

CSCI6461

# **Computer System Architecture**

## **Project Part 3 User Manual**

### **Team - 5**

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## How to run the Simulator

1. Download the jar file named – “part3.jar”
2. Download the Program1.txt, Program2.txt and Demo.txt file and remember the location where you downloaded it.

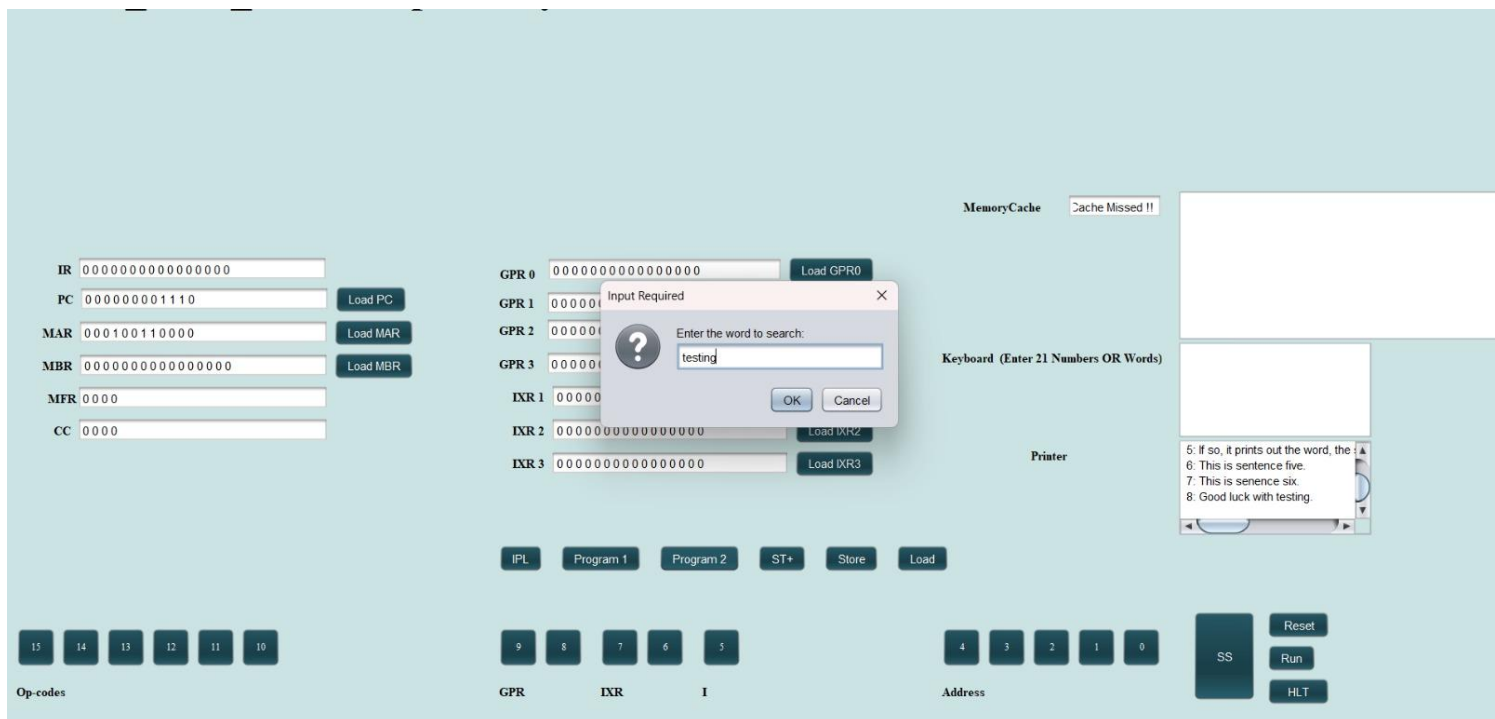
You can directly double click on the downloaded jar file to execute it, click on IPL button and upload the load.txt file to test it (Steps to do this mention below in **Testing the Simulator** section)

3. From terminal, cd into the place where you downloaded the jar file and type-  
**java -jar Part3.jar**

**If you directly want to run it from the source code, open the source code in any IDE, go to part3.java file and run the main program there.**

