# Test Report

## Result of Non-Functional Tests

**Test 1 – CPU Speed Test**

This test is due to be completed later on in the duration of this project, and thus there are no results for this test as of yet.

**Test 2 – Usability Test**

**Initial State –** knaves-nes folder open in terminal and rom file stored within folder

**Input –** User enters knavesnes –help and finds out how to open the .nes file in the emulator, and follows the instructions to successfully open the file

**Expected Results –** The user is able to successfully open the .nes file without any issues.

**Test Result -** Passed; Actual output matched expected output

## Result of System/Functional Tests

**Test 1 – LDA Instruction Test**

**Initial State –** A terminal window is opened in the folder which contains the knavesnes executable and LDA Instruction test rom file.

**Input –** ldatest.nes with the instruction LDA #$c0

**Expected Results –** Memory Log file displays:

A = $c0; X = $00; Y = $00; All mem = $00

**Test Result -** Passed; Actual output matched expected output

**Test 2 – STA Instruction Test**

**Initial State –** A terminal window is opened in the folder which contains the knavesnes executable and STA Instruction test rom file.

**Input –** statest.nes with the instructions:

LDA #$10

STA $01

LDA #$20

STA $02

LDA #$c0

STA $c2

LDA #$fe

STA $00 13

LDA #$19

STA $00

**Expected Results –** Memory Log file displays:

A = $19; X = $00; Y = $00; NV-BDIZC 00110000

**Test Result -** Passed; Actual output matched expected output

**Test 3 – ADC Instruction Test**

**Initial State –** A terminal window is opened in the folder which contains the knavesnes executable and ADC Instruction test rom file.

**Input –** adctest.nes with the instructions:

LDA #$10

STA $01

ADC $01

LDA #$01

STA $01

ADC $12

LDA #$03

STA $02

ADC $23

LDA #$05

STA $03

ADC $34

LDA #$ff

STA $03

ADC $34

**Expected Results –** Memory Log file displays:

A=$c2; X=$00; Y=$00; NV-BDIZC 10110000

0000: 00 01 03 c2 00 00 00 00 00 00 00 00 00 00 00 00

0010: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0020: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0030: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0040: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0050: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0060: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0070: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0080: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0090: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00a0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00b0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00c0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00d0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00e0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00f0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

**Test Result -** Passed; Actual output matched expected output

**Test 4 – TAX Instruction Test**

**Initial State –** A terminal window is opened in the folder which contains the knavesnes executable and TAX Instruction test rom file.

**Input –** taxtest.nes with the instructions:

LDA #$01

TAX

LDA #$ff

TAX

LDA #$50

TAX

LDA #$30

TAX

LDA #$21

TAX

**Expected Results –** Memory Log file displays:

A=$21; X=$21; Y=$00; NV-BDIZC

00110000; All mem = $00

**Test Result -** Passed; Actual output matched expected output

**Test 5 – CMP Instruction Test**

**Initial State –** A terminal window is opened in the folder which contains the knavesnes executable and CMP Instruction test rom file.

**Input –** cmptest.nes with the instructions:

DA #$13

STA #$00

CMP #$13

**Expected Results –** Memory Log file displays:

A=$13; X=$00; Y=$00; NV-BDIZC

00110011

0000: 13 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0010: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0020: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0030: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0040: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0050: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0060: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0070: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0080: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0090: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00a0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00b0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00c0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00d0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00e0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00f0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

**Test Result -** Passed; Actual output matched expected output

**Test 6 – BNE Instruction Test**

**Initial State –** A terminal window is opened in the folder which contains the knavesnes executable and BNE Instruction test rom file.

**Input –** bnetest.nes with the instructions:

LDA #$02

STA $01

add:

ADC $01

CMP #$06

BNE add

LDA #$32

BRK

**Expected Results –** Memory Log file displays:

A=$32; X=$00; Y=$00; NV-BDIZC

00110001

0000: 00 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0010: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0020: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0030: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0040: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0050: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0060: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0070: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0080: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0090: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00a0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00b0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00c0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00d0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00e0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

00f0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

**Test Result -** Passed; Actual output matched expected output

**Test 7 – Loading a Non-Existent ROM file**

**Initial State –** A terminal window is opened in the folder, which contains the knavesnes executable and does not contain a file named xxyyzz.nes.

**Input –** xxyyzz.nes as a non-existent file.

**Expected Results –** Program terminates and tells user to re-check the file for its existence.

**Test Result -** Passed; Actual output matched expected output

**Test 8 – Loading a Corrupted ROM file**

**Initial State –** A terminal window is opened in the folder, which contains the knavesnes executable and a corrupt (originally a word doc) file named mario.nes.

**Input –** mario.nes as a corrupt rom file.

**Expected Results –** Program terminates and tells user to re-check the file as it is corrupt/unreadable.

**Test Result -** Passed; Actual output matched expected output

**Changes Made In Response to Testing**

Our testing turned out really well, and there were no changes made from our original plan due to testing.

**Automated Testing**

Automated testing is part of our project, but is one that will be completed later on in the project and thus results for automated testing are not ones that will be included as part of this report.

**Traceability to Requirements Document**

All test cases outlined in this document follow the requirements set out for this project in the requirements document. All use cases as outlined in Section 6 of the requirements document have adequately been tested as a part of this test report, and we believe that all the test results, which use modules outlined in the use cases, have been successful.

**Traceability to Modules**

The cartridge, CPU, and memory modules have all been tested by means of our test cases. In order to run each and every one of our tests all three modules were used, and therefore we can conclude that all modules are working well in individually and in conjunction to achieve the results that we had planned for.

**Code Coverage Metrics**

Code coverage metrics have not been utilized for this project yet as they are part of the long-term project and not within the scope of what we expect to complete by the end of this course.