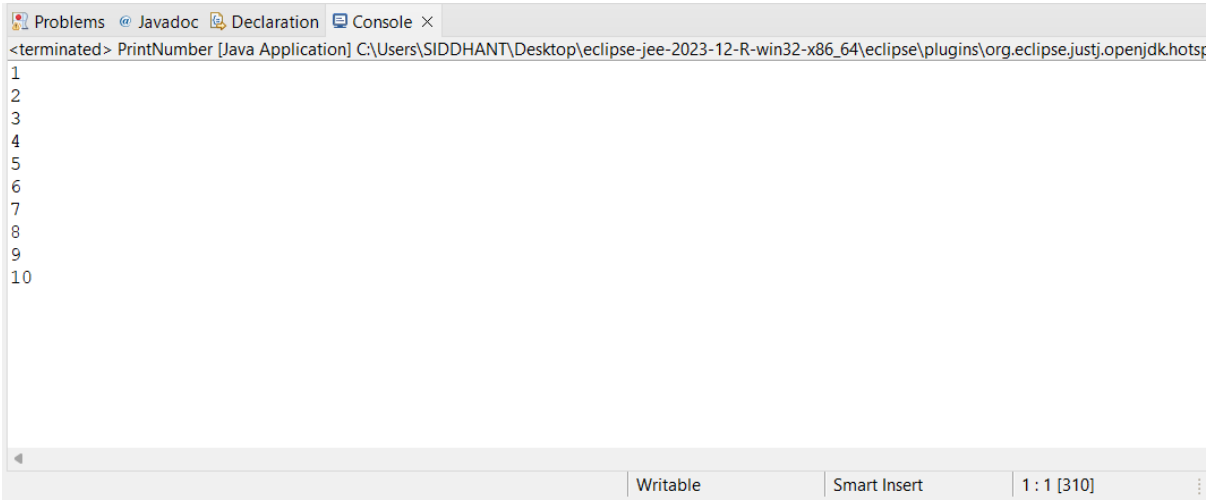
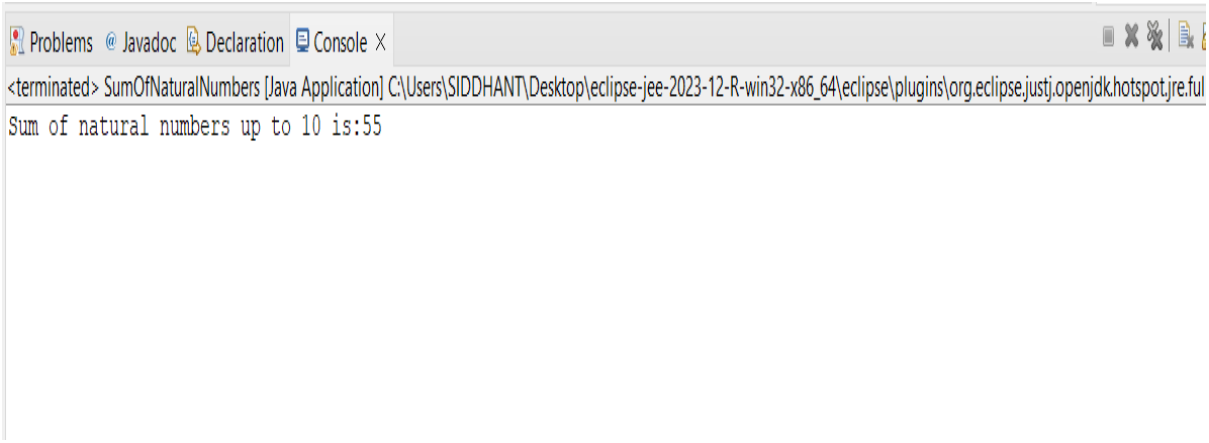
1. Print 1 to n without using loops

```java
package com.example.main;

import java.util.Scanner;

public class PrintNumber {
public static void printNumbers(int n) {
if (n > 0) {
printNumbers(n - 1);
System.out.println(n);
}
}
public static void main(String[] args) {
int n = 10; // Change n to whatever value you want
printNumbers(n);
}
}
```



