small".

Database Table Printouts
Objective: Reports should include Invoices, database table printouts, member reports giving details selected from the databases.

Fulfilled?: This has been partially fulfilled.This has been achieved by allowing the user to create a report on a member, an invoice, or a regime table which is then easily printable via a printer

by the user but the printed forms aren't presented in the best way as they are printed at a small font size. It also doesn't have the option to print out entire tables due to time constraints.

Evidence: The report function has been presented in the testing and user manual sections but my client believes that it " works well but maybe prints to small".

Printable Reports
Objective: These reports should be printable so that they can be given to members and stored physically.

Fulfilled?: This has been partially fulfilled.This has been achieved by allowing the user to create a report on a member, an invoice, or a regime table which is then easily printable via a printer by the user but the printed forms aren't presented in the best way as they are printed at a small font size.

Evidence: The report function has been presented in the testing and user manual sections but my client believes that it " works well but maybe prints to small".

Digital Input Forms
Objective: Easy to fill out digital input forms for entering new data into the database tables instead of a more complicated sql query based system.

Fulfilled?: The objective has been fulfilled. This was achieved by creating the Add and Edit input forms in the AddEditDialogs. These forms have clear and concise labels and line edits for easy input by the user.

Evidence:The Add and Edit Dialogs have been presented in the testing and user manual sections and my client believes that they "work really well but it could be improved".

Printable Input Forms
Objective: Printable versions of these forms that can be created to be filled out by hand by less technically inclined clients that can then have their information manually entered into the system by a member of staff.

Fulfilled?: This objective was not fulfilled. Thi was due to time constraints and the fact that the feature was deemed slightly redundant as a much more presentable looking form can be designed by the user in a word processing package.

Evidence: This objective was not fulfilled therefore there is no evidence.

Summary

Overall I feel like my system has achieved most of my clients original specification, and has reasonable explanations and alternatives for the instances in which the system failed to fully or only partially met the requirements and this has been understood by my client, as presented in the evidence sections for each objective.

Effectiveness

Simple Gui

Objective: Easy to use Simple Gui with clearly labelled buttons to choose an option.

Evaluation Criteria:

- Simple Button layout that can be easily navigated
- Clear English Labels
- Easily comprehended and navigated database view

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that the gui has a simple button layout that can be easily navigated, clear english labels, and an easily comprehended and navigated database view.

Gui Buttons

Objective: There should be buttons for opening a table, add to it, editing it, deleting an item, creating an invoice or physical record, and searching for something specific.

Evaluation Criteria:

- Simple Button Layout that can be easily navigated
- Clear english labels

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that the buttons had a simple button layout that could be easily navigated and clear english labels.

Dialog Windows

Objective: Each of these buttons should open up either drop down menus or entirely new windows, depending on which is more user friendly, and display further options within those commands.

Evaluation Criteria:

- Easy to navigate new windows opened when buttons clicked
- Further options inside those windows

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that the dialog windows are easily navigated

and open when their respective buttons clicked and each of said windows contain further options.

Input Interface
Objective: The interface for entering new information should be easy to use and clearly labelled for adding each attribute to the specified table.

Evaluation Criteria:

- Clear, easy to use interface
- Clearly labelled

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that the input interface has a clear, easy to use interface, and is clearly labelled.

Search Function
Objective: There should be an easy/efficient way to switch and search between all of the tables in the database.

Evaluation Criteria:

- Easy way to search through the tables

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that the search function provides and easy way to search through tables.

Security
Objective: Avoid more novice users accidentally deleting items by having a secondary password for higher level access.

Evaluation Criteria:

- Have a secondary Password set for higher level access
- Make the password changeable in case of a security breach

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that a secondary password is required for higher level access but currently the password is not changeable by the user, only by the programmer.

Online Backups
Objective: Store backups of the database online using a system like dropbox or GitHub so that in the event of data corruption there would be recent version to backup to.

Evaluation Criteria:

- Store backups of databases online
- Stores them automatically

Judgement and Evidence:
There is no evidence for this since this objective was not implemented and thus fails to meet any of its Evaluation Criteria.

Local Backups
Objective: Storing the latest version of the spreadsheet locally also adds an extra layer of security as the most recent version won't be easily accessible except by people with direct access to the workstation.

Evaluation Criteria:

- Store local backups of databases offline
- Stores them automatically

Judgement and Evidence:
There is no evidence for this since this objective was not implemented and thus fails to meet any of its Evaluation Criteria.

Reports
Objective: Easy to create reports containing all of a specific client's information in an organised manner on as little paper as legibly possible.

