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package spos2;
import java.io.BufferedReader;
import java.io.BufferedWriter;
import java.io.FileReader;
import java.io.FileWriter;
import java.io.IOException;
import java.util.ArrayList;

public class pass2 {
    public static void main(String args[]) throws IOException {
        ArrayList<TableRow> symtab =
readSymtab("C:\\Users\\SNEHAL\\Desktop\\symtabb.txt");

        processInstructions(symtab, "C:\\Users\\SNEHAL\\Desktop\\iic.txt",
"C:\\Users\\SNEHAL\\Desktop\\MachineCode.txt");

        System.out.println("DONE!!");
    }

    private static ArrayList<TableRow> readSymtab(String symtabFilePath)
throws IOException {
        BufferedReader br = new BufferedReader(new
FileReader(symtabFilePath));
        String line;
        ArrayList<TableRow> symtab = new ArrayList<>();

        while ((line = br.readLine()) != null) {
            String parts[] = line.split("\\s+");
            symtab.add(new TableRow(parts[1], Integer.parseInt(parts[2]),
Integer.parseInt(parts[0])));
        }
        br.close();

        return symtab;
    }

    private static void processInstructions(ArrayList<TableRow> symtab,
String inputFilePath, String outputFilePath)
throws IOException {
        BufferedReader br = new BufferedReader(new
FileReader(inputFilePath));
        BufferedWriter bw = new BufferedWriter(new
FileWriter(outputFilePath));

        String line;
        while ((line = br.readLine()) != null) {
            String parts[] = line.split("\\s+");
            if (parts[0].contains("AD") || parts[0].contains("(DL,02)") {
                bw.write("\\n");
            } else if (parts[0].contains("DL,01")) {
                String[] opcode = parts[1].split(",");
                opcode[1] = opcode[1].replace(" ", "");
                bw.write("+ 00 0 00" + opcode[1] + "\\n");
            } else if (parts[0].contains("IS")) {
                String op = "+ ";
                String[] opcode = parts[0].split(",");
                opcode[1] = opcode[1].replace(" ", "");
            }
        }
    }
}

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        op = op + opcode[1] + " ";

        if (parts.length == 2) {
            String[] opc = parts[1].split(",");
            opc[1] = opc[1].replace(")", "");
            int oc = Integer.parseInt(opc[1]);
            int add = symtab.get(oc - 1).getAddress();

            op = op + add + " ";
        } else if (parts.length == 3) {
            String[] rg = parts[1].split(",");
            rg[1] = rg[1].replace(")", "");
            op = op + rg[1] + " ";

            String[] opc = parts[2].split(",");
            opc[1] = opc[1].replace(")", "");
            int oc = Integer.parseInt(opc[1]);
            int add = symtab.get(oc - 1).getAddress();

            op = op + add + " ";
        }

        bw.write(op + "\n");
    }

    bw.close();
    br.close();
}

class TableRow {
    String symbol;
    int address, index;

    public TableRow(String symbol, int address, int index) {
        this.index = index;
        this.symbol = symbol;
        this.address = address;
    }

    public String getSymbol() {
        return symbol;
    }

    public int getIndex() {
        return index;
    }

    public int getAddress() {
        return address;
    }
}

```

Input for code

IC:

(AD,01) (C,3)

(IS,02) (R,1) (S,2)

(DL,01) (C,1)

SYMBOL TABLE:

1 A 400

2 B 402

3 C 404

OUTPUT:

+ 02 1 402

+ 00 0 001