Assignment No:-8

Name:-Suryawanshi Sangramsingh Sambhaji

Batch: - Delta - DCA (Java) 2024 Date:-9/5/2024

1. Write a Java program to find the sum of digits of numbers from 100 to 200 using nested loops.

```
import java.util.*;
public class NestedForLoopPrintSumOfDigit
{
        public static void main(String[]ae)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter first number:");
                int n = sc.nextInt();
                System.out.println("-------------------------");
                System.out.println("Enter last number:");
                int n1 = sc.nextInt();
                System.out.println("-------------------------");
                System.out.println("given sum of digit "+n+" To "+n1+" is: ");
                System.out.println("-------------------------");

                for(int i=n;i<=n1;i++)
                {
                        int sum=0;
                        int rem=0,temp=i;
                        for(;temp!=0;)
                        {
                                rem=temp%10;
                                temp=temp/10;
                                sum+=rem;
                        }
                        System.out.print(sum+" ");
                }
        }
}
```

Output:

```
C:\Users\Shree\Desktop\Practice_java_Codenera>java NestedForLoopPrintSumOfDigit
Enter first number:
100
-------------------------
Enter last number:
200
-------------------------
given sum of digit 100 To 200 is:
-------------------------
1 2 3 4 5 6 7 8 9 10 2 3 4 5 6 7 8 9 10 11 3 4 5 6 7 8 9 10 11 12 4 5 6 7 8 9 10 11 12 13 5 6 7 8 9 10 11 12 13 14 6 7 8 9 10 11 12 13 14 1
5 7 8 9 10 11 12 13 14 15 16 8 9 10 11 12 13 14 15 16 17 9 10 11 12 13 14 15 16 17 18 10 11 12 13 14 15 16 17 18 19 2
```

2. Develop a Java program to generate the Fibonacci series up to a given limit.

```
import java.util.*;
public class NestedForLoopPrintFibonaciSeries
{
        public static void main(String[]ae)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter first number:");
                int n = sc.nextInt();
                System.out.println("--------------------------");
                System.out.println("Enter last number:");
                int n1 = sc.nextInt();
                System.out.println("--------------------------");
                System.out.println("given Fibonacci number "+n+" To "+n1+" is: ");
                System.out.println("--------------------------");
                int a=0,b=1,c=0;
                for(int i=n;i<=n1;i++)
                {
                        System.out.print(a+" ");
                        c=a+b;
                        a=b;
                        b=c;
                }
        }
}
```

Output:

```
C:\Users\Shree\Desktop\Practice_java_Codenera>javac NestedForLoopPrintFibonaciSeries.java

C:\Users\Shree\Desktop\Practice_java_Codenera>java NestedForLoopPrintFibonaciSeries
Enter first number:
1
--------------------------
Enter last number:
10
--------------------------
given Fibonacci number 1 To 10 is:
--------------------------
0 1 1 2 3 5 8 13 21 34
```

3. Write a Java program to print the multiplication table of numbers from 1 to 10 using nested loops.

```
import java.util.*;
public class NestedForLoopPrintMultipleTable
{
        public static void main(String[]ae)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter first number:");
                int n = sc.nextInt();
                System.out.println("-------------------------");
                System.out.println("Enter last number:");
                int n1 = sc.nextInt();
                System.out.println("-------------------------");
                System.out.println("given sum of digit "+n+" To "+n1+" is: ");
                System.out.println("-------------------------");

                for(int i=n;i<=n1;i++)
                {
                        int sum=0;
                        int rem=0,temp=i;
                        for(int j=1;j<=10;j++)
                        {
                                System.out.print((i*j)+" ");
                        }
                        System.out.println();
                }
        }
}
```

Output:

```
C:\Users\Shree\Desktop\Practice_java_Codenera>java NestedForLoopPrintMultipleTable
Enter first number:
1
-------------------------
Enter last number:
10
-------------------------
given sum of digit 1 To 10 is:
-------------------------
1 2 3 4 5 6 7 8 9 10
2 4 6 8 10 12 14 16 18 20
3 6 9 12 15 18 21 24 27 30
4 8 12 16 20 24 28 32 36 40
5 10 15 20 25 30 35 40 45 50
6 12 18 24 30 36 42 48 54 60
7 14 21 28 35 42 49 56 63 70
8 16 24 32 40 48 56 64 72 80
9 18 27 36 45 54 63 72 81 90
10 20 30 40 50 60 70 80 90 100
```

4. Implement a Java program to find the factorial of numbers from 1 to 10 using nested loops.

```
import java.util.*;
public class NestedForLoopPrintFactorialOfNNum
{
        public static void main(String[]ae)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter first number:");
                int n = sc.nextInt();
                System.out.println("-------------------------");
                System.out.println("Enter last number:");
                int n1 = sc.nextInt();
                System.out.println("-------------------------");
                System.out.println("given Factorial of number "+n+" To "+n1+" is: ");
                System.out.println("-------------------------");

                for(int i=n;i<=n1;i++)
                {
                        int fact=1;
                        int rem=0,temp=i;
                        for(int j=1;j<=i;j++)
                        {
                                fact*=j;
                        }
                        System.out.println(i+" = "+fact);
                }
        }
}
```

Output:

```
C:\Users\Shree\Desktop\Practice_java_Codenera>javac NestedForLoopPrintFactorialOfNNum.java

C:\Users\Shree\Desktop\Practice_java_Codenera>java NestedForLoopPrintFactorialOfNNum
Enter first number:
1
-------------------------
Enter last number:
10
-------------------------
given Factorial of number 1 To 10 is:
-------------------------
1 = 1
2 = 2
3 = 6
4 = 24
5 = 120
6 = 720
7 = 5040
8 = 40320
9 = 362880
10 = 3628800
```

5. Develop a Java program to find all Armstrong numbers in a given range using nested loops.

```
import java.util.*;
public class NestedForLoopPrintArmstrongNum
{
        public static void main(String[]ae)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter first number:");
                int n = sc.nextInt();
                System.out.println("-------------------------");
                System.out.println("Enter last number:");
                int n1 = sc.nextInt();
                System.out.println("-------------------------");
                System.out.println("given Armstrong number "+n+" To "+n1+" is: ");
                System.out.println("-------------------------");

                for(int i=n;i<=n1;i++)
                {
                        int rem=0,rev=0,temp=i;
                        for(;temp!=0;)
                        {
                                rem=temp%10;
                                rev+=(rem*rem*rem);
                                temp=temp/10;
                        }
                        if(rev==i)
                        {
                                System.out.println(rev+" ");
                        }
                }
        }
}
```

Output:

```
C:\Users\Shree\Desktop\Practice_java_Codenera>javac NestedForLoopPrintArmstrongNum.java

C:\Users\Shree\Desktop\Practice_java_Codenera>java NestedForLoopPrintArmstrongNum
Enter first number:
1
-------------------------
Enter last number:
1000
-------------------------
given Armstrong number 1 To 1000 is:
-------------------------
1
153
370
371
407
```

6. Write a Java program to check if a number is a prime number using nested loops.

```
import java.util.*;
public class NestedForLoopPrintPrimeNumCheck
{
        public static void main(String[]ae)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter given number:");
                int n = sc.nextInt();
                System.out.println("--------------------------");
                int c=0;
                for(int i=1;i<=100;i++)
                {

                        if(n%i==0)
                        {
                                c++;
                        }
                }
                        if(c==2)
                        {
                                System.out.println("Number is prime");
                        }
                        else
                        {
                                System.out.println("Number is not prime");
                        }
                        System.out.println("--------------------------");
        }
}
```

Output:

```
C:\Users\Shree\Desktop\Practice_java_Codenera>javac NestedForLoopPrintPrimeNumCheck.java

C:\Users\Shree\Desktop\Practice_java_Codenera>java NestedForLoopPrintPrimeNumCheck
Enter given number:
7
-------------------------
Number is prime
-------------------------
```

