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Assignment no. 2

Code:

```
import java.text.DecimalFormat;

class symtab{
        int index;
        String name;
        int addr;

        symtab(int i, String s, int a){
                index = i;
                name = s;
                addr = a;


        }
}

class littab{
        int index;
        String name;
        int addr;

        littab(int i, String s, int a){
                index = i;
                name = s;
                addr = a;

        }
        void setaddr(int a){
                addr = a;
                }
}

class pass2{
        public static void main(String[] args){
                String ic[][]={{"(AD,01)",null,"(C,100)"}, {"(IS,04)","(RG,01)","(S,0)"},
{"(IS,01)","(RG,01)","(L,0)"},{"(IS,02)","(RG,01)","(S,2)"},{"(IS,01)","(RG,01)","(L,1)"},{"(DL,0
2)",null,"(C,2)"},{"(DL,02)",null,"(C,3)"},{"(IS,01)","(RG,01)","(RG,02)"},{"(IS,02)","(RG,01)","
(RG,03)"},{"(IS,03)","(RG,01)","(L,2)"},{"(DL,02)",null,"(C,3)"},{"(DL,01)",null,"(C,1)"},{"(AD,0
2)",null,null}};
                System.out.println(ic);
```

```
symtab s[] = new symtab[20];
littab l[] = new littab[20];

s[0] = new symtab(0,"A",110);
s[1] = new symtab(1,"AGAIN",101);
s[2] = new symtab(2,"B",109);
s[3] = new symtab(3,"NEXT",107);
s[4] = new symtab(4,"LOOP",110);

l[0] = new littab(0,"='2'",104);
l[1] = new littab(1,"='3'",105);
l[2] = new littab(2,"='2'",111);

int i = 0,j = 0, ind = 0;
String m,op1,op2,temp;
char arr1[],arr2[],arr3[];

DecimalFormat df = new DecimalFormat("000");
System.out.print("Machine code");
while (i<ic.length){
        temp=null;
        arr1=null;
        arr2=null;
        arr3=null;

        m=ic[i][0];
        op1=ic[i][1];
        op2=ic[i][2];

        arr1 = m.toCharArray();
        if(op1!=null){
                arr2=op1.toCharArray();
        }
        if(op2!=null){
                arr3=op2.toCharArray();
        }
        if(arr1[1]=='I'&& arr1[2]=='S'){
                System.out.print(arr1[4]+""+arr1[5]+"\t");
                if(op1!=null){
                        System.out.print(arr2[4]+""+arr2[5]+"\t");

                }else{
                        System.out.print("00"+"\t");

                }
                if(op2!=null){
                        if(arr3[1]=='R'&& arr3[2]=='G'){
                        System.out.print(arr3[4]+arr3[5]+"\t");
                }
                else if(arr3[1]=='S'){
                        ind=Character.getNumericValue(arr3[3]);
```

```
                    j=4;
                    while(arr3[j]!=')'){
                        ind = ind*10;
                        ind = ind +(Character.getNumericValue(arr3[j]));
                        j++;
                        }
                    System.out.print(s[ind].addr+"\t");
                }else if(arr3[1]=='L'){
                    ind = Character.getNumericValue(arr3[3]);
                    j=4;
                    while(arr3[j]!=')'){
                        ind=ind*10;
                        ind=ind+(Character.getNumericValue(arr3[j]));
                        j++;

                    }
                    System.out.print(l[ind].addr+"\t");

                }
                }else{
                    System.out.print("000"+"\t");
                }

            }else if(arr1[1]=='D' && arr1[2]=='L'){
                if(arr1[5]=='2'){
                    System.out.print("00\t00\t");
                    j=3;
                    while(arr3[j]!=')'){
                        if(temp==null)
                            temp= String.valueOf(arr3[j]);
                        else
                            temp=temp.concat(String.valueOf(arr3[j]));
                            j++;
                        }
                    System.out.print(df.format(Integer.parseInt(temp)));
                    }
                }
            i++;
            System.out.print("\n");
            }
        }
}

/*Output:
Machine code
04      01      110
01      01      104
02      01      109
01      01      105
00      00      002
00      00      003
01      01      98
```

```
02    01    99
03    01    111
00    00    003
*/
```