



**PECANWOOD  
COLLEGE**

*Prepared for Life*

**INFORMATION TECHNOLOGY CYCLE TEST  
JAVA OOP - GRADE 11**

NAME:                     Memo                    

GRADE:                     

DATE: 25 SEPTEMBER 2019  
MODERATOR: MR N NAINAR  
EXAMINER: MR SC EILERTSEN

MARKS: 35  
TIME: 1 HOUR

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**INSTRUCTIONS:**

1. This test is made up of 2 pages. Please ensure that your paper is complete.
2. You may use a non-programmable calculator where relevant.
3. Login immediately and load the IDE you intend to use.
4. Print your two java classes and hand them in with this question paper. You are responsible to ensure that your work is labelled correctly and handed in.

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**Section One**

**Java coding - OOP**

1.1) Write a two class program that determines if a serial number is valid or not. For it to be valid the 5<sup>th</sup> digit must be half the value of the 8<sup>th</sup> digit

Examples: 12334678 – valid because 5<sup>th</sup> digit “4” is half the value of the 8<sup>th</sup> digit “8”.  
TRE-3DE6 – valid because 5<sup>th</sup> digit “3” is half the value of the 8<sup>th</sup> digit “6”

**Package:** septcycletest

**Class: SerialUI** The class with the main method  
Handles input and output.  
Immediately rejects a serial number that is not the correct length and terminates.  
Uses JOptionPane for input and output  
Creates the new object from the TestSerial class (see below)  
Accepts an 8 digit serial number from the keyboard  
Prints valid or not valid to the console

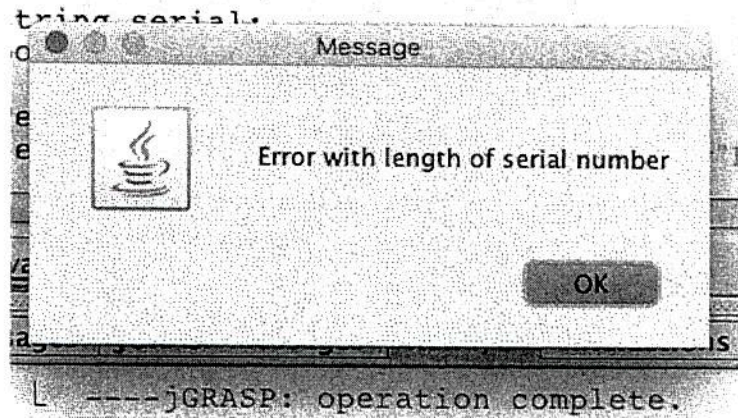
**Class: TestSerial** The class that does the processing using a single method.  
Returns the final value to the UI class for printing to the screen.

**Input:** Via the SerialUI class

The input needed from the user is as follows

Input an 8 digit serial number

Immediately rejects a serial number that is not the correct length and terminates – see below (19)



**Processing:** Via the TestSerial created object

**Method testSerialNumber**

This method accepts the serial number from the main method.

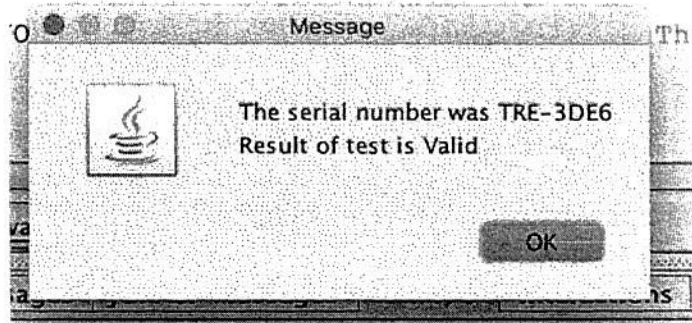
Determines if the serial code is valid or not.

Returns true or false back to the main method.

(12)

**Output:** Via the SerialUI class

Displays valid or not valid for the user – see below.



Print your two classes to the network printer with your name, class and terminal number.

**NOTE: Credit is given for good programming practice i.e.**

1. Well-chosen variable names.
2. Correctly created package and class names.
3. Useful prompts telling the user what to do.
4. Indentation.
5. Comments.
6. Good use of whitespace to group code into useful sections.
7. A useful message that explains the output to the user.

(4)

**TOTAL: 35**

```

1 // comment
2
3 package septcycletest;
4
5 import javax.swing.JOptionPane;
6
7 public class SerialUI
8 {
9     public static void main (String[] args)
10    {
11
12        String serial, message;
13        boolean test = false;
14
15        TestSerial myTest = new TestSerial();
16        serial = JOptionPane.showInputDialog("Enter 8 digit serial number for checking
17    ");
18        if (serial.length() != 8)
19        {
20            JOptionPane.showMessageDialog(null, "Error with length of serial number");
21            System.exit(0);
22        }
23        test = myTest.testSerialNumber(serial);
24        if (test == true)
25        {
26            message = "Valid";
27        }
28        else
29        {
30            message = "Invalid";
31        }
32
33        JOptionPane.showMessageDialog(null, "The serial number was " + serial + "\n"
34    + "Result of test is " + message);
35    }
36 }
37 }

```

19

Names- variables, classes, methods, packages  
 Layout - indentation, white space

Comments

Messages

4

```
1 // comment
2
3 package septcycletest;
4
5 public class TestSerial ✓ matd UI
6 {
7     ✓ ✓ ✓ ✓
8     public boolean testSerialNumber(String s)
9     {
10        String serialNumber = s; ✓
11        boolean test = false;
12
13        String testSt1 = serialNumber.substring(4, 5); ✓
14        int testInt1 = Integer.parseInt(testSt1); ✓
15
16        String testSt2 = serialNumber.substring(7); ✓
17        int testInt2 = Integer.parseInt(testSt2); ✓
18
19        if (testInt1 == testInt2/2) ✓
20            test = true;
21
22        return test; ✓
23    }
24 }
```

12