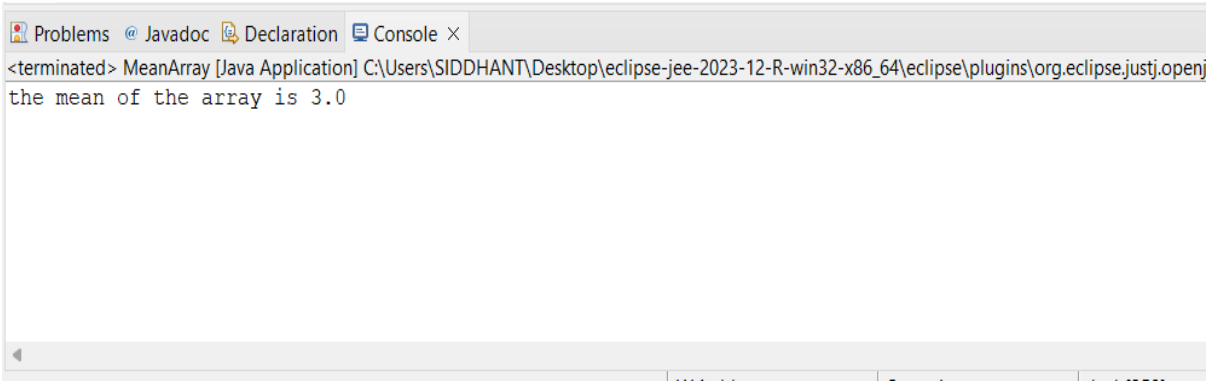
2. Sum of natural numbers using recursion

```
package com.example.main;

import java.util.Scanner;

public class SumOfNaturalNumbers {
	public static int sumOfNumbers(int n) {
		if (n == 0) {
			return 0;
		} else {
			return n + sumOfNumbers(n - 1);
		}
	}

	public static void main(String[] args) {
		int n = 10; // Change n to whatever value you want
		int sum = sumOfNumbers(n);
		System.out.println("Sum of natural numbers up to " + n + " is:"
+ sum);
	}
}
```



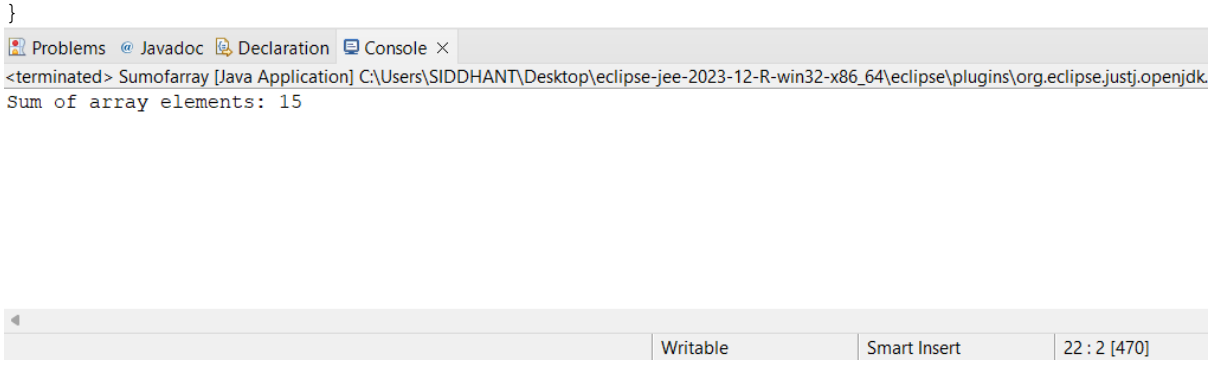
3. Mean of Array using Recursion

```
package com.example.main;


class MeanArray {
	public static double Mean(int[] arr, int n) {
		if (n == 0)
			return 0.0;
		return (Mean(arr, n - 1) * (n - 1) + arr[n - 1]) / n;
	}

	public static void main(String[] args) {
		int arr[] = { 1, 2, 3, 4, 5 };
		System.out.println("the mean of the array is " + Mean(arr,
arr.length));
	}
}
```



