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SUBJECT: JAVA PROGRAMMING()

: PRACTICAL ASSIGNMENT-1

Java Basic Programs

1. **Write a java program to create variable of type char, short, int, float and double. Each should be initialized and their values are displayed.**

```
public class VariableExample {
    public static void main(String[] args) {
        // Declare and initialize variables
        char charVariable = 'A';
        short shortVariable = 12345;
        int intVariable = 987654321;
        float floatVariable = 123.45f;
        double doubleVariable = 9876.54321;

        // Display the values
        System.out.println("Value of charVariable: "
+ charVariable);
        System.out.println("Value of shortVariable:
" + shortVariable);
        System.out.println("Value of intVariable: " +
intVariable);
        System.out.println("Value of floatVariable: "
+ floatVariable);
        System.out.println("Value of
doubleVariable: " + doubleVariable);

        // Display output for better readability
        System.out.println("\nOutput:");
        System.out.println("charVariable: " +
charVariable);
        System.out.println("shortVariable: " +
shortVariable);
        System.out.println("intVariable: " +
```

OUTPUT

```
Value of charVariable: A
Value of shortVariable: 12345
Value of intVariable: 987654321
Value of floatVariable: 123.45
Value of doubleVariable: 9876.54321

Output:
charVariable: A
shortVariable: 12345
intVariable: 987654321
floatVariable: 123.45
doubleVariable: 9876.54321
```

```
intVariable);
        System.out.println("floatVariable: " +
floatVariable);
        System.out.println("doubleVariable: " +
doubleVariable);
    }
}
```

2. Write a java program that declares integer variable and float variable. Initialize them, - add and multiply both variables and print the output.

```
public class ArithmeticOperations {
    public static void main(String[] args) {
        // Declare and initialize variables
        int intVariable = 5;
        float floatVariable = 3.5f;

        // Perform arithmetic operations
        float sum = intVariable + floatVariable;
        float product = intVariable * floatVariable;

        // Display the output
        System.out.println("Integer Variable: " +
intVariable);
        System.out.println("Float Variable: " +
floatVariable);
        System.out.println("\nSum (Addition): " + sum);
        System.out.println("Product (Multiplication): " +
product);
    }
}
```

OUTPUT

```
Integer Variable: 5
Float Variable: 3.5

Sum (Addition): 8.5
Product (Multiplication): 17.5
```

3. Write a java program to swap two integer numbers.

```
public class SwapNumbers {
    public static void main(String[] args) {
        // Declare and initialize two integer variables
        int firstNumber = 5;
        int secondNumber = 10;

        System.out.println("Before swapping:");
        System.out.println("First Number: " + firstNumber);
        System.out.println("Second Number: " +
secondNumber);
```

OUTPUT

```
Before swapping:
First Number: 5
Second Number: 10

After swapping:
First Number: 10
Second Number: 5
```

```
        // Swap the numbers
        int temp = firstNumber;
        firstNumber = secondNumber;
        secondNumber = temp;

        System.out.println("\nAfter swapping:");
        System.out.println("First Number: " + firstNumber);
        System.out.println("Second Number: " +
secondNumber);
    }
}
```

4. Write a java program to Check Even or Odd Integers.

```
import java.util.Scanner;

public class EvenOddCheck {
    public static void main(String[] args) {
        // Create a Scanner object for user input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter an integer
        System.out.print("Enter an integer: ");

        // Read the integer input from the user
        int number = scanner.nextInt();

        // Close the Scanner to prevent resource leak
        scanner.close();

        // Check if the number is even or odd
        if (number % 2 == 0) {
            System.out.println(number + " is an even number.");
        } else {
            System.out.println(number + " is an odd number.");
        }
    }
}
```

