

System Software and Compiler Design

Lab Assignment 2

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Panel: B

Batch: B2

Code:

PassTwo.java

```
import java.io.BufferedReader;
import java.io.BufferedWriter;
import java.io.FileReader;
import java.io.FileWriter;
import java.util.ArrayList;

public class PassTwo {
    ArrayList<String> symtab = new ArrayList<>();
```

```
ArrayList<Integer> symaddr = new ArrayList<>();

public void extractSymtab() throws Exception {
    BufferedReader br = new BufferedReader(new FileReader("sym.txt"));
    String line;
    line = br.readLine();
    while ((line = br.readLine()) != null) {
        String[] parts = line.split("\\s+");
        symtab.add(parts[1]);
        symaddr.add(Integer.parseInt(parts[2], 16));
    }
}

public void generateMC() throws Exception {
    BufferedReader br = new BufferedReader(new FileReader("ic.txt"));
    BufferedWriter wr = new BufferedWriter(new FileWriter("mc.txt"));

    String line;
    line = br.readLine();
    while ((line = br.readLine()) != null) {
        String[] parts = line.split("\\s+");
        if (parts[0] != "") {
            String partOne = parts[0];
            String partTwo = parts[1];
            partTwo = (partTwo.split(",")[1]).replace(")", "");
            if (parts.length == 4) {
                String partThree = parts[2].replace("(", "").replace(")", "");
                String partFour = parts[3];
                partFour = (partFour.split(",")[1]).replace(")", "");
                // System.out.println(partFour);
                int addr = symaddr.get(Integer.parseInt(partFour) - 1);
```

```

        wr.write(partOne + " " + partTwo + " " + partThree + " " + addr + "\n");
    } else {
        String partThree = " ";
        String partFour = parts[2];
        partFour = (partFour.split(",")[1]).replace(" ", "");
        wr.write(partOne + " " + partTwo + " " + partThree + " " + partFour + "\n");
    }
} else {
    wr.write("\n");
}
}

br.close();
wr.close();
}

public static void main(String[] args) throws Exception {
    PassTwo p = new PassTwo();
    p.extractSymtab();
    p.generateMC();
}
}

```

Input:

ic.txt

Location	Instruction	OpCode1	Opcode2
	(AD,01)		(C,00)
0	(IS,05)	(1)	(S,1)
1	(IS,08)	(2)	(S,3)
2	(IS,05)	(2)	(S,1)
	(AD,04)		(S,2)
3	(IS,05)	(2)	(S,1)
4	(DL,01)		(C,4)
5	(DL,02)		(C,3)
	(AD,02)		

sym.txt

ID	Symbol	Address	Length
1	S1	4	1
2	L1	1	1
3	S2	5	3
4	L2	1	1

Output:

mc.txt

0	05	1	4
1	08	2	5
2	05	2	4
3	05	2	4
4	01		4
5	02		3