COMSATS UNIVERSITY, ISLAMABAD



**Programming Fundamentals**

--CSC103--

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**Section**: B

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1.Write a program to print all natural numbers from 1 to n, using while loop.

package com.company**;**import java.util.Scanner**;**public class naturalNumber {  
 public static void main(String[] args) {  
 Scanner scan = new Scanner(System.*in*)**;** int n**;** System.*out*.println("Please enter the limit of natural numbers: ")**;** n = scan.nextInt()**;** for (int i = **0 ;** i<= n **;** i++){  
 System.*out*.println(i)**;** }  
 }  
}

2.Write a program to print all natural numbers from n to 1, using for loop.

package com.company**;**import java.util.Scanner**;**public class oppositeNaturalNumbers {  
 public static void main(String[] args) {  
 Scanner scan = new Scanner(System.*in*)**;** int n**;** System.*out*.println("Please enter the limit of natural numbers: ")**;** n = scan.nextInt()**;** for (int i = n **;** i>= **1 ;** i--){  
 System.*out*.println(i)**;** }  
 }  
  
}

3.Get a number from user. Display its multiplication table using for loop, while loop, and do-while loop.

package com.company**;**import java.util.Scanner**;**public class tableOfNumber {  
 public static void main(String[] args) {  
 Scanner scan = new Scanner(System.*in*)**;** int n**,**i**;** System.*out*.println("Which table you want: ")**;** n = scan.nextInt()**;** System.*out*.println("With fot loop")**;** for (i = **1 ;** i<= **10 ;** i++){  
 System.*out*.println(n + "\*" + i + "=" + i\*n)**;** }  
 System.*out*.println("With while loop")**;** i = **1;** while (i<=**10**){  
 System.*out*.println(n + "\*" + i + "=" + i\*n)**;** i++**;** }  
 System.*out*.println("With Do while loop")**;** i = **1;** do{  
 System.*out*.println(n + "\*" + i + "=" + i\*n)**;** i++**;** }while(i<=**10**)**;** }  
}

4.Display even numbers from 1 to 100, using all loops. Use ‘continue’ statement to skip odd numbers.

package com.company**;**public class evenNumber {  
 public static void main(String[] args) {  
 int i**;** for ( i = **1;** i<=**100 ;** i++){  
 if (i%**2** != **0**){  
 continue**;** }  
 System.*out*.print(i+ " ")**;** }  
 i = **1;** System.*out*.println(" ")**;** while (i<=**100**){  
  
 i++**;** if (i%**2** != **0**){  
 continue**;** }  
 System.*out*.print(i+ " ")**;** }  
 i = **1;** System.*out*.println(" ")**;** do{  
  
 i++**;** if (i%**2** != **0**){  
 continue**;** }  
 System.*out*.print(i+ " ")**;** }while(i<=**100**)**;** }  
}

5.Find sum of all odd numbers from 1 to n, using do-while loop.

package com.company**;**import java.util.Scanner**;**public class sumOfOddnumbers {  
 public static void main(String[] args) {  
 Scanner scan = new Scanner(System.*in*)**;** System.*out*.println("Enter limit:")**;** int n = scan.nextInt()**;** int sum=**0;** int i = **0;** do{  
  
 if (i % **2** == **0**){  
 i++**;** continue**;** }  
 sum = sum + i**;** i++**;** }while(i<=n)**;** System.*out*.println("Sum of odd numbers upto n is: " + sum)**;** }  
}

6.Write a program to count number of digits in a number. Take the number from user.

package com.company**;**import java.util.Scanner**;**public class numberOfDigits {  
 public static void main(String[] args) {  
 Scanner scan = new Scanner(System.*in*)**;** System.*out*.println("Enter numbers:")**;** int n = scan.nextInt()**;** int count = **0;** while (n%**10** != **0**){  
 n = n/**10;** count++**;** }  
 System.*out*.println("Number of digits in your number is: " + count)**;** }  
}

7.Write a program to find n raised to power m (nm).

package com.company**;**import java.util.Scanner**;**public class powerNtoM {  
 public static void main (String args[]){  
 Scanner scan = new Scanner(System.*in*)**;** int base**,**pow**;** int ans = **1;** System.*out*.println("Enter Base number: ")**;** base = scan.nextInt()**;** System.*out*.println("Enter power number: ")**;** pow = scan.nextInt()**;** for (int i = **1;** i<=pow **;** i++){  
 ans = ans\*base**;** }  
 System.*out*.println("Answer is: "+ ans)**;** }  
}

8.Find product of all numbers from 1 to n. This is also called factorial of n or n-factorial. For example, 5-factorial (5!) is 1\*2\*3\*4\*5 = 120.

package com.company**;**import java.util.Scanner**;**public class Factorial {  
 public static void main (String args[]){  
 Scanner scan = new Scanner(System.*in*)**;** int fact = **1;** int num**;** System.*out*.println("Enter number to calculate factorial of: ")**;** num = scan.nextInt()**;** for ( int i = **1;** i<=num**;** i++){  
 fact =fact\*i**;** }  
 System.*out*.println("Factorial of the number is: "+ fact)**;** }  
}

9.Write programs to display following patterns.