OUTPUT

```
Enter an integer: 25
25 is an odd number.
```

5. Write a Java Program to Find Largest Among 3 Numbers.

```
import java.util.Scanner;
class test5
```

```
{
	public static void main(String args[ ])
	{
		Scanner s=new Scanner(System.in);
		System.out.print("Enter First Number : ");
		int a=s.nextInt();
		System.out.print("Enter Second Number : ");
		int b=s.nextInt();
		System.out.print("Enter Third Number : ");
		int c=s.nextInt();
		if(a>b && a>c)
		{
			System.out.print(a+" is largest Number");
		}
		else if(b>c)
		{
			System.out.print(b+" is largest Number");
		}
		else
		{
			System.out.print(c+" is largest Number");
		}
	}
}
```

OUTPUT

```
Enter First Number : 56
Enter Second Number : 89
Enter Third Number : 45
89 is largest Number
```

6. Write a Java Program to Display All Prime Numbers from 1 to N.

```
public class PrimeNumbers {
    public static void main(String[] args) {
        int N = 50;  // You can change the value of N as needed

        System.out.println("Prime numbers between 1 and " + N
+ " are:");
        for (int i = 2; i <= N; i++) {
            if (isPrime(i)) {
                System.out.print(i + " ");
            }
        }
    }
```

OUTPUT

```
Prime numbers between 1
and 50 are:
2 3 5 7 11 13 17 19 23 29 31
37 41 43 47
```

```
    // Method to check if a number is prime
    private static boolean isPrime(int num) {
        if (num <= 1) {
            return false;
        }
        for (int i = 2; i <= Math.sqrt(num); i++) {
            if (num % i == 0) {
                return false;
            }
        }
        return true;
    }
}
```

7. Write a Java Program to Check Leap Year.

```
import java.util.Scanner;

public class LeapYearChecker {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input year from the user
        System.out.print("Enter a year: ");
        int year = scanner.nextInt();

        // Check if the year is a leap year
        if (isLeapYear(year)) {
            System.out.println(year + " is a leap year.");
        } else {
            System.out.println(year + " is not a leap year.");
        }

        scanner.close();
    }

    // Method to check if a year is a leap year
    private static boolean isLeapYear(int year) {
        // Leap year condition: divisible by 4 and not divisible by
100, or divisible by 400
        return (year % 4 == 0 && year % 100 != 0) || (year %
400 == 0);
    }
}
```

OUTPUT

```
Enter a year: 2024
2024 is a leap year.
```

8. Write a Java Program to Check Armstrong Number between Two Integers.

```
import java.util.Scanner;

public class ArmstrongNumbersBetweenRange {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input range from the user
        System.out.print("Enter the lower bound of the range: ");
        int lowerBound = scanner.nextInt();

        System.out.print("Enter the upper bound of the range: ");
        int upperBound = scanner.nextInt();

        System.out.println("Armstrong numbers between " +
lowerBound + " and " + upperBound + " are:");
        printArmstrongNumbers(lowerBound, upperBound);

        scanner.close();
    }

    // Method to check if a number is an Armstrong number
    private static boolean isArmstrong(int number) {
        int originalNumber = number;
        int n = String.valueOf(number).length();
        int sum = 0;

        while (number > 0) {
            int digit = number % 10;
            sum += Math.pow(digit, n);
            number /= 10;
        }

        return sum == originalNumber;
    }

    // Method to print Armstrong numbers in a given range
    private static void printArmstrongNumbers(int lowerBound,
int upperBound) {
        for (int i = lowerBound; i <= upperBound; i++) {
            if (isArmstrong(i)) {
                System.out.print(i + " ");
            }
        }
        System.out.println(); // Move to the next line after
printing the numbers
    }
}
```

OUTPUT

```
Enter the lower bound of the
range: 100
Enter the upper bound of the
range: 1000
Armstrong numbers between
100 and 1000 are:
153 370 371 407
```

