**Module – 6 (Core Java)**

Q.1 W.A.J.P to Take three numbers from the user and print the greatest number.

Ans.

package assignment;

import java.util.Scanner;

public class Q1 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.***in***);

System.***out***.println("enter number 1: ");

int number1 = sc.nextInt();

System.***out***.println("enter number 2: ");

int number2= sc.nextInt();

System.***out***.println("enter number 3: ");

int number3 = sc.nextInt();

if(number1>number2) {

if(number1>number3) {

System.***out***.println("Greatest number is: "+ number1);

}else {

System.***out***.println("Greatest number is: "+ number3);

}

}

else {

if(number2>number3) {

System.***out***.println("Greatest number is: "+ number2);

}else {

System.***out***.println("Greatest number is: "+ number3);

}

}

}

}

Q.2 W.A.J.P in Java to display the first 10 natural numbers using while loop.

Ans.

package assignment;

public class Q2 {

public static void main(String[] args) {

System.***out***.println("The first 10 natural numbers are:");

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

System.***out***.println(i);

}

}

}

Q.3 W.A.J.P to find factorial for Given Number.

Ans.

package assignment;

public class Q3 {

public static void main(String[] args) {

int number = 7;

int factorial=1;

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

factorial \*= i;

}

System.***out***.println("The Factorial of " + number + " is :" + factorial);

}

}

Q.4 W.A.J.P to check given number is Prime or not?

Ans.

package assignment;

import java.util.Scanner;

public class Q4 {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.***in***);

System.***out***.print("Enter a number: ");

int number = scanner.nextInt();

if (*isPrime*(number)) {

System.***out***.println(number + " is a prime number.");

} else {

System.***out***.println(number + " is not a prime number.");

}

}

// Function to check if a number is prime

public static boolean isPrime(int num) {

if (num <= 1) {

return false;

}

if (num <= 3) {

return true;

}

if (num % 2 == 0 || num % 3 == 0) {

return false;

}

for (int i = 5; i \* i <= num; i += 6) {

if (num % i == 0 || num % (i + 2) == 0) {

return false;

}

}

return true;

}

}

Q.5 W.A.J.P to check given number is Armstrong or not?

Ans.

package assignment;

import java.util.Scanner;

public class Q5 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.***in***);

System.***out***.print("Enter a number: ");

int number = sc.nextInt();

if (*isArmstrong*(number)) {

System.***out***.println(number + " is an Armstrong number.");

} else {

System.***out***.println(number + " is not an Armstrong number.");

}

}

static boolean isArmstrong(int num) {

int originalNum = num;

int sum = 0;

int digits = *countDigits*(num);

while (num > 0) {

int digit = num % 10;

sum += Math.*pow*(digit, digits);

num /= 10;

}

return sum == originalNum;

}

static int countDigits(int num) {

int count = 0;

while (num > 0) {

num /= 10;

count++;

}

return count;

}

}

Q.6 W.A.J.P for create Fibonacci Series.

Ans.

package assignment;

public class Q6 {

public static void main(String[] args) {

int n = 11;

int firstTerm = 0, secondTerm = 1;

System.***out***.print("Fibonacci Series:");

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

System.***out***.print(" " + firstTerm);

int nextTerm = firstTerm + secondTerm;

firstTerm = secondTerm;

secondTerm = nextTerm;

}

}

}

Q.7 W.A.J.P to Print pattern Given Below.

1)

1

12

123

1234

12345

Ans.

package assignment;

public class Q7 {

public static void main(String[] args) {

int a=5;

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

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

System.***out***.print(j);

}

System.***out***.println();

}

}

}

2)

1

01

101

01010

101010

Ans.

package assignment;

public class Q7 {

public static void main(String[] args) {

int rows = 5;

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

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

System.***out***.print((i + j) % 2);

}

System.***out***.println();

}

}

}

3)

1

2 2

3 3 3

4 4 4 4

Ans.

package assignment;

public class Q7 {

public static void main(String[] args) {

int n = 4; // Number of rows

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

// Print spaces before the numbers

for (int j = 1; j <= n - i; j++) {

System.***out***.print(" ");

}

// Print the numbers

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

System.***out***.print(" "+i+" "+" ");

}

System.***out***.println();

}

}

}

4)