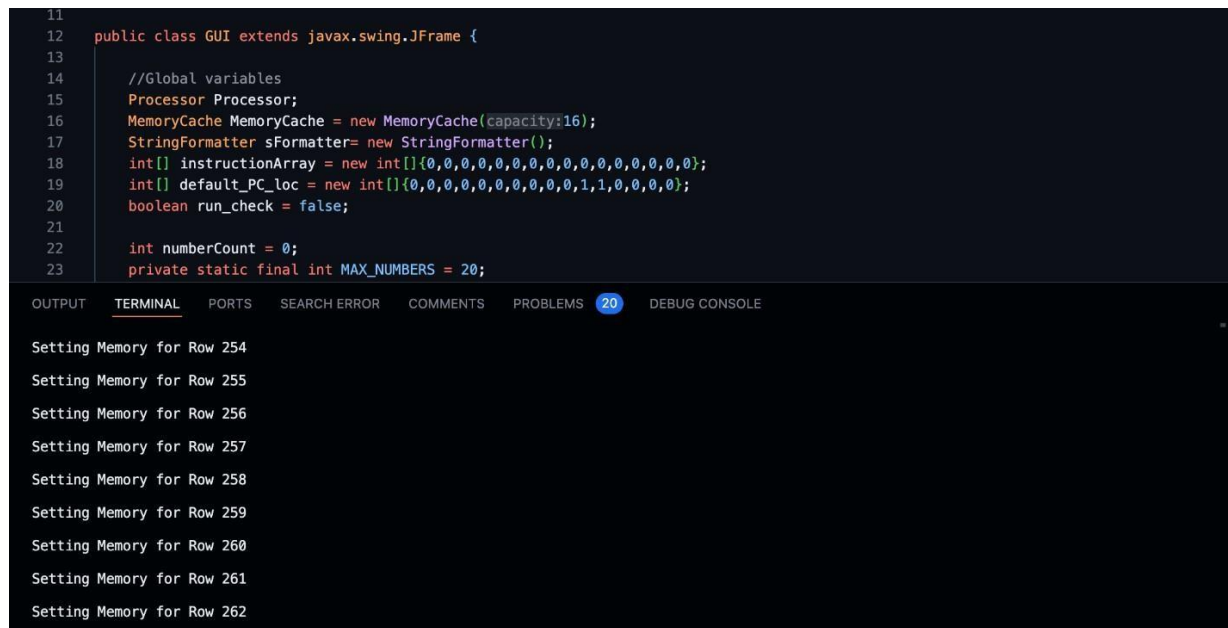
## Testing the Simulator:

### Final output of the GUI



Once the simulator is up and running, you can start testing the simulator.

- 1) Click on the program2 button shown on the user interface. A dialog box will open like shown in the above image
- 2) Navigate to the directory and select Program2.txt file. We are assuming that the code has already been parsed through assembler.
- 3) Once you upload it, you'll get notified with a message getting printed in the console, that would mean that the file upload was successful



The screenshot shows an IDE with a Java file editor at the top and a terminal window at the bottom. The Java code defines a GUI class with various variables and arrays. The terminal window shows a series of messages indicating memory settings for rows 254 through 262.

```
11
12 public class GUI extends javax.swing.JFrame {
13
14     //Global variables
15     Processor Processor;
16     MemoryCache MemoryCache = new MemoryCache(capacity:16);
17     StringFormatter sFormatter= new StringFormatter();
18     int[] instructionArray = new int[]{0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0};
19     int[] default_PC_loc = new int[]{0,0,0,0,0,0,0,0,0,0,1,1,0,0,0,0};
20     boolean run_check = false;
21
22     int numberCount = 0;
23     private static final int MAX_NUMBERS = 20;
```

OUTPUT   **TERMINAL**   PORTS   SEARCH ERROR   COMMENTS   PROBLEMS 20   DEBUG CONSOLE

Setting Memory for Row 254  
Setting Memory for Row 255  
Setting Memory for Row 256  
Setting Memory for Row 257  
Setting Memory for Row 258  
Setting Memory for Row 259  
Setting Memory for Row 260  
Setting Memory for Row 261  
Setting Memory for Row 262

- 4) Now, you have to test the simulator. Notice that the value in PC automatically changes. It changes to where the first instruction in the loading file is located. A popup will appear asking you to search for the word from the loaded file.
- 5) Start by entering any keyword from that file. For example, if we search for word console it will give us the word number where it is present and also the sentence number where it is present and both will be shown in the printer.
- 6) The output is shown below.

# CSCI 6461 Machine Simulator

IR 0000000000000000  
PC 000000001110  
MAR 000100110000  
MBR 0000000000000000  
MFR 0000  
CC 0000

Load PC

Load MAR

Load MBR

GPR 0 0000000000000000  
GPR 1 0000000000000000  
GPR 2 0000000000000000  
GPR 3 0000000000000000  
IXR 1 0000000000000000  
IXR 2 0000000000000000  
IXR 3 0000000000000000

Load GPR0

Load GPR1

Load GPR2

Load GPR3

Load IXR1

Load IXR2

Load IXR3

MemoryCache Cache Missed ?

Keyboard (Enter 21 Numbers OR Words)

Printer

The Searched Word is:testing  
Sentence Line is: 8  
location in sentence 8: 4

IPL

Program 1

Program 2

ST+

Store

Load

15 14 13 12 11 10

Op-codes

9 8 7 6 5

GPR

IXR

I

4 3 2 1 0

Address

SS  
Reset  
Run  
HLT