**Group Members**

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| **Registration Number** | **Name** |
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**Question 1**

Briefly explain what cyclomatic complexity (CC) is?

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| **Explanation** |
| CC is a metric that is used to measure the complexity of a program. It measures complexity of a program based of the number of linearly independent paths in that program. In addition to measuring complexity, it can be used to find out the minimum number of test cases that should be there to test a program. |

**Question 2**

Draw control flow graphs and calculate the CC value of the following methods:

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| **public void recQuickSort(int left, int right)** |
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| **public void setCurrentValue(float val)** |
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| **public void bubbleSort( )** |
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| **public float evaluateFormula(Node n)** |
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## **Question 3**

The disassembled codes of the ***public void recQuickSort(int left, int right)****,* ***public void setCurrentValue(float val), public void bubbleSort( )****, and* ***public float evaluateFormula(Node n)*** methods are given below. Calculate the CC value of them and compare those with the ones derived in the previous question.

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| **Method Name** | **CC Value** |
| public void recQuickSort(int left, int right) |  |
| public void setCurrentValue(float val) |  |
| public void bubbleSort( ) |  |
| public float evaluateFormula(Node n) |  |

## **Question 4**

Explain why ***public void setCurrentValue(float val)*** *and* ***public float evaluateFormula(Node n)*** methodsare reporting different values for source and byte codes.

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| **Explanation for the CC value difference of the *public void setCurrentValue(float val)* method** |
| Due the if condition being a compound condition, there are two separate decision statements in the byte code. Hence, the value reported by the byte code is higher than the value reported by the source code. So then the source code gives the valid value |
| **Explanation for the CC value difference of the *public float evaluateFormula(Node n)* method** |
| Usually a decision node has a maximum of two outgoing edges for the ‘true’ and ‘false’ paths. However, a decision node which represent the ‘switch’ condition has more than two outgoing edges. Hence, In such situations the value reported by the ‘e-n-2’ and “d+1” are different from one another, in fact, the correct cc value is reported by the “e-n+2” |