**3.MacroPass1**

import java.io.BufferedReader;

import java.io.FileReader;

import java.io.FileWriter;

import java.io.IOException;

import java.util.Iterator;

import java.util.LinkedHashMap;

public class MacroPass1 {

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

BufferedReader br=new BufferedReader(new FileReader("macro\_input.asm"));

FileWriter mnt=new FileWriter("mnt.txt");

FileWriter mdt=new FileWriter("mdt.txt");

FileWriter kpdt=new FileWriter("kpdt.txt");

FileWriter pnt=new FileWriter("pntab.txt");

FileWriter ir=new FileWriter("intermediate.txt");

LinkedHashMap<String, Integer> pntab=new LinkedHashMap<>();

String line;

String Macroname = null;

int mdtp=1,kpdtp=0,paramNo=1,pp=0,kp=0,flag=0;

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

{

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

if(parts[0].equalsIgnoreCase("MACRO"))

{

flag=1;

line=br.readLine();

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

Macroname=parts[0];

if(parts.length<=1)

{

mnt.write(parts[0]+"\t"+pp+"\t"+kp+"\t"+mdtp+"\t"+(kp==0?kpdtp:(kpdtp+1))+"\n");

continue;

}

for(int i=1;i<parts.length;i++) //processing of parameters

{

parts[i]=parts[i].replaceAll("[&,]", "");

//System.out.println(parts[i]);

if(parts[i].contains("="))

{

++kp;

String keywordParam[]=parts[i].split("=");

pntab.put(keywordParam[0], paramNo++);

if(keywordParam.length==2)

{

kpdt.write(keywordParam[0]+"\t"+keywordParam[1]+"\n");

}

else

{

kpdt.write(keywordParam[0]+"\t-\n");

}

}

else

{

pntab.put(parts[i], paramNo++);

pp++;

}

}

mnt.write(parts[0]+"\t"+pp+"\t"+kp+"\t"+mdtp+"\t"+(kp==0?kpdtp:(kpdtp+1))+"\n");

kpdtp=kpdtp+kp;

//System.out.println("KP="+kp);

}

else if(parts[0].equalsIgnoreCase("MEND"))

{

mdt.write(line+"\n");

flag=kp=pp=0;

mdtp++;

paramNo=1;

pnt.write(Macroname+":\t");

Iterator<String> itr=pntab.keySet().iterator();

while(itr.hasNext())

{

pnt.write(itr.next()+"\t");

}

pnt.write("\n");

pntab.clear();

}

else if(flag==1)

{

for(int i=0;i<parts.length;i++)

{

if(parts[i].contains("&"))

{

parts[i]=parts[i].replaceAll("[&,]", "");

mdt.write("(P,"+pntab.get(parts[i])+")\t");

}

else

{

mdt.write(parts[i]+"\t");

}

}

mdt.write("\n");

mdtp++;

}

else

{

ir.write(line+"\n");

}

}

br.close();

mdt.close();

mnt.close();

ir.close();

pnt.close();

kpdt.close();

System.out.println("Macro Pass1 Processing done. :)");

}

}