Level 1

Task 1

Task: Temperature Converter

Description: Create a program that converts temperatures between Celsius and Fahrenheit. Prompt the user to enter a temperature value and the unit of measurement, and then perform the conversion. Display the converted temperature.

Skills: Basic input/output operations, arithmetic operations.

reConverter.java - Eclipse IDE — 🗗 ✕

Project Run Window Help

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🗖 🗖 📄 TemperatureConverter.java ✕ 📄 index.html 📄 script.js   🗖🗖 Outline ✕   🗖 🗖

```java
1⊕ import javax.swing.*;
5
6  public class TemperatureConverter {
7⊖     public static void main(String[] args) {
8          JFrame frame = new JFrame("Temperature Converter");
9          frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
10         frame.setSize(300, 150);
11
12         JPanel panel = new JPanel();
13         frame.add(panel);
14
15         JLabel inputLabel = new JLabel("Enter Temperature (°C):");
16         JTextField inputField = new JTextField(10);
17         JLabel outputLabel = new JLabel("Converted Temperature (°F):");
18         JTextField outputField = new JTextField(10);
19         outputField.setEditable(false);
20
21         JButton convertButton = new JButton("Convert");
22
23         panel.add(inputLabel);
24         panel.add(inputField);
25         panel.add(outputLabel);
26         panel.add(outputField);
27         panel.add(convertButton);
28
29⊖        convertButton.addActionListener(new ActionListener() {
30⊖            @Override
31             public void actionPerformed(ActionEvent e) {
```

Outline:
- TemperatureConverter
  - main(String[]) : void
    - new ActionListener() {...}

📄 Problems ✕ @ Javadoc 📄 Declaration   🔽 🗖 🗖
0 errors, 38 warnings, 0 others

Description	Resource	Path	Location	Type
⚠ Warnings (38 items)				

Project Explorer (left panel):
- registration-jsp-servlet-jdbc-example
- registration-jsp-sevlet-jdbc-example
- Servers
- SpringMVC2
- SpringMVCApp1
- TemperatureConverter.java
  - JRE System Library [JavaSE-17]
  - src
    - (default package)
      - TemperatureConverter.java
    - index.html
    - script.js
- TestApp

TemperatureConverter.java

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File   Edit   Source   Source   Navigate   Search   Project   Run   Window   Help

Package Explorer ×

- Demo
- myspringapp
- registration-jsp-servlet-jdbc-example
- registration-jsp-sevlet-jdbc-example
- Servers
- SpringMVC2
- SpringMVCApp1
- TemperatureConverter.java
  - JRE System Library [JavaSE-17]
  - src
    - (default package)
      - TemperatureConverter.java
    - index.html
    - script.js
- TestApp

TemperatureConverter.java   index.html ×   script.js

```html
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <link rel="stylesheet" type="text/css" href="style.css">
5  </head>
6  <body>
7      <div class="converter">
8          <h2>Temperature Converter</h2>
9          <label for="celsius">Enter Temperature (°C):</label>
10         <input type="text" id="celsius">
11         <p>Converted Temperature (°F): <span id="fahrenheit">0</span></p>
12         <button id="convert">Convert</button>
13     </div>
14     <script src="script.js"></script>
15 </body>
16 </html>
17
```

Attribute : id
Data Type : ID

Outline ×

- DOCTYPE:html
- html

Problems ×   @ Javadoc   Declaration

0 errors, 38 warnings, 0 others

Description	Resource	Path	Location	Type
Warnings (38 items)				

#text   Writable   Smart Insert   16 : 8 : 474

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File   Edit   Source   Navigate   Search   Project   Run   Window   Help

Package Explorer ×

> Demo
> myspringapp
> registration-jsp-servlet-jdbc-example
> registration-jsp-sevlet-jdbc-example
> Servers
> SpringMVC2
> SpringMVCApp1
∨ TemperatureConverter.java
   > JRE System Library [JavaSE-17]
   ∨ src
      ∨ (default package)
         > TemperatureConverter.java
      index.html
      script.js
> TestApp

TemperatureConverter.java   index.html   script.js ×

```javascript
1  document.getElementById('convert').addEventListener('click', function() {
2      var celsius = parseFloat(document.getElementById('celsius').value);
3      var fahrenheit = (celsius * 9 / 5) + 32;
4      document.getElementById('fahrenheit').textContent = fahrenheit.toFixed(2);
5  });
6
```

Outline ×

> fx addEventListener('click') callback

Problems ×   @ Javadoc   Declaration

0 errors, 38 warnings, 0 others

Description	Resource	Path	Location	Type
> ⚠ Warnings (38 items)				

Writable   Insert   6 : 1 : 279

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                                          03-10-2023

Level 1

Task 2

Task: Palindrome Checker

Description: Implement a program that checks whether a given word or phrase is a palindrome. A palindrome is a word or phrase that reads the same forwards and backward, ignoring spaces and punctuation.

