Requirements Specification Report 2023

16 NOVEMBER

Glasgow Clyde Runners Club
Author: Stanislav Starishko

Table of contents

Overview

Glasgow Clyde Runners Club currently hold finals for the following races:

- 400m
- 800m
- 1500m

To reach the finals each runner would have taken part in a series of heats held across several different local clubs. There are 8 runners competing in each race. There are currently 2 finals held in any given year.

Once the final races have been run Glasgow Clyde Runners Club must record the following information for each competitor

- First Name
- Second Name
- Time taken to run their race (recorded in seconds)

Although this has been good enough up until now the club has recently decided that they would also like to record and store information such as:

- Slowest recorded time
- Fastest recorded time
- Ordered list of times from slowest to fastest
- Search for a time in a particular race and the number of times this was achieved.

At present everything recorded is done using a text-based system which makes the possibility of achieving the additional recording very difficult. They would like to move everything over to a software system which would allow the Glasgow Clyde Club Administrators the option to carry out this additional reporting with ease.

They would like the application to be user friendly and include a menu interface that allows the user to make choices based on the actions they would like to take. They feel this would make it much easier for their non-technical staff to use the software.

They would also like the name of their club to be displayed in the program.

They would like the results to be printed to a text file that can be accessed by members of the Glasgow Clyde Runners Club administration team as well as a suitable message being output to the user when using the software.

They would like the software to be robust and able to run on the hardware available without having to upgrade. Therefore, they would like the software to be as lightweight

as possible. However, they are willing to upgrade the hardware if it is deemed necessary but would like this to be discussed at a later date.
They would also like the application to be password protected so that only members of the administration team can access it.
They would like the development to begin on February 01st 2024 and completed by March 31st 2024. They have allocated a budget of £10,000 for the entire project.
Before developing an entirely new system they would like you to produce a trial program based on their last 2 recorded 400m final races. If this is successful, then they would look to expand this to include both the 800 and 1500m finalists.

Functional Requirements

ID	Functional Requirements
1	The application must be password-protected so that only members of the administration team can access it
2	Implement a main menu of items: 1. Read and Display File 2. Sort and Print Recorded Times 3. Find and Print Fastest Time 4. Find and Print the Slowest Time 5. Search 6. Time Occurrence 7. Exit Program
3	The race participant (runner) card must contain: • First Name • Second Name • Time taken to run their race (recorded in seconds)
4	Implement reporting: • Slowest recorded time • Fastest recorded time • Ordered list of times from slowest to fastest • Search for a time in a particular race and the number of times this was achieved

Non-Functional Requirements

ID	Non-Functional Requirements
5	Design the application convenient for users
6	The club name must be displayed in the application
7	All reports must be able to be recorded in appropriate text files and be available to the club administration
8	The software must be reliable and capable of running on available hardware without the need for upgrades

Constraints

Constraints	Influence
The development is to begin on February 01st 2024 and be completed by March 31st 2024	**Time**
The budget of £10,000 for the entire project	**Cost**
Improve and make usable the authorization module that the previous development team began developing	**Scope**
Before developing an entirely new system, the customer would like us to produce a trial program based on their last 2 recorded 400m final races	**Scope**
If this is successful, then they would look to expand this to include both the 800m and 1500m finalists	**Quality**
The software to be as lightweight as possible	**Scope**

Recommendation

The program will be implemented according to the following logic:

- **Login**

  The user must login into the system using a validated password. For the purpose of the trial program the password will be: 'pass'.

  As this code is being supplied by another developer you must first unit test it to ensure that it works before integrating it with the rest of the program as part of the integration testing. (The source code for login will be supplied to you by your assessor).

- **Menu**

  The user will be presented with the following menu:

  1. ***Read and Display File (the file will be the text file supplied to you by Glasgow Clyde Runners and will include the runner's names and times for the 400m finalists)***

     The data in the file should be stored using a 2D array and printed back to the user.

  2. ***Sort and Print Recorded Times***

     Using a simple sort algorithm, you must sort the recorded times from slowest to fastest and output the result to anther text file using a suitable name etc. you should also output the result to the user.

