

Cognifyz Level 1 Tasks :-

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.

```
C:\>Users>Aaryan>Desktop>J TemperatureConverter.java > ...
1 import java.util.Scanner;
2
3 public class TemperatureConverter {
4
5     public static double celsiusToFahrenheit(double celsius) {
6         return (celsius * 9 / 5) + 32;
7     }
8
9     public static double fahrenheitToCelsius(double fahrenheit) {
10        return (fahrenheit - 32) * 5 / 9;
11    }
12
13    public static void main(String[] args) {
14        Scanner sc = new Scanner(System.in);
15
16        System.out.println("Temperature Converter");
17        System.out.println("1. Celsius to Fahrenheit");
18        System.out.println("2. Fahrenheit to Celsius");
19        System.out.print("Enter your choice (1 or 2): ");
20
21        int choice = sc.nextInt();
22
23        if (choice == 1) {
24            System.out.print("Enter temperature in Celsius: ");
25            double celsius = sc.nextDouble();
26            double fahrenheit = celsiusToFahrenheit(celsius);
27            System.out.printf("%.2f°C is equal to %.2f°F\n", celsius, fahrenheit);
28        } else if (choice == 2) {
29            System.out.print("Enter temperature in Fahrenheit: ");
30            double fahrenheit = sc.nextDouble();
31            double celsius = fahrenheitToCelsius(fahrenheit);
32            System.out.printf("%.2f°F is equal to %.2f°C\n", fahrenheit, celsius);
33        } else {
34            System.out.println("Invalid choice. Please select 1 or 2.");
35        }
36    }
37}
```

Activate Windows
Go to Settings to activate Windows.

```
C:\>Users>Aaryan>Desktop>J TemperatureConverter.java 1
1 import java.util.Scanner;
2
3 public class TemperatureConverter {
4
5     public static double celsiusToFahrenheit(double celsius) {
6         return (celsius * 9 / 5) + 32;
7     }
8
9     public static double fahrenheitToCelsius(double fahrenheit) {
10        return (fahrenheit - 32) * 5 / 9;
11    }
12
13    Run | Debug
14    public static void main(String[] args) {
15        Scanner sc = new Scanner(System.in);
16
17        System.out.println("Temperature Converter");
18        System.out.println("1. Celsius to Fahrenheit");
19        System.out.println("2. Fahrenheit to Celsius");
20        System.out.print("Enter your choice (1 or 2): ");
21
22        int choice = sc.nextInt();
23
24        if (choice == 1) {
25            System.out.print("Enter temperature in Celsius: ");
26            double celsius = sc.nextDouble();
27            double fahrenheit = celsiusToFahrenheit(celsius);
28            System.out.printf("%.2f°C is equal to %.2f°F\n", celsius, fahrenheit);
29        } else if (choice == 2) {
30            System.out.print("Enter temperature in Fahrenheit: ");
31            double fahrenheit = sc.nextDouble();
32            double celsius = fahrenheitToCelsius(fahrenheit);
33            System.out.printf("%.2f°F is equal to %.2f°C\n", fahrenheit, celsius);
34        } else {
35            System.out.println("Invalid choice. Please select 1 or 2.");
36        }
37    }
38}
```

```
PS C:\Users\Aaryan> cd "c:\Users\Aaryan\Desktop" ; if ($?) { javac TemperatureConverter.java } ; if ($?) { java TemperatureConverter }
1. Celsius to Fahrenheit
2. Fahrenheit to Celsius
Enter your choice (1 or 2): 1
Enter temperature in Celsius: 120
120.00 is equal to 248.00°F
PS C:\Users\Aaryan\Desktop> cd "c:\Users\Aaryan\Desktop" ; if ($?) { javac TemperatureConverter.java } ; if ($?) { java TemperatureConverter }
1. Celsius to Fahrenheit
2. Fahrenheit to Celsius
Enter your choice (1 or 2):
```

