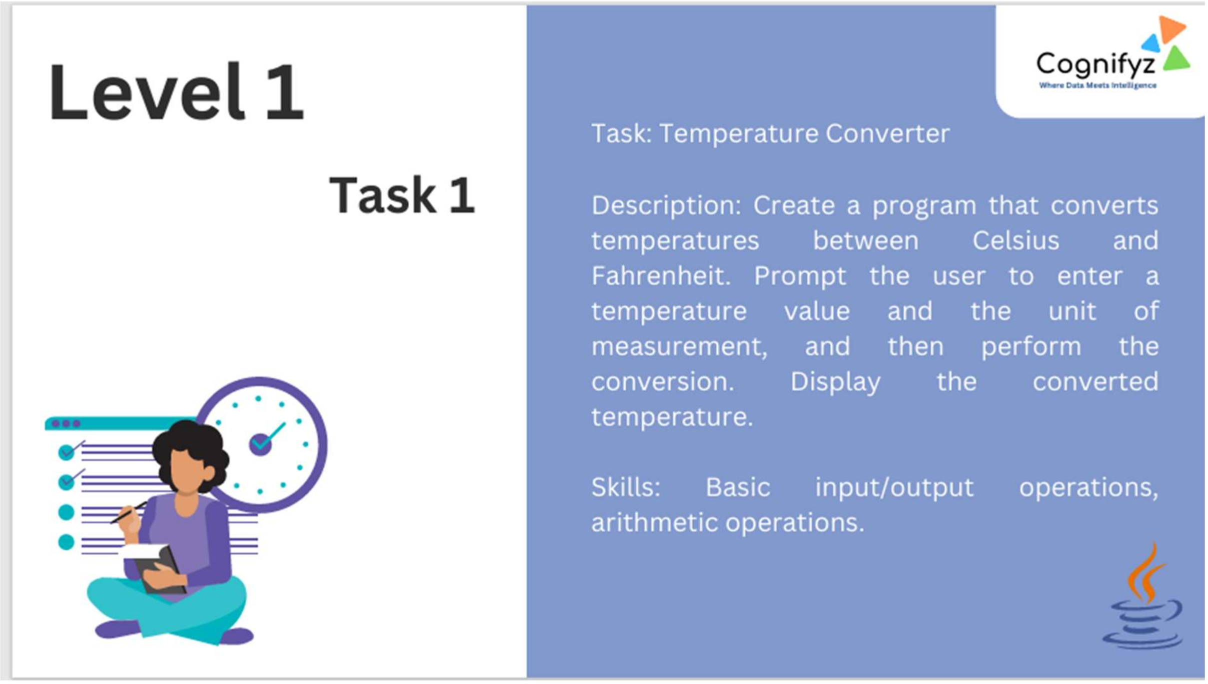
Name: Ganesh N Moroliya

Level 1 output:



