

MSSE SOFTWARE, INC.

System Verification Test Plan for GolfScore

Revision 1.1

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Contents

1. Objective of the Test
 2. Test Description
 - 2.1 Description
 - 2.2 Process Tailoring
 - 2.3 References
 3. Schedule
 4. Resource Required
 5. Assumptions/ Dependencies
 6. Entry Criteria
 7. Exit Criteria
 8. Test Tools
 9. Owner
 10. Risks/Mitigations
 11. Metrics
 12. Test Plan Requirements Matrix
 13. Definitions and Acronyms
- Appendix A- Detailed Resource Requirements
- Appendix B – Details Test Schedule

1. Objectives of the Test

This document describes the test plan for the GolfScore and includes the information on what is to be tested, and how the testing is to be accomplished (test methodology). Specially, this document describes the test to be performed, the testing schedule, resources required, entry criteria, exit criteria, dependencies, test tools, metrics and the test plan Requirement Matrix. This is a living test plan and must be changed to reflect Core Team needs and requirements as they arise.

A preliminary Test Plan is prepared for the Project Team during the System Phase of PEAQ Process. This Test Plan will be updated in the earliest possible time of the Implementation Phase, so that progress can be tracked during implementation.

2. Test Description

2.1 Description

The goal of the project is to test a program called GolfScore to process scores from a golf tournament, and produce reports showing who won the tournament and how the golfers performed on each course played.

GolfScore is a program used to generate reports of golfers' results for a golf tournament. The input to the program will consist of a formatted text file. The output from the program will consist of up to 3 reports, based on input options. The generated reports will be stored as text files in the directory determined from the program call line. The program is executed via a command line interface – there is no GUI associated with the application.

The program will be run as a stand-alone executable, and can be run from a command line prompt, from within an IDE (Integrated Development Environment), etc. Input to the program will come from an input record file, and output from the program will go to output record files in a format suitable for printing.

2.2 Process Tailoring

System Verification Test will be broken into three phases:

1. Entrance Testing will verify that the program can be executed from the command line and respond to the appropriate parameters.
2. Main Test will thoroughly verify the loading of input files, their processing and generating of the output reports. Main Test determines that all the requirements in the SRS have been satisfied. The Main Tests will consist of the following types of testing:
 - Specification testing
 - Functional testing
 - Documentation review
3. Regression Test will be performed as a subset of the Main Test to verify the integrity of the program after all problems found during Main Testing have been attended to. This means that all Severity 1 and 2 defects have been fixed and verified and that the product is ready for release. These features are not be tested because they are not included in the software requirement specification
 - User Interfaces
 - Hardware Interfaces
 - Software Interfaces
 - Communications Interfaces

2.3 References

1. Software Requirement Specification for the GolfScore, July 18,2017

2. Structured Software Test Planning at DataCard.

3. Schedule

| Test Sequence | Start | Finish |
|---------------------------|-----------|-----------|
| 1. Test Development | 7-1-2020 | 10-3-2020 |
| 2. Module Availability | | |
| 3. SVT main testing | 15-3-2020 | 30-4-2020 |
| 4. SVT regression testing | 5-5-2020 | 5-6-2020 |
| 5. Test Report | 13-6-2020 | 20-7-2020 |

4. Resources Required

System verification Test will require the following resources:

- A good computer for running the windows operating system and the golfscore program.
- The latest version of the golfscore executable program.
- Two SVT test personnel with at least 80% of their time available for this effort

5. Assumptions/Dependencies

Testing is the responsibility of the QA team that as a part of the project team, which will be composed of two certified QA engineers and a Testing Manager as the QA team leader In order to begin testing the GolfScore program, the following needs to happen

- A test environment with Windows running as the OS.
- Libraries and compiler for C or C++ has to be installed in the test environment so the executable file can run properly
- Have Access to GolfScore executable file.
- Have access and full permissions to the directories and the input and output files
- Full permissions to install different software testing tools.

6. Entry criteria

All entry criteria defined in reference (PEAQ) must be satisfied for entry into the test to occur. Input to GolfScore will consist of a formatted text file containing the records in the order given. Individual records in the file are terminated by the end of a line. The name of the input file is supplied as a parameter on the program call line .

7. Exit criteria

All entry criteria defined in reference (PEAQ) must be satisfied for the completion of this test. GolfScore will generate up to 3 reports, based on input options. The generated reports will be stored as text files in the directory determined from the program call line.

8. Test Tools

The tools that will be used to are:

- Defect control reporting and tracking software
- Automating testing software

9. Owner

The test plan is owned and maintained by the Test/Tools Group.

