

eclipse-workspace - Assembler1/src/Pass1.java - Eclipse IDE

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Package Explorer

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Obj.java Pass1.java Pooltable.java Output.txt Sample.txt

```
3 import java.io.*;
4 import java.util.*;
5 class Pass1
6 {
7     public static void main(String args[]) throws NullPointerException, FileNotFoundException
8     {
9         String REG[] = {"ax", "bx", "cx", "dx"};
10        String IS[]={ "stop", "add", "sub", "mult", "mover", "movem", "comp", "bc", "div", "read"};
11        String DL[]={ "ds", "dc"};
12        int temp1=0;
13        int f = 0;
14        Obj[] literal_table = new Obj[10];
15        Obj[] symb_table = new Obj[10];
16        Obj[] optab =new Obj[60];
17        Pooltable[] pooltab=new Pooltable[5];
18        String line;
19        try{
20            BufferedReader br=new BufferedReader(new FileReader("C:\\Users\\SHARAD\\eclipse-workspace\\Assembler1\\src\\Sample.txt"))
21            BufferedWriter bw=new BufferedWriter(new FileWriter("C:\\Users\\SHARAD\\eclipse-workspace\\Assembler1\\src\\Output.txt"))
22
23            Boolean start=false;
24            Boolean end=false,fill_addr=false,ltorg=false;
25
26            int total_symb=0,total_ltr=0,optab_cnt=0,pooltab_cnt=0,loc=0,temp,pos;
27
28            while((line=br.readLine())!=null&&!end)
29            {
30                String tokens[]=line.split(" ",4);
31                if(loc!=0 && !ltorg)
32                {
33                    if(f==1)
34                    {
35                        ltorg=false;
36                        loc=loc+temp1-1;
```