Evaluation Criteria:

- Easy to create reports
- Presentable reports

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that the reports are easy to create but don’t produce that presentable a final design.

Invoices

Objective: Easy to create invoices for members based off of the information stored in the tables.

Evaluation Criteria:

- Easy to create reports
- Presentable reports
-

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that the reports are easy to create but don't produce that presentable a final design.

Database Table Printouts
Objective: Reports should include Invoices, database table printouts, member reports giving details selected from the databases.

Evaluation Criteria:

- Easy to create reports
- Presentable reports

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that the reports are easy to create but don't produce that presentable a final design.

Printable Reports
Objective: These reports should be printable so that they can be given to members and stored physically.

Evaluation Criteria:

- Easy to create reports
- Presentable reports

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that the reports are easy to create but don't produce that presentable a final design.

Digital Input Forms
Objective: Easy to fill out digital input forms for entering new data into the database tables instead of a more complicated sql query based system.

Evaluation Criteria:

- Easy to fill out digital input forms

Judgement and Evidence:
The evidence for this is provided in the Testing, and User Manual sections. The screenshots presented in these sections clearly demonstrate that the digital input forms are easy to fill out.

Printable Input Forms
Objective: Printable versions of these forms that can be created to be filled out by hand by less technically inclined clients that can then have their information manually entered into the system by a member of staff
.

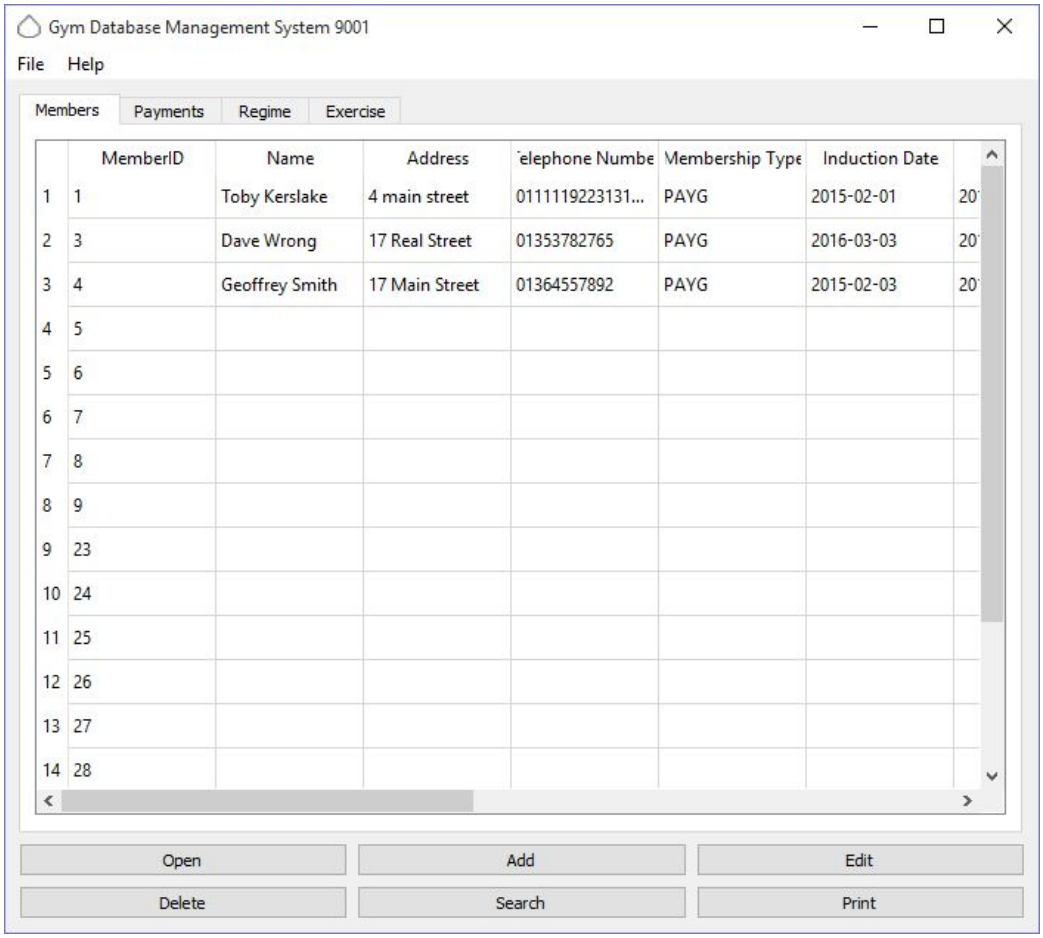
Evaluation Criteria:
- Presentable, easy to create printable input forms

Judgement and Evidence:
There is no evidence for this since this objective was not implemented and thus fails to meet any of its Evaluation Criteria.