10. Risks/ Mitigation

Potential risks are listed in this section including the mitigation plan

| Item | Description | Mitigation of the risk | Impact |
|-------------------------------|--|--|--------|
| 1. The test code be incorrect | The code designed to run the test could present errors that can be confused with the test final result | Verify and test the code used for testing several times before get a conclusion as a test final result | Medium |
| 2. Lack of skills | Team member lack the required skills for automated testing | Plan training course to skill up your members | Low |
| 3. Virus find the input files | The input files can be infected with virus, affecting the whole system and the computer | Apply security measures to the software, the computer and minimize the impact of malicious software | High |

11. Metrics

The following metrics data will be collected. In addition, effort, size and defect data will be collected prior to and after product shipment. Once data from enough projects has been collected, estimates of testing progress and duration will become more meaningful.

Prior to shipment:

Effort expended during DVT, SVT and Regression

of defects uncovered during DVT, SVT and Regression, and development phase each defect is attributable to Test tracking S-Curve PTRS-Curve

After shipment:

of defects uncovered and development phase each defect is attributable to Size of software

12. Test Plan Requirements Matrix

| Requirement number | Requirement Name | Section of the SRS document |
|--------------------|---------------------------|-----------------------------|
| 2.3.1 | Tournament assumption | 2.3 Program Functionality |
| 2.3.2 | Scoring | |
| 2.4.1 | Course Records | 2.4 Data input |
| 2.4.2 | Delimiter Record | |
| 2.4.3 | Golfer Records | |
| 2.4.4 | Delimiter Record | |
| 2.5.1 | Tournament ranking report | 2.5 Data output |
| 2.5.2 | Golfer report | |
| 2.5.3 | Course report | |
| 2.6.1 | Input parameter Errors | 2.6 Error handling |
| 2.6.2 | Input Data Errors | |
| 2.6.3 | Errors on output | |

This test requirements were based on the Software Requirements Specification document of MSSE SOFTWARE, INC. The test cases for these requirements are defined in Appendix B

13. Definitions and Acronyms

| | |
|------|-------------------------------------|
| PEAQ | Product Excellence and Quality |
| SRS | Software Requirements Specification |
| SVT | System Verification Test |

Appendix A- Detailed Resource Requirements

This section shows the details of the resource estimates for achieving the test activities. The activities needed to test each requirement are defined and for each activity the estimated hours are indicated

| ID | Test Activity | Member | Relevant section(s) of SRS |
|----|--|--------------------|----------------------------|
| 1 | Create the test specification | Tester 1. Tester 2 | |
| 2 | Perform test execution | | |
| 3 | Calling the program with the appropriate command | Tester 1 | 2.2; 2.6.1 |
| 4 | Loading the input files(automated) | Tester 2 | 2.4; 2.4.1; 2.6.2 |
| 5 | Processing input files(automated) | Tester 2 | 2.4.2; 2.4.3; 2.4.4 |
| 6 | Generating output files(automated) | Tester 1 | 2.5; 2.6.3 |
| 7 | Performance testing | Tester 2 | 4 |
| 8 | Regression testing | Tester1, Tester 2 | |
| 9 | Test Report | Tester 1, Tester 2 | |

Appendix B- Detailed Test Cases

This section shows the test cases define for every requirement defined on the Software Requirement Specification

| ID | Test Case | Expected Output |
|----|---|--|
| 1 | Calling the program >golf -h | Display help information |
| 2 | Calling the program >golf -ctg | Course report, Tournament ranking report & Golfer report are generated |
| 3 | Calling the program >golf -ctg c:\golf\input.txt c:\golf\output | Appropriate reports are generated. The input files are used from the file c:\golf.input.txt. The output files are placed in the directory c:\golf\output |
| 4 | Calling the program with the wrong parameters >golf -mm | The program doesn't execute. The following message is displayed: "Unrecognizable input parameters" |
| 5 | Calling the program with nonexisting input file >golf -c c:\nofile.txt | The program doesn't execute. The following message is displayed: "Input file nofile.txtx doesn't exist" |
| 6 | Calling the program with nonexisting directory >golf -c c:\golf\input.txt c:\outp | The program doesn't execute. The following message is displayed: "Output directory c:\output doesn't exist" |

| | | |
|---|--|---|
| 7 | Calling the program with extra parameters at the end >golf -ctgc:\golf\input.txt c:\golf\output -hg | The program executes correctly. Appropriate reports are generated. No error messages are displayed. |
|---|--|---|

B-1 Main Test

| | | |
|----|---|--|
| 1 | The number of golf course '1' shall be accepted | Functional |
| 2 | The number of golf course '5' shall be accepted | Functional |
| 3 | The number of golf course '6' shall return an error | Functional |
| 4 | The number of golf course '0' shall return an error | Functional |
| 5 | Having 1 player shall return an error | Functional |
| 6 | Having more than 12 players shall return an error | Functional |
| 7 | Having string as record shall return an error | Non-Functional |
| 8 | Having between 2 and 12 players shall be accepted | Functional |
| 9 | Having numerical record shall be accepted | Non-Functional |
| 10 | Text file as an input shall be accepted | Non-Functional |
| 11 | No text file as an input shall return error | Non-Functional |
| 12 | Earlier windows version shall not be acceptable | Non-Functional |
| 13 | Etc... | For the other specifications defined in software Requirement specification/Design Document |