Level 1

Task 1

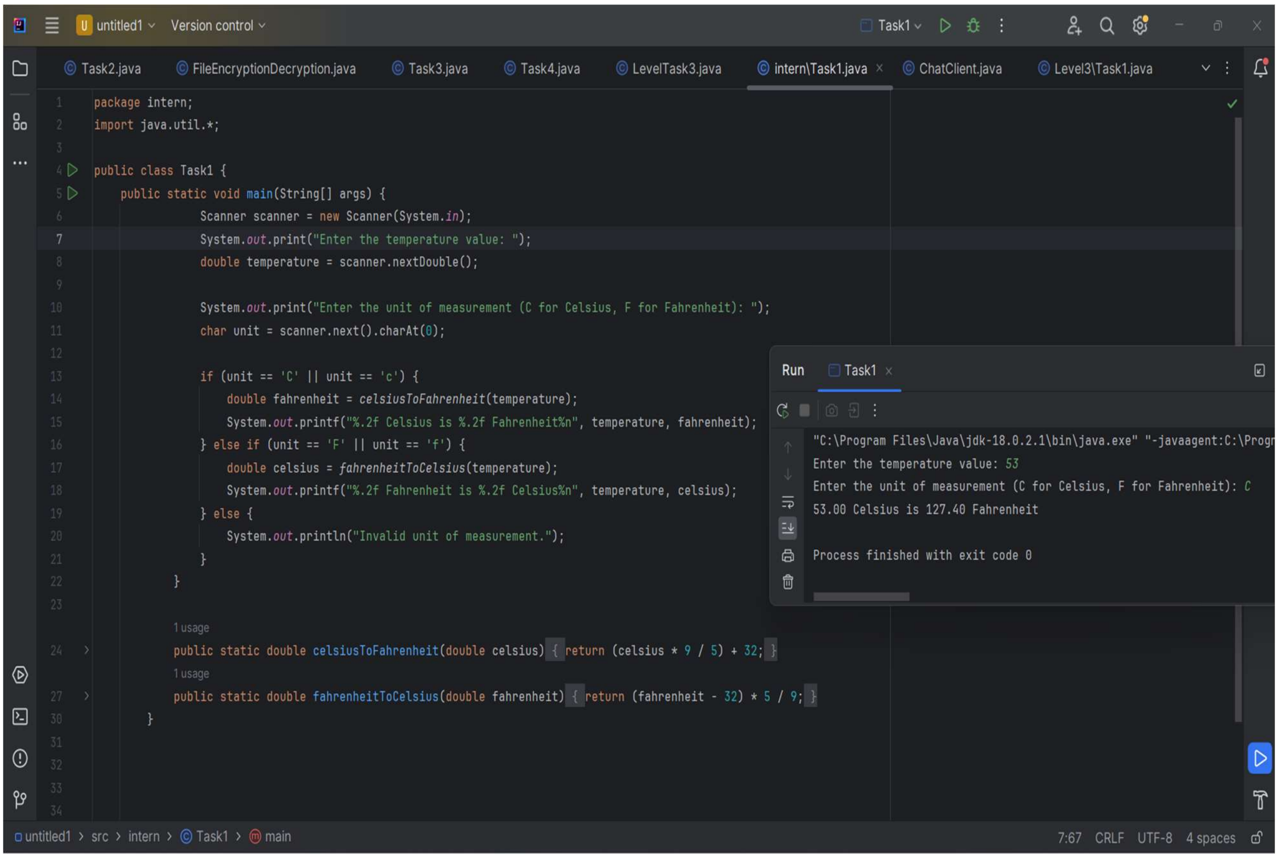
Cognifyz

Where Data Meets Intelligence

Task: Temperature Converter

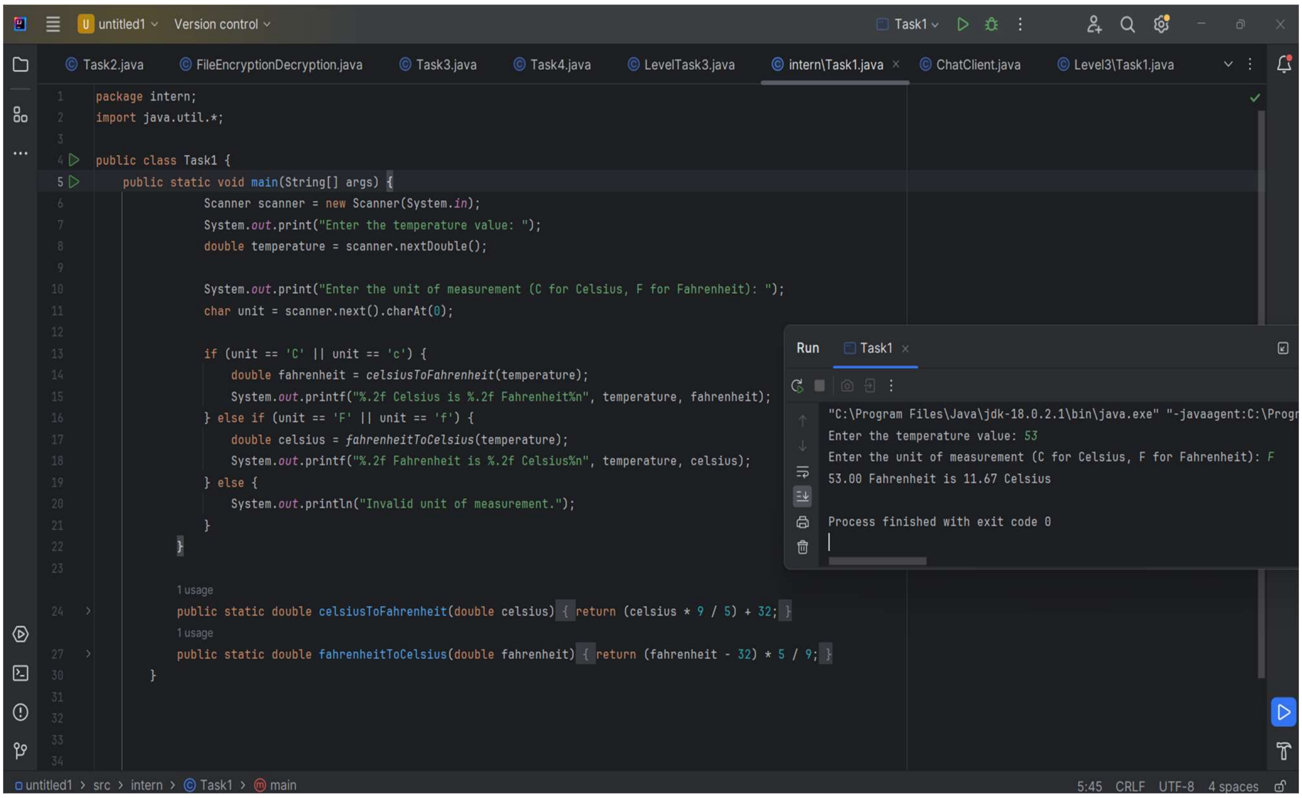
Description: Create a program that converts temperatures between Celsius and Fahrenheit. Prompt the user to enter a temperature value and the unit of measurement, and then perform the conversion. Display the converted temperature.

Skills: Basic input/output operations, arithmetic operations.



```java
package intern;
import java.util.*;

public class Task1 {
    public static void main(String[] args) {
            Scanner scanner = new Scanner(System.in);
            System.out.print("Enter the temperature value: ");
            double temperature = scanner.nextDouble();

            System.out.print("Enter the unit of measurement (C for Celsius, F for Fahrenheit): ");
            char unit = scanner.next().charAt(0);

            if (unit == 'C' || unit == 'c') {
                double fahrenheit = celsiusToFahrenheit(temperature);
                System.out.printf("%.2f Celsius is %.2f Fahrenheit%n", temperature, fahrenheit);
            } else if (unit == 'F' || unit == 'f') {
                double celsius = fahrenheitToCelsius(temperature);
                System.out.printf("%.2f Fahrenheit is %.2f Celsius%n", temperature, celsius);
            } else {
                System.out.println("Invalid unit of measurement.");
            }
        }

        public static double celsiusToFahrenheit(double celsius) { return (celsius * 9 / 5) + 32; }
        public static double fahrenheitToCelsius(double fahrenheit) { return (fahrenheit - 32) * 5 / 9; }
    }
```

```
