**User’s Guide – Lab 1**  
Author: Ryan Powers

This document’s intent is to describe the features of the program, serve as a general purpose instruction manual for users, and as a troubleshooting guide for error messages.

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1. **Using The Program**
   1. **System Requirements**

The WI11 Simulator requires the Java Runtime Environment 1.6

* 1. **Installation**

To install, first unzip the project files into an empty directory. Next, compile the java byte code by typing the following into a command line:

> javac Main.java

* 1. **Starting the Program**

To start the program, simply run Main. The input file is the only required argument for basic simulation. Optional arguments are an output file and running mode.

* + 1. **Input File**

The input file needs to be a file of records and added to the program call in the following manner:

> java Main inputfile

* + 1. **Output File**

If no output file is specified, the program will print all output to the console. If an output file is desired, a filename for such should be added to the program call:

> java Main inputfile -o outputfile

* + 1. **Running Mode**

The program supports three different running modes that can be added to the program call:

> java Main inputfile -r runningmode

* + - * **Quiet**

The program will run normally without any interruption. This is the default execution mode.

* + - * **Trace**

In trace mode, the program will print the state of the machine at key intervals. Immediately after the loading of the inputfile the program will print the memory page and current state of the registers. After program execution has continued, the program will print each instruction executed, the memory locations and the registers affected. Finally the program will print the memory page and the final state of the registers after simulation execution has completed.

* + - * **Step**

In step mode, all the printouts from trace mode are included in program output. However, program execution will pause after each instruction until you specify that the program should continue. **NOTE:** Printing to an output file is disabled in step mode.

1. **Error Messages**
   1. **Error:** “Failed to open file *filename* for reading.”

**Causes:** Input file is not correct format.

**Solutions:** Run program will properly formatted input file.

* 1. **Error:** “Length of header record is incorrect. Should be *x* characters.”

**Causes:** Header is either too short or too long.

**Solutions:** Edit object file to have correct length header.

* 1. **Error:** “Length of text record is incorrect. Should be *x* characters.

**Causes:** Text record is too short or too long.

**Solutions:** Edit the object file to have the correct length text record.

* 1. **Error:** “Length of end record is incorrect. Should be *x* characters.

**Causes:** End record is too short or too long.

**Solutions:** Edit the object file to have the correct length end record.

* 1. **Error:** “First character of line is invalid; must be 'H', 'T', or 'E'.”

**Causes:** First character is invalid.

**Solutions:** Edit the object file line to begin with one of the given options.