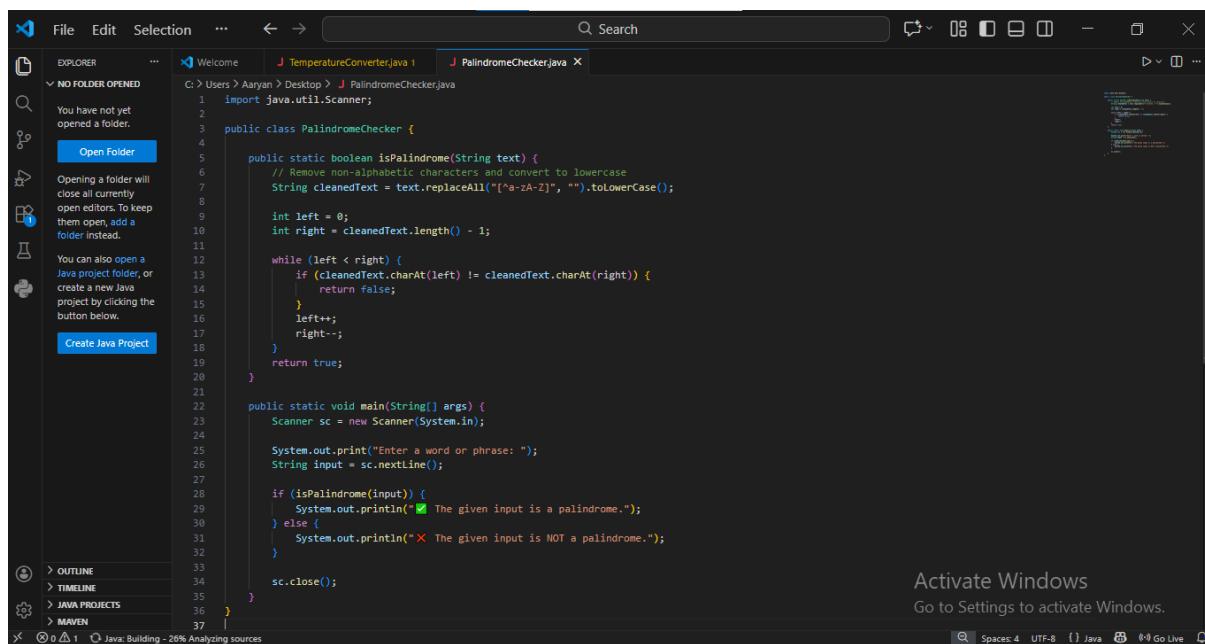
Activate Windows
Go to Settings to activate Windows.

Task2

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.



The screenshot shows a Java IDE interface with the following details:

- File Bar:** File, Edit, Selection, ..., Back, Forward, Search, Minimize, Maximize, Close.
- Explorer:** NO FOLDER OPENED. It includes buttons for Open Folder, Create Java Project, and links for Java project folder, Java, Timeline, Java Projects, Maven.
- Search Bar:** Q Search.
- Code Editor:** Three tabs are visible: Welcome, TemperatureConverter.java, and PalindromeChecker.java. The PalindromeChecker.java tab is active, displaying the following code:

```
C:\> Users > Aryan > Desktop > J PalindromeChecker.java
1 import java.util.Scanner;
2
3 public class PalindromeChecker {
4
5     public static boolean isPalindrome(String text) {
6         // Remove non-alphabetic characters and convert to lowercase
7         String cleanedText = text.replaceAll("[^a-zA-Z]", "").toLowerCase();
8
9         int left = 0;
10        int right = cleanedText.length() - 1;
11
12        while (left < right) {
13            if (cleanedText.charAt(left) != cleanedText.charAt(right)) {
14                return false;
15            }
16            left++;
17            right--;
18        }
19        return true;
20    }
21
22    public static void main(String[] args) {
23        Scanner sc = new Scanner(System.in);
24
25        System.out.print("Enter a word or phrase: ");
26        String input = sc.nextLine();
27
28        if (isPalindrome(input)) {
29            System.out.println("✓ The given input is a palindrome.");
30        } else {
31            System.out.println("✗ The given input is NOT a palindrome.");
32        }
33        sc.close();
34    }
35}
36}
37}
```

Bottom Status Bar: Activate Windows, Go to Settings to activate Windows. Spaces: 4, UTF-8, Java, Go Live.

The screenshot shows a Java code editor interface with the following details:

- File Bar:** File, Edit, Selection, ..., Back, Forward, Search, Minimize, Maximize, Close.
- Explorer:** NO FOLDER OPENED. It includes instructions to open a folder, add it to the workspace, or create a new Java project.
- Editor:** Two tabs are open: TemperatureConverter.java and PalindromeChecker.java. The PalindromeChecker.java code is displayed:

```
1 import java.util.Scanner;
2
3 public class PalindromeChecker {
4
5     public static boolean isPalindrome(String text) {
6         // Remove non-alphabetic characters and convert to lowercase
7         String cleanedText = text.replaceAll(regex: "[^a-zA-Z]", replacement: "").toLowerCase();
8
9         int left = 0;
10        int right = cleanedText.length() - 1;
11
12        while (left < right) {
13            if (cleanedText.charAt(left) != cleanedText.charAt(right)) {
14                return false;
15            }
16            left++;
17            right--;
18        }
19        return true;
20    }
21
22    public static void main(String[] args) {
23        Scanner sc = new Scanner(System.in);

```
- Terminal:** Shows command-line history for testing the PalindromeChecker class.
- Problems:** A section showing errors or warnings.
- Output:** A tab for viewing terminal output.
- Activate Windows:** A message to activate the Windows version of the IDE.