9. Write a Java Program to Check whether input character is vowel or consonant.

```
import java.util.Scanner;

public class VowelConsonantChecker {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input character from the user
        System.out.print("Enter a character: ");
        char inputChar = scanner.next().charAt(0);

        // Check if the input character is a vowel or consonant
        if (isVowel(inputChar)) {
            System.out.println(inputChar + " is a vowel.");
        } else {
            System.out.println(inputChar + " is a consonant.");
        }

        scanner.close();
    }

    // Method to check if a character is a vowel
    private static boolean isVowel(char ch) {
        ch = Character.toLowerCase(ch);
        return ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch ==
'u';
    }
}
```

OUTPUT

```
Enter a character: A
A is a vowel.
```

10. Write a Java Program to Find Factorial of a number.

```
import java.util.Scanner;

public class FactorialCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input number from the user
        System.out.print("Enter a number: ");
        int number = scanner.nextInt();

        // Calculate and display the factorial
        long factorial = calculateFactorial(number);

        System.out.println("Factorial of " + number + " is: " +
```

OUTPUT

```
Enter a number: 5
Factorial of 5 is: 120
```

```
factorial);

        scanner.close();
    }

    // Method to calculate factorial of a number
    private static long calculateFactorial(int n) {
        if (n == 0 || n == 1) {
            return 1;
        } else {
            return n * calculateFactorial(n - 1);
        }
    }
}
```

11. Write a Java Program to Find Even Sum of Fibonacci Series Till number N.

```
import java.util.Scanner;

public class EvenFibonacciSum {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input number N from the user
        System.out.print("Enter a number N: ");
        int N = scanner.nextInt();

        // Calculate and display the sum of even Fibonacci
numbers up to N
        long evenFibonacciSum =
calculateEvenFibonacciSum(N);

        System.out.println("Sum of even Fibonacci numbers up
to " + N + " is: " + evenFibonacciSum);

        scanner.close();
    }

    // Method to calculate sum of even Fibonacci numbers up
to N
    private static long calculateEvenFibonacciSum(int N) {
        long sum = 0;
        long previous = 0;
        long current = 1;

        while (current <= N) {
```

OUTPUT

```
Enter a number N: 20
Sum of even Fibonacci
numbers up to 20 is: 10
```

```
            if (current % 2 == 0) {
                sum += current;
            }

            long next = previous + current;
            previous = current;
            current = next;
        }

        return sum;
    }
}
```

12. Write a Java Program to Calculate Simple Interest.

```
import java.util.Scanner;

public class SimpleInterestCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input principal amount, rate of interest, and time from the user
        System.out.print("Enter the principal amount: ");
        double principal = scanner.nextDouble();

        System.out.print("Enter the rate of interest (in percentage): ");
        double rateOfInterest = scanner.nextDouble();

        System.out.print("Enter the time (in years): ");
        double time = scanner.nextDouble();

        // Calculate and display the simple interest
        double simpleInterest = calculateSimpleInterest(principal, rateOfInterest, time);

        System.out.println("Simple Interest: " + simpleInterest);

        scanner.close();
    }

    // Method to calculate simple interest
    private static double calculateSimpleInterest(double principal, double rateOfInterest, double time) {
        // Simple Interest formula: SI = (P * R * T) / 100
```

OUTPUT

```
Enter the principal amount: 1000
Enter the rate of interest (in percentage): 5
Enter the time (in years): 2
Simple Interest: 100.0
```

```
        return (principal * rateOfInterest * time) / 100;
    }
}
```

13. Write a Java Program to Calculate Compound Interest.

```
import java.util.Scanner;

public class CompoundInterestCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input principal amount, rate of interest, time, and number of times interest applied per time period from the user
        System.out.print("Enter the principal amount: ");
        double principal = scanner.nextDouble();

        System.out.print("Enter the rate of interest (in percentage): ");
        double rateOfInterest = scanner.nextDouble();

        System.out.print("Enter the time (in years): ");
        double time = scanner.nextDouble();

        System.out.print("Enter the number of times interest applied per time period: ");
        int n = scanner.nextInt();

        // Calculate and display the compound interest
        double compoundInterest = calculateCompoundInterest(principal, rateOfInterest, time, n);

        System.out.println("Compound Interest: " + compoundInterest);

        scanner.close();
    }

    // Method to calculate compound interest
    private static double calculateCompoundInterest(double principal, double rateOfInterest, double time, int n) {
        // Compound Interest formula: CI = P * (1 + (r/n))^(nt) - P
        double r = rateOfInterest / 100;
        return principal * Math.pow(1 + (r / n), n * time) - principal;
```

OUTPUT

```
Enter the principal amount: 1000
Enter the rate of interest (in percentage): 5
Enter the time (in years): 2
Enter the number of times interest applied per time period: 4
Compound Interest: 51.265625
```

```
    }
}
```

14. Write a Java Program to Find the Perimeter of a Rectangle.

```
import java.util.Scanner;

public class RectanglePerimeterCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input length and width from the user
        System.out.print("Enter the length of the rectangle: ");
        double length = scanner.nextDouble();

        System.out.print("Enter the width of the rectangle: ");
        double width = scanner.nextDouble();

        // Calculate and display the perimeter
        double perimeter = calculateRectanglePerimeter(length,
width);

        System.out.println("Perimeter of the rectangle: " +
perimeter);

        scanner.close();
    }

    // Method to calculate perimeter of a rectangle
    private static double calculateRectanglePerimeter(double
length, double width) {
        // Perimeter formula: P = 2 * (length + width)
        return 2 * (length + width);
    }
}
```

OUTPUT

```
Enter the length of the
rectangle: 5
Enter the width of the
rectangle: 3
Perimeter of the rectangle:
16.0
```

Java 1-D Array Programs

15. Write a java program that initialize 1-D Array and display length of the array and its - elements.

```
import java.util.Scanner;
```

OUTPUT

```
class test15
{
	public static void main(String args[ ])
	{
		Scanner s=new Scanner(System.in);
		System.out.print("Enter a range : ");
		int n=s.nextInt();
		int a[ ]=new int[n];
		for(int i=0;i<n;i++)
		{
			System.out.print("Enter an element : ");
			a[i]=s.nextInt();
		}
		System.out.println("output :: ");
		int count=0;
		for(int i=0;i<n;i++)
		{
			System.out.println(a[i]);
			count++;
		}
		System.out.println("length of the array :: "+count);
	}
}
```

```
Enter a range : 4

Enter an element : 34
Enter an element : 56
Enter an element : 78
Enter an element : 12

output ::
34
56
78
12

length of the array :: 4
```

16. Write a Java Program to Search an Element in an Array with its sum.

```
import java.util.Scanner;
class test16
{
	public static void main(String args[ ])
	{
		Scanner s=new Scanner(System.in);
		System.out.print("Enter a range : ");
		int n=s.nextInt();
		int a[ ]=new int[n];
		for(int i=0;i<n;i++)
		{
			System.out.print("Enter an element : ");
			a[i]=s.nextInt();
		}
		System.out.print("Enter a value which you want to search :: ");
		int x=s.nextInt();
		int flag=0,cnt=0;
		for(int i=0;i<n;i++)
		{
```

```
                        if(a[i]==x)
                        {
                                flag=1;
                                cnt++;
                        }
                }
                if(flag==1)
                {
                        System.out.println("Element is found and its count is :: "+cnt);
                }
                else
                {
                        System.out.println("Element does not find");
                }
        }
}
```

OUTPUT

```
Enter a range : 5
Enter an element : 2
Enter an element : 3
Enter an element : 2
Enter an element : 2
Enter an element : 3
Enter a value which you want to search :: 2
Element is found and its count is :: 3
```

17. Write a Java Program to Find the Largest Element in an Array.

```
import java.util.Scanner;
class test17
{
        public static void main(String args[ ])
        {
                Scanner s=new Scanner(System.in);
                System.out.print("Enter a range : ");
                int n=s.nextInt();
                int a[ ]=new int[n];
                for(int i=0;i<n;i++)
                {
                        System.out.print("Enter an element : ");
                        a[i]=s.nextInt();
                }
                int max=a[0];
                for(int i=0;i<n;i++)
```

```
                {
                        if(a[i]>max)
                        {
                                max=a[i];
                        }
                }
                System.out.println("Maximum element in array :: "+max);
        }
}
```

OUTPUT

```
Enter a range : 4
Enter an element : 23
Enter an element : 67
Enter an element : 12
Enter an element : 34
Maximum element in array :: 67
```

18. Write a Java Program to Sort an Array.

```
import java.util.Arrays;
import java.util.Scanner;
class test18
{
        public static void main(String args[ ])
        {
                Scanner s=new Scanner(System.in);
                System.out.print("Enter a range : ");
                int n=s.nextInt();
                int[ ] a=new int[n];
                for(int i=0;i<n;i++)
                {
                        System.out.print("Enter an element : ");
                        a[i]=s.nextInt();
                }
                Arrays.sort(a);
                System.out.println("Shorted Array is :: ");
                for(int i=0;i<n;i++)
                {
                        System.out.println(a[i]);
                }
        }
}
```

OUTPUT

```
Enter a range : 4

Enter an element : 67
Enter an element : 23
Enter an element : 89
Enter an element : 12

Shorted Array is ::
12
23
67
89
```

19. Write a Java Program to Sort the Elements of an Array in Descending Order.

```
import java.util.Scanner;
class test19
{
	public static void main(String args[ ])
	{
		Scanner s=new Scanner(System.in);
		System.out.print("Enter a range : ");
		int n=s.nextInt();
		int a[ ]=new int[n];
		for(int i=0;i<n;i++)
		{
			System.out.print("Enter an element : ");
			a[i]=s.nextInt();
		}
		int temp;
		for(int i=0;i<n;i++)
		{
			for(int j=i+1;j<n;j++)
			{
				if(a[i]<a[j])
				{
					temp=a[i];
					a[i]=a[j];
					a[j]=temp;
				}
			}
		}
		System.out.println("Array in descending order :: ");
		for(int i=0;i<n;i++)
		{
			System.out.println(a[i]);
		}
	}
}
```

OUTPUT

```
Enter a range : 5
Enter an element : 12
Enter an element : 34
Enter an element : 78
Enter an element : 56
Enter an element : 23
Array in descending order
::
78
56
34
23
12
```

20. Write a Java Program to Sort the Elements of an Array in Ascending Order.

```
import java.util.Scanner;
class test20
{
	public static void main(String args[ ])
	{
		Scanner s=new Scanner(System.in);
```

OUTPUT

```
Enter a range : 5
Enter an element : 67
Enter an element : 12
Enter an element : 56
```

```
                System.out.print("Enter a range : ");
                int n=s.nextInt();
                int a[ ]=new int[n];
                for(int i=0;i<n;i++)
                {
                        System.out.print("Enter an element : ");
                        a[i]=s.nextInt();
                }
                int temp;
                for(int i=0;i<n;i++)
                {
                        for(int j=i+1;j<n;j++)
                        {
                                if(a[i]>a[j])
                                {
                                        temp=a[i];
                                        a[i]=a[j];
                                        a[j]=temp;
                                }
                        }
                }
                System.out.println("Array in Ascending order :: ");
                for(int i=0;i<n;i++)
                {
                        System.out.println(a[i]);
                }
        }
}
```

```
Enter an element : 34
Enter an element : 90
Array in Ascending order ::
12
34
56
67
90
```

21. Write a Java Program to Remove All Occurrences of an Element in an Array.

```
import java.util.Arrays;
import java.util.Scanner;

class test21
{
        public static void main(String args[ ])
        {
                Scanner s=new Scanner(System.in);
                System.out.print("Enter a range : ");
                int n=s.nextInt();
                int a1[ ]=new int[n];
                for(int i=0;i<n;i++)
                {
                        System.out.print("Enter an element : ");
```

```
                    a1[i]=s.nextInt();
                }
                System.out.print("Enter an element which you want to remove :: ");
                int r=s.nextInt();
                int cnt=0;
                for(int i=0;i<a1.length;i++)
                {
                    if(a1[i]==r)
                    {
                        cnt++;
                    }
                }
                int a2[ ]=new int[a1.length-cnt];
                int id=0;
                for(int i=0;i<n;i++)
                {
                    if(a1[i]!=r)
                    {
                        a2[id]=a1[i];
                        id++;
                    }
                }
                System.out.println("Original array is :: "+Arrays.toString(a1));
                System.out.println("Modified array is :: "+Arrays.toString(a2));
        }
}
```

OUTPUT

```
Enter a range : 5
Enter an element : 1
Enter an element : 2
Enter an element : 3
Enter an element : 4
Enter an element : 2
Enter an element which you want to remove :: 2
Original array is :: [1, 2, 3, 4, 2]
Modified array is :: [1, 3, 4]
```

Java 2-D Arrays (Matrix) Programs

22. Write a Java Program to Print a 2D Array.

```
import java.util.Scanner;
class test22
{
	public static void main(String args[ ])
	{
		Scanner s=new Scanner(System.in);
		System.out.print("Enter a range : ");
		int n=s.nextInt();
		int a[ ][ ]=new int[n][n];
		for(int i=0;i<n;i++)
		{
			for(int j=0;j<n;j++)
			{
				System.out.print("Enter an element : ");
				a[i][j]=s.nextInt();
			}
		}
		System.out.println("Matrix :: ");
		for(int i=0;i<n;i++)
		{
			for(int j=0;j<n;j++)
			{
				System.out.print(" "+a[i][j]);
			}
			System.out.println(" ");
		}
	}
}
```

OUTPUT

```
Enter a range : 3
Enter an element : 1
Enter an element : 2
Enter an element : 3
Enter an element : 4
Enter an element : 5
Enter an element : 6
Enter an element : 7
Enter an element : 8
Enter an element : 9
Matrix ::
1 2 3
4 5 6
7 8 9
```

23. Write a Java Program to Add, Sub, Mul, Div of Two Matrices. [use menu driven concept].

24. Write a Java Program to Find the Transpose.

```
import java.util.Scanner;
class test23
{
	public static void main(String args[ ])
	{
		Scanner s=new Scanner(System.in);
		System.out.print("Enter a range : ");
		int n=s.nextInt();
		int a[ ][ ]=new int[n][n];
		int trans[ ][ ]=new int[n][n];
		for(int i=0;i<n;i++)
		{
			for(int j=0;j<n;j++)
			{
				System.out.print("Enter an element : ");
				a[i][j]=s.nextInt();
			}
		}
		for(int i=0;i<n;i++)
		{
			for(int j=0;j<n;j++)
			{
				trans[j][i]=a[i][j];
			}
		}
		System.out.println("Matrix :: ");
		for(int i=0;i<n;i++)
		{
			for(int j=0;j<n;j++)
			{
				System.out.print(" "+a[i][j]);
			}
			System.out.println(" ");
		}
		System.out.println("Transpose :: ");
		for(int i=0;i<n;i++)
		{
			for(int j=0;j<n;j++)
			{
				System.out.print(" "+trans[i][j]);
			}
```

```
                        System.out.println(" ");
                }
        }
}
```

OUTPUT

```
Enter a range : 3
Enter an element : 1
Enter an element : 2
Enter an element : 3
Enter an element : 4
Enter an element : 5
Enter an element : 6
Enter an element : 7
Enter an element : 8
Enter an element : 9
Matrix ::
1 2 3
4 5 6
7 8 9
Transpose ::
1 4 7
2 5 8
3 6 9
```

Java String Programs

25. Write a Java Program to Get a Character From the Given String.

```
import java.util.Scanner;
class test25
{
        public static void main(String args[ ])
        {
                Scanner s=new Scanner(System.in);
                System.out.print("Enter a string : ");
                String str=s.nextLine();
                System.out.print("Enter an index position : ");
                int pos=s.nextInt();
                char result=str.charAt(pos);
                System.out.print("Character is :: "+result);
        }
}
```

OUTPUT

```
Enter a string : HELLO
Enter an index position : 3
Character is :: L
```

26. Write a Java Program to Replace a Character at a Specific Index.

```
import java.util.Scanner;
class test26
{
	public static void main(String args[ ])
	{
		Scanner s=new Scanner(System.in);
		System.out.print("Enter a string : ");
		String str=s.nextLine();
		System.out.print("Enter an index : ");
		int id=s.nextInt();
		System.out.print("Enter a character : ");
		char ch=s.next().charAt(0);
		if(id>=0  && id<=str.length())
		{
			char[ ] char_arr=str.toCharArray( );
			char_arr[id]=ch;
			String update=new String(char_arr);
			System.out.println("Original string : "+str);
			System.out.println("New string : "+update);
		}
		else
		{
			System.out.println("Invalid Index");
		}
	}
}
```

OUTPUT

```
Enter a string : ben
Enter an index : 0
Enter a character : t
Original string : ben
New string : ten

Enter a string : ben
Enter an index : 4
Enter a character : t
Invalid Index
```

27. Write a Java Program to Reverse a string.

```
import java.util.Scanner;
class test27
{
	public static void main(String args[ ])
	{

		Scanner s=new Scanner(System.in);
		System.out.println("Enter a string : ");
		String str1=s.nextLine();
		String str2=" ";
		int len=str1.length()-1;
		for(int i=len;i>=0;i--)
		{
			str2=str2+str1.charAt(i);
```

OUTPUT

```
Enter a string :
Hello Student

Reverse string is ::
 tnedutS olleH
```

```
                }
                System.out.println("Reverse string is :: ");
                System.out.print(str2);
        }
}
```

28. Write a Java Program to Sort a string.

```
import java.util.Arrays;
import java.util.Scanner;
class test28
{
        public static void main(String args[ ])
        {
                Scanner s=new Scanner(System.in);
                System.out.print("Enter a string : ");
                String str=s.nextLine();
                char[ ] ch_arr=str.toCharArray();
                Arrays.sort(ch_arr);
                System.out.println("Original string : "+str);
                System.out.print("Sorted string :: ");
                System.out.print(ch_arr);
        }
}
```

OUTPUT

```
Enter a string : opcy

Original string : opcy
Sorted string :: copy
```

29. Write a Java Program to Compare two strings.

```
import java.util.Scanner;
class test29
{
        public static void main(String args[ ])
        {
                Scanner s=new Scanner(System.in);
                System.out.print("Enter string 1 : ");
                String s1=s.nextLine();
                System.out.print("Enter string 2 : ");
                String s2=s.nextLine();
                int result=s1.compareTo(s2);
                if(result==0)
                {
                        System.out.println("Both strings are same");
                }
                else
                {
```

```
                        System.out.println("Both strings are not same");
                }
        }
}
```

OUTPUT

```
Enter string 1 : Hello
Enter string 2 : Hello
Both strings are same

Enter string 1 : Hello
Enter string 2 : hello
Both strings are not same
```

30. Write a Java Program to Print even length words.

```
import java.util.Scanner;
class test30
{
        public static void main(String args[ ])
        {
                Scanner s=new Scanner(System.in);
                System.out.println("Enter a string : ");
                String str=s.nextLine( );
                String[ ] word=str.split(" ");
                System.out.println("even length words :: ");
                for(int i=0;i<word.length;i++)
                {
                        if(word[i].length()%2==0)
                        {
                                System.out.println(word[i]);
                        }
                }
        }
}
```

OUTPUT

```
Enter a string :
i did not understand this lesson

Even length words ::
understand
this
lesson
```