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Quick Access

Objjava *Pass1.java Pooltable.java Output.txt Sample.txt

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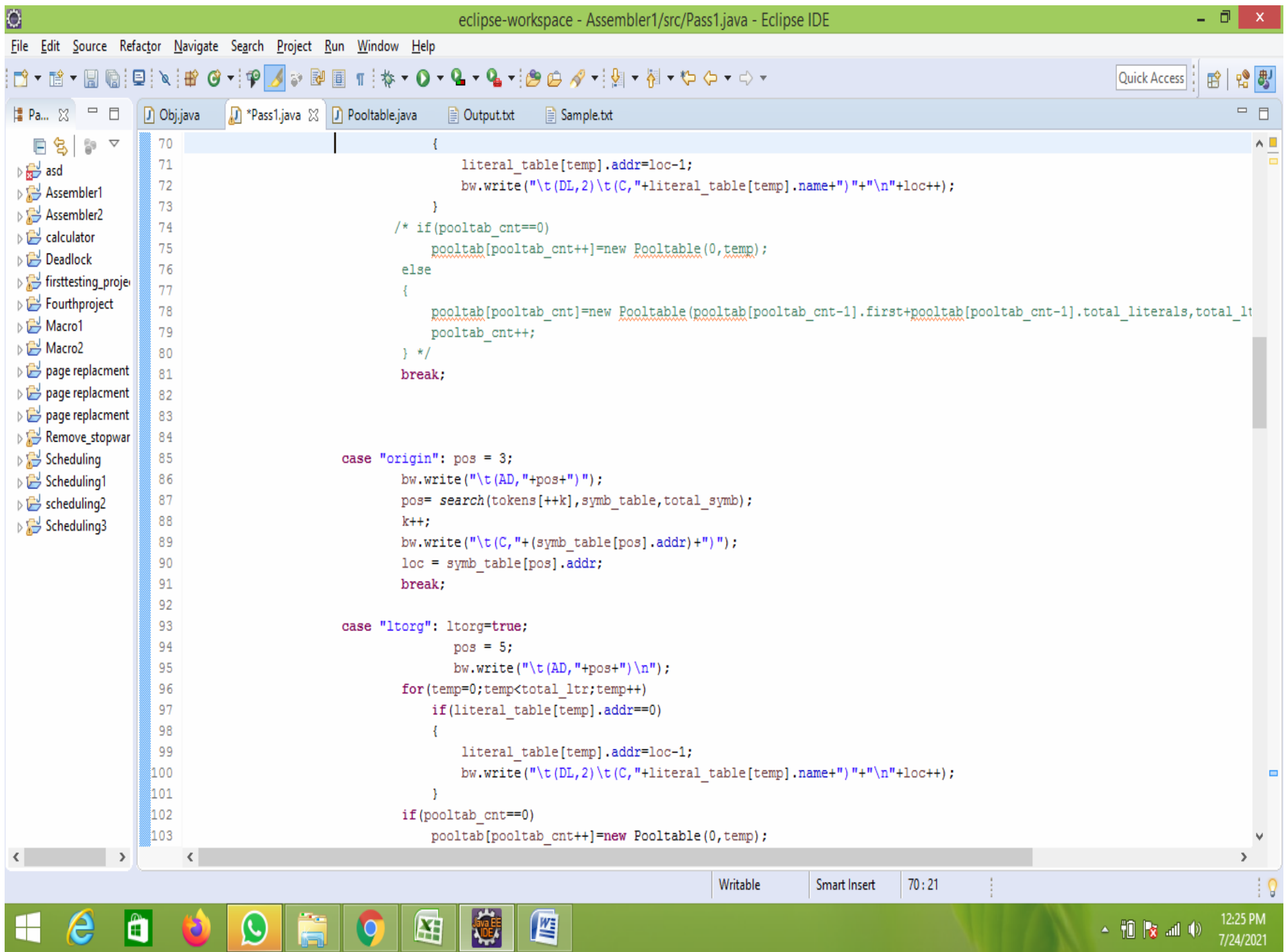
```
        bw.write("\n"+String.valueOf(loc));
        f=0;
        loc++;
    }
    else
    {
        bw.write("\n"+String.valueOf(loc));
        ltorg=false;
        loc++;
    }
}

ltorg=fill_addr=false;
for(int k=0;k<tokens.length;k++)
{
    pos = -1;
    if(start==true)
    {
        loc=Integer.parseInt(tokens[k]);
        start=false;
    }

    switch(tokens[k])
    {
        case "start" : start = true;
                        pos = 1;
                        bw.write("\t(AD, "+pos+")");
                        break;
        case "end": end=true;
                        pos = 2;
                        bw.write("\t(AD, "+pos+")\n");
                        for(temp=0;temp<total_ltr;temp++)
                            if(literal_table[temp].addr==0)
                                {
```

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Quick Access

Pa... Obj.java *Pass1.java Pooltable.java Output.txt Sample.txt

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```
else
{
    pooltab[pooltab_cnt]=new Pooltable(pooltab[pooltab_cnt-1].first+pooltab[pooltab_cnt-1].total_literals,
    total_ltr-pooltab[pooltab_cnt-1].first-1);
    pooltab_cnt++;
}
break;

