Revision History

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| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 15/03/2014 | 1.8 | Initial version of STP | Nazlı Karalar, Erdi Koç, Mehmet Kağan Kayaalp, İsmetcan Hergünşen, Gamze Küçükçolak |
| 16/03/2014 | 1.9 | Introduction (Document overview, abbreviations, references, conventions) | Erdi Koç, Nazlı Karalar, İsmetcan Hergünşen |
| 17/03/2014 | 1.10 | Test Preparations | Nazlı Karalar, Gamze Küçükçolak, Mehmet Kağan Kayaalp |
| 18/03/2014 | 1.11 | Tests Descriptions | Mehmet Kağan Kayaalp, İsmetcan Hergünşen, Erdi Koç |

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# Introduction

## Document overview

This document describes the plan for testing the CCB Project. It also explains the testing methodology for JDA, and will be used as a guide for the testing activity.

Accordingly, STP supports the following objectives:

* Identify existing project information and the software should be tested.
* List the recommended test requirements.
* Recommend and describe the testing strategies to be deployed.
* Identify the required resources and provide an estimation of the test reports.
* List the deliverable elements of the test activities.

## Abbreviations

|  |  |
| --- | --- |
| **Term** | **Description** |
| CCB Project | Crazy Copter Battle Project Game |
| DOC #STPV.1.0.x | Document version 1.0.x |
| JDA | Java Desktop Application |
| MVC | Model View Controller |
| GUI | Graphical User Interface |
| SDP | Software Development Plan |
| SRS | Software Requirements Specification |
| UML | Unified Modeling Language |
| STP | Software Test Plan |
| JDK | Java Development Kit |
| SRS-REQ-XXX | Software Requirements Specification, Requirement XXX |
| p. | Points |

## References

| # | Document Identifier | Document Title |
| --- | --- | --- |
| DOC#SDP V1.0 | [1] | Software Development Plan |
| DOC#SRS V1.0 | [2] | Software Test Plan |

## Conventions

Requirements listed in this document are constructed according to the following structure:

* Name of main sections has been inserted in bold letters.
* All abbreviations and acronyms are defined in 1.2 Abbreviations part.
* Document number is shown with number inside square brackets.
* Test ID starts from 1 and it increases for each test.
* The functional requirements is shown SRS-REQ-XXX and the nonfunctional requirements is shown SRS-NREQ-XXX

# Tests preparations

This section contains tasks and recommendations before executing tests.

## Software preparation

CCB project does not need any set-up; the game will be started when the executable jar file will be clicked. CCB game does not include complex programming so that there will not be any comprehensive configuration operations like simulators or test tools. Also, almost all parts of the tests will be done manually because of the project’s simple design.

## Other test preparation

No need for other test preparation.

## Safety, security and privacy precautions

Taking safety, security and privacy precautions will not be needed because CCB project does not save any credentials in a database. Also, the project does not use the Internet to run.

# Tests descriptions

Test descriptions are listed in chronological order.

## Software Test

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| --- | --- | --- |
| **Test ID** | **1** |  |
| Test description | Splash Screen Test |  |
| Verified Requirement | SRS-REQ-001 | Demonstration |
| Initial conditions | CCB must be installed. |  |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | N/A |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 | When player clicks the game. | Start Game, Help buttons and introduction will be seen. |

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| **Test ID** | **2** |  |
| Test description | “Loading Game” Test |  |
| Verified Requirement | SRS-REQ-002 | Demonstration |
| Initial conditions | “Start game” button must be clicked. | It is the result of Test 1. |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | N/A |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 |  | The user will wait the program’s initialization process for a while |

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| **Test ID** | **3** |  |
| Test description | Background Sound Test |  |
| Verified Requirement | SRS-REQ-003 | Inspection |
| Initial conditions | The game must be loaded and the sound driver must be installed in user’s computer. | It is the result of test 2. |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | Sound will be heard. |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | N/A |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 |  | User plays the game with background sound. |
| 2 |  | User plays the game without background sound. |

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| **Test ID** | **4** |  |
| Test description | Information Board and Timer Test |  |
| Verified Requirement | SRS-REQ-004 | Demonstration |
| Initial conditions | The game must be loaded. | It is the result of test 2. |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | N/A |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 |  | The user will see a dynamic timer on the top. Information board will be seen on the left of the top. |

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| **Test ID** | **5** |  |
| Test description | Keyboard Actions Test |  |
| Verified Requirement | SRS-REQ-005 | Inspection |
| Initial conditions | The game must be loaded. The keyboard driver must be installed in user’s computer. | It is result of Test 2. |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | The helicopter can move. |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 | Press correct keys | Helicopter moves. |
| 2 | Press wrong keys or not press | Helicopter does not move. |

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| **Test ID** | **6** |  |
| Test description | Firing and Launching Test |  |
| Verified Requirement | SRS-REQ-006 | Inspection |
| Initial conditions | The game must be loaded. The mouse driver must be installed in user’s computer. | It is the result of Test 2. |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | The helicopter can fire bullets and launch rockets. |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 | Click left | The helicopter fires bullet. |
| 2 | Click right | The helicopter launches rocket. |
| 3 | No click | The helicopter does not fire or launch. |