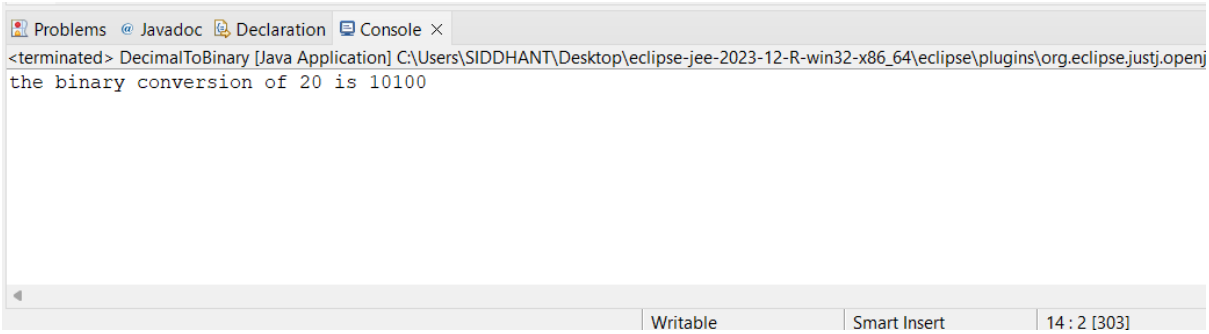
3. Sum of array elements using recursion

```
package com.example.main;

public class Sumofarray {


    public static int arraySum(int[] arr, int n) {

        if (n <= 0) {
            return 0;
        } else {

            return arr[n - 1] + arraySum(arr, n - 1);
        }
    }


    public static void main(String[] args) {
        int[] arr = {1, 2, 3, 4, 5};
        int sum = arraySum(arr, arr.length);
        System.out.println("Sum of array elements: " + sum);
    }
}
```



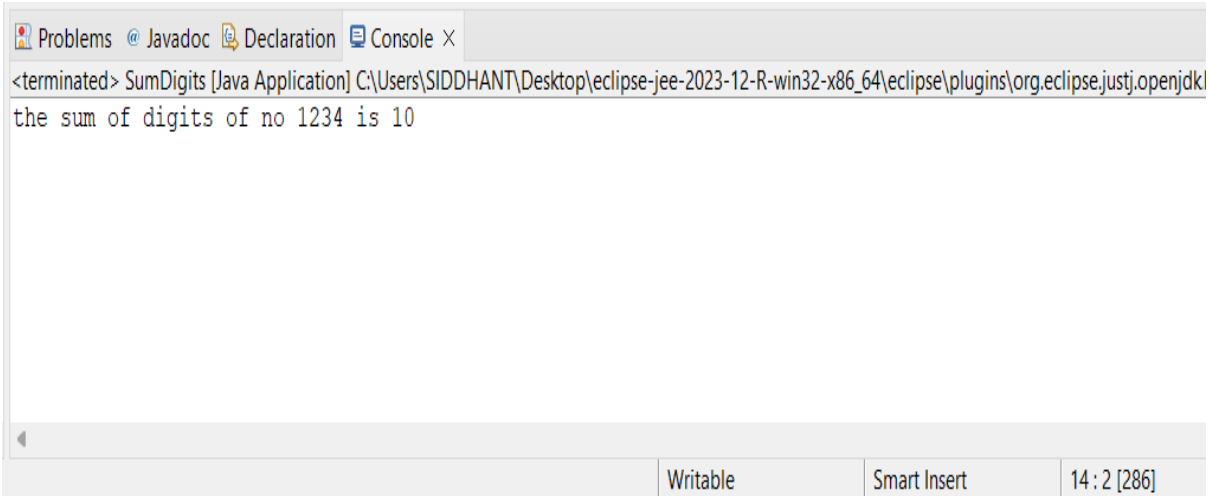
4. Decimal to binary number using recursion

```
package com.example.main;

class DecimalToBinary {
	public static int Binary(int n) {
		if (n == 0)
			return 0;
		return Binary(n / 2) * 10 + n % 2;
	}

	public static void main(String[] args) {
		int n = 20;
		System.out.println("the binary conversion of " + n + " is " +
Binary(n));
	}
}
```



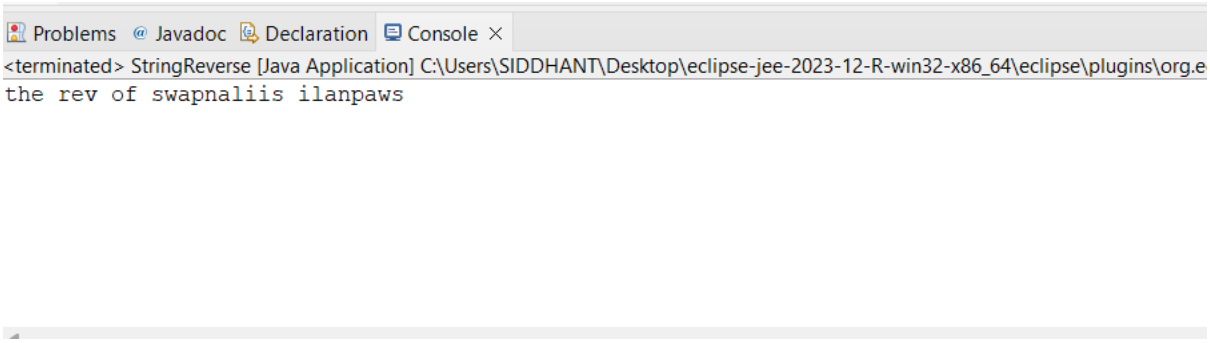
5. Sum of digit of a number using recursion

```
package com.example.main;

class SumDigits {
	public static int Sum(int n) {
		if (n == 0)
			return 0;
		return Sum(n / 10) + n % 10;
	}

	public static void main(String[] args) {
		int n = 1234;
		System.out.println("the sum of digits of no " + n + " is " +
Sum(n));
	}
}
```



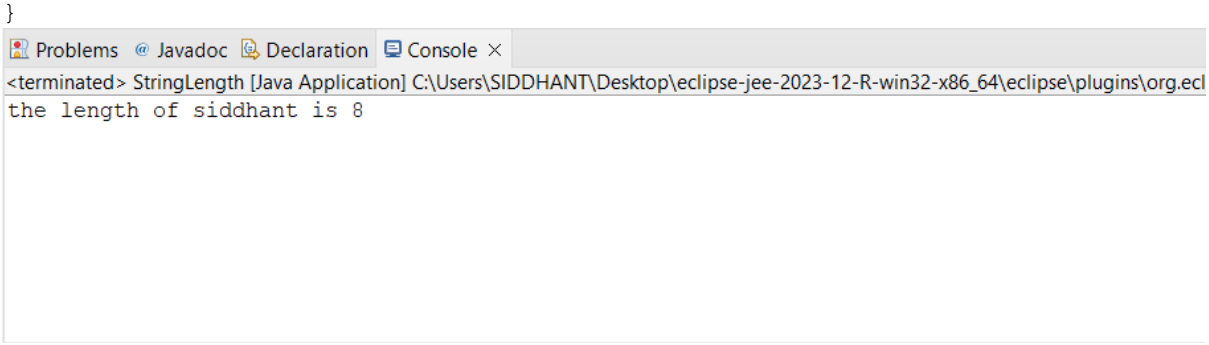
6. Print reverse of a string using recursion

```java
package com.example.main;

class StringReverse {
	public static String Reverse(String input) {
		if (input.length() == 0 || input.length() == 1) {
			return input;
		}
		return Reverse(input.substring(1)) + input.charAt(0);
	}

	public static void main(String[] args) {
		String str = "swapnali";
		System.out.println("the rev of " + str + "is " + Reverse(str));
	}
}
```



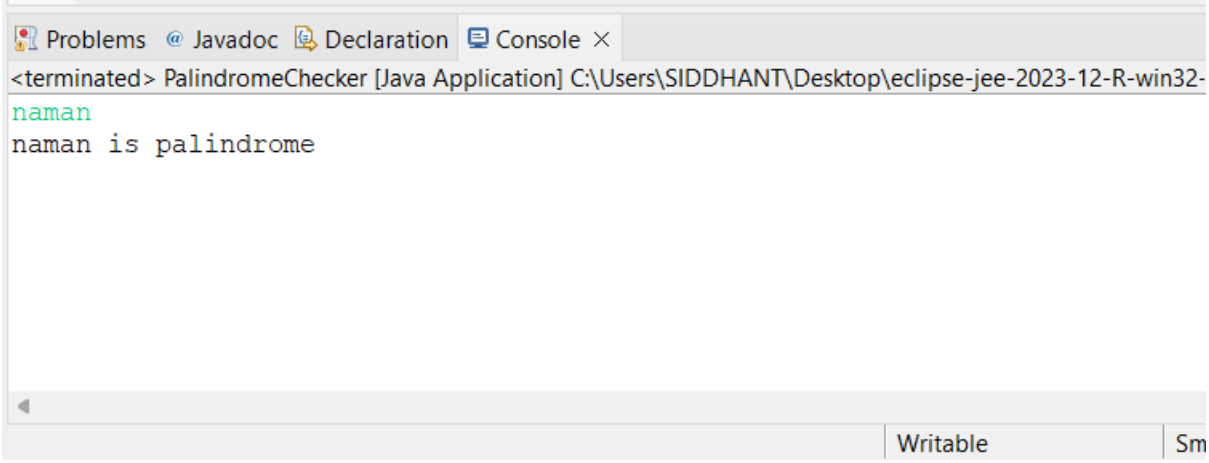
7. Program for length of a string using recursion

```
package com.example.main;

class StringLength {
	public static int Length(String str) {
		if (str.length() == 0) {
			return 0;
		}
		return Length(str.substring(1)) + 1;
	}

	public static void main(String[] args) {
		String str = "siddhant";
		System.out.println("the length of " + str + " is " +
Length(str));
	}
}
```



