Macropass2

MP.java

package pkg1;

import java.io.\*;

import java.util.\*;

public class macropass2{

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

mdt[] MDT=new mdt[20];

mnt[] MNT=new mnt[10];

arglist[] formal\_parameter=new arglist[10];

arglist[] actual\_parameter=new arglist[10];

int macro\_addr=-1;

boolean macro\_start=false,macro\_end=false;

int macro\_call=-1;

int mdt\_cnt=0,mnt\_cnt=0,formal\_arglist\_cnt=0,actual\_arglist\_cnt=0,temp\_cnt=0,temp\_cnt1=0;

BufferedReader br1=new BufferedReader(new FileReader("C:\\Eclips\\TCOB06\\Macro\_pass2\\src\\MNT.txt"));

String line;

while((line= br1.readLine()) !=null)

{

String[] parts=line.split("\\s+");

MNT[mnt\_cnt++]=new mnt(parts[0], Integer.parseInt(parts[1]),Integer.parseInt(parts[2]));

}

br1.close();

System.out.println("\n\t\*\*\*\*\*\*\*\*\*\*\*\*\*MACRO NAME TABLE\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

System.out.println("\n\tINDEX\tNAME\tADDRESS\tTOTAL ARGUMENTS");

for(int i=0;i<mnt\_cnt;i++)

System.out.println("\t"+i+"\t"+MNT[i].name+"\t"+MNT[i].addr+"\t\t"+MNT[i].arg\_cnt);

br1=new BufferedReader(new FileReader("C:\\Eclips\\TCOB06\\Macro\_pass2\\src\\argmnt.txt"));

while((line=br1.readLine())!=null)

{

String[] parameters=line.split("\\s+");

formal\_parameter[formal\_arglist\_cnt++]=new arglist(parameters[0]);

if(parameters.length>1)

formal\_parameter[formal\_arglist\_cnt-1].value = parameters[1];

}

br1.close();

System.out.println("\n\n\t\*\*\*\*\*\*\*\*\*\*\*\*\*FORMAL ARGUMENT LIST\*\*\*\*\*\*\*\*\*");

System.out.println("\n\tINDEX\tNAME\tVALUE");

for(int i=0;i<formal\_arglist\_cnt;i++)

System.out.println("\t"+i+"\t"+formal\_parameter[i].argname+"\t"+formal\_parameter[i].value);

br1=new BufferedReader(new FileReader("C:\\Eclips\\TCOB06\\Macro\_pass2\\src\\MDT.txt"));

while((line=br1.readLine())!=null)

{

MDT[mdt\_cnt]=new mdt();

MDT[mdt\_cnt++].stmnt=line;

}

br1.close();

System.out.println("\n\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*MACRO DEFINITION TABLE\*\*\*\*\*\*\*\*\*\*\*\*");

System.out.println("\n\tINDEX\t\tSTATEMENT");

for(int i=0;i<mdt\_cnt;i++)

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

br1=new BufferedReader(new FileReader("C:\\Eclips\\TCOB06\\Macro\_pass2\\src\\input.txt"));

BufferedWriter bw1=new BufferedWriter(new FileWriter("C:\\Eclips\\TCOB06\\Macro\_pass2\\src\\output.txt"));

while((line=br1.readLine())!=null)

{

line=line.replaceAll(",", " ");

String[] tokens=line.split("\\s+");

temp\_cnt1=0;

for(String current\_token:tokens)

{

if(current\_token.equalsIgnoreCase("macro"))

{

macro\_start=true;

macro\_end=false;

}

if(macro\_end && !macro\_start)

{

if(macro\_call !=-1 && temp\_cnt<formal\_arglist\_cnt-1)

{

if(formal\_parameter[actual\_arglist\_cnt].value !="")

actual\_parameter[actual\_arglist\_cnt++]=new arglist(formal\_parameter[actual\_arglist\_cnt-1].value);

actual\_parameter[actual\_arglist\_cnt++]=new arglist(current\_token);

if(formal\_parameter[actual\_arglist\_cnt].value !="")

actual\_parameter[actual\_arglist\_cnt++]=new arglist(formal\_parameter[actual\_arglist\_cnt-1].value);

}

for(int i=0;i<mnt\_cnt;i++)

{

if(current\_token.equals(MNT[i].name)) {

macro\_call=i;

temp\_cnt1=temp\_cnt1+MNT[i].arg\_cnt;

break;

}

temp\_cnt1=temp\_cnt1+MNT[i].arg\_cnt;

}

if(macro\_call == -1)

bw1.write("\t"+current\_token);

}

if(current\_token.equalsIgnoreCase("mend"))

{

macro\_end=true;

macro\_start=false;

}

}

if(macro\_call != -1)

{

macro\_addr=MNT[macro\_call].addr+1;

while(true)

{

if(MDT[macro\_addr].stmnt.contains("mend") || MDT[macro\_addr].stmnt.contains("MEND"))

{

macro\_call=-1;

break;

}

else

{

bw1.write("\n");

String[] temp\_tokens=MDT[macro\_addr++].stmnt.split("\\s+");

for(String temp : temp\_tokens)

{

if(temp.matches("#[0-9]+"))

{

int num=Integer.parseInt(temp.replaceAll("[^0-9]+", ""));

bw1.write(actual\_parameter[num-1].argname+"\t");

}

else

bw1.write(temp+"\t");

}

}

}

}

if(!macro\_start)

bw1.write("\n");;

macro\_call= -1;

}

br1.close();

bw1.close();

System.out.println("\n\n\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*ACTUAL ARGUMENT LIST\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

System.out.println("\n\tINDEX\tNAME\tADDRESS");

for(int i=0;i<actual\_arglist\_cnt;i++)

System.out.println("\t"+i+"\t"+actual\_parameter[i].argname);

}

}

Arglist.java

**package** pkg1;

**public** **class** arglist {

String argname, value;

arglist(String argument){

**this**.argname = argument;

**this**.value="";

}

}

Mdt.java

**package** pkg1;

**public** **class** mdt {

String stmnt;

**public** mdt() {

stmnt="";

}

}

**Mnt.java**

**package** pkg1;

**public** **class** mnt {

String name;

**int** addr;

**int** arg\_cnt;

mnt(String nm, **int** address, **int** total\_arg)

{

**this**.name=nm;

**this**.addr=address;

**this**.arg\_cnt=total\_arg;

}

}

**Argment.txt**

&X

&Y

&REG1 AREG

**Input.txt**

MACRO

INCR &X, &Y, &REG1 = AREG

MOVER &REG1, &X

ADD &REG1, &Y

MOVEM &REG1, &Y

MEND

START 100

READ N1

READ N2

INCR N1, N2

STOP

N1 DS 1

N2 DS 2

END

**MDT.txt**

INCR &X &Y &REG1 = AREG

MOVER #3 #1

ADD #3 #2

MOVEM #3 #1

MEND

**MNT.txt**

INCR 0 3

**OUTPUT.txt**

START 100

READ N1

READ N2

MOVER AREG N1

ADD AREG N2

MOVEM AREG N1

STOP

N1 DS 1

N2 DS 2

END