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Progr
Enter the temperature value: 53
Enter the unit of measurement (C for Celsius, F for Fahrenheit): C
53.00 Celsius is 127.40 Fahrenheit

Process finished with exit code 0
```



```java
package intern;
import java.util.*;

public class Task1 {
    public static void main(String[] args) {
            Scanner scanner = new Scanner(System.in);
            System.out.print("Enter the temperature value: ");
            double temperature = scanner.nextDouble();

            System.out.print("Enter the unit of measurement (C for Celsius, F for Fahrenheit): ");
            char unit = scanner.next().charAt(0);

            if (unit == 'C' || unit == 'c') {
                double fahrenheit = celsiusToFahrenheit(temperature);
                System.out.printf("%.2f Celsius is %.2f Fahrenheit%n", temperature, fahrenheit);
            } else if (unit == 'F' || unit == 'f') {
                double celsius = fahrenheitToCelsius(temperature);
                System.out.printf("%.2f Fahrenheit is %.2f Celsius%n", temperature, celsius);
            } else {
                System.out.println("Invalid unit of measurement.");
            }
        }

        public static double celsiusToFahrenheit(double celsius) { return (celsius * 9 / 5) + 32; }
        public static double fahrenheitToCelsius(double fahrenheit) { return (fahrenheit - 32) * 5 / 9; }
    }
```

```
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Progr
Enter the temperature value: 53
Enter the unit of measurement (C for Celsius, F for Fahrenheit): F
53.00 Fahrenheit is 11.67 Celsius

Process finished with exit code 0
```