\*

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\* \* \* \* \*

\* \* \*

\*

package assignment;

public class Q7 {

public static void main(String[] args) {

int n = 3;

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

for (int j = n - i; j > 0; j--) {

System.***out***.print(" ");

}

for (int j = 1; j <= 2 \* i - 1; j++) {

System.***out***.print("\*");

}

System.***out***.println();

}

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

for (int j = n - i; j > 0; j--) {

System.***out***.print(" ");

}

for (int j = 1; j <= 2 \* i - 1; j++) {

System.***out***.print("\*");

}

System.***out***.println();

}

}

}

Q.8 WAP to compute the sum of the first 100 prime numbers.

Ans.

package assignment;

public class Q8 {

public static void main(String args[]) {

int number = 1, count, sum = 0;

while(number <= 100)

{

count = 0;

int i = 2;

while(i <= number/2 )

{

if(number % i == 0)

{

count++;

break;

}

i++;

}

if(count == 0 && number != 1 )

{

sum = sum + number;

}

number++;

}

System.***out***.println("The Sum of Prime Numbers from 1 to 100 is: " + sum);

}

}

Q.9 WAP to sum values of an array.

Ans.

package assignment;

public class Q9 {

public static void main(String[] args) {

int sum=0;

int[] array = {10,20,30,40,50};

for (int value : array) {

sum+= value;

}

System.***out***.println("sum of given numbers is :"+ sum);

}

}

Q.10 WAP to calculate the average value of array elements.

Ans.

package assignment;

public class Q\_10 {

public static void main(String[] args) {

double [] ab = {23,12,20,11};

double sum = 0;

for (double i : ab) {

sum += i;

}

double average = sum/ab.length;

System.***out***.println("Average of ab is :"+ average);

}

}

Q.11 WAP to find the index of an array element.

Ans.

package assignment;

public class Q\_11 {

public static void main(String[] args) {

int a[]= {23,12,1997,20,11,2000};

for(int i=0;i<=a.length;i++) {

System.***out***.println("Find the index number 4 : "+ a[4]);

break;

}

}

}

Q.12 WAP to find the maximum and minimum value of an array

Ans.

package assignment;

public class Q\_12 {

public static void main(String[] args) {

int[] a = {23,11,12,20,2000,1997};

int min = a[0];

int max = a[0];

for (int i = 1; i < a.length; i++) {

if (a[i] < min) {

min = a[i];

}

if (a[i] > max) {

max = a[i];

}

}

System.***out***.println("Minimum value: " + min);

System.***out***.println("Maximum value: " + max);

}

}

Q.13 WAP to Compare Two String.

Ans.

package assignment;

public class Q\_13 {

public static void main(String[] args) {

String a = "PRAGNESH";

String b = "pragnesh";

System.***out***.println(a);

System.***out***.println(b);

System.***out***.println(a.compareTo(b));

}

}

Q.14 WAP to concatenate a given string to the end of another string.

Ans.

package assignment;

public class Q\_14 {

public static void main(String[] args) {

String s = "Pragnesh";

String s1 = "Sharma";

System.***out***.println(s);

System.***out***.println(s1);

System.***out***.println(s.concat(s1));

}

}

Q.15 WAP to demonstrate try catch block.

Ans.

package assignment;

public class Q\_15 {

public static void main(String[] args) {

try {

int a = 78/0;

}

catch (ArithmeticException e)

{

System.***out***.println(e);

}

}

}

Q.16 . WAP to demonstrate multiple catch blocks

Ans.

package assignment;

public class Q\_16 {

public static void main(String[] args) {

try{

int a[]=new int[5];

a[5]=30/0;

}

catch(ArithmeticException e)

{

System.***out***.println("Arithmetic Exception occurs");

}

catch(ArrayIndexOutOfBoundsException e)

{

System.***out***.println("ArrayIndexOutOfBounds Exception occurs");

}

catch(Exception e)

{

System.***out***.println("Parent Exception occurs");

}

}

}

Q.17 WAP to create one thread by implementing Runnable interface in Class.