7. Create a Java program to generate all prime numbers between 1 to 100 using nested loops.

```
import java.util.*;
public class NestedForLoopPrintPrimeNum
{
        public static void main(String[]ae)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter first number:");
                int n = sc.nextInt();
                System.out.println("--------------------------");
                System.out.println("Enter last number:");
                int n1 = sc.nextInt();
                System.out.println("--------------------------");
                System.out.println("given prime number "+n+" To "+n1+" is: ");
                System.out.println("--------------------------");

                for(int i=n;i<=n1;i++)
                {
                        int c=0;
                        for(int j=1;j<=i;j++)
                        {
                                if(i%j==0)
                                {
                                        c++;
                                }
                        }
                        if(c==2)
                        {
                                System.out.print(i+" ");
                        }
                }
        }
}
```

Output:

```
C:\Users\Shree\Desktop\Practice_java_Codenera>javac NestedForLoopPrintPrimeNum.java

C:\Users\Shree\Desktop\Practice_java_Codenera>java NestedForLoopPrintPrimeNum
Enter first number:
1
--------------------------
Enter last number:
100
--------------------------
given prime number 1 To 100 is:
--------------------------
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97
```

8. Implement a Java program to print all factors of numbers from 1 to 100 using nested loops.

```
import java.util.*;
public class NestedForLoopPrintFactorsOfNNum
{
	public static void main(String[]ae)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter first number:");
		int n = sc.nextInt();
		System.out.println("--------------------------");
		System.out.println("Enter last number:");
		int n1 = sc.nextInt();
		System.out.println("--------------------------");
		System.out.println("given Factors of number "+n+" To "+n1+" is: ");
		System.out.println("--------------------------");

		for(int i=n;i<=n1;i++)
		{
			System.out.print("Factors of:"+i+"-->");
			int c=0;
			for(int j=1;j<=i;j++)
			{
				if(i%j==0)
				{
					System.out.print(j+" ");
				}
			}
			System.out.println();
		}

	}
}
```

Output:

```
C:\Users\Shree\Desktop\Practice_java_Codenera>javac NestedForLoopPrintFactorsOfNNum.java

C:\Users\Shree\Desktop\Practice_java_Codenera>java NestedForLoopPrintFactorsOfNNum
Enter first number:
1
-------------------------
Enter last number:
100
-------------------------
given Factors of number 1 To 100 is:
-------------------------
Factors of:1-->1
Factors of:2-->1 2
Factors of:3-->1 3
Factors of:4-->1 2 4
Factors of:5-->1 5
Factors of:6-->1 2 3 6
Factors of:7-->1 7
Factors of:8-->1 2 4 8
Factors of:9-->1 3 9
Factors of:10-->1 2 5 10
```

```
Factors of:90-->1 2 3 5 6 9 10 15 18 30 45 90
Factors of:91-->1 7 13 91
Factors of:92-->1 2 4 23 46 92
Factors of:93-->1 3 31 93
Factors of:94-->1 2 47 94
Factors of:95-->1 5 19 95
Factors of:96-->1 2 3 4 6 8 12 16 24 32 48 96
Factors of:97-->1 97
Factors of:98-->1 2 7 14 49 98
Factors of:99-->1 3 9 11 33 99
Factors of:100-->1 2 4 5 10 20 25 50 100
```

9. Write a Java program to calculate the sum of the series 1 + 1/2 + 1/3 + ... + 1/n using nested loops.

```
import java.util.*;
public class NestedForLoopPrintSumOfTheSeries
{
        public static void main(String[]ae)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter first number:");
                int n = sc.nextInt();
                System.out.println("--------------------------");
                System.out.println("given sum of series "+n+" is: ");
                System.out.println("--------------------------");
                double sum=0,a=0,ans=0;
                int i=1;
                for(int j=2;j<=n;j++)
                {

                        a=(double)i/j;
                        sum+=a;

                }
                ans=1+sum;
                System.out.println(ans);
        }
}
```

Output:

```
C:\Users\Shree\Desktop\Assingnment_Java_Codenera>javac NestedForLoopPrintSumOfTheSeries.java

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java NestedForLoopPrintSumOfTheSeries
Enter first number:
3
--------------------------
given sum of series 3 is:
--------------------------
1.8333333333333333
```