Summary
In summary I feel that my system is fairly effective as it was able to meet the majority of the evaluation criteria and the sections that don't have acceptables reasons as to why whether it be redundancy or time constraints, and my client appears to agree, as presented in the End User Evidence Section.

Learnability
When I first consulted with my client about developing this system we discussed my clients prior knowledge and experience with computers so I could develop the system at a level that suited his needs (see Analysis Section). The client had a reasonable knowledge of how to operate a computer system but not to the point where he would be able to understand any sql or technical terms in regards to databases so I knew I would have to phrase everything with non-techincal jargon substituting words like "INSERT" for "Add". I also knew I would have to have a user friendly interface that could be easily operated by him and other members of his staff as their computer knowledge may also vary. With this in mind I took the following steps when designing my system:

- I ensured the main interface (and all extra dialogs for that matter) was easily accessible to all users using large obvious buttons and a large detailed table view (as presented in the screenshot below), while still letting more experienced users use keyboard shortcuts. This was well received by my client, as demonstrated in the End User Evidence section of this Evaluation.



- I ensured to use easy to understand english words, as opposed to technical database related jargon like “INSERT” and “UPDATE” which my client also approved of.
- I also ensured that the table view was similar to that of an microsoft excel document as that was what my client was using prior to this system

Overall I would argue that due to the design features that I implemented into my program and the positive feedback provided by my client, the system has a very friendly user interface that appears to be accessible to most people of varying levels of prior computer knowledge. However to someone who has virtually no experience using a computer system may have trouble as the range of options and amount of windows that can be open at one time could be considered daunting and intimidating as well as confusing.

Usability

In this section I will assess how easy the system I have developed is to use, with particular emphasis on the effectiveness and ease of use regarding the user interface. This will be achieved by measuring the system against a set of criteria listed below:

- Language Used
- Navigatability
- Latency

Language Used

One of my main goals regarding usability was making sure the language I used was easily understandable by any user as I didn't want to confuse any users that had little experience interacting with computer systems and all the terminology that went along with that. I feel that I achieved this by labelling the main interfacing buttons terms like "Add" and "Edit" as opposed to "INSERT" and "UPDATE". This was acknowledged by and agreed upon by my client in the End User Evidence section of this Evaluation.

Navigability

Another of my goals in regards to usability was making sure that the interface is easy to navigate and quickly get from one section or function to another. Part of accomplishing this was with the Language Used as explained above. Another part of accomplishing this was implemented a small amount of buttons, organised neatly, that would supply access to all or most of the main functions of the system, that aren't intimidating or confusing the the user. I feel I achieved that with the 6 main function buttons in my main interface and my client acknowledged this and agreed.

Latency

Another important feature for this program to have high usability was latency. I didn't want the program to have a large amount of lag when being operated and I wanted the push buttons and all other interactive elements of the system to react almost instantly without a discernible delay. I believe I achieved this with efficient programming and it appears to be the case when actually in use. Although my client never really pointed out the low latency, I feel that that means I've accomplished my goal as if it had a high latency he definitely would have pointed it out. These results were found using test data and so the program hasn't actually been tested using a database with more than 1000 entries, which is most likely how it will be used, so these claims may not be reliable.

Summary

In summary, I feel that my program has achieved a great level of usability. I feel that the strengths of the system are definitely in its graphical user interface as it appears to be easy to navigate and uses appropriate language that's easily read by most individuals. I feel the programs low latency is also one of its strengths however, the system hasn't actually been stressed tested with a large amount of data on a low spec system, though with the system my clients using it should be handled incredibly well.

Maintainability

Fixing Bugs

It should prove to be relatively easy to fix any bugs in my system. Although I only found one bug in my system through testing, if any later materialise I should be able to fix it easily for the following reasons:

- The code is largely self documented and contains clear and concise comments and therefore whoever is maintaining the code in the future to easily identify and fix any problems that may arise.
- Even more documentation explaining the more difficult to understand code is in the System Maintenance section along with explanations of all the classes along with class diagrams and variable listings.
- The one bug my client found by using the program was an error that stops the main functions from working due to a database loading error but could easily be fix with a try except exception handling and can easily be fix by the user by simply reloading the database, as demonstrated in the errors section in the User Manual.