Level 1

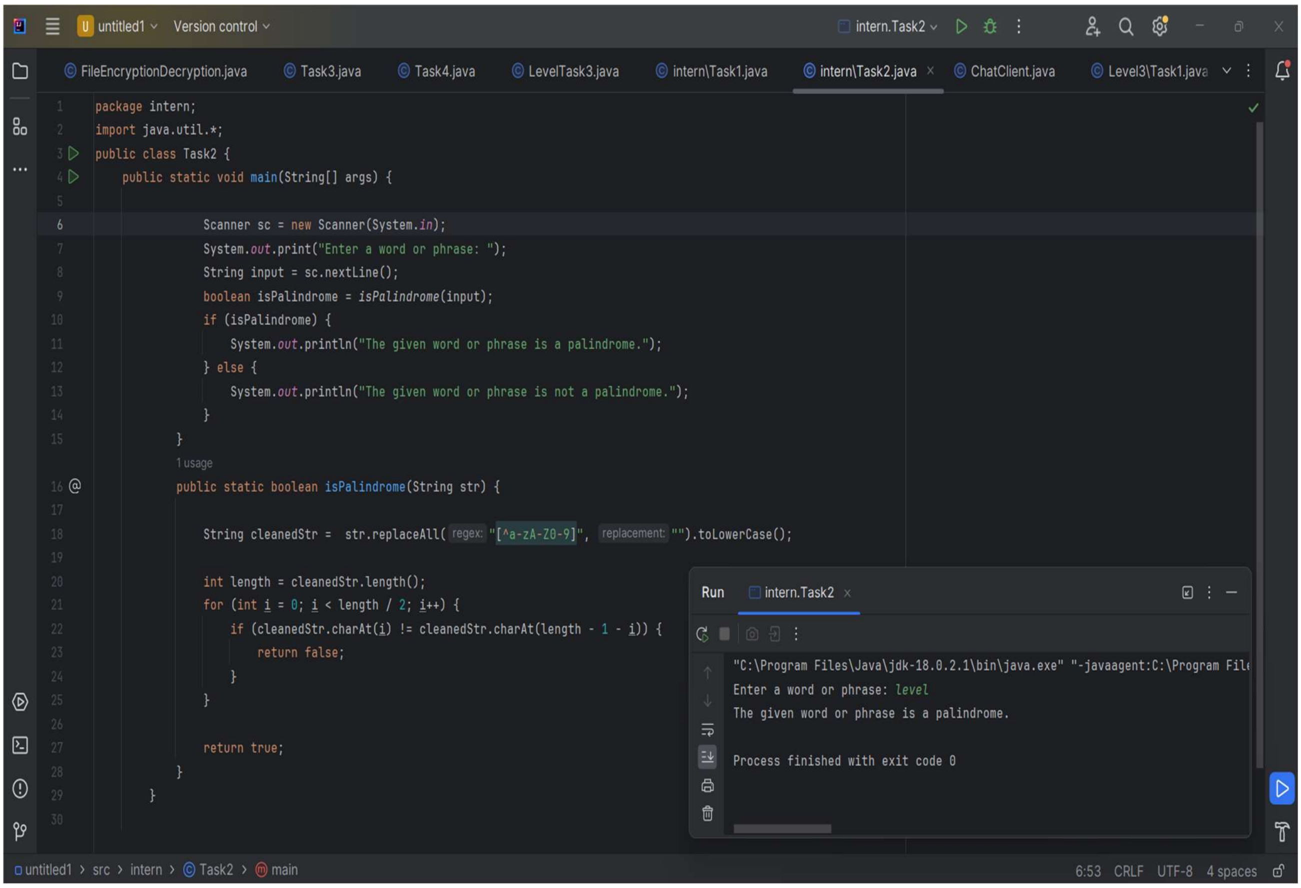
Task 2

Cognifyz
Where Data Meets Intelligence

Task: Palindrome Checker

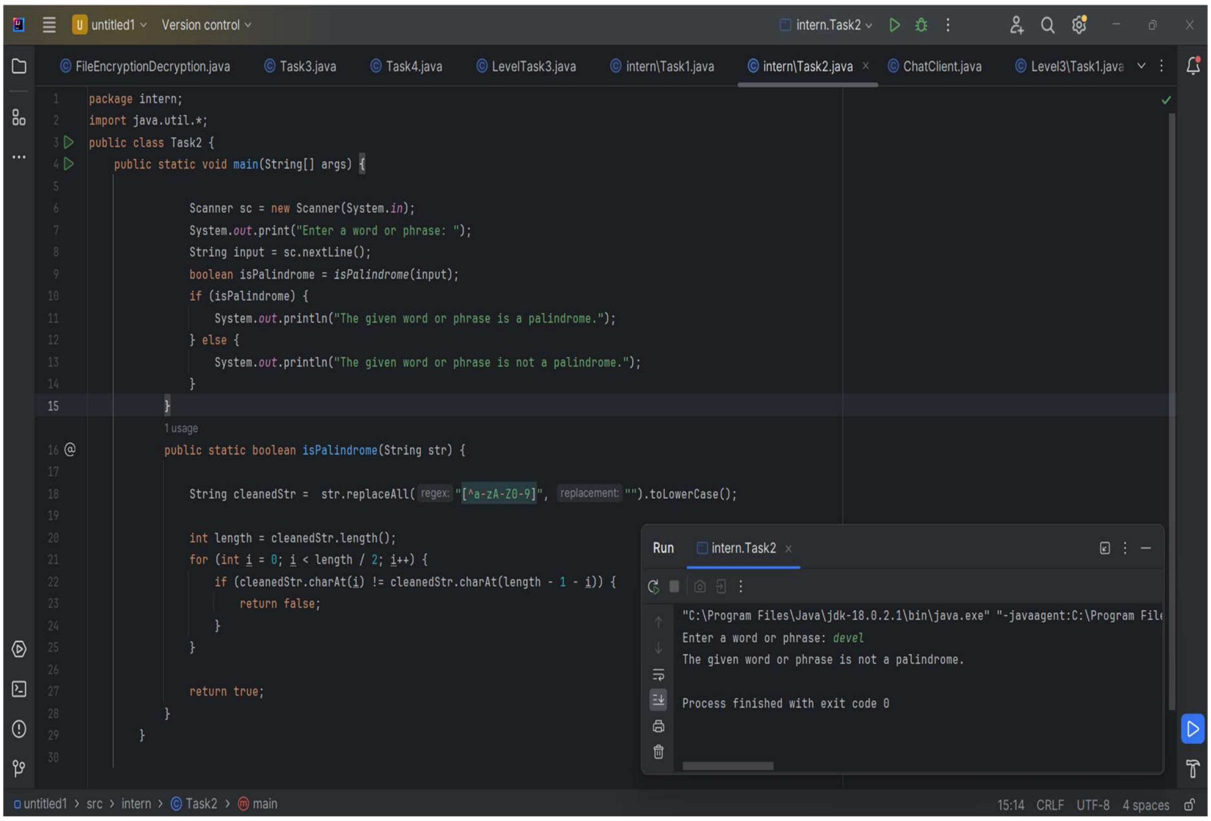
Description: Implement a program that checks whether a given word or phrase is a palindrome. A palindrome is a word or phrase that reads the same forwards and backward, ignoring spaces and punctuation.

Skills: String manipulation, loops, conditional statements.



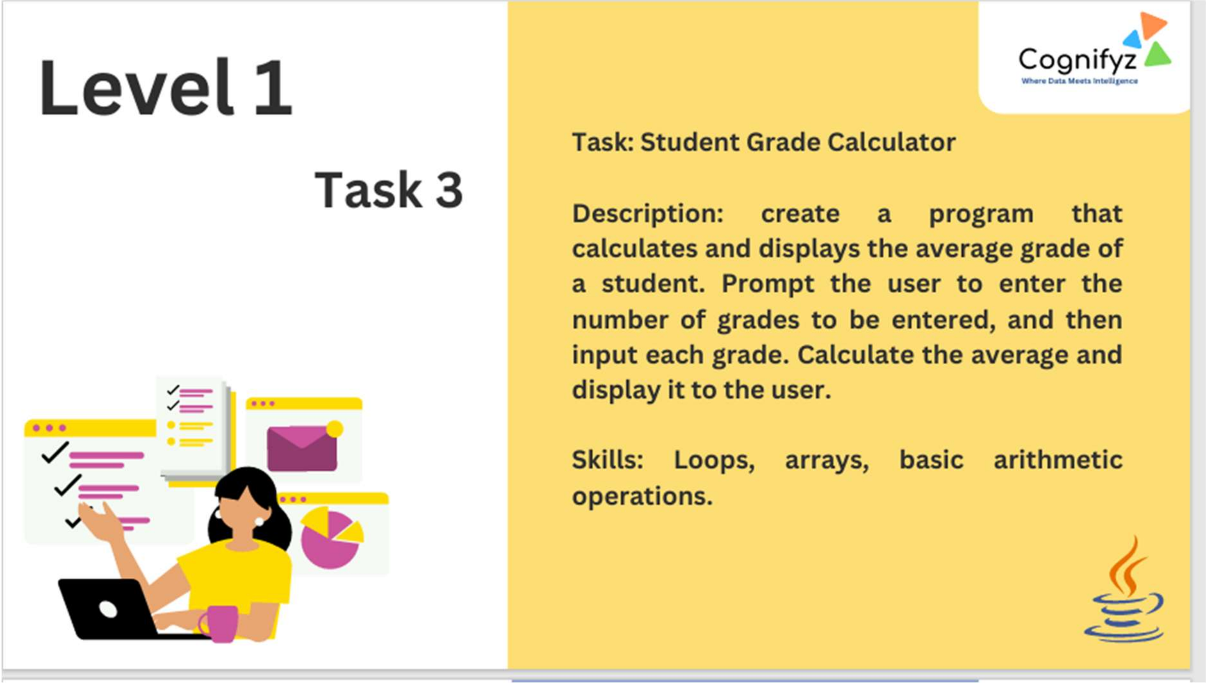
```java
package intern;
import java.util.*;
public class Task2 {
    public static void main(String[] args) {

                Scanner sc = new Scanner(System.in);
                System.out.print("Enter a word or phrase: ");
                String input = sc.nextLine();
                boolean isPalindrome = isPalindrome(input);
                if (isPalindrome) {
                    System.out.println("The given word or phrase is a palindrome.");
                } else {
                    System.out.println("The given word or phrase is not a palindrome.");
                }
            }
            1 usage
            public static boolean isPalindrome(String str) {

                String cleanedStr =  str.replaceAll( regex: "[^a-zA-Z0-9]",  replacement: "").toLowerCase();

                int length = cleanedStr.length();
                for (int i = 0; i < length / 2; i++) {
                    if (cleanedStr.charAt(i) != cleanedStr.charAt(length - 1 - i)) {
                        return false;
                    }
                }

                return true;
            }
        }