Ans.

package assignment;

class Main implements Runnable{

*@Override*

public void run() {

// **TODO** Auto-generated method stub

System.***out***.println("Thread running");

}

}

public class Q\_17 {

public static void main(String[] args) {

Main m = new Main();

Thread t = new Thread(m);

t.start();

System.***out***.println("Main Thread finished");

}

}

Q.18 WAP to create one thread by extending Thread class in another Class.

Ans.

package assignment;

class sharma extends Thread{

public void run() {

System.***out***.println(" hello Thread ");

}

}

public class Q\_18 {

public static void main(String[] args) {

sharma s = new sharma();

s.start();

}

}

Q.19 WAP to iterate through all elements in an array list.

Ans.

package assignment;

import java.util.ArrayList;

import java.util.Iterator;

import java.util.List;

public class Q\_19 {

public static void main(String[] args) {

List<String> color = new ArrayList<String>();

color.add("Green");

color.add("Maroon");

color.add("Black");

color.add("White");

color.add("Blue");

System.***out***.println(color);

Iterator<String> itr = color.iterator();

while(itr.hasNext() ) {

System.***out***.println(itr.next());

}

}

}

Q.20 WAP to update specific array element by given element.

Ans.

package assignment;

public class Q\_20 {

public static void main(String[] args) {

int a[] = {10,20,3,40,5,60};

for(int i=0;i<a.length;i++) {

System.***out***.println(a[i]);

}

int indexToupdate = 2;

int newValue = 45;

if (indexToupdate >= 0 && indexToupdate < a.length) {

a[indexToupdate] = newValue;

System.***out***.println("Array after updating element:");

for (int num : a) {

System.***out***.print(num + " ");

}

} else {

System.***out***.println("Invalid index.");

}

}

}

Q.21 WAP to remove the third element from a array list.

Ans.

package assignment;

import java.util.ArrayList;

import java.util.Iterator;

import java.util.List;

public class Q\_21 {

public static void main(String[] args) {

List<String> color = new ArrayList<String>();

color.add("Green");

color.add("Maroon");

color.add("Black");

color.add("Orange");

color.add("Brown");

color.add("White");

color.add("Blue");

System.***out***.println(color);

color.remove(3);

Iterator<String> itr = color.iterator();

while(itr.hasNext() ) {

System.***out***.println(itr.next());

}

}

}

Q.22 WAP to Copy one array into another

Ans.

package assignment;

public class Q\_22 {

public static void main(String[] args) {

int a1[] = {23,12,1997,20,11,2000};

int a2[] = new int [a1.length];

for(int i=0;i<a1.length;i++) {

a2[i]=a1[i];

}

System.***out***.println("Elements of a1 : " );

for (int i=0;i<a1.length;i++) {

System.***out***.println(a1[i]+ " ");

}

System.***out***.println();

System.***out***.println("Elements of a2 : ");

for(int i=0;i<a2.length;i++) {

System.***out***.println(a2[i]+" ");

}

}

}

Q.23 WAP to reverse an array of integer values.

Ans.

package assignment;

public class Q\_23 {

public static void main(String[] args) {

int [] a = new int [] {1, 2, 3, 4, 5, 6, 7};

System.***out***.println(" a: ");

for (int i = 0; i < a.length; i++) {

System.***out***.print(a[i] + " ");

}

System.***out***.println();

System.***out***.println(" reverse a : ");

for (int i = a.length-1; i >= 0; i--) {

System.***out***.print(a[i] + " ");

}

}

}

Q.24 WAP to find the second largest element in an array.

Ans.

package assignment;

import java.util.Arrays;

public class Q\_24 {

public static void main(String[] args) {

int ab[] = {10,24,53,26,98,41,78};

int size = ab.length;

for(int i=0;i<ab.length;i++) {

System.***out***.println(ab[i]);

}

Arrays.*sort*(ab);

System.***out***.println("sorted ab : "+ Arrays.*toString*(ab));

int secondlargest = ab[size-2];

System.***out***.println("second largetst number is : "+ secondlargest);

}

}

Q.25 W.A.J.P. Create an abstract class 'Parent' with a method 'message'. It has two subclasses each having a method with the same name 'message' that prints "This is first subclass" and "This is second subclass" respectively. Call the methods 'message' by creating an object for each subclass.

Ans.

package assignment;

abstract class parent{

abstract void message();

}

class firstsubclass extends parent{

*@Override*

void message() {

// **TODO** