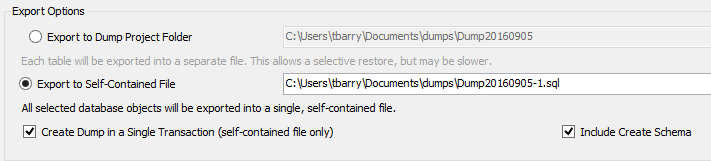
**Unit 4 Outcome 1 – SAT** **Student Name:** Oliver Patterson

**Submission**

Copy your program’s project folder, including all source code, into a folder clearly labelled U4O1 in your Google Drive share folder. Please make sure the file structure remains unchanged. All database files, xml files or text/csv files need to be placed into this folder.

MySQL databases can be exported to a single transaction “SQL” file and placed into the share folder. *(Include Create Schema)*



**Documentation**

1. What is the main data structure you have used in your program and why? In your answer, highlight points such as sequential vs direct access and data storage methods.

|  |
| --- |
| I used text files in the .lst and .pcg format loaded as dictionaries to manipulate the data used as it is produced my another entity and it is updated frequently such that it would be needlessly inconvienient for the end user to use a different data structure. |

1. What is your estimated data storage?

|  |
| --- |
| Based on the size of the original program this program is designed to replace, 200MB. |

1. What Naming Convention did you use?

|  |
| --- |
| Hungarian Notation |

1. Which of the following did you use to secure your files?

[X] Use of Username/Passwords

[X] Version Control

[X] Appropriate file names

[X] Appropriate folder structure

Explain how you managed your file’s security:

|  |
| --- |
| The data and program files are secured by the user’s operating system and data security processes since the data stored does not contain any personal or confidential information so it does not need any additional security and any additional security would be an inconvienience to the end user. |

1. How did you manage the back up of your program?

|  |
| --- |
| I keep an onsite backup of my entire system on an external hard drive and is able to be booted from if my computer were to stop working and a backup of my program and related files in the cloud on github which can be easily recovered within minutes for a total of three copies of the program, the github is updated with any changes after each alteration to the code and the onsite backup is kept nightly at my residence and stored in a locked box. |

1. Internal documentation is often used as a means of maintaining and supporting your code. What information did you include in your internal documentation and why?

|  |
| --- |
| Internal documentation is used for partitioning code to make it clear what each section does for an easier understanding of the code and also to assist any future developers of the processes used and it is also used to store debugging code for use if anything stops working as it is easier and more reliable than rewriting the debugging code each time a bug appears. |

1. Explain which validation techniques you used to maintain the data integrity within your program?

* Data Type Checking

|  |
| --- |
| Data type checking is used so that the program gets a readable input to avoid the ‘GIGO’ effect. |
| This is done by Qt, through only accepting certain inputs in the GUI. For example, the character’s age is entered in a qSpinWidget which only accepts integer input. |

* Range Checking

|  |
| --- |
| Range checking is not used in this program as the user should be able to customise the |
| Character created to the greatest possible extent and there is no fixed size storage used. |

* Existence Checking

|  |
| --- |
| Existance checking is used to make sure the program has an input to work with and to make |
| sure non-existance errors and division by 0 errors don’t occur. |

1. How did you sort the records in your program?

Some of the methods include; Linear or Quick Sort or the use of a Primary Key or Index in a database. Explain the advantages of using the sort method you chose?

|  |
| --- |
| Timsort is used as it is built in to the python default libraries and it is faster than quick sort for |
| nearly sorted arrays, as in the sources used in this program and as the program deals with |
| many arrays and must be portable with as little installation as possible. |
|  |
|  |
|  |

1. List your Functional and Non Functional Requirements from your original SRS document.

Functional:

|  |
| --- |
| Complete Neceros Character sheet, Create Campaign, Save campaign, Create a character, |
| Adjust Character details. |

Non-functional:

|  |
| --- |
| Performance Requirements:Uses minimal resources |
| Software Quality Attributes: Save custom items to campaign, Items not in inventory and equipped section at the same time, Items categorised in inventory, Easy to use, Speed of processing, Robustness, Reliability |

How did you test your program to see if you had met the requirements above? Please provide any test data and trace tables used.

***(Attach all testing documentation to the end this document.)***

|  |
| --- |
| In the program there are multiple input boxes and some of these are text boxes which will accept all strings, others of these are integer only input, and there are also selectable drop-down boxes. To test these, I attempted entering strings, integers, floats, booleans and special characters into the input boxes, the list of which is found in breakinator.txt , the expected return was for all of the values to display in the text boxes and only the integers to display in the integer input boxes. All values contained in the drop-down boxes were also tested for display.  The source data displaying could not be tested as the source inputting has not been completed.  The importing back-end code was tested using the sources that will be used in the final program found in /Development*/*Sources |

1. Another form of testing for your program is a Usability test. A Usability test asks a user to complete a task using your software and then respond to a number of questions regarding their experience. *(relate this task to your functional and non-functional requirements)* This occurs during the development phase of the PSM and provides feedback to enable you to make minor changes to your program before it is implemented.

