**Assignment No: 1a**

```java
//program to implement pass-1 of assembler.

package spos;
import java.io.*;
class P1
{
public static void main(String ar[])throws IOException
{
BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
int i;
String a[][]={{"","START","101",""},
{"","MOVER","BREG","ONE"},
{"AGAIN","MULT","BREG","TERM"},
{"","MOVER","CREG","TERM"},
{"","ADD","CREG","N"},
{"","MOVEM","CREG","TERM"},
{"N","DS","2",""},
{"RESULT","DS","2",""},
{"ONE","DC","1",""},
{"TERM","DS","1",""},
{"","END","",""}};
int lc=Integer.parseInt(a[0][2]);
String st[][]=new String[5][2];
int cnt=0,l;
for (i=1;i<11;i++)
{
if (a[i][0]!="")
{
st [cnt][0]=a[i][0];
st[cnt][1]=Integer.toString(lc);
cnt++;
if(a[i][1]=="DS")
{
int d=Integer.parseInt(a[i][2]);
lc=lc+d;
```

```java
}
else
{
lc++;
}
}
else
{
lc++;
}
}
System.out.print("***SYMBOL TABLE****\n");
System.out.println("_____");
for(i=0;i<5;i++)
{
for(cnt=0;cnt<2;cnt++)
{
System.out.print(st[i][cnt]+"\t");
}
System.out.println();

}
String
inst[]={"STOP","ADD","SUB","MULT","MOVER","MOVEM","COMP","BC","DIV","RE
AD","PRINT"};
String reg[]={"NULL","AREG","BREG","CREG","DREG"};
int op[][]=new int[12][3];
int j,k,p=1,cnt1=0;
for(i=1;i<11;i++)
{
for(j=0;j<11;j++)
{
if(a[i][1].equalsIgnoreCase(inst[j]))
{
op[cnt1][0]=j;
}
else
```

```java
if(a[i][1].equalsIgnoreCase("DS"))
{
p=Integer.parseInt(a[i][2]);
}
else if(a[i][1].equalsIgnoreCase("DC"))
{
op[cnt1][2]=Integer.parseInt(a[i][2]);
}
}
for(k=0;k<5;k++)
{
if(a[i][2].equalsIgnoreCase(reg[k]))
{
op[cnt1][1]=k;
}
}
for(l=0;l<5;l++)
{
if(a[i][3].equalsIgnoreCase(st[l][0]))
{
int mn=Integer.parseInt(st[l][1]);
op[cnt1][2]=mn;
}
}
cnt1=cnt1+p;
}
System.out.println("\n *****OUTPUT*****\n");
System.out.println("**********MOT TABLE**********");
int dlc=Integer.parseInt(a[0][2]);
for(i=0;i<12;i++)
{
System.out.print(dlc+++"\t");
for(j=0;j<3;j++)
{
System.out.print(" "+op[i][j]+" ");
}
System.out.println();
```

```
        }
System.out.println("");


        }
}
```

Output:

```
***SYMBOL  TABLE****
_____
AGAIN      102
N          106
RESULT     108
ONE        110
TERM       111

  *****OUTPUT*****

**********MOT  TABLE**********
101      4   2   110
102      3   2   111
103      4   3   111
104      1   3   106
105      5   3   111
106      0   0   0
107      0   0   0
108      0   0   0
109      0   0   0
110      0   0   1
111      0   0   0
112      0   0   0
```