Skills: String manipulation, loops, conditional statements.

File   Edit   Source   Refactor   Navigate   Search   Project   Run   Window   Help

Package Explorer ×

- Demo
- myspringapp
- PalindromeChecker
  - JRE System Library [JavaSE-17]
  - src
    - (default package)
      - PalindromeChecker.java
- registration-jsp-servlet-jdbc-example
- registration-jsp-sevlet-jdbc-example
- Servers
- SpringMVC2
- SpringMVCApp1
- TemperatureConverter.java
- TestApp

PalindromeChecker.java ×

```java
1⊕ import java.util.Scanner;

3
4  public class PalindromeChecker {
5
6⊖     public static void main(String[] args) {
7          // Accept user input
8          Scanner scanner = new Scanner(System.in);
9          System.out.print("Enter a word or phrase: ");
10         String userInput = scanner.nextLine();
11         scanner.close();
12
13         if (isPalindrome(userInput)) {
14             System.out.println("The input is a palindrome.");
15         } else {
16             System.out.println("The input is not a palindrome.");
17         }
18     }
19
20⊖     public static boolean isPalindrome(String input) {
21         // Remove spaces and punctuation
22         input = input.replaceAll("[^a-zA-Z]", "");
23
24         // Convert to lowercase
25         input = input.toLowerCase();
26
27         // Check if it's a palindrome
28         int left = 0;
29         int right = input.length() - 1;
```

Outline ×

- PalindromeChecker
  - main(String[]) : void
  - isPalindrome(String) : boolean

Problems   @ Javadoc   Declaration   Console ×

<terminated> PalindromeChecker [Java Application] C:\Users\as\AppData\Local\Programs\Eclipse Adoptium\jdk-17.0.3.7-hotspot\bin\javaw.exe (03-Oct-2023, 4:06:57 pm – 4:07:00 pm) [pid: 99

```
Enter a word or phrase: zz
The input is a palindrome.
```

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Level 1

Task 3

Task: Student Grade Calculator

Description: create a program that calculates and displays the average grade of a student. Prompt the user to enter the number of grades to be entered, and then input each grade. Calculate the average and display it to the user.

Skills: Loops, arrays, basic arithmetic operations.

File   Edit   Source   Refactor   Navigate   Search   Project   Run   Window   Help

Package Explorer Project Explorer ✕

> Demo
> myspringapp
> PalindromeChecker
> registration-jsp-servlet-jdbc-example
> registration-jsp-sevlet-jdbc-example
> Servers
> SpringMVC2
> SpringMVCApp1
∨ StudentGradeCalculator
  > JRE System Library [JavaSE-17]
  ∨ src
    > (default package)
    > StudentGradeCalculator.java
> TemperatureConverter.java
> TestApp

StudentGradeCalculator.java ✕

```java
1  import java.util.Scanner;
2
3  public class StudentGradeCalculator {
4      public static void main(String[] args) {
5          Scanner scanner = new Scanner(System.in);
6
7          System.out.print("Enter the number of grades: ");
8          int numGrades = scanner.nextInt();
9
10         if (numGrades <= 0) {
11             System.out.println("Invalid input. Please enter a positive number of grades.");
12             return;
13         }
14
15         double[] grades = new double[numGrades];
16         double total = 0;
17
18         for (int i = 0; i < numGrades; i++) {
19             System.out.print("Enter grade " + (i + 1) + ": ");
20             grades[i] = scanner.nextDouble();
21             total += grades[i];
22         }
23
24         double average = total / numGrades;
25
26         System.out.println("Grades entered:");
27         for (int i = 0; i < numGrades; i++) {
28             System.out.println("Grade " + (i + 1) + ": " + grades[i]);
```

Outline ✕

∨ StudentGradeCalculator
  ⚬ ͨ main(String[]) : void

Problems   @ Javadoc   Declaration   Console ✕

<terminated> StudentGradeCalculator [Java Application] C:\Users\as\AppData\Local\Programs\Eclipse Adoptium\jdk-17.0.3.7-hotspot\bin\javaw.exe (03-Oct-2023, 4:13:31 pm – 4:13:45 pm) [pi

```
Enter grade 2: 35
Grades entered:
Grade 1: 50.0
Grade 2: 35.0
Average grade: 42.5
```

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File   Edit   Source   Refactor   Navigate   Search   Project   Run   Window   Help

Package Explorer   Project Explorer ×

- Demo
- myspringapp
- PalindromeChecker
- registration-jsp-servlet-jdbc-example
- registration-jsp-sevlet-jdbc-example
- Servers
- SpringMVC2
- SpringMVCApp1
- StudentGradeCalculator
  - JRE System Library [JavaSE-17]
  - src
    - (default package)
      - StudentGradeCalculator.java
- TemperatureConverter.java
- TestApp