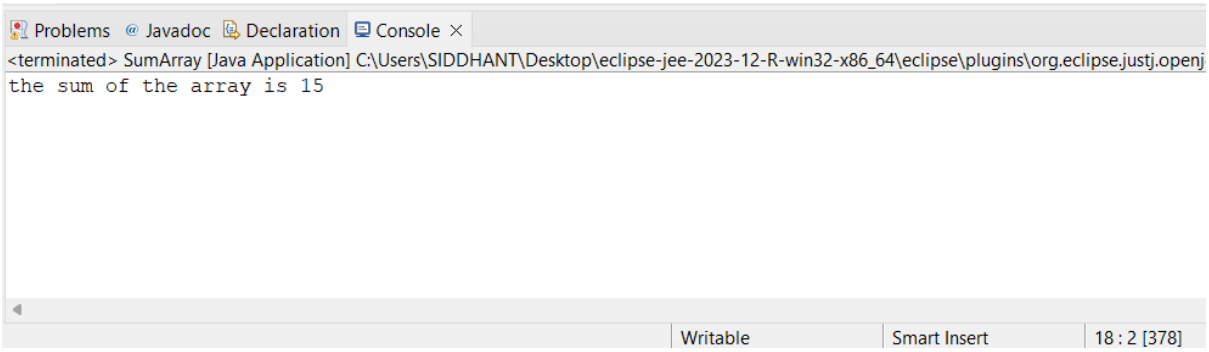
8. Recursive function to check if a string is palindrome

```java
package com.example.main;

import java.util.Scanner;

class PalindromeChecker {
	public static boolean isPalindrome(String input) {
		if (input.length() == 0 || input.length() == 1) {
			return true;
		}
		if (input.charAt(0) != input.charAt(input.length() - 1)) {
			return false;
		}
		return isPalindrome(input.substring(1, input.length() - 1));
	}

	public static void main(String[] args) {
		Scanner sc = new Scanner(System.in);
		String str = sc.next();
		if (isPalindrome(str)) {
			System.out.println(str + " is palindrome ");
		} else {
			System.out.println(str + " is not palindrome ");
		}
	}
}
```



9. Tail recursion to calculate sum of array elements.

```
package com.example.main;

import java.util.Scanner;

class SumArray {
	public static int Sum(int[] arr, int n) {
		if (n == 0) {
			return 0;
		}
		int sSum = Sum(arr, n - 1);
		return sSum + arr[n - 1];
	}

	public static void main(String[] args) {
		int arr[] = { 1, 2, 3, 4, 5 };
		System.out.println("the sum of the array is " + Sum(arr,
arr.length));
	}
}
```



10. Print Fibonacci Series in reverse order using Recursion

```
package com.example.main;

import java.util.ArrayList;
import java.util.List;
import java.util.Scanner;

class PrintFibonacciReverse {
	public static List<Integer> list = new ArrayList<>();

	public static List<Integer> printFib(int n) {
		if (n == 1) {
			list.add(0);
			return list;
		}
		if (n == 2) {
			list.add(0);
			list.add(1);
			return list;
		}
		List<Integer> result = printFib(n - 1);
		int fLast = result.get(result.size() - 1);
		int sLast = result.get(result.size() - 2);
		int last = fLast + sLast;
		if (last < n) {
			result.add(last);
		}
```

```
		return result;
	}

	public static void printReverse(List<Integer> list) {
		if (list.size() == 0)
			return;
		Integer val = list.get(0);
		list.remove(val);
		printReverse(list);
		System.out.print(val + " ");
	}

	public static void main(String[] args) {
		Scanner sc = new Scanner(System.in);
		int n = sc.nextInt();
		List<Integer> res = printFib(n);
		printReverse(res);
	}
}
```