

AI Assisted Coding

Assignment – 1.5

Name: V. Vighnesh

Ht.no : 2303A51707

Batch: 24

Task – 1 Prompt : Use GitHub Copilot to generate a Java program that reverses a user-input string using inline logic without functions.

Code :

```
import java.util.Scanner;

public class ReverseString {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a string: ");

        String input = scanner.nextLine();

        String reversed = "";

        for (int i = input.length() - 1; i >= 0; i--) {

            reversed += input.charAt(i);

        }

        System.out.println("Reversed string: " + reversed);

    }

}
```

Output :

Enter a string: SR University

Reversed string: ytisrevinU RS

Task – 2 Prompt : Use GitHub Copilot to optimize the string reversal code by simplifying logic, reducing variables, and improving readability, and explain how the changes improve efficiency.

Code :

```
import java.util.Scanner;

public class ReverseString{

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a string: ");

        String input = scanner.nextLine();

        StringBuilder reversed = new StringBuilder();

        for (int i = input.length() - 1; i >= 0; i--) {

            reversed.append(input.charAt(i));

        }

        System.out.println("Reversed string: " + reversed.toString());

    }

}
```

Output :

```
Enter a string: SR University
Reversed string: ytisrevinU RS
```

Task – 3 Prompt : Use GitHub Copilot to generate a function-based Java program that reverses a string, returns the result, and includes meaningful comments.

Code :

```
import java.util.Scanner;

public class ReverseString {

    public static String reverseString(String input) {

        StringBuilder reversed = new StringBuilder();

        for (int i = input.length() - 1; i >= 0; i--) {

            reversed.append(input.charAt(i));

        }

        return reversed.toString();

    }

}
```

```

public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);
    System.out.print("Enter a string: ");
    String input = scanner.nextLine();
    String reversed = reverseString(input);
    System.out.println("Reversed string: " + reversed);
}
}

```

Output :

Enter a string: AI Assisted Coding

Reversed string: gnidoC detsissA IA

Task – 4 Prompt : Use GitHub Copilot to compare procedural and modular string reversal programs and analyze them based on clarity, reusability, debugging, and scalability.

Code :

```

import java.util.Scanner;

public class ReverseString {
    // Function to reverse a given string
    public static String reverseString(String input) {
        StringBuilder reversed = new StringBuilder();
        for (int i = input.length() - 1; i >= 0; i--) {
            reversed.append(input.charAt(i));
        }
        return reversed.toString();
    }
}

```

```

public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);
    System.out.print("Enter a string: ");
    String input = scanner.nextLine();
    // Call the reverseString function and store the result
    String reversed = reverseString(input);
    System.out.println("Reversed string: " + reversed);
}
}

```

Output :

Enter a string: Samshray
 Reversed string: yarhsmaS

Task – 5 Prompt : Use GitHub Copilot to generate loop-based and slicing-based string reversal methods and compare them based on execution flow, time complexity, performance, and suitability.

Code :

```

import java.util.Scanner;

public class ReverseString {
    // Loop-based method to reverse a string
    public static String reverseStringLoop(String input) {
        StringBuilder reversed = new StringBuilder();
        for (int i = input.length() - 1; i >= 0; i--) {
            reversed.append(input.charAt(i));
        }
        return reversed.toString();
    }

    // Slicing-based method to reverse a string

```

```
public static String reverseStringSlicing(String input) {  
    return new StringBuilder(input).reverse().toString();  
}  
  
public static void main(String[] args) {  
    Scanner scanner = new Scanner(System.in);  
    System.out.print("Enter a string: ");  
    String input = scanner.nextLine();  
  
    // Using loop-based method  
    String reversedLoop = reverseStringLoop(input);  
    System.out.println("Reversed string (loop-based): " + reversedLoop);  
  
    // Using slicing-based method  
    String reversedSlicing = reverseStringSlicing(input);  
    System.out.println("Reversed string (slicing-based): " + reversedSlicing);  
}  
}
```

Output :

Enter a string: SR University

Reversed string (loop-based): ytisrevinU RS

Reversed string (slicing-based): ytisrevinU RS