```

```
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Program File
Enter a word or phrase: level
The given word or phrase is a palindrome.

Process finished with exit code 0
```



```java
package intern;
import java.util.*;
public class Task2 {
    public static void main(String[] args) {

                Scanner sc = new Scanner(System.in);
                System.out.print("Enter a word or phrase: ");
                String input = sc.nextLine();
                boolean isPalindrome = isPalindrome(input);
                if (isPalindrome) {
                    System.out.println("The given word or phrase is a palindrome.");
                } else {
                    System.out.println("The given word or phrase is not a palindrome.");
                }
            }
            1 usage
            public static boolean isPalindrome(String str) {

                String cleanedStr =  str.replaceAll( regex: "[^a-zA-Z0-9]",  replacement: "").toLowerCase();

                int length = cleanedStr.length();
                for (int i = 0; i < length / 2; i++) {
                    if (cleanedStr.charAt(i) != cleanedStr.charAt(length - 1 - i)) {
                        return false;
                    }
                }

                return true;
            }
        }
```

```
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Program File
Enter a word or phrase: devel
The given word or phrase is not a palindrome.

Process finished with exit code 0
```



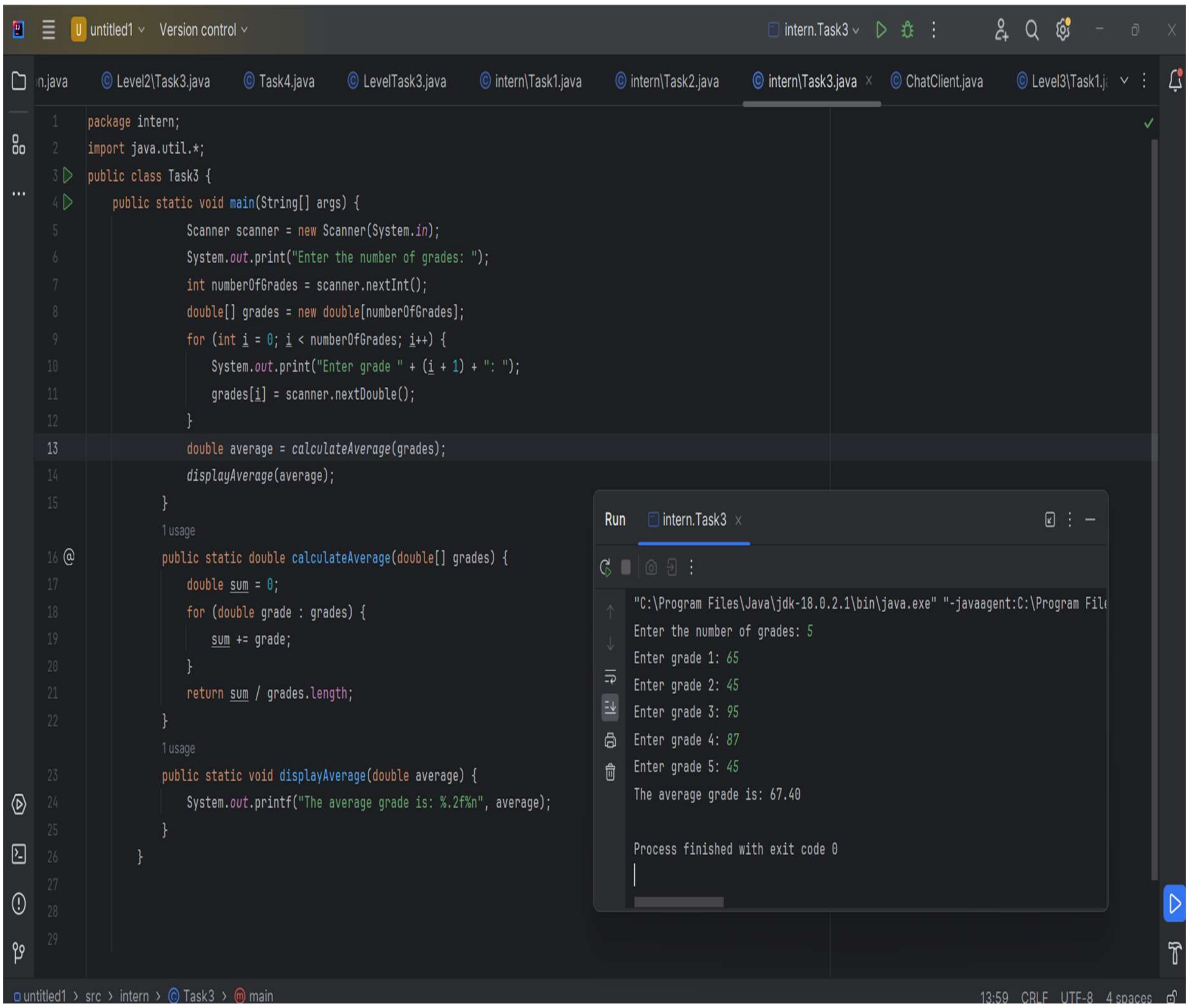
Level 1

Task 3

Task: Student Grade Calculator

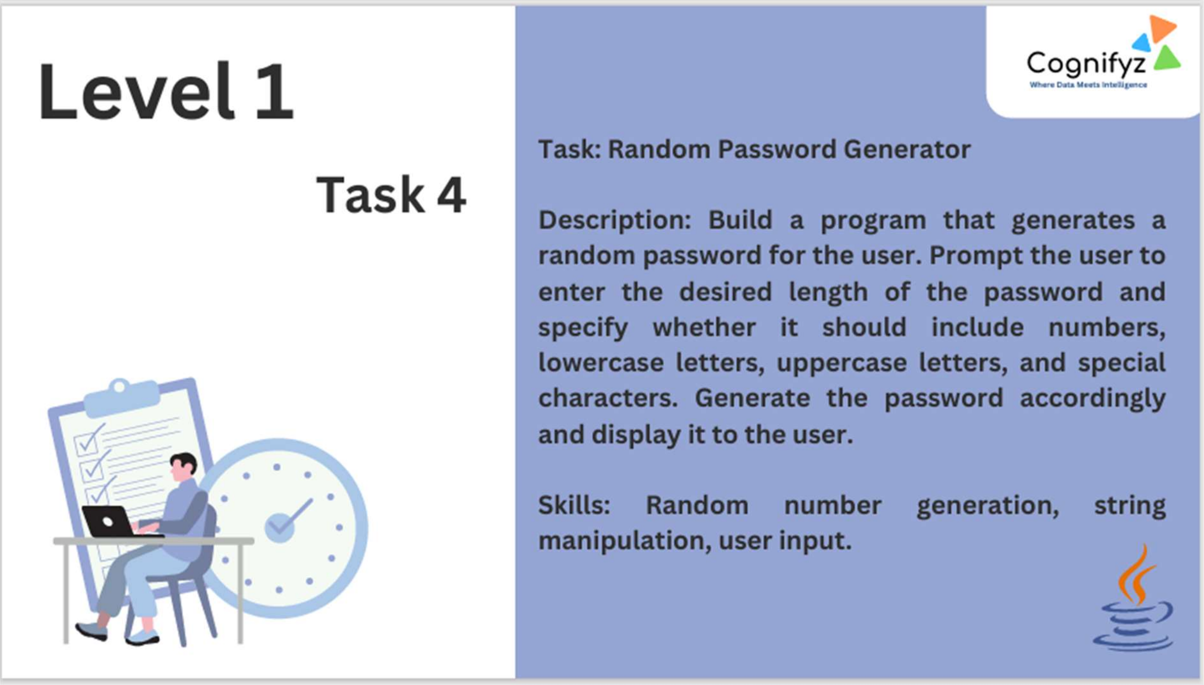
Description: create a program that calculates and displays the average grade of a student. Prompt the user to enter the number of grades to be entered, and then input each grade. Calculate the average and display it to the user.

Skills: Loops, arrays, basic arithmetic operations.



```java
package intern;
import java.util.*;
public class Task3 {
    public static void main(String[] args) {
                Scanner scanner = new Scanner(System.in);
                System.out.print("Enter the number of grades: ");
                int numberOfGrades = scanner.nextInt();
                double[] grades = new double[numberOfGrades];
                for (int i = 0; i < numberOfGrades; i++) {
                    System.out.print("Enter grade " + (i + 1) + ": ");
                    grades[i] = scanner.nextDouble();
                }
                double average = calculateAverage(grades);
                displayAverage(average);
            }
            1 usage
            public static double calculateAverage(double[] grades) {
                double sum = 0;
                for (double grade : grades) {
                    sum += grade;
                }
                return sum / grades.length;
            }
            1 usage
            public static void displayAverage(double average) {
                System.out.printf("The average grade is: %.2f%n", average);
            }
        }
```

```
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Program File
Enter the number of grades: 5
Enter grade 1: 65
Enter grade 2: 45
Enter grade 3: 95
Enter grade 4: 87
Enter grade 5: 45
The average grade is: 67.40

Process finished with exit code 0
```