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| **Test ID** | **7** |  |
| Test description | Mouse Cursor Test |  |
| Verified Requirement | SRS-REQ-006 | Inspection |
| Initial conditions | The mouse driver must be installed in user’s computer. | It is the result of Test 2. |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | N/A |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 | Moves the mouse | Cursor will move according to the mouse movements |
| 2 | Does not move the mouse | Cursor will not move. |

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| **Test ID** | **8** |  |
| Test description | Collision Sound Test |  |
| Verified Requirement | SRS-REQ-007 | Inspection |
| Initial conditions | The game must be loaded and the sound driver must be installed in user’s computer. | It is the result of both test 2 and test 6. |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | N/A |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 | When user’s helicopter shots enemy helicopters with a rocket or bullet | The user will hear a collision sound. |
| 2 | When there is a collision between user’s helicopter and enemy helicopter | The user will hear a collision sound. |
| 3 | When user cannot shot enemy helicopters or there is no collision between them | The player will not hear collision sound. |

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| **Test ID** | **9** |  |
| Test description | Pause Test |  |
| Verified Requirement | SRS-REQ-008 | Inspection |
| Initial conditions | N/A | It is the result of test 2. |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | N/A |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 | When the user presses P key | The game will pause |
| 2 | When the user does not press the P key or press another key | The game will not pause. |

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| **Test ID** | **10** |  |
| Test description | Game Over Message Test |  |
| Verified Requirement | SRS-REQ-009 | Demonstration |
| Initial conditions | N/A | It is the result of Test 2 |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | It will give the correct result. |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 | When the user collides with enemy helicopters | Game will end and *Game Over* screen will appear on the top of the screen |
| 2 | If there is no collision between them | Game will not finish yet, it will continue and the user will not see *Game Over* screen. |

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| **Test ID** | **11** |  |
| Test description | Statistics Board Test |  |
| Verified Requirement | SRS-REQ-009 | Analysis |
| Initial conditions | N/A | It is the result of Test 2 |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | Score will be calculated. Criteria for calculating the score will be:  Bullet = -0.1 p.  Rocket = -1 p.  Run Away = +2 p.  Time = +1 p.  Destroyed Enemies = +3 p. | This calculation will depend on counter of destroyed enemies, bullets fired and rockets launched and the timer. |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 | When the user collides with enemy helicopters | Statistical data stops and it will be appeared on the center of the screen. |
| 2 | When there is no collision between them | Score will still count so it will not be appeared on the screen. |

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| **Test ID** | **12** |  |
| Test description | Performance Test |  |
| Verified Requirement | SRS-NREQ-001 | Test |
| Initial conditions | N/A |  |
| Tests inputs | N/A |  |
| Data collection actions | N/A |  |
| Tests outputs | N/A |  |
| Assumptions and constraints | N/A |  |
| Expected results and criteria | Operations of CCB shall be processed in less than 5 seconds. |  |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 | When the game is open in less than 5 seconds | Game responds to user in expected time. |
| 2 | When the game is not open in less than 5 seconds | Game will not respond to user. |

Examples of tests methods:

Inspection:

* Verify that the images (background, user’s and enemy’s copters’, bullet’s, rocket’s, cursor’s)
* Verify that the user’s controller
* Verify that the cursor of user’s copter
* Verify that the game pause

Demonstration

* Verify that when the user’s helicopter explodes, “Game Over!” message appears
* Verify that when the game is started, “Loading…” message appears
* Verify that the result is shown when the game ends
* Verify that information of user’s board is displayed properly

Analysis:

* Verify that the statistical distribution of results of score algorithm will be depend on bullet, rocket, destroyed enemies, run away, time.
  + Bullet = -0.1 p.
  + Rocket = -1 p.
  + Run Away = +2 p.
  + Time = +1 p.
  + Destroyed Enemies = +3 p.

Test:

* Verify that a file is maximum 20 MB
* Verify that the response time of the starting process is maximum 5 seconds

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|  | **Test 1** | **Test 2** | **Test 3** | **Test 4** | **Test 5** | **Test 6** | **Test 7** | **Test 8** | **Test 9** | **Test 10** | **Test 11** | **Test 12** |
| **SRS-REQ-001** | ✓ |  |  |  |  |  |  |  |  |  |  |  |
| **SRS-REQ-002** |  | ✓ |  |  |  |  |  |  |  |  |  |  |
| **SRS-REQ-003** |  |  | ✓ |  |  |  |  |  |  |  |  |  |
| **SRS-REQ-004** |  |  |  | ✓ |  |  |  |  |  |  |  |  |
| **SRS-REQ-005** |  |  |  |  | ✓ |  |  |  |  |  |  |  |
| **SRS-REQ-006** |  |  |  |  |  | ✓ | ✓ |  |  |  |  |  |
| **SRS-REQ-007** |  |  |  |  |  |  |  | ✓ |  |  |  |  |
| **SRS-REQ-008** |  |  |  |  |  |  |  |  | ✓ |  |  |  |
| **SRS-REQ-009** |  |  |  |  |  |  |  |  |  | ✓ | ✓ |  |
| **SRS-NREQ-001** |  |  |  |  |  |  |  |  |  |  |  | ✓ |