  3. ***Find and Print Fastest Time***

     Using the min algorithm, you must find the fastest recorded time and output the result to another file using a suitable name etc. you should also output the result to the user.

  4. ***Find and Print the Slowest Time***

     Using the max algorithm, you must find the slowest recorded time and output the result to another file using a suitable name etc. you should also output the result to the user.

5. ***Search***

   Ask the user to enter a time (seconds) and using a linear search algorithm see if this time has been recorded for the 400m race. You must output the result to another file using a suitable name etc. you should also output the result to the user.

6. ***Time Occurrence***

   Ask the user to enter a time (seconds) and using the occurrences algorithm see how many times this time has been recorded for the 400m race and output the result to another file using a suitable name etc. You should also output the result to the user.

7. ***Exit Program***

   The program should exit, and the user should be given a suitable message.

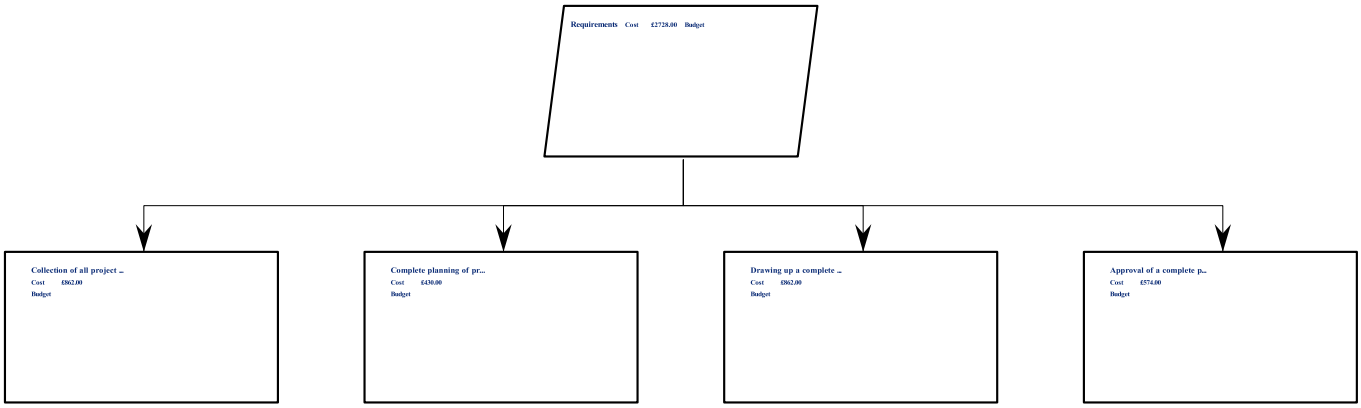
The above menu should be available to the user until they wish to exit the program.