Changing Parameters

The parameters of this system may need to be changed as the user may have new requirements for his database needs and need new columns inserted into a table or a new table entirely. If these changes need to be made it should be fairly straightforward for the following reasons:

- The system almost entirely uses local variables and parameters in all its functions and methods so only the parameters need changin instead of large code sections
- The code is well commented to the user can easily understand all of the functions and variables uses enabling them to easily edit them
- There is a large amount of documentation and literature provided in the System Maintenance section to further explain each variables, parameters, attributes and methods purpose, making it simple to alter the system as required.

Responding to New Requirements

The system may or may not be easy to adapt to new requirements depending on the nature of the requirements. For example if the user needed a new interface for managing the data this could be done with relative ease since the classes for the gui are separate from the functions for the actual data manipulation but If the user wanted a new table added to their database then a large number of functions and classes would have to be dramatically altered. A summary of the system's ease to respond to new requirements is detailed below:

- The software is 100% modular. Most of the functions and gui’s are separate entities but most of the gui’s layouts are dependant on the nature of the functions. For example if a new column is added to the add or edit function the add or edit gui would be missing an input line edit for the new column. Although this is the case the functions aren’t dependant on the GUI so if the user just wants to make the program more efficient he should easily be able to do so by editing just the functions.
- The code is largely self documented with clear and concise comments and variable names that are direct and appropriate making the code easy to read which will help identify the areas which need altering by the programmer (see System Maintenance section).

- The system mostly uses local variables meaning that only parameters need to be edited for a function instead of several global variables in many places around the program.
- The code is largely documented in the System Maintenance section explaining all of the difficult to understand pieces of code and classes so the programmer can easily identify how to deal with a certain piece of code,
- I have not identified which variables are and are not private meaning any future programmers will have to read through the code to identify whether a variable can be assigned outside of the initial class, and may have to just work at their own accord. This is because the system was developed in python and although common syntax dictates that private variables should be preceded with an underscore, there is no actual way to declare a variable as public or private since public and private variables don't exist in python.

Summary of Maintainability

Overall, I would argue that my system is fairly maintainable. This is due to the fact that my code is well and consistently commented as well as having a large amount of documentation in the System Maintenance section, meaning it should be fairly easy for any programmer to understand all sections of the code and amend them how they please. This should allow for easy debugging and fixing of bugs and the changing of parameters. Although there are some problems with the variables not stating whether their public or private, and some of the classes relying or other code sections, the abundance of documentation should help any programmer to circumvent these issues.

Suggestions for Improvement

My client highlighted several shortcomings and possible improvements that could be implemented in any future versions of the system, all of which are listed and explained in this section.

Auto-Updating

Although I discussed my time constraints and how some things I felt were less essential to the functionality to the program were not implemented he made it clear that having to re-open the database after every time he makes any form of change to the database and feels like this would be an easy thing to implement in future versions which I agree with. He made this clear in an off-record discussion we had while he was testing the program.

Online Backups

One of my main objectives were to have automatic appropriate online backups of any database files involved with the system using a service like dropbox or github but this wasn't implemented due to 2 reasons. First of all python modules for automatic dropbox and github integration with python files were particularly difficult and tedious to integrate, which could have impacted the efficiency of the program. Secondly, time constraints meant I had to avert my attention to more important/essential features, especially since the files can be easily backed up manually, as detailed in the User Manual.

Improved Printable Forms

Although my program is capable of printing a variety of forms my client feels as though my program could be improved by making the format of the forms more appropriate. He feels that the text of the forms is way to small and although legible, is a waste of paper and not very presentable if he wants to give a form to a client. He also wishes that the program was capable of printing input forms that his users can fill out to hand in to him at a later date to add to the database.

End User Evidence Appendix

Questionnaire

For each question I asked my client to provide a response by writing a number from 0 to 3 to represent how the effectiveness of my solution to an objective.
The key is shown below:

0 - System has completely failed to meet the objective
1 - System has only partially met the objective
2 - The system has met the objective but the solution is not effective or is difficult to use
3 - The system has completely fulfilled the objective

My client also provided a comment for each question if he felt it necessary to provide reasoning for his score which is included in the transcript below

1. To what extent would you agree that the system has an easy to use simple GUI thats has clearly labelled buttons to choose an option?

Score: 3

Comment: The interface was clearly laid out giving me multiple user friendly ways to interact with the system. Though they were over whelming at first I soon got the hang of it.

2. To what extent would you agree that the system has appropriate buttons for opening a database, adding to it, editing it, deleting an item, creating any printable forms, and searching for something specific?