Usability Test

Scope: *(State what you will test.)*

|  |
| --- |
| Ease of installation, and Ease of use |

Participants (Users): *(State the number and type of participant that will take your test.)*

|  |
| --- |
| 5 Players of the Pathfinder RPG system with varied computer literacy in a local gaming group. |

User Interaction/Task: *(What task are you going to set the participants to perform?)*

|  |
| --- |
| Install the program (ease of installation is a very important part of this program as if it is difficult, the willingness of users to install it will be too low for use in the scale intended for this project) and create a character of their choice (to test if all options are presented properly and nothing is missed). |

What questions would you ask your participants after the test? (Minimum of 6 questions)

Your questions should cover the user’s interaction with the program, the objectives and the features of the program.

*(Refer to sample questionnaire on Schol for examples of sample questions)*

|  |
| --- |
| On a scale of 1 to 10, with 5 being the old system, how easy was the installation process on your machine? |
| On a scale of 1 to 10, with 5 being the old system, what was the physical load on your machine? |
| On a scale of 1 to 10, with 5 being the old system, how easy and intuitive was it to create a character? |
| On a scale of 1 to 10 how would you rate your IT ability and why? |
| Where there any features you thought were lacking that would have helped you complete the task easier? |
| Was there any text on the screen you thought was difficult to understand or was missing? If so, What? |
| Did you receive enough feedback helping you to complete the task? |

# Results of your Usability Test

## Major findings and recommendations

## List the major issues raised by your participants.

## *(Use a bullet point format to enable quick scanning)*

|  |
| --- |
| It is intuitive but the back-end needs to be finished. |
| It was difficult to install and it is currently limited to unix based systems. |
| The UI did not originally scale. |
| No Neuter option for PC’s Gender (discovered while trying to create David Howard). |
| The Race page was different from the design document. |
|  |
|  |

## *Identify solutions to the issues raised above.*

*NOTE: This section should give you a good grasp of what the issues are and what possible solutions exist. It is not a list of every single problem, but an overview of the major stumbling blocks identified during testing.*

|  |
| --- |
| Need to finish program.  Need to find method of compiling for use oon windows systems  Enable Qt UI scaling in program  Add Neuter option in list of genders for PCs (God damn it howie) |

1. Modifications – As a result of your usability testing what modifications did you need to make to your program?

|  |
| --- |
| The UI scaling feature of Qt was enabled. (after several hours of tinkering) |
| Neuter was added to the list of genders in for PCs (Thanks Howie) |
| The Race page was alterred to fit the design document |
|  |
|  |

1. How would you measure the efficiency and effectiveness of your program?

Efficiency (Speed of Processing, Functionality and Cost of file management)

Effectiveness (Completeness, Readability or Clarity, Attractiveness, Accuracy, Accessibility, Timeliness, Communication of Message, Relevance, Usability)

|  |
| --- |
| The speed of processing is greater than PCGen as the program does not run in it’s own virtual machine. |
| The functionality is very poor as the program has not been completed and thus does not have full functionality. |
| The program is not complete as most features are missing as they have not been added yet. |
| The program is attractive and accessible for the client as well as being useable and only displaying the relevant information. |
| The timeliness of the program is poor as the program is not complete and is not expected to be completed until at least 2018. |
| Summary Efficiency (currently): 5/10  Effectiveness (currently): 2/10 |

1. What were some of the main the features of your program that enabled you to meet your functional and non-functional requirements?

|  |
| --- |
| The minimal use of resources is enabled by this program being built in python and not jave, which runs all programs in their own virtual machine. |
| The ease of use of this program is enabled by the copying of the interface of the previous program that this is designed to replace as the client knows how to use that program. |
| The maintainability/modularity of this program is enabled by the minimal hard coding of any values that are used in character creation. This enables anyone to change the character data and/or add modules/new systems to this program with minimal hassle. |

1. What factors influenced your project management plan?

*(Clear Scope, Specification Creep, Changes in Staff, Communication Issues, Inadequate time for testing, Budget Constraints, Dependent software, Technology changes)*

* + ***Please attach several copies of your Gantt chart showing any adjustments you have had to make.***
  + ***Append your log file to the end of this document.***

|  |
| --- |
| Inadequate time was the main reason for alteration of the project management plan and the cause of scope alteration with consultation with my client. The dependance on the PCGen game data caused the development to slow as the complexity of them is quite high. I greatly underestimated the complexity of the entire project and thus the scope of the program was greatly reduced to allow the possibility of finishing on time and with no budget. |

1. How useful did you find using the Project plan in relation to managing your project. Include how accurate was your initial plan in comparison to your final plan? What adjustments had the most influence in you completing the project?

|  |
| --- |
| The Project plan was completely useless and at times even a hindrance to use to manage the project as it needed to be kept up to date and took time away from completing the project itself. The original Gantt chart was extremely open-ended and vague which meant it needed less changes than if all tasks were mapped which meant that no changes were necessary other than the final date as the submission date was confirmed. |