**Testing Plan**

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# Introduction

This document describes the manner, expected output, and result of each test conducted on the assembler. The assembler will be tested to see that the expected errors are produced and also tested that the assembler produces the correct and expected object file output.

# Error Checking

## Test Explanation

The tests following are specifically designed to make the assembler produce a certain error. The error and the conditions required to produce each error are listed in the following section.

## Test Results

### File IO

Call: >java Assembler.Main doesnotexist.asm

Result: Failed to assemble program due to an IO error.

### Next error

# Object File Assembly

## Test Explanation

The tests following are assembly language files written to produce correct and expected object file output. The assembly files will be written with various lengths and complexity to test the various commands allowed in our assembly language architecture.

## Test Results

### Prompt Given Example

|  |  |
| --- | --- |
| Assembly | Object File |
| ; Example Program  Lab2EG .ORIG x30B0  count .FILL #4  Begin LD ACC,count ;R1 <- 4  LEA R0,msg  loop TRAP x22 ;print "hi! "  ADD ACC,ACC,#-1 ;R1--  BRP loop  JMP Next  msg .STRZ "hi! "  Next AND R0,R0,x0 ;R0 <- 0  NOT R0,R0 ;R0 <- xFFFF  ST R0,Array ;M[Array] <-xFFFF  LEA R5,Array  LD R6,=#100 ;R6 <= #100  STR R0,R5,#1  TRAP x25  ACC .EQU #1  ; ----- Scratch Space -----  Array .BLKW #3  .FILL x10  .END Begin | HLab2EG30B00018  T30B00004  T30B122B0  T30B2E0B7  T30B3F022  T30B4127F  T30B502B3  T30B640BC  T30B70068  T30B80069  T30B90021  T30BA0020  T30BB0000  T30BC5020  T30BD903F  T30BE30C3  T30BFEAC3  T30C02CC7  T30C17141  T30C2F025  T30C60010  T30C70064  E30B1 |
| **Result:** | Matches Expected Output |

### Absolute Program

|  |  |
| --- | --- |
| Assembly | Object File |
| .ORIG x3000  .END Begin | H30000003  T30000004  E3001 |
| **Result:** |  |

### Relative Program

|  |  |
| --- | --- |
| Assembly | Object File |
| .ORIG x3000  .END Begin | H30000003  T30000004  E3001 |
| **Result:** |  |

### Absolute Program Using Each Machine and Pseudo-op

|  |  |
| --- | --- |
| Assembly | Object File |
| .ORIG x3000  .END Begin | H30000003  T30000004  E3001 |
| **Result:** |  |

### Relative Program Using Each Machine and Pseudo-op

|  |  |
| --- | --- |
| Assembly | Object File |
| .ORIG x3000  .END Begin | H30000003  T30000004  E3001 |
| **Result:** |  |

### Program with Maximum Symbols, Literals, and Source Records

|  |  |
| --- | --- |
| Assembly | Object File |
| .ORIG x3000  .END Begin | H30000003  T30000004  E3001 |
| **Result:** |  |

### Program Using Forward Referencing

|  |  |
| --- | --- |
| Assembly | Object File |
| .ORIG x3000  .END Begin | H30000003  T30000004  E3001 |
| **Result:** |  |

### Program Beginning Execution at Last Memory Address

|  |  |
| --- | --- |
| Assembly | Object File |
| LasMem .ORIG xFFFF  count .FILL #4  Begin LD ACC,count ;R1 <- 4  LEA R0,msg  loop TRAP x22 ;print "hi! "  ADD ACC,ACC,#-1 ;R1--  BRP loop  JMP Next  msg .STRZ "hi! "  Next AND R0,R0,x0 ;R0 <- 0  NOT R0,R0 ;R0 <- xFFFF  ST R0,Array ;M[Array] <-xFFFF  LEA R5,Array  LD R6,=#100 ;R6 <= #100  STR R0,R5,#1  TRAP x25  ACC .EQU #1  ; ----- Scratch Space -----  Array .BLKW #3  .FILL x10  .END Begin | HLasMemffff0018  Tffff0004  T000023ff  T0001e006  T0002f022  T0003127f  T00040202  T0005480b  T00060068  T00070069  T00080021  T00090020  T000a0000  T000b5020  T000c9000  T000d3012  T000eea12  T000f2c16  T00107141  T0011f025  T00150010  T00160064  E0000 |
| **Result:** | Passes Test When it Should Not |

### Program Spanning Page Boundary

|  |  |
| --- | --- |
| Assembly | Object File |
| .ORIG x3000  .END Begin | H30000003  T30000004  E3001 |
| **Result:** |  |

### Incorrect Use of Literal

|  |  |
| --- | --- |
| Assembly | Object File |
| Test03 .ORIG  Begin ADD R0, R1, =#100  .END Begin | Htest03.00000004  T00030064  E0000 |
| **Result:** | Program Doesn’t Complete Assembly |