Name: Yash Shastri

TECOC64
Subject: SPOS

Assignment No.1

Input:
initial.txt
START 100
MOV AREG A
MOV BREG B
MOV CREG =2
MOV DREG =3
ADD AREG BREG
SUB AREG A
A DC 05
B DS 03
END

Code:

```java
import java.util.*;
import java.io.*;
public class pass1
{
        static int address=0;
        static int sadd[]=new int[10];
    static int ladd[]=new int[10];
    public static void main(String args[])
    {

        BufferedReader br;
        OutputStream oo;
        String input=null;

        String IS[]={"ADD","SUB","MUL","MOV"};
        String UserReg[]={"AREG","BREG","CREG","DREG"};
        String AD[]={"START","END"};
        String DL[]={"DC","DS"};
        int lc=0;
        int scount=0,lcount=0;
        int flag=0,flag2=0,stored=0;

        String tokens[]=new String[30];
        String tt=null;

        String sv[]=new String[10];
        String lv[]=new String[10];
```

```java
try
{
    br=new BufferedReader(new FileReader("initial.txt"));
    File f = new File("IM.txt");
    File f1 = new File("ST.txt");
    File f2 = new File("LT.txt");
    PrintWriter p = new PrintWriter(f);
    PrintWriter p1 = new PrintWriter(f1);
    PrintWriter p2 = new PrintWriter(f2);
            int k=0,l=0;
    while ((input = br.readLine()) != null)
    {
        StringTokenizer st = new StringTokenizer(input," ");
        while (st.hasMoreTokens())
            {
                tt=st.nextToken();
                    //System.out.println(tt);

                        if(tt.matches("\\d*")&& tt.length() > 2)
                        {
                            lc=Integer.parseInt(tt);
                            p.println(lc);
                            address=lc-1;
                        }
                    else
                        {
                            for(int i=0;i<AD.length;i++)
                                    {
                                            if(tt.equals(AD[i]))
                                            {
                                                p.print("AD "+(i+1)+" ");
                                            }
                                    }

                             for(int i=0;i<IS.length;i++)
                        {
                            if(tt.equals(IS[i]))
                             {
                                 p.print("IS "+(i+1)+" ");

                             }
                        }
                        for(int i=0;i<UserReg.length;i++)
                        {
                                if(tt.equals(UserReg[i]))
                                {
                                    p.print((i+1)+" ");
                                    flag=1;
                                }

                        }
```

```java
                                for(int i=0;i<DL.length;i++)
                        {
                                        if(tt.equals(DL[i]))
                                        {
                                                p.print("DL "+(i+1)+" ");
                                        }
                        }
                        if(tt.length()==1 && !(st.hasMoreTokens()) &&
        flag==1)

                        {

                                        if ( Arrays.asList(sv).contains(tt) )
                                        {

                                                for(int i=0;i<scount;i++)
                                                {

                                                        if(sv[i].equals(tt))
                                                                {

        p.print("S"+i);

                                                                        flag2=1;
                                                        }
                                                        else
                                                        {
                                                                flag2=0;
                                                        }
                                                }

                                        }
                                        else
                                        {
                                          p.print("S"+scount);
                                                sv[scount]=tt;
                                                flag2=1;
                                                scount++;
                                        }

                        }

                        if(tt.length()==1 && (st.hasMoreTokens()))
                        {
                                        p.print(tt+" ");
                                        sadd[k]=address;k++;

                        }


                        if(tt.charAt(0)=='=')
                        {
                                        p.print("L"+lcount);
                                        lv[lcount]=tt;
```

```
                                                lcount++;
                        }
                        if(!st.hasMoreTokens())
                                {
                                        p.println();
                                }

                        if(tt.equals("DS"))
                        {
                            int a=Integer.parseInt(st.nextToken());
                            address=address+a-1;
                            p.println();
                        }

                }

            }
            //System.out.println();
            address++;
    } p.close();
    address--;

    for(int i=0;i<lcount;i++)
    {
            ladd[i]=address;
            address++;
    }


    for(int i=0;i<scount;i++)
    {
            p1.println(i+"\t"+sv[i]+"\t"+sadd[i]);
    }p1.close();

    for(int i=0;i<lcount;i++)
    {
            p2.println(i+"\t"+lv[i]+"\t"+ladd[i]);
    }p2.close();
}
catch(Exception e)
{
    e.printStackTrace();
} } }
```

OUPUT:

ST.TXT
0   A   106

1   B   107

LT.TXT
0   =2   110
1   =3   111

IM.TXT
AD 1 100
IS 4 1 S0
IS 4 2 S1
IS 4 3 L0
IS 4 4 L1
IS 1 1 2
IS 2 1 S0
A DL 1
B DL 2
AD 2