StudentGradeCalculator.java ×

```java
1   import java.util.Scanner;
2
3   public class StudentGradeCalculator {
4       public static void main(String[] args) {
5           Scanner scanner = new Scanner(System.in);
6
7           System.out.print("Enter the number of grades: ");
8           int numGrades = scanner.nextInt();
9
```

Outline ×

- StudentGradeCalculator
  - main(String[]) : void

Problems   @ Javadoc   Declaration   Console ×

<terminated> StudentGradeCalculator [Java Application] C:\Users\as\AppData\Local\Programs\Eclipse Adoptium\jdk-17.0.3.7-hotspot\bin\javaw.exe (03-Oct-2023, 4:13:31 pm – 4:13:45 pm) [pi

```
Enter the number of grades: 2
Enter grade 1: 50
Enter grade 2: 35
Grades entered:
Grade 1: 50.0
Grade 2: 35.0
Average grade: 42.5
```

(3)

Writable   Smart Insert   29 : 10 : 936

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Level 1

Task 4
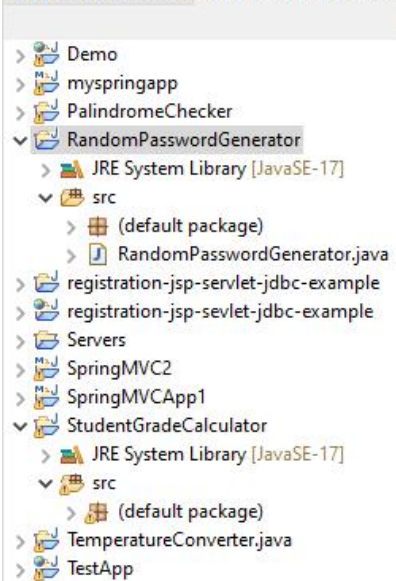
Task: Random Password Generator

Description: Build a program that generates a random password for the user. Prompt the user to enter the desired length of the password and specify whether it should include numbers, lowercase letters, uppercase letters, and special characters. Generate the password accordingly and display it to the user.

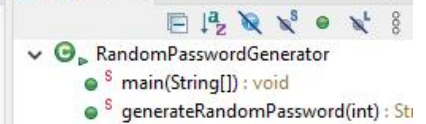**Skills:** Random number generation, string manipulation, user input.

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer Project Explorer ×

> Demo
> myspringapp
> PalindromeChecker
∨ RandomPasswordGenerator
  > JRE System Library [JavaSE-17]
  ∨ src
    > (default package)
    > RandomPasswordGenerator.java
> registration-jsp-servlet-jdbc-example
> registration-jsp-sevlet-jdbc-example
> Servers
> SpringMVC2
> SpringMVCApp1
∨ StudentGradeCalculator
  > JRE System Library [JavaSE-17]
  ∨ src
    > (default package)
> TemperatureConverter.java
> TestApp

RandomPasswordGenerator.java ×

```java
 1  import java.security.SecureRandom;
 2
 3  public class RandomPasswordGenerator {
 4      public static void main(String[] args) {
 5          int passwordLength = 12; // You can change the length of the password as needed
 6          String password = generateRandomPassword(passwordLength);
 7          System.out.println("Random Password: " + password);
 8      }
 9
10      // Function to generate a random password
11      public static String generateRandomPassword(int length) {
12          // Define the character sets for the password
13          String lowercaseChars = "abcdefghijklmnopqrstuvwxyz";
14          String uppercaseChars = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";
15          String digits = "0123456789";
16          String specialChars = "!@#$%^&*()-_+=<>?";
17
18          // Combine all the character sets
19          String allChars = lowercaseChars + uppercaseChars + digits + specialChars;
20
21          // Create a SecureRandom instance for generating random numbers
22          SecureRandom random = new SecureRandom();
23
24          StringBuilder password = new StringBuilder();
25
26          // Generate the password by randomly selecting characters from the character set
27          for (int i = 0; i < length; i++) {
28              int randomIndex = random.nextInt(allChars.length());
29              char randomChar = allChars.charAt(randomIndex);
30              password.append(randomChar);
31          }
32
33          return password.toString();
```

Outline ×

∨ RandomPasswordGenerator
  ● ˢ main(String[]) : void
  ● ˢ generateRandomPassword(int) : Str

Problems @ Javadoc Declaration Console ×

<terminated> RandomPasswordGenerator [Java Application] C:\Users\as\AppData\Local\Programs\Eclipse Adoptium\jdk-17.0.3.7-hotspot\bin\javaw.exe (03-Oct-2023, 4:17:41 pm – 4:17:42 pm)
Random Password: sWk9<^QGMJYi

30°C Mostly sunny   ENG   04:17 PM
                              03-10-2023