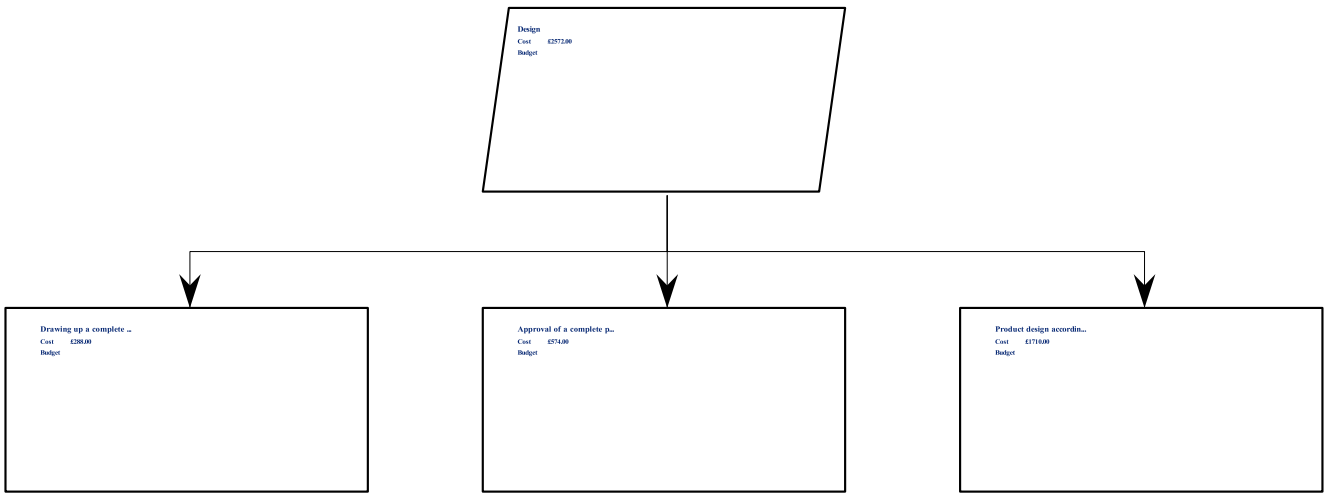
Test Plan

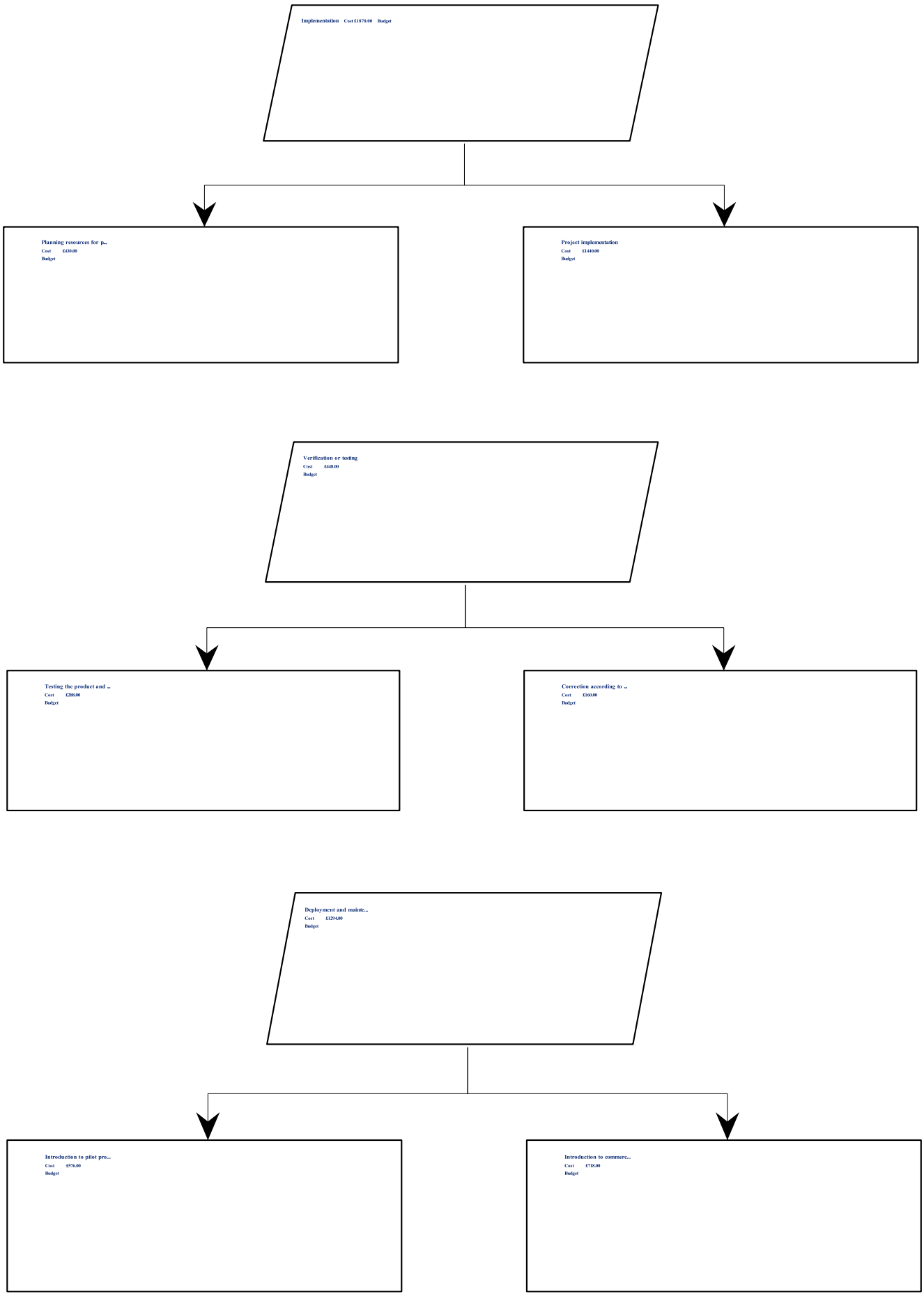
ID	Type of test	Description
1	**White Box**	Test the authorization module using normal, abnormal and extreme testing data
2	**White Box**	Test each menu item (module) using normal, abnormal and extreme testing data
3	**Black Box**	Check how many attempts are given to enter an incorrect password and the application is blocked whether after this third attempt
4	**Black Box**	Conduct a general test and a unit test for usability, readability and adequacy of messages for events and actions processing and its colours