Score: 3

Comment: All of the buttons were labelled well in non_technical language that was easy to understand by me and my member of staff

3. To what extent would you agree that the system opens appropriate user friendly windows upon these button being clicked displaying more options for the user?

Score: 3

Comment: Upon clicking the buttons new windows would open allowing me to interact with the main functions of the program

4. To what extent would you agree that the interface for entering new information is easy to use and clearly labelled for adding each attribute to a specific table?

Score: 3

Comment: It was well laid out and easy to enter information as long as I consulted the user manual for the correct data types

5. To what extent would you agree that the system has an easy/efficient way to switch and search between all the table in the database?

Score: 2

Comment: The search function works easily and has no lag but if I want to search every table I have to search each one separately

6.To what extent would you agree that the system helps avoid more novice users accidentally deleting items by having a secondary password for higher level access?

Score: 2

Comment: It works well but the system doesn’t allow me to change the password so if the passwords discovered my security is compromised

7.To what extent would you agree that the system stores appropraite and reliable backups of the database online using a system like dropbox in the event of data corruption?

Score: 0

Comment: This wasn't implemented due to supposed time restraints but the system has presented other backup options

8. To what extent would you agree that the system stores a reliable backup locally to the users workstation on which the systems installed?

Score: 1

Comment: The system itself doesn’t create the backups but the user manual details an easy way to do it manually

9. To what extent would you agree that the system allows you to easily create reports containing details from the database on as little paper as legibly possible?

Score: 2

Comment: The print function works well but maybe prints to small which is still legible but wastes paper

10. To what extent would you agree that the system uses easy to fill out digital input forms?

Score: 3

Comment: The input forms to add and edit data work really well but it could be improved by allowing me to select the data to edit instead of remembering the primary key

11. To what extent would you agree that the system allows for appropriately formatted printable versions of these printable forms to allow your clients to fill out for a member of staff to later input into the system?

Score: 0

Comment: This wasn’t implemented but is something I could easily create myself in word.

Questionnaire

1. To what extent would you agree that the system has an easy to use simple GUI thats has clearly labelled buttons to choose an option? 3

The interface was clearly laid out giving the multiple useful
striking ways to interact with the system. Though they were
over whelming at first I soon got the hang of it.

2. To what extent would you agree that the system has appropriate buttons for opening a database, adding to it, editing it, deleting an item, creating any printable forms, and searching for something specific? 3

All of the buttons were labelled well in non-technical
language that was easy to understand by me and my
members of staff.

3. To what extent would you agree that the system opens appropriate user friendly windows upon these button being clicked displaying more options for the user? 3

Upon clicking the buttons new windows would
open allowing me to interact with the main
functions of the program.

4. To what extent would you agree that the interface for entering new information is easy to use and clearly labelled for adding each attribute to a specific table? 3

It was well laid out an easy to enter
information as long as I consulted the
user manual for the correct data types.

5. To what extent would you agree that the system has an easy/efficient way to switch and search between all the table in the database? 2

The search function works easily and has no
lag but if I want to search every table I
have to search each one seperately.

6. To what extent would you agree that the system helps avoid more novice users accidentally deleting items by having a secondary password for higher level access? 2

It works well but the system doesn't allow me
to change the password so if that discovered my
security is compromised.

7. To what extent would you agree that the system stores appropraite and reliable backups of the database online using a system like dropbox in the event of data corruption? 0

This wasn't implemented due to supposed time
restraints but the system has presented other
backup options.

8. To what extent would you agree that the system stores a reliable backup locally to the users workstation on which the systems installed? 1
The system itself doesn't create the backups but the user manual details an easy way to do it manually.

9. To what extent would you agree that the system allows you to easily create reports containing details from the database on as little paper as legibly possible? 2
The print function works well but maybe prints to small which is still legible but wastes paper.

10. To what extent would you agree that the system uses easy to fill out digital input forms? 3
The input forms really well but it could be improved by allowing me to select the data to edit instead of remembering the primary key.

11. To what extent would you agree that the system allows for appropriately formatted printable versions of these printable forms to allow your clients to fill out for a member of staff to later input into the system? 0
This wasn't implemented but is something I could easily create myself in word.

Client signature

Neill Green

It’s worth noting that my client did give me other feedback verbally as we had frequent contact as he’s my brother in law, meaning I got other feedback that has no literature of any kind meaning it’s not listed here.

Graph

The below graph is a graphical representation of the scores my client gave to each of my objectives in the questionnaire section above