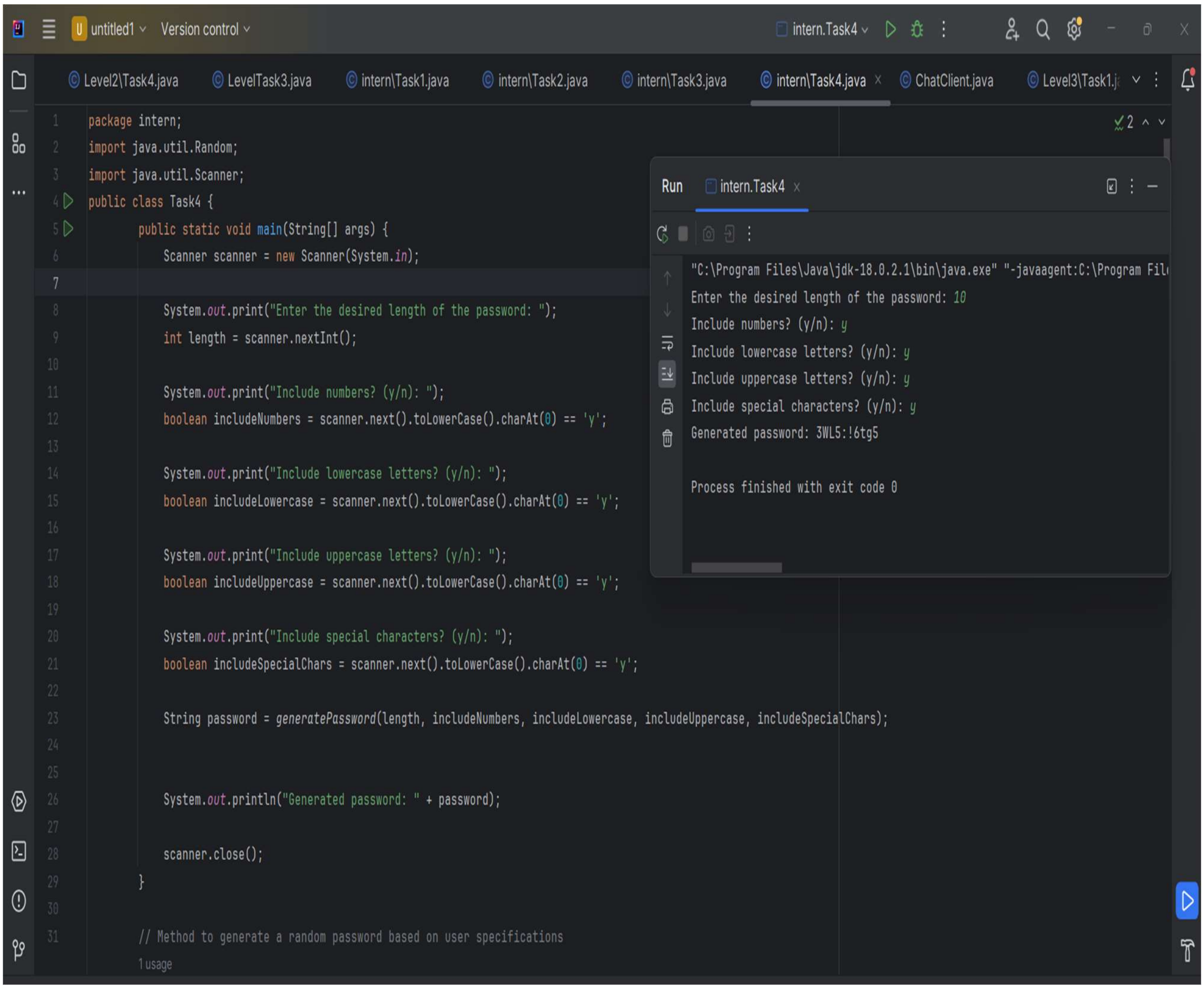
Level 1

Task 4

Task: Random Password Generator

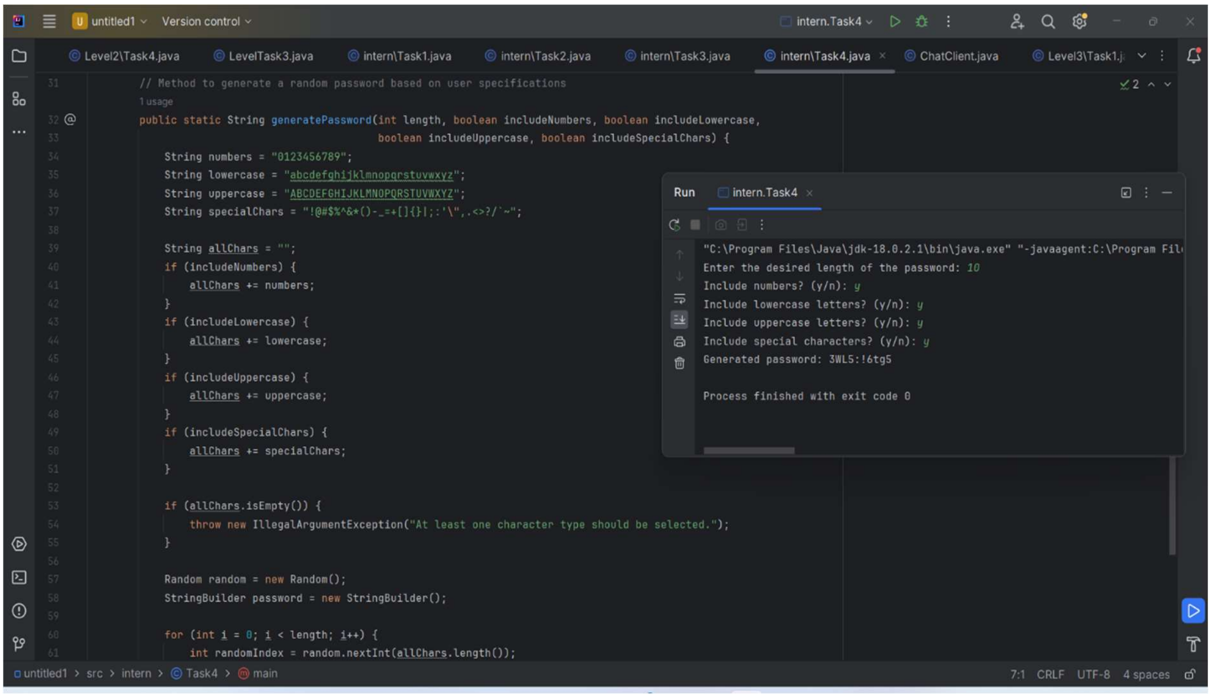
Description: Build a program that generates a random password for the user. Prompt the user to enter the desired length of the password and specify whether it should include numbers, lowercase letters, uppercase letters, and special characters. Generate the password accordingly and display it to the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