case "equ": pos = 4;
    bw.write("\t(AD,"+pos+")");
    String prev_token=tokens[k-1];
    int pos1 = search(prev_token,symb_table,total_symb);
    pos = search(tokens[++k],symb_table,total_symb);
    symb_table[pos1].addr = symb_table[pos].addr;
    bw.write("\t(S,"+(pos+1)+")");
    break;
}
if(pos == -1)
{
    pos=search(tokens[k], IS);
    if(pos != -1)
    {
        bw.write("\t(IS,"+(pos)+")");
        optab[optab_cnt++]=new Obj(tokens[k], pos);
    }
    else
    {
        pos=search(tokens[k], DL); // DC/DS
        if(pos != -1)
        {
            if(pos==0)
            {
                f=1;
            }
            bw.write("\t(DL,"+(pos+1)+")");
            optab[optab_cnt++]=new Obj(tokens[k], pos);
        }
    }
}
```

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Quick Access

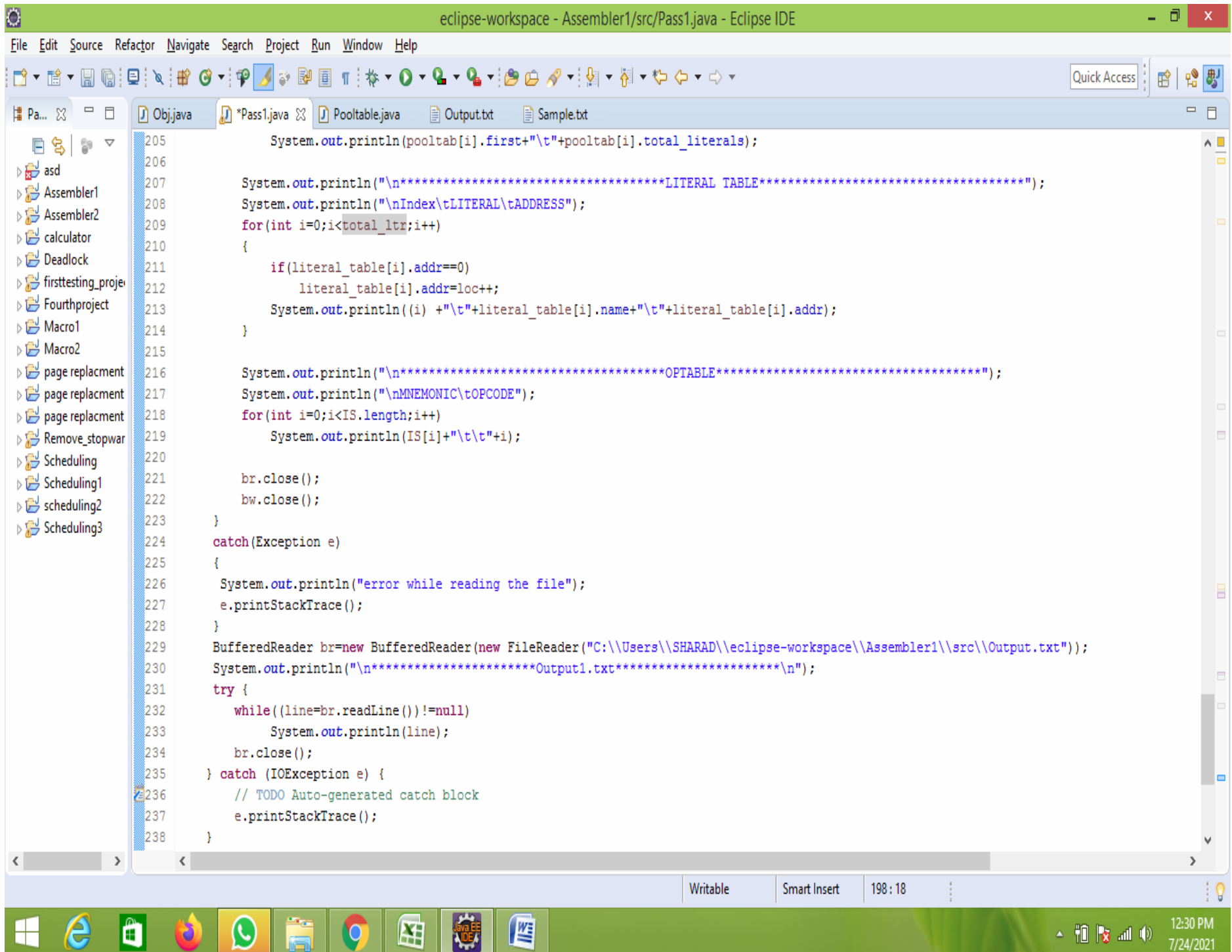
Obj.java *Pass1.java Pooltable.java Output.txt Sample.txt

