BSc (Hons) in Information Technology
Year 3

Lab Exercise – Weighted Composite Complexity Measure

SE3010 – SEPQM **Semester 1**

The objective of this lab is to learn how to calculate the complexity of an object-oriented program using the Weighted Composite Complexity (WCC) measure.

Question 1

Consider the following code segment and answer the questions given below:

```
public class DeamonThread extends Thread {
 public static void main(String[] args) {
   System.out.println("Entering main Method");
   DeamonThread t = new DeamonThread();
   int number =10;
   t.setDaemon(true);
   t.start();
   try{
    if(number == 10)
       Thread.sleep(3000);
   }catch(InterruptedException x){}
   System.out.println("Leaving main method");
 }
 public void run(){
   System.out.println("Entering run method");
   try{
    System.out.println("CurrentThread()is" + Thread.currentThread().getName());
    while(true){
      try{
         Thread.sleep(500);
         System.out.println("In run method: woke up again");
      }catch(InterruptedException x) {
         x.printStackTrace();
      }
    }
   }
 }
}
```

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a) List down the tokens that could be identified under the size factor of the WCC measure. Separate the tokens using a comma.

Program Statements	Tokens	
public class DeamonThread extends Thread {	------------	0
public static void main(String[ ] args) {	void main()	2
System.out.println("Entering main Method");	System . out . println() "Entering main method"	6
DeamonThread t = new DeamonThread( );	DeamonThread t = new DeamonThred()	5
int number =10;	int number = 10	4
t.setDaemon(true);	t . setDeamon() true	4
t.start();	t . start()	3
try {	---------	0
if(number == 10)	if() number == 10	4
Thread.sleep(3000);	Thread . sleep() 3000	4
}catch (InterruptedException x) {}	catch() InterruptedException x	3
System.out.println("Leaving main method");	system . out . println() "leaving main method"	6
}	---------	0
public void run() {	void run()	2
System.out.println("Entering run method");	system . out . println() "Entering method"	6
try {	----------	0
System.out.println("CurrentThread() is" + Thread.currentThread().getName());	system . out . println() "CurrentThred() is" + Thred . currentThred() . getName()	12
while(true){	while() true	2
try{	---------	0
Thread.sleep(500);	Thred . sleep() 500	4
System.out.println("In run method: woke up again");	System . out . println() "i run method: workup again"	6
} catch (InterruptedException x) {	catch() InterupptedException x	3
x.printStackTrace();	x . printStackTrace()	3
}		
}		
}		
}		
}		

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b) Complete the following table by identifying the values of S, Wn, Wi, Wc, Wt ,WC, and WCC.

Line No	Program Statements	S	Wn	Wi	Wc	Wt	WC
1	public class DeamonThread extends Thread {	0				0	0
2	public static void main(String[ ] args) {	2		2		2	4
3	System.out.println("Entering main Method");	6		2		2	12
4	DeamonThread t = new DeamonThread( );	5		2		2	10
5	int number =10;	4		2		2	8
6	t.setDaemon(true);	4		2		2	8
7	t.start();	3		2		2	6
8	try {	0		2		2	0
9	if(number == 10)	4	1	2	1	4	16
10	Thread.sleep(3000);	4	1	2		3	12
11	}catch (InterruptedException x) {}	3		2		2	6
12	System.out.println("Leaving main method");	6		2		2	12
13	}	0		2		2	0
14	public void run() {	2		2		2	4
15	System.out.println("Entering run method");	6		2		2	12
16	try {	0		2		2	0
17	System.out.println("CurrentThread() is" + Thread.currentThread().getName());	12		2		2	24
18	while(true){	2	1	2	2	5	10
19	try{	0	1	2		3	0
20	Thread.sleep(500);	4	1	2		3	12
21	System.out.println("In run method: woke up again");	6	1	2		3	18
22	} catch (InterruptedException x) {	3	1	2		3	9
23	x.printStackTrace();	3	1	2		3	9
24	}	0	1	2		3	0
25	}	0	1	2		3	0
26	}	0				0	
27	}	0				0	
28	}	0				0	
WCC Value							192