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



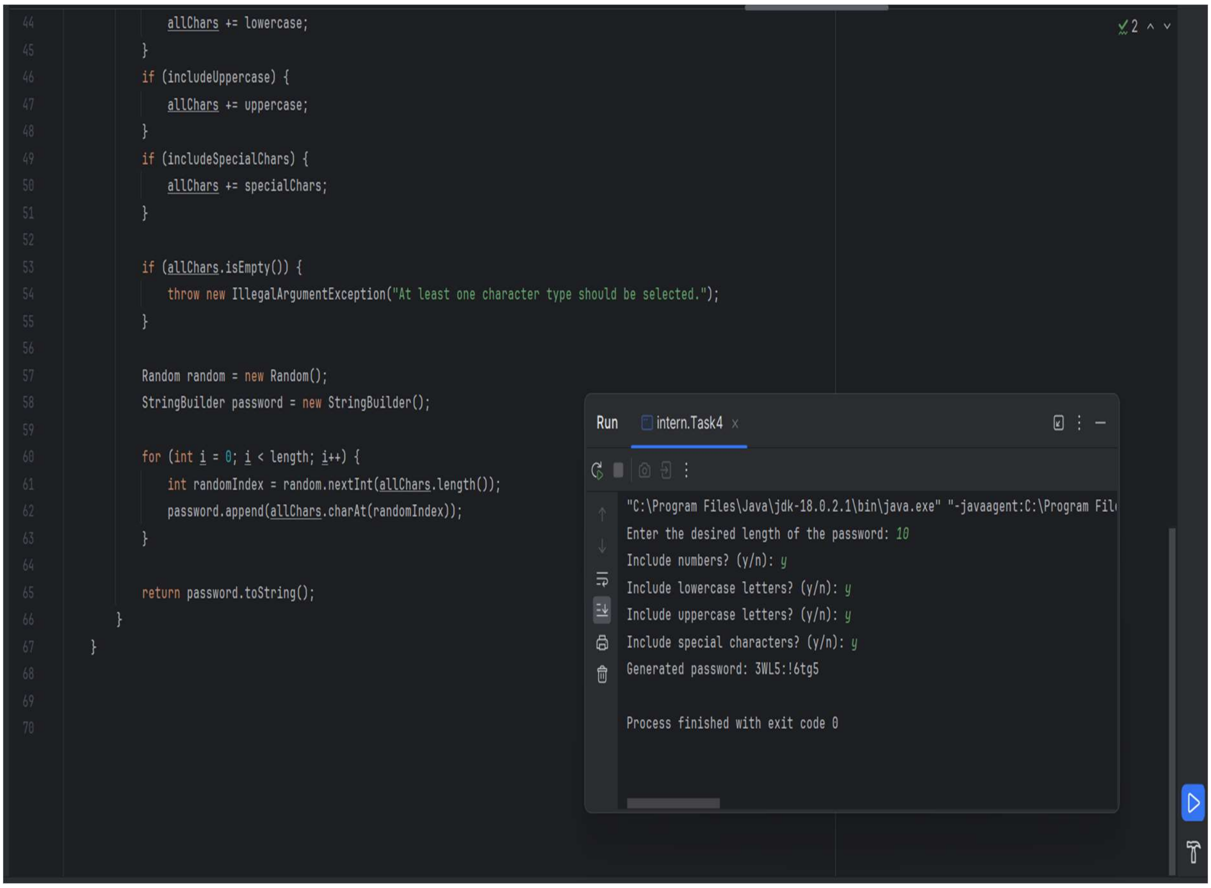
```java
package intern;
import java.util.Random;
import java.util.Scanner;
public class Task4 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the desired length of the password: ");
        int length = scanner.nextInt();

        System.out.print("Include numbers? (y/n): ");
        boolean includeNumbers = scanner.next().toLowerCase().charAt(0) == 'y';

        System.out.print("Include lowercase letters? (y/n): ");
        boolean includeLowercase = scanner.next().toLowerCase().charAt(0) == 'y';

        System.out.print("Include uppercase letters? (y/n): ");
        boolean includeUppercase = scanner.next().toLowerCase().charAt(0) == 'y';

        System.out.print("Include special characters? (y/n): ");
        boolean includeSpecialChars = scanner.next().toLowerCase().charAt(0) == 'y';

        String password = generatePassword(length, includeNumbers, includeLowercase, includeUppercase, includeSpecialChars);


        System.out.println("Generated password: " + password);

        scanner.close();
    }

    // Method to generate a random password based on user specifications
```

```
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Program Fil
Enter the desired length of the password: 10
Include numbers? (y/n): y
Include lowercase letters? (y/n): y
Include uppercase letters? (y/n): y
Include special characters? (y/n): y
Generated password: 3WL5:!6tg5


Process finished with exit code 0
```



```java
    // Method to generate a random password based on user specifications
    public static String generatePassword(int length, boolean includeNumbers, boolean includeLowercase,
                                          boolean includeUppercase, boolean includeSpecialChars) {
        String numbers = "0123456789";
        String lowercase = "abcdefghijklmnopqrstuvwxyz";
        String uppercase = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";
        String specialChars = "!@#$%^&*()-_=+[]{}|;:'\",.<>?/`~";

        String allChars = "";
        if (includeNumbers) {
            allChars += numbers;
        }
        if (includeLowercase) {
            allChars += lowercase;
        }
        if (includeUppercase) {
            allChars += uppercase;
        }
        if (includeSpecialChars) {
            allChars += specialChars;
        }

        if (allChars.isEmpty()) {
            throw new IllegalArgumentException("At least one character type should be selected.");
        }

        Random random = new Random();
        StringBuilder password = new StringBuilder();

        for (int i = 0; i < length; i++) {
            int randomIndex = random.nextInt(allChars.length());
```

```
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Program Fil
Enter the desired length of the password: 10
Include numbers? (y/n): y
Include lowercase letters? (y/n): y
Include uppercase letters? (y/n): y
Include special characters? (y/n): y
Generated password: 3WL5:!6tg5

Process finished with exit code 0
```



```java
            allChars += lowercase;
        }
        if (includeUppercase) {
            allChars += uppercase;
        }
        if (includeSpecialChars) {
            allChars += specialChars;
        }

        if (allChars.isEmpty()) {
            throw new IllegalArgumentException("At least one character type should be selected.");
        }

        Random random = new Random();
        StringBuilder password = new StringBuilder();

        for (int i = 0; i < length; i++) {
            int randomIndex = random.nextInt(allChars.length());
            password.append(allChars.charAt(randomIndex));
        }

        return password.toString();
    }
}
```

```
"C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe" "-javaagent:C:\Program Fil
Enter the desired length of the password: 10
Include numbers? (y/n): y
Include lowercase letters? (y/n): y
Include uppercase letters? (y/n): y
Include special characters? (y/n): y
Generated password: 3WL5:!6tg5

Process finished with exit code 0
```