```
138         fill_addr=true;
139
140     }
141     else if(tokens[k].matches("[a-zA-Z]+:"))//label
142     {
143         pos = search(tokens[k], symb_table,total_symb);
144         if(pos == -1)
145         {
146             symb_table[total_symb++]=new Obj(tokens[k].substring(0,tokens[k].length()-1),loc-1);
147             bw.write("\t(S,"+total_symb+"");
148             pos=total_symb;
149         }
150     }
151 }
152 }
153 if(pos == -1)
154 {
155     pos=search(tokens[k], REG);
156     if(pos!=-1)
157         bw.write("\t(RG,"+(pos+1)+")");//register
158     else
159     {
160         if(tokens[k].matches("'\\d+'"))//literal
161         {
162             String s=tokens[k].substring(2, 3);
163
164             literal_table[total_ltr++]=new Obj(s, 0);
165             bw.write("\t(L,"+total_ltr+"");
166         }
167         else if(tokens[k].matches("\\d+") || tokens[k].matches("\\d+H") || tokens[k].matches("\\d+h") ||
168             tokens[k].matches("\\d+D") || tokens[k].matches("\\d+d"))//constant
169         { bw.write("\t(C,"+tokens[k]+")");
170             temp1=Integer.parseInt(tokens[k]);
171         }
```

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```
171     }
172     else
173     {
174         pos = search(tokens[k], symb_table, total_symb);
175         if(fill_addr && pos!=-1)
176         {
177             symb_table[pos].addr=loc-1;
178             fill_addr=false;
179         }
180         else if(pos==-1)
181         {
182             symb_table[total_symb++]=new Obj(tokens[k],0);
183             bw.write("\t(S," + total_symb + ")");
184         }
185         else
186             bw.write("\t(S," + pos + ")");
187     }
188 }
189 }
190 }
191 }
192 System.out.println("\n*****SYMBOL TABLE*****");
193 System.out.println("\nSYMBOL\tADDRESS");
194 for(int i=0;i<total_symb;i++)
195     System.out.println(symb_table[i].name+"\t"+symb_table[i].addr);
196
197 pooltab[pooltab_cnt]=new Pooltable(pooltab[pooltab_cnt-1].first+pooltab[pooltab_cnt-1].total_literals,
198     total_ltr-pooltab[pooltab_cnt-1].first-2);
199 pooltab_cnt++;
200
201 System.out.println("\n*****POOL TABLE*****");
202 System.out.println("\nPOOL\tTOTAL LITERALS");
203
204 for(int i=0;i<pooltab_cnt;i++)
```



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page replacment
Remove_stopwar
Scheduling
Scheduling1
scheduling2
Scheduling3

```
222     bw.close();
223 }
224 catch(Exception e)
225 {
226     System.out.println("error while reading the file");
227     e.printStackTrace();
228 }
229 BufferedReader br=new BufferedReader(new FileReader("C:\\Users\\SHARAD\\eclipse-workspace\\Assembler1\\src\\Output.txt"));
230 System.out.println("\n*****Output1.txt*****\n");
231 try {
232     while((line=br.readLine())!=null)
233         System.out.println(line);
234     br.close();
235 } catch (IOException e) {
236     // TODO Auto-generated catch block
237     e.printStackTrace();
238 }
239
240 }
241 public static int search(String token, String[] list) {
242     for(int i=0;i<list.length;i++)
243         if(token.equalsIgnoreCase(list[i]))
244             return i;
245     return -1;
246 }
247 public static int search(String token, Obj[] list,int cnt) {
248     for(int i=0;i<cnt;i++)
249         if(token.equalsIgnoreCase(list[i].name))
250             return i;
251     return -1;
252 }
253 }
254 }
255
```

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Obj.java

```
public class Obj {
    String name;
    int addr;
    Obj(String nm, int address)
    {
        this.name=nm;
        this.addr=address;
    }
}
```

Pooltable.java

```
public class Pooltable {
    int first,total_literals;
    public Pooltable(int f, int l) {
        // TODO Auto-generated constructor stub
        this.first=f;
        this.total_literals=l;
    }
}
```

Input file :sample.txt

```
start 100
mover ax 05
mover bx 10
up: add ax bx
movem a ='5'
mult ax a
origin up
ltorg
movem b ='8'
movem c ='8'
ltorg
movem b ='7'
movem c ='8'
ds a 02
dc b 10
ds c 09
next equ up
end
```