Part A - coding

1. Write a method called isMatch that takes a string of parentheses and check
if all parentheses match correctly. The parameter string might consist of
other characters. Ignore other characters, just check the () {} []
   public static boolean isMatch(String expressionLine);

Use a JCF ArrayDeque as a stack to store all open or left parentheses.
Use following main method to check your method.

```
public static void main(String[] args){
   String[] expression = new String[]{"{5*(x+2)+(y-1);}", "32*(20+(x[i]*3)-1",
"(()){([][])})", "({}((0))", "{([]})", "{}())", "{"};
   for (String st: expression)
      System.out.println(st + " is " + isMatch(st));
}
```

2. Write levelOrder method of Tree class method which starts at the root of a
tree and prints all elements of the tree in level-order (in one line).
   public void levelOrder();

3. Write height method of Tree class which takes a node as its parameter and
check the height of the given node.
   public int height(TreeNode<E>);

EX. Write a Tree class method which takes another tree, and check whether the
parameter tree is a subtree of current tree.
public boolean isSubTree(Tree);
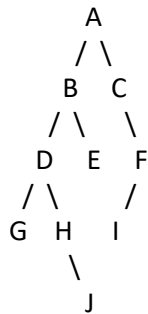
Submit: Please download the given assignment Tree
Code Here

Change the file and class name to include your initials at the end. eg, if your name is John Smith, please
change the file to A2TreeSJ and include your name at the very top of the program as comments.

Submit your java file on blackboard.

Part B – written (Submit as an pdf file)

1. Consider following tree

```
        A
       / \
      B   C
     / \   \
    D   E   F
   / \     /
  G   H   I
       \
        J
```

    a.   What is the height of the tree?

    b.   What is the height of node B?

    c.   What is the depth of the node B?

    d.   What is the output of post-order traversal?

    e.   What is the output of in-order traversal?

2. If you're writing a program in Java that store words with definitions. It allows user to store new words, search a word, lookup words by a keyword in the definition.   Which data structure is best to use for such program? Justify your answer.

3. Consider following function, it should remove even values in list,

```
public static void removeEven(Queue<Integer> q){
   for (Integert i : q){
     if (i % 2 == 0) q.remove(i);
   }
}
```

Does this one work? Justify your answer. Write a correct one.