Task3

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.

The screenshot shows a Java code editor interface with a dark theme. The left sidebar has a 'NO FOLDER OPENED' message and buttons for 'Open Folder' and 'Create Java Project'. The main area displays the following Java code:

```
C:\> Users > Aaryan > Desktop > J StudentGradeCalculator.java ...
1 import java.util.Scanner;
2
3 public class StudentGradeCalculator {
4
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);
7
8         System.out.print("Enter the number of grades: ");
9         int n = sc.nextInt();
10
11        if (n <= 0) {
12            System.out.println(" Number of grades must be greater than zero.");
13            return;
14        }
15
16        double[] grades = new double[n];
17        double sum = 0;
18
19        for (int i = 0; i < n; i++) {
20            System.out.print("Enter grade " + (i + 1) + ": ");
21            grades[i] = sc.nextDouble();
22            sum += grades[i];
23        }
24
25        double average = sum / n;
26
27        System.out.printf(" Average Grade: %.2f\n", average);
28
29        sc.close();
30    }
31
32 }
```

The status bar at the bottom indicates 'Java: Ready'.

This screenshot shows the same Java code editor interface, but now with a terminal window at the bottom displaying the execution of the program. The terminal output is as follows:

```
PS C:\Users\Aaryan> cd "C:\Users\Aaryan\Desktop\" ; if ($?) { javac StudentGradeCalculator.java } ; if ($?) { java StudentGradeCalculator }
Enter the number of grades: 5
Enter grade 1: 98
Enter grade 2: 98
Enter grade 3: 99
Enter grade 4: 98
Enter grade 5: 96
? Average Grade: 96.20
PS C:\Users\Aaryan\Desktop>
```

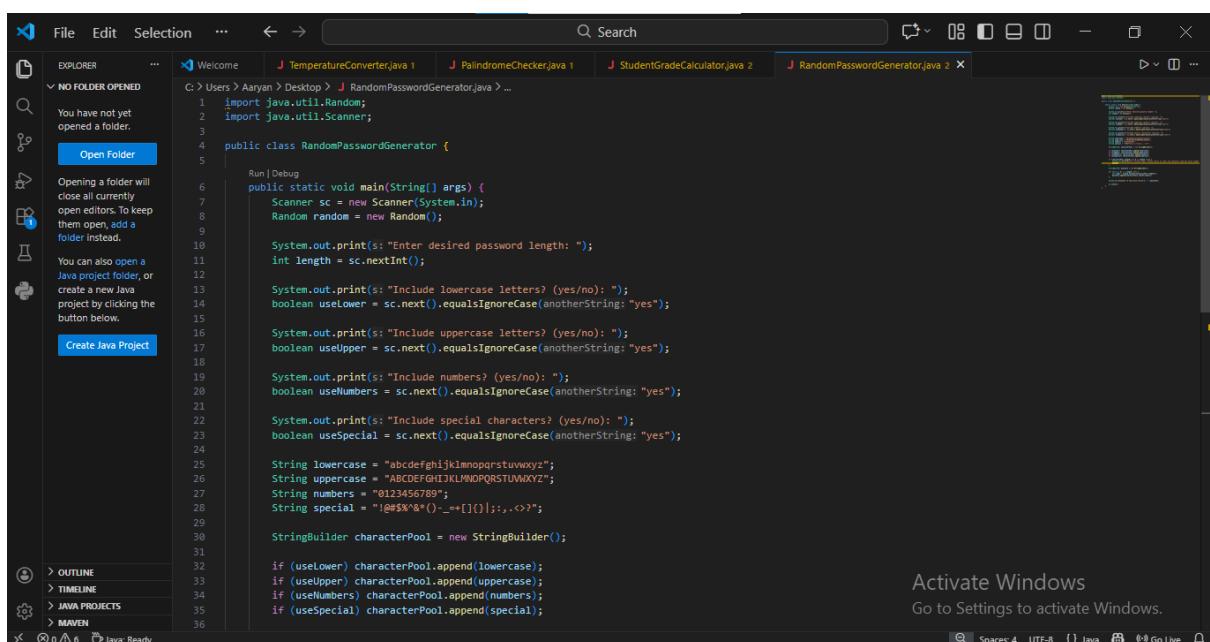
The status bar at the bottom indicates 'Java: Ready'.

