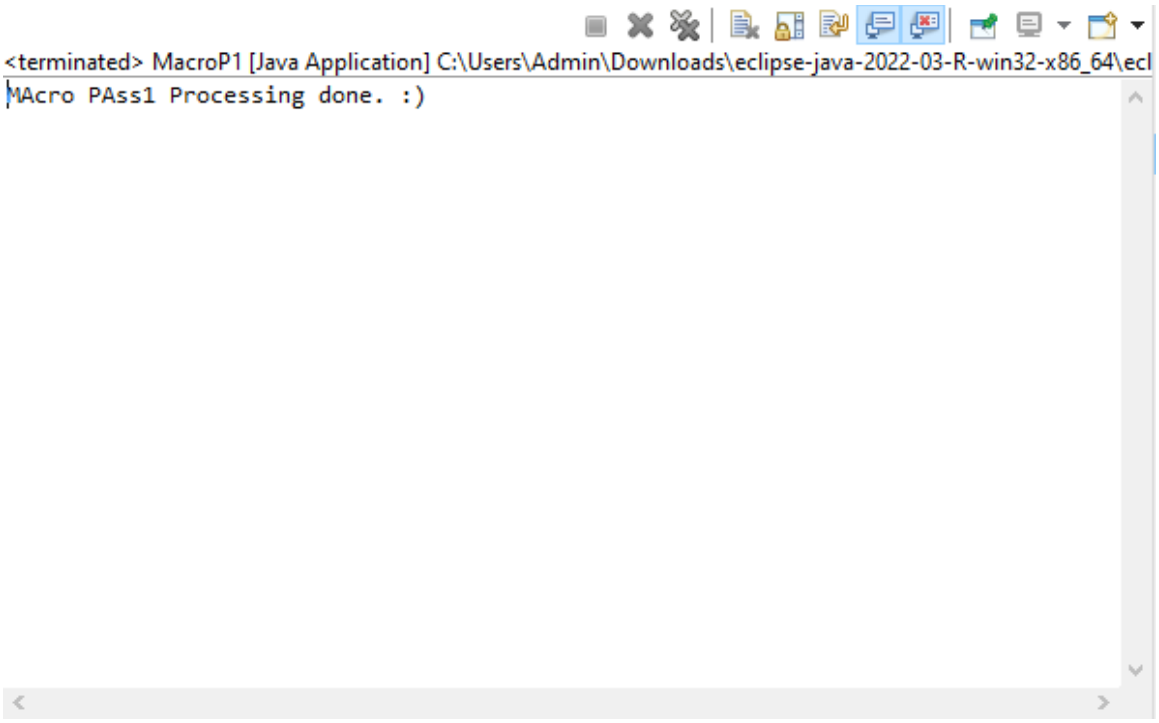
```
import java.io.BufferedReader;
import java.io.FileReader;
import java.io.FileWriter;
import java.io.IOException;
import java.util.Iterator;
import java.util.LinkedHashMap;
public class MacroP1 {
	public static void main(String[] args) throws IOException{
		BufferedReader br=new BufferedReader(new 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+");
```

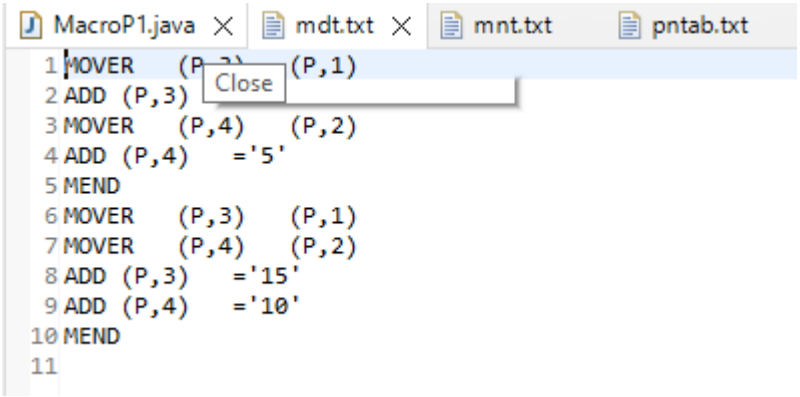
```
                    Macroname=parts[0];
                    if(parts.length<=1)
                    {

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. :)");
        }

}
```





MacroP1.java | mdt.txt | mnt.txt | pntab.txt

```
1 M1  2   2   1   1
2 M2  2   2   6   3
3
```

MacroP1.java | mdt.txt | mnt.txt | pntab.txt

```
1 M1: X   Y   A   B
2 M2: P   Q   U   V
3
```