# **Java Control Flows - LEVEL 2**

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;

class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

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

int num = input.nextInt();

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

if(i%2==0){

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

}

else{

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

}

}

}

}

1. Create a program to find the bonuses 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);

}

}

}

1. Write a program FizzBuzz, take a number as user input, and check for a positive integer. If positive integer, loop and print the number, but for multiples of 3 print "Fizz" instead of the number, for multiples of 5 print "Buzz", and for multiples of both print "FizzBuzz".

**Hint =>**

1. Take the user input number, check for a positive integer, and use ***for*** loop to display

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

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

int num = input.nextInt();

if(num>0){

for(int i=0; i<=num; i++){

if(i%15==0){

System.out.println("FizzBuzz");

}

else if(i%3==0){

System.out.println("Fizz");

}

else if(i%5==0){

System.out.println("Buzz");

}

else{

System.out.println(i);

}

}

}

else{

System.out.println("Enter only positive number");

}

}

}

1. Rewrite the program 4 FizzBuzz using the while loop

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

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

int num = input.nextInt();

while(num>0){

if(num%15==0){

System.out.println("FizzBuzz");

break;

}

else if(num%3==0){

System.out.println("Fizz");

break;

}

else if(num%5==0){

System.out.println("Buzz");

break;

}

else{

System.out.println(num);

break;

}

}

}

}

1. Create a program to find the youngest friends among 3 Amar, Akbar, and Anthony based on their ages and the tallest among the friends based on their heights

**Hint =>**

1. Take user input for the age and height of the 3 friends and store it in a variable
2. Find the smallest of the 3 ages to find the youngest friend and display it
3. Find the largest of the 3 heights to find the tallest friend and display it

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.println("Enter age of Amar");

int age1 = input.nextInt();

System.out.println("Enter age of Akbar");

int age2 = input.nextInt();

System.out.println("Enter age of Anthony");

int age3 = input.nextInt();

System.out.println("Enter height of Amar");

int he1 = input.nextInt();

System.out.println("Enter height of Akbar");

int he2 = input.nextInt();

System.out.println("Enter height of Anthony");

int he3 = input.nextInt();

if(age1>age2 && age1>age3){

System.out.println("Amar is oldest");

}

else if(age2>age1 && age2>age3){

System.out.println("Akbar is oldest");

}

else{

System.out.println("Antony is oldest");

}

if(he1>he2 && he1>he3){

System.out.println("Amar is tallest");

}

else if(he2>he1 && he2>he3){

System.out.println("Akbar is tallest");

}

else{

System.out.println("Antony is tallest");

}

}

}

1. Create a program to find the factors of a number taken as user input.

**Hint =>**

1. Get the input value for a variable named number and check if it is a positive integer.
2. Run a ***for*** loop from i = 1 to i < number. In each iteration of the loop, check if the number is perfectly divisible by i. If true, print the value of i.

import java.util.Scanner;

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(num%i==0){

System.out.println(i);

}

}

}

}

1. Rewrite the above program 7 to find the factors of a number using the ***while*** loop

**Hint =>**

1. Get the input value for a variable named number and check if it is a positive integer.
2. Create a counter variable and run the \_\*\*while\*\*\_ loop till the counter is less than the user input number. In each iteration of the loop, check if the number is perfectly divisible by the counter. If true, print the value of the counter.

import java.util.Scanner;

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 i=1;

while(i<=num){

if(num%i==0){

System.out.println(i);

}

i++;

}

}

}

1. Create a program to print the greatest factor of a number beside itself using a loop.

**Hint =>**

1. Get an integer input and assign it to the number variable. As well as define a greatestFactor variable and assign it to 1
2. Create a ***for*** loop that runs from last but one till 1 as in i = number - 1 to i = 1.
3. Inside the loop, check if the number is perfectly divisible by i then assign i to greatestFactor variable and break the loop.
4. Display the greatestFactor variable outside the loop

import java.util.Scanner;

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 second\_largest = 1;

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

if(num%i==0){

second\_largest = i;

System.out.println("Second largest factor is : " + second\_largest);

break;

}

}

}

}

1. Rewrite the above program to print the greatest factor of a number beside itself using a ***while*** loop.

**Hint =>**

1. Get an integer input and assign it to the number variable. As well as define a greatestFactor variable and assign it to 1
2. Create a variable counter and assign ***counter = number - 1;*** Use the ***while*** loop till the counter is equal to 1.
3. Inside the loop, check if the number is perfectly divisible by the counter then assign the counter to greatestFactor variable and break the loop.
4. Display the greatestFactor variable outside the loop

import java.util.Scanner;

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 second\_largest = 1;

int i=num-1;

while(i>=1){

if(num%i==0){

System.out.println(i);

break;

}

i--;

}

}

}

1. Create a program to find all the multiples of a number taken as user input below 100.

**Hint =>**

1. Get the input value for a variable named number. Check the number is a positive integer and less than 100.
2. Run a ***for*** loop backward: from i = 100 to i = 1.
3. Inside the loop, check if i perfectly divide the number. If true, print the number and ***continue*** the loop.

import java.util.Scanner;

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 && num<100){

for(int i=num; i<100; i++){

if(i%num==0){

System.out.println(i);

}

}

}

else{

System.out.println("Enter a number between 1 and 99");

}

}

}

1. Create a program to find the power of a number.

**Hint =>**

1. Get integer input for two variables - number and power and check for positive integer
2. Create a result variable with an initial value of 1.
3. Run a for loop from i = 1 to i <= power. In each iteration of the loop, multiply the result by the number and assign the value to the result. Finally, print the result

import java.util.Scanner;

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("Enter the power");

int power = input.nextInt();

int result = 1;

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

result = result\*num;

}

System.out.println(result);

}

}

1. Rewrite the program to find all the multiples of a number below 100 using ***while*** loop.

**Hint =>**

1. Get the input value for a variable named number. Check the number is a positive integer and less than 100.
2. Create a counter variable and assign ***counter = number - 1;*** Use a ***while*** till the counter is > 1
3. Inside the loop, check if the counter perfectly divides the number. If true, print the number and ***continue*** the loop.

import java.util.Scanner;

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 counter = num-1;

if(num>0 && num<100){

while(counter>=1 && counter<100){

if(counter%num==0){

System.out.println(counter);

}

counter++;

}

}

}

}

1. Rewrite the above program to find the power of a number using a ***while*** loop.

**Hint =>**

1. Get integer input for two variables named number and power.
2. Create a result variable with an initial value of 1.
3. Create a temp variable counter and initialize to zero. Use the ***while*** loop till \_\*\*counter == power\*\*\_.
4. In each iteration of the loop, multiply the result by the number and assign the value to the result. Also, increment the counter.
5. Finally, print the result

import java.util.Scanner;

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("Enter the power");

int power = input.nextInt();

int i=1;

int result = 1;

while(i<=power){

result = result\*num;

i++;

}

System.out.println(result);

}

}