Pattern1:

package com.company**;**public class pattern1 {  
 public static void main (String args[]){  
 for(int i = **1;** i<=**5 ;** i++){  
 System.*out*.println("\*\*\*\*\*")**;** }  
 }  
}

Pattern2:

package com.company**;**public class pattern2 {  
 public static void main (String args[]){  
 for(int i = **3;** i>=**1 ;** i--){  
 for (int j = **1;** j <= i**;** j++)  
 System.*out*.print(" ")**;** System.*out*.println("\*\*\*\*\*")**;** }  
 }  
}

Pattern3:

package com.company**;**public class pattern3 {  
 public static void main (String args[]){  
 int rows = **4;** for (int i = **0;** i<rows **;** i++){  
 for(int space = rows-i**;** space>**1 ;** space--){  
 System.*out*.print(" ")**;** }  
 for(int j = **0 ;** j<=i**;** j++){  
 System.*out*.print("\* ")**;** }  
 System.*out*.println("")**;** }  
 }  
}

Pattern4:

package com.company**;**public class pattern4 {  
 public static void main (String args[]){  
 for (int i = **1;** i<=**5;** i++){  
 for (int j = **1;** j<=i**;** j++ ){  
 System.*out*.print("\*")**;** }  
 System.*out*.println("")**;** }  
 }  
}

Pattern5:

package com.company**;**public class pattern5 {  
 public static void main (String args[]){  
 for (int i = **5;** i>=**1;** i--){  
 for (int j = **1;** j<=i**;** j++ ){  
 System.*out*.print("\*")**;** }  
 System.*out*.println("")**;** }  
 }  
}

Pattern6:

package com.company**;**public class pattern6 {  
 public static void main (String args[]){  
 for (int i = **1 ;** i <=**5 ;** i++){  
 if (i % **2** != **0**){  
 System.*out*.println("1111")**;** }  
 else  
 System.*out*.println("0000")**;** }  
 }  
}

Pattern7:

package com.company**;**public class pattern7 {  
 public static void main (String args[]){  
 for (int i = **1;** i<=**4 ;** i++){  
 for (int j = **0 ;** j<**4 ;** j++){  
 if (j%**2** == **0**)  
 System.*out*.print("0")**;** else  
 System.*out*.print("1")**;** }  
 System.*out*.println("")**;** }  
 }  
}

Pattern8:

package com.company**;**public class pattern8 {  
 public static void main (String args[]){  
 for (int i =**1 ;** i<=**4 ;** i++){  
 for (int j = **1;** j<=**4;** j++)  
 System.*out*.print(i)**;** System.*out*.println("")**;** }  
  
 }  
}

Pattern9:

package com.company**;**public class pattern9 {  
 public static void main (String args[]){  
 for (int i =**1 ;** i<=**4 ;** i++){  
 for (int j = **1;** j<=**5;** j++)  
 System.*out*.print(j)**;** System.*out*.println("")**;** }  
 }  
}

Pattern10:

package com.company**;**public class pattern10 {  
 public static void main (String args[]){  
 for(int i = **1;** i<=**5 ;** i++){  
 for (int j = i**;**j<=**4**+i **;** j++){  
 System.*out*.print(j)**;** }  
 System.*out*.println("")**;** }  
 }  
}

Pattern11:

package com.company**;**public class pattern11 {  
 public static void main (String args[]){  
 for (int i = **1 ;** i<=**5 ;** i++){  
 for (int j = **1;** j<=i **;** j++){  
 System.*out*.print(i)**;** }  
 System.*out*.println("")**;** }  
 }  
}

Pattern12:

package com.company**;**public class pattern12 {  
 public static void main (String args[]){  
 for (int i = **1 ;** i<=**5 ;** i++){  
 for (int j = **1;** j<=i **;** j++){  
 System.*out*.print(j)**;** }  
 System.*out*.println("")**;** }  
 }  
}

# Home Tasks

1.Find LCM of two numbers taken from user.

package com.company**;**import java.util.Scanner**;**public class lcm {  
 public static void main (String args[]){  
 Scanner scan = new Scanner(System.*in*)**;** int num1**,** num2**,**lcm**;** System.*out*.println("Enter first number: ")**;** num1 = scan.nextInt()**;** System.*out*.println("Enter second number: ")**;** num2 = scan.nextInt()**;** if (num1 > num2)  
 lcm = num1**;** else  
 lcm = num2**;** while(num1!=**0**){  
 if(lcm % num1 == **0** && lcm % num2 == **0** ){  
 System.*out*.println("LCM of two numbers is: "+ lcm)**;** break**;** }  
 lcm++**;** }  
  
 }  
}

2.Display all prime numbers from 1 to 100.

package com.company**;**public class primeNumber {  
 public static void main (String args[]){  
 int count = **0;** int j = **0;** for (int i=**1 ;** i<=**100;** i++){  
 count = **0;** for (j = i**;** j>=**1;**j--){  
 if (i%j == **0**)  
 count = count + **1;** }if (count == **2**)  
 System.*out*.println(i)**;** }  
  
}  
}

3.Calculate sum of digits of a number taken from user.

package com.company**;**import java.util.Scanner**;**public class sumOfdigits {  
 public static void main (String args[]){  
 Scanner scan = new Scanner(System.*in*)**;** int num**,**sum = **0 ,**rem**;** System.*out*.println("Enter the number: ")**;** num = scan.nextInt()**;** while(num != **0**){  
 rem = num % **10;** sum = sum + rem**;** num = num/**10;** }  
 System.*out*.println("Sum of digits is : "+sum)**;** }  
}

4.Display Fibonacci series up to n terms.

package com.company**;**import java.util.Scanner**;**public class fabunaci {  
 public static void main(String[] args) {  
 Scanner scan = new Scanner(System.*in*)**;** long n**;** int n1 = **0,** n2 = **1;** System.*out*.println("Enter the number of terms you want to see")**;** n = scan.nextInt()**;** int sum = **0;** System.*out*.print("First " + n + " terms: ")**;** for (int i = **1;** i <= n**;** ++i)  
 {  
 System.*out*.print(n1 + " + ")**;** sum = n1 + n2**;** n1 = n2**;** n2 = sum**;** }  
 }  
}