import java.io.\*;

import java.util.\*;

class Conversion

{

public static void main(String args[])throws IOException

{

String code[][]={

{"PRG1","START","",""},

{"","USING","\*","15"},

{"","L","",""},

{"","A","",""},

{"","ST","",""},

{"FOUR","DC","F",""},

{"FIVE","DC","F",""},

{"TEMP","DS","1F",""},

{"","END","",""}

};

String av[]=new String[2];

char avail[]={'N','N','N','N','N','N','N','N','N','N','N','N','N','N','N','N'};

int i,j,k,count[]=new int[3],

lc[]={0,0,4,8,12,16,20,24,24},loc=0;

System.out.println("------------------------------------------------\n");

System.out.println("\tLabel\t Opcode");

System.out.println("------------------------------------------------\n\n");

for(i=0;i<=8;i++)

{

for(j=0;j<=3;j++)

{

System.out.print("\t"+code[i][j]);

}

j=0;

System.out.println("\t");

}

System.out.println("--------------------------------------");

System.out.println("\n VALUES FOR LC: \n\n");

for(j=0;j<=8;j++)

{

if(((code[j][1].equalsIgnoreCase("START"))==true)&&((code[j][1].equalsIgnoreCase("USING"))==true)&&((code[j][1].equalsIgnoreCase("L"))==true))

lc[j]=lc[j-1]+4;

System.out.println("\t"+lc[j]);

}

System.out.println("\n\nSYMBOL TABLE:\n----------------------------------\n");

System.out.println("SYMBOL\t\tVALUE\t\tLENGTH\t\tR/A");

System.out.println("\n----------------------------------\n");

for(i=0;i<9;i++)

{

if((code[i][1].equalsIgnoreCase("START"))==false)

{

System.out.println(code[i][0]+"\t\t"+lc[i]+"\t\t"+4+"\t\t"+"R"+"\n");

}

else if((code[i][1].equalsIgnoreCase("")==true))

{

System.out.println(code[i][0]+"\t\t"+lc[i]+"\t\t"+4+"\t\t"+"R"+"\n");

loc=4+loc;

}

else if((code[i][1].equalsIgnoreCase("USING"))==false)

{

}

else

{

loc=4+loc;

}

}

System.out.println("--------------------------------");

System.out.println("\n\nBase Table:\n--------------");

System.out.println("Reg no\t\t Availability\tContents of base table");

System.out.println("\n-------------------------------\n");

for(j=0;j<=8;j++)

{

if((code[j][1].equalsIgnoreCase("USING"))==true)

{

int x=0;

}

else

{

for(int m=0;m<2;m++)

av[m]=code[j][3];

}

}

avail[15]='Y';

for(k=0;k<16;k++)

{

if(k<=14)

{

System.out.println(k+"\t\t"+avail[k]+"\t\t"+"."+"\n");

}

else

{

System.out.println(k+"\t\t"+avail[k]+"\t\t"+"00"+"\n");

}

}

System.out.println("------------------------------\n");

System.out.println("Continue..?");

System.out.println("Pass 2 table:\n\n");

System.out.println("\t Lable\tOP1\t\t\t\tLC");

System.out.println("\n---------------------------------------\n");

loc=0;

for(i=0;i<=8;i++)

{

for(j=0;j<=3;j++)

{

System.out.print("\t"+code[i][j]);

}

System.out.println("\t\t"+lc[i]);

j=0;

System.out.println("\n");

}

System.out.println("----------------------------------");

}

}

/\*

C:\8>javac Conversion.java

C:\8>java Conversion

------------------------------------------------

Label Opcode

-----------------------------------------------

PRG1 START

USING \* 15

L

A

ST

FOUR DC F

FIVE DC F

TEMP DS 1F

END

--------------------------------------

VALUES FOR LC:

0

0

4

8

12

16

20

24

24

SYMBOL TABLE:

----------------------------------

SYMBOL VALUE LENGTH R/A

----------------------------------

0 4 R

4 4 R

8 4 R

12 4 R

FOUR 16 4 R

FIVE 20 4 R

TEMP 24 4 R

24 4 R

--------------------------------

Base Table:

--------------

Reg no Availability Contents of base table

-------------------------------

0 N .

1 N .

2 N .

3 N .

4 N .

5 N .

6 N .

7 N .

8 N .

9 N .

10 N .

11 N .

12 N .

13 N .

14 N .

15 Y 00

------------------------------

Continue..?

Pass 2 table:

Lable OP1 LC

---------------------------------------

PRG1 START 0

USING \* 15 0

L 4

A 8

ST 12

FOUR DC F 16

FIVE DC F 20

TEMP DS 1F 24

END 24

----------------------------------

\*/