Task4

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.



The screenshot shows a Java development environment with the following code in the main editor:

```
C:\> Users > Aaryan > Desktop > RandomPasswordGenerator.java > ...
1 import java.util.Random;
2 import java.util.Scanner;
3
4 public class RandomPasswordGenerator {
5
6     Run | Debug
7     public static void main(String[] args) {
8         Scanner sc = new Scanner(System.in);
9         Random random = new Random();
10
11         System.out.print("Enter desired password length: ");
12         int length = sc.nextInt();
13
14         System.out.print("Include lowercase letters? (yes/no): ");
15         boolean useLower = sc.nextLine().equalsIgnoreCase("yes");
16
17         System.out.print("Include uppercase letters? (yes/no): ");
18         boolean useUpper = sc.nextLine().equalsIgnoreCase("yes");
19
20         System.out.print("Include numbers? (yes/no): ");
21         boolean useNumbers = sc.nextLine().equalsIgnoreCase("yes");
22
23         System.out.print("Include special characters? (yes/no): ");
24         boolean useSpecial = sc.nextLine().equalsIgnoreCase("yes");
25
26         String lowercase = "abcdefghijklmnopqrstuvwxyz";
27         String uppercase = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";
28         String numbers = "0123456789";
29         String special = "!@#$%^&*()_-=[{}];_,.><?";
30
31         StringBuilder characterPool = new StringBuilder();
32
33         if (useLower) characterPool.append(lowercase);
34         if (useUpper) characterPool.append(uppercase);
35         if (useNumbers) characterPool.append(numbers);
36         if (useSpecial) characterPool.append(special);
37
38         String password = characterPool.substring(0, length);
39
40         System.out.println("Generated password: " + password);
41     }
42 }
```

The IDE interface includes toolbars, a search bar, and various status indicators at the bottom.

The screenshot shows a Java development environment with the following details:

- File Bar:** File, Edit, Selection, ...
- Search Bar:** Search
- Explorer:** NO FOLDER OPENED. Sub-sections include "Open Folder" (highlighted), "Opening a folder will close all currently open editors. To keep them open, add a folder instead.", and "You can also open a Java project folder, or create a new Java project by clicking the button below." A "Create Java Project" button is also present.
- Code Editor:** A Java code editor showing a RandomPasswordGenerator.java file. The code prompts the user for password length and character types (lowercase, uppercase, numbers, special characters) and generates a password. The code is as follows:

```
1 import java.util.Random;
2 import java.util.Scanner;
3
4 public class RandomPasswordGenerator {
5
6     public static void main(String[] args) {
7         Scanner sc = new Scanner(System.in);
8         Random random = new Random();
9
10        System.out.print("Enter desired password length: ");
11        int length = sc.nextInt();
12
13        System.out.print("Include lowercase letters? (yes/no): ");
14        boolean useLower = sc.nextLine().equalsIgnoreCase("yes");
15
16        System.out.print("Include uppercase letters? (yes/no): ");
17        boolean useUpper = sc.nextLine().equalsIgnoreCase("yes");
18
19        System.out.print("Include numbers? (yes/no): ");
20        boolean useNumbers = sc.nextLine().equalsIgnoreCase("yes");
21
22        System.out.print("Include special characters? (yes/no): ");
23        boolean useSpecial = sc.nextLine().equalsIgnoreCase("yes");
24
25        String generatedPassword = generatePassword(length, useLower, useUpper, useNumbers, useSpecial);
26        System.out.println("Generated Password: " + generatedPassword);
27    }
28
29    private static String generatePassword(int length, boolean useLower, boolean useUpper, boolean useNumbers, boolean useSpecial) {
30        // Implementation of password generation logic
31    }
32}
```

- Terminal:** Shows a PowerShell session (PS) running on C:\Users\Aaryan\Desktop. The user enters a password length of 9 and specifies yes for all character types. The generated password is PH.NZ5;R6.
- Problems:** 6 errors listed.
- Output:** No output shown.
- Debug Console:** No output shown.
- Terminal:** The active tab.
- Ports:** No ports listed.
- Activate Windows:** A message prompting the user to go to Settings to activate Windows.
- Bottom Bar:** Includes icons for Code, Output, Debug Console, Terminal, Ports, and a search bar with "Spaces: 4 - UTF-8".