Project Plan

		Name	Duration	Start	Finish	Predecess...	Resource Names
1		**Requirements**	**11 days**	**01/02/24 08:00**	**15/02/24 17:00**		
2		Collection of all project r...	3 days	01/02/24 08:00	05/02/24 17:00		Stanislav Starishko;Marie Jo...
3		Complete planning of pr...	4 days	06/02/24 08:00	09/02/24 17:00	2	Stanislav Starishko
4		Drawing up a complete p...	3 days	12/02/24 08:00	14/02/24 17:00	3	Stanislav Starishko;Marie Jo...
5		Approval of a complete ...	1 day	15/02/24 08:00	15/02/24 17:00	4	Stanislav Starishko;Marie Jo...
6		**Design**	**11 days**	**16/02/24 08:00**	**01/03/24 17:00**	**1**	
7		Product design accordin...	8 days	16/02/24 08:00	27/02/24 17:00		Stanislav Starishko;Stive Ca...
8		Drawing up a complete p...	2 days	28/02/24 08:00	29/02/24 17:00	7	Marie Jonson
9		Approval of a complete ...	1 day	01/03/24 08:00	01/03/24 17:00	8	Stanislav Starishko;Marie Jo...
10		**Implementation**	**11 days**	**04/03/24 08:00**	**18/03/24 17:00**	**6**	
11		Planning resources for p...	2 days	04/03/24 08:00	05/03/24 17:00		Stanislav Starishko
12		Project implementation	9 days	06/03/24 08:00	18/03/24 17:00	11	Stive Cambel
13		**Verification or testing**	**3 days**	**19/03/24 08:00**	**21/03/24 17:00**	**10**	
14		Testing the product and ...	2 days	19/03/24 08:00	20/03/24 17:00		Marie Jonson
15		Correction according to ...	1 day	21/03/24 08:00	21/03/24 17:00	14	Stive Cambel
16		**Deployment and maint...**	**6 days**	**22/03/24 08:00**	**29/03/24 17:00**	**13**	
17		Introduction to pilot pro...	4 days	22/03/24 08:00	27/03/24 17:00		Marie Jonson;Customer
18		Introduction to commerci...	2 days	28/03/24 08:00	29/03/24 17:00	17	Stanislav Starishko;Marie Jo...






Implementation Cost £1870.00 Budget
Planning resources for p...
Cost £430.00
Budget
Project implementation
Cost £1440.00
Budget
Verification or testing
Cost £448.00
Budget
Testing the product and ...
Cost £288.00
Budget
Correction according to ...
Cost £160.00
Budget
Deployment and mainte...
Cost £1294.00
Budget
Introduction to pilot pro...
Cost £576.00
Budget
Introduction to commerc...
Cost £718.00
Budget