# **Java Control Flows - LEVEL 1**

1. Write a program to check if a number is divisible by 5

I/P => number

O/P => Is the number \_\_\_ divisible by 5? \_\_\_

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

if(num%5==0){

System.out.println("Yes");

}

else{

System.out.println("No");

}

}

}

1. Write a program to check if the first is the smallest of the 3 numbers.

I/P => number1, number2, number3

O/P => Is the first number the smallest? \_\_\_\_

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the first number");

int num1 = input.nextInt();

System.out.println("Enter the second number");

int num2 = input.nextInt();

System.out.println("Enter the third number");

int num3 = input.nextInt();

if(num1<num2 && num1<num3){

System.out.println("First number is smallest");

}

else if(num2<num1 && num2<num3){

System.out.println("Second number is smallest");

}

else{

System.out.println("Third number is smallest");

}

}

}

1. Write a program to check if the first, second, or third number is the largest of the three.

I/P => number1, number2, number3

O/P =>

Is the first number the largest? \_\_\_\_

Is the second number the largest? \_\_\_

Is the third number the largest? \_\_\_

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the first number");

int num1 = input.nextInt();

System.out.println("Enter the second number");

int num2 = input.nextInt();

System.out.println("Enter the third number");

int num3 = input.nextInt();

if(num1>num2 && num1>num3){

System.out.println("First number is largest");

}

else if(num2>num1 && num2>num3){

System.out.println("Second number is largest");

}

else{

System.out.println("Third number is largest");

}

}

}

1. Write a program to check for the natural number and write the sum of n natural numbers

**Hint =>**

1. A Natural Number is a positive integer (1,2,3, etc) sometimes with the inclusion of 0
2. A sum of n natural numbers is n \* (n+1) / 2

I/P => number

O/P => If the number is a positive integer then the output is

The sum of \_\_\_ natural numbers is \_\_\_

Otherwise

The number \_\_\_ is not a natural number

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

if(num>0){

System.out.println("Number is natural");

int sum = (num\*(num+1))/2;

System.out.println("Sum of natural number is " + sum);

}

else{

System.out.println("Not a natural number");

}

}

}

1. Write a program to check whether a person can vote, depending on whether his/her age is greater than or equal to 18.

**Hint =>**

1. Get integer input from the user and store it in the age variable.
2. If the person is 18 or older, print "The person can vote." Otherwise, print "The person cannot vote."

I/P => age

O/P => If the person's age is greater or equal to 18 then the output is

The person's age is \_\_\_ and can vote.

Otherwise

The person's age is \_\_\_ and cannot vote.

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the age");

int age = input.nextInt();

if(age>=18){

System.out.println("The person can vote");

}

else{

System.out.println("The person cannot vote");

}

}

}

1. Write a program to check whether a number is positive, negative, or zero.

**Hint =>**

1. Get integer input from the user and store it in the number variable.
2. If the number is positive, print positive.
3. If the number is negative, print negative.
4. If the number is zero, print zero.

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

if(num>0){

System.out.println("Number is positive");

}

else if(num==0){

System.out.println("Number is zero");

}

else{

System.out.println("Number is negative");

}

}

}

1. Write a program SpringSeason that takes two int values month and day from the command line and prints “Its a Spring Season” otherwise prints “Not a Spring Season”.

**Hint =>**

Spring Season is from March 20 to June 20

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the date");

int date = input.nextInt();

System.out.println("Enter the month");

int month = input.nextInt();

if(date>=20 && month==3){

System.out.println("Spring Season");

}

else if(date<=20 && month==6){

System.out.println("Spring Season");

}

else if(month==4||month==5){

System.out.println("Spring Season");

}

else{

System.out.println("Not Spring Season");

}

}

}

1. Write a program to count down the number from the user input value to 1 using a ***while*** loop for a rocket launch

**Hint =>**

1. Create a variable counter to take user inputted value for the countdown.
2. Use the ***while*** loop to check if the counter is 1
3. Inside a ***while*** loop, print the value of the counter and decrement the counter.

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

System.out.println("Countdown begins...");

System.out.println(num);

while(num!=1){

num = num-1;

System.out.println(num);

}

}

}

1. Rewrite program 8 to do the countdown using the ***for-***loop

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

System.out.println("Countdown begins...");

System.out.println(num);

for(int i=num-1; i>=1; i--){

System.out.println(i);

}

}

}

1. Write a program to find the sum of numbers until the user enters 0

**Hint =>**

1. Create a variable total of type double initialize to 0.0. Also, create a variable to store the double value the user enters
2. Use the ***while*** loop to check if the user entered is 0
3. If the user entered value is not 0 then inside the while block add user entered value to the total and ask the user to input again
4. The loop will continue till the user enters zero and outside the loop display the total value

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int total = 0;

int num = input.nextInt();

while(num!=0){

total = total+num;

num = input.nextInt();

}

System.out.println(total);

}

}

1. Rewrite the program 10 to find the sum until the user enters 0 or a negative number using ***while*** loop and break statement

**Hint =>**

1. Use infinite while loop as in while (true)
2. Take the user entry and check if the user entered 0 or a negative number to break the loop using break;

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int total = 0;

int num = input.nextInt();

while(num!=0){

if(num>0){

total = total+num;

num = input.nextInt();

}

else{

break;

}

}

System.out.println(total);

}

}

1. Write a program to find the sum of n natural numbers using ***while*** loop compare the result with the formulae n\*(n+1)/2 and show the result from both computations was correct.

**Hint =>**

1. Take the user input number and check whether it's a Natural number
2. If it's a natural number Compute using formulae as well as compute using ***while*** loop
3. Compare the two results and print the result

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

int total1 = 0;

int i = 1;

while(i<=num){

total1 = total1+i;

i++;

}

System.out.println("Using While Loop : " + total1);

int total2 = (num\*(num+1))/2;

System.out.println("Using Formula : " + total2);

if(total1==total2){

System.out.println("Equal");

}

else{

System.out.println("Not Equal");

}

}

}

1. Rewrite the program number 12 with the ***for*** loop instead of a while loop to find the sum of n Natural Numbers.

**Hint =>**

1. Take the user input number and check whether it's a Natural number
2. If it's a natural number Compute using formulae as well as compute using ***for*** loop
3. Compare the two results and print the result

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

int total1 = 0;

for(int i=1; i<=num; i++){

total1 = total1+i;

}

System.out.println("Using For Loop : " + total1);

int total2 = (num\*(num+1))/2;

System.out.println("Using Formula : " + total2);

if(total1==total2){

System.out.println("Equal");

}

else{

System.out.println("Not Equal");

}

}

}

1. Write a Program to find the factorial of an integer entered by the user.

**Hint =>**

1. For example, the factorial of 4 is 1 \* 2 \* 3 \* 4 which is 24.
2. Take an integer input from the user and assign it to the variable. Check the user has entered a positive integer.
3. Using a ***while*** loop, compute the factorial.
4. Print the factorial at the end.

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

int fact = 1;

int i = 1;

while(i<=num){

fact = fact\*i;

i++;

}

System.out.println("Factorial is " + fact);

}

}

1. Rewrite program 14 using for loop

**Hint =>**

1. Take the integer input, check for natural number and determine the factorial using for loop and finally print the result.

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

int fact = 1;

for(int i=1; i<=num; i++){

fact = fact\*i;

}

System.out.println("Factorial is " + fact);

}

}

1. Create a program to print odd and even numbers between 1 to the number entered by the user.

**Hint =>**

1. Get an integer input from the user, assign to a variable number and check for Natural Number
2. Using a for loop, iterate from 1 to the number
3. In each iteration of the loop, print the number is odd or even number

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

for(int i=1; i<=num; i++){

if(i%2==0){

System.out.println("Even number are " + i);

}

}

for(int i=1; i<=num; i++){

if(i%2!=0){

System.out.println("Odd number are " + i);

}

}

}

}

1. Create a program to find the bonus of employees based on their years of service.

**Hint =>**

1. Zara decided to give a bonus of 5% to employees whose year of service is more than 5 years.
2. Take salary and year of service in the year as input.
3. Print the bonus amount.

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the year of service");

int year = input.nextInt();

System.out.println("Enter the salary");

int salary = input.nextInt();

int bonus;

if(year>5){

bonus = (salary\*5)/100;

System.out.println("Bonus amount will be " + bonus);

}

else{

System.out.println("No bonus");

}

}

}

1. Create a program to find the multiplication table of a number entered by the user from 6 to 9.

**Hint =>**

1. Take integer input and store it in the variable number
2. Using a for loop, find the multiplication table of number from 6 to 9 and print it in the format number \* i = \_\_\_

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter the number");

int num = input.nextInt();

if(num<6 || num>9){

System.out.println("Enter a number between 6 to 9");

return;

}

int result = num;

for(int i=1; i<=10; i++){

result = num\*i;

System.out.println(num + "x" + i + "=" + result);

}

}

}