PECANWOOD
COLLEGE
Prepared for Life

INFORMATION TECHNOLOGY PRACTICAL EXAMINAITION.
GRADE 10

NAME: Memo1 **GRADE:** _____

DATE: 26 JULY 2022
EXAMINER: MR SC EILERTSEN
MODERATOR: MR C SEEWALD

MARKS: 60
TIME: 2 HOURS

INSTRUCTIONS:

1. This examination is made up of 4 pages. Please ensure that your paper is complete.
2. Note that the screen shots are part of the question and must be followed.
3. Compile, run and save your work often.
4. You may use a non-programmable calculator.
5. Credit is given for good layout, indentation, variable names, class names and good use of whitespace (4).
6. Your name must appear in the comment section of both of your solutions.
7. At the end of the examination, you must print out each of your solutions.

Layout 4

Question One **One class, many static methods – Input, Processing, Output with OOP**

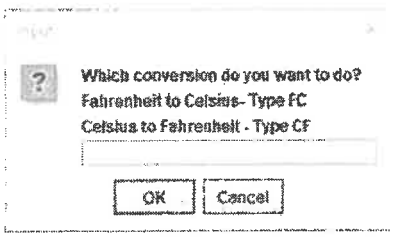
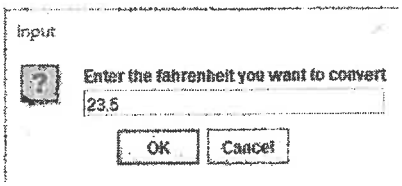
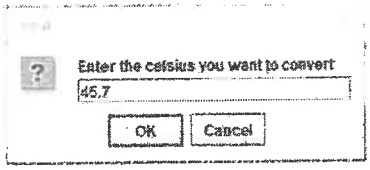
Write a program to convert Fahrenheit to Celsius and Celsius to Fahrenheit depending on the choice of the user.

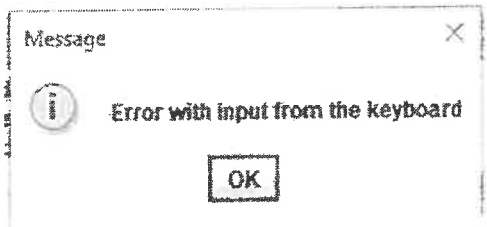
The user must indicate their choice Fahrenheit to Celsius **OR** Celsius to Fahrenheit. The user must input from the keyboard the temperature they would like to convert. The program must output the conversion with a suitable and useful output message.

INPUT

Your program must work even if the user uses lowercase instead of uppercase.

Users must be able to convert fractions of a degree e.g. 37,5 degrees Celsius.

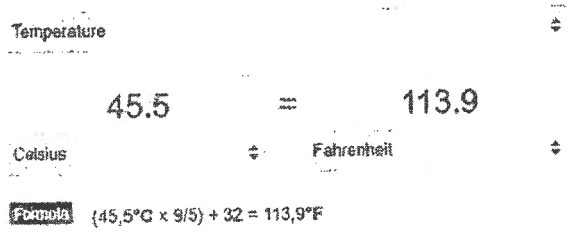
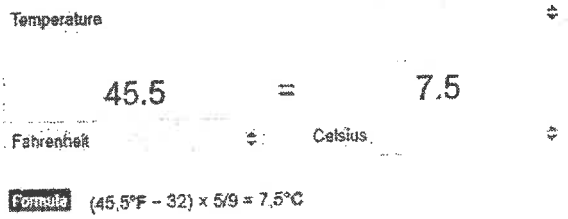
Screen shot 1	Screen shot 2	Screen shot 3
		

If the user does not input a useable value for screen shot 1 above, the program must **terminate** with a useful message telling them what the problem was.	

PROCESSING

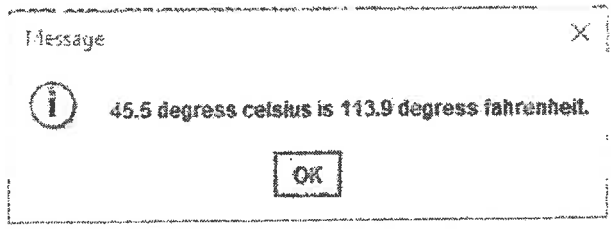
Do not use your input methods to do the processing. You must have separate methods to do the processing. One method to process Fahrenheit to Celsius and a separate method to process Celsius to Fahrenheit.

Here are the formulas to convert from one unit to another with some sample data for you to check your own calculations.

Celsius to Fahrenheit	Fahrenheit to Celsius
	

OUTPUT

Do not use your other methods for the output. You must have a separate method to output the result.

Your C to F conversion should look like this.	Your F to C conversion should look like this.
	

(30)

Question Two **One class, many static methods – Input, Processing, Output with OOP**

Write a program that will determine if a learner gets a special bilingual language prize. This prize rewards learners who are equally competent in two different languages.

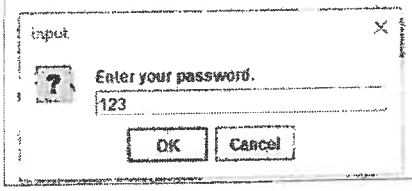
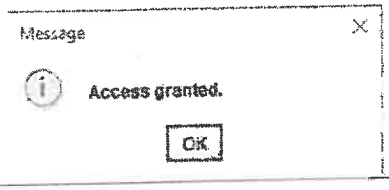
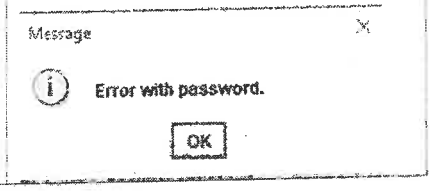
Teachers can only enter a possible candidate if they know the password to the program. To keep things simple the password is "123". If they do not know the password the program must terminate.

There are three criteria (conditions) for this bilingual prize.

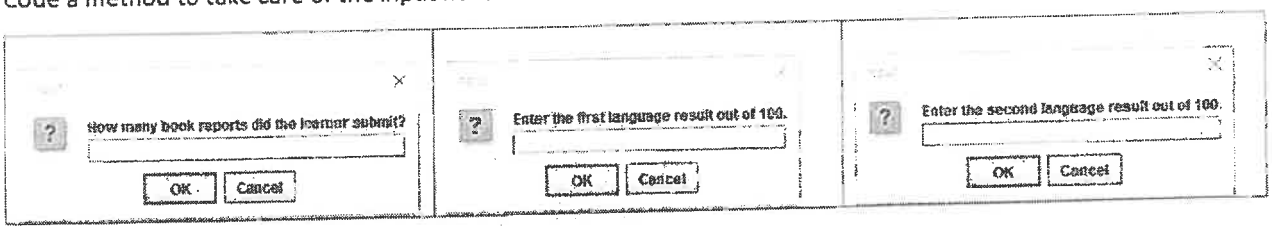
1. They must have submitted 10 book reports in both languages to the head of the Language department.
2. The prize is awarded to learners who get more than 85% when their first language and second language marks are added together and divided by two (the average between the two marks)
3. In addition, the difference between their two language marks cannot be more than 5% - thus they are equally competent in both languages.

INPUT

Code a method to take care of the login procedure.

Input password	Password is correct	Password is not correct
		

Code a method to take care of the input needed to determine if they qualify or not.

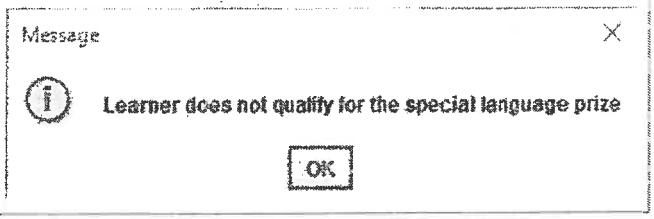


PROCESS

Code a separate method that takes care of the processing. Does the learner meet the criteria?

OUTPUT

Code a separate method that takes care of the final output. Based on the criteria they either qualify or do not qualify.

If they meet the criteria	If they do not meet the criteria
	

(26)

Total Marks: 60

```
1  // july 2022 practical exam
2  // Fahrenheit to Celsius
3  // Celsius to Fahrenheit
4
5  import javax.swing.JOptionPane;
6
7  public class TemperatureConversion {
8
9     private static String conversion;
10
11    private static String fahrenheitSt = null, celsiusSt = null;
12    private static double fahrenheit = 0.0, celsius = 0.0;
13    private static double convertedValue = 0.0;
14
15    public static void main(String[]args) {
16
17       inputConversion();
18
19       if(conversion.equals("FC")) {
20
21          inputFC();
22
23       } // end if
24
25       else if (conversion.equals("CF")) {
26
27          inputCF();
28
29       } // end if
30
31       else {
32
33          JOptionPane.showMessageDialog(null, "Error with input from the keyboard");
34          System.exit(0);
35       } // end else
36
37    } // end main
38
39    private static void inputConversion() {
40
41       conversion = JOptionPane.showInputDialog(null, "Which conversion do you want to do?" + "\n" +
42       "Fahrenheit to Celsius- Type FC" +  "\n" + "Celsius to Fahrenheit - Type CF" );
43       conversion = conversion.toUpperCase();
44
45    } // inputConversion
46
47    private static void inputFC() {
48
49       fahrenheitSt = JOptionPane.showInputDialog(null, "Enter the fahrenheit you want to convert" + "\n");
50       fahrenheit = Double.parseDouble(fahrenheitSt);
51       processFC();
52       outputFC();
53
54    } // end inputFC
55
56    private static void inputCF() {
57
58       celsiusSt = JOptionPane.showInputDialog(null, "Enter the celsius you want to convert" + "\n");
59       celsius = Double.parseDouble(celsiusSt);
60       processCF();
61       outputCF();
62
63    } // end inputFC
64
65    private static void processFC() {
66
67       convertedValue = (fahrenheit - 32) * 5/9;
```

calls methods that match.

Calls conversion methods

```
68    } // end processFC
69
70    private static void processCF() {
71
72       convertedValue = (celsius * 9/5)  + 32;
73    } // end processFC
74
75    private static void outputFC() {
76
77       JOptionPane.showMessageDialog(null, fahrenheit + " degress fahrenheit is " + convertedValue +
78       " degress celsius.");
79
80    } // end outputFC
81
82    private static void outputCF() {
83
84       JOptionPane.showMessageDialog(null, celsius + " degress celsius is " + convertedValue +
85       " degress fahrenheit.");
86
87    } // end outputFC
88
89 }
```

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Layout +2

```
1 // cycle test grade 10
2 // teachers comment generator
3 // Focus is on selection
4
5 import javax.swing.JOptionPane;
6
7 public class JulyPracticalExamQ2 {
8
9    private static String password = null;
10   private static double firstLanguage = 0.0, secondLanguage = 0.0;
11   private static String bookReportsSt;
12   private static int bookReports;
13   private static double total = 0.0, average = 0.0, difference = 0.0;
14   private static String comment = null;
15
16   public static void main(String[]args) {
17
18         login();
19         bookReports();
20         enterMarks();
21         processMarks();
22         awardPrize();
23
24   } // end main
25
26   private static void login() {
27
28      password = JOptionPane.showInputDialog(null, "Enter your password.");
29
30      if(password.equals("123"))
31         JOptionPane.showMessageDialog(null, "Access granted.");
32      else {
33         JOptionPane.showMessageDialog(null, "Error with password.");
34         System.exit(0);
35
36      } // end else
37
38   } // end login
39
40   private static void bookReports() {
41
42      bookReportsSt = JOptionPane.showInputDialog(null, "How many book reports did the learner submit?");
43      bookReports = Integer.parseInt(bookReportsSt);
44
45   } // end bookReports
46
47   private static void enterMarks() {
48         firstLanguage = Double.parseDouble(JOptionPane.showInputDialog(null, "Enter the first language resul
t out of 100."));
49         secondLanguage = Double.parseDouble(JOptionPane.showInputDialog(null, "Enter the second language res
ult out of 100."));
50
51   } // end enterMarks
52
53   private static void processMarks() {
54         total = (firstLanguage + secondLanguage);
55         average = total/2;
56         difference = Math.abs(firstLanguage - secondLanguage);
57
58   } // end processMarks
59
60   private static void awardPrize() {
61      if(bookReports > 10 && average >= 85 && difference <= 5)
62         JOptionPane.showMessageDialog(null, "Learner qualifies for a special language prize");
63      else
64         JOptionPane.showMessageDialog(null, "Learner does not qualify for the special language prize");
65   } // awardPrize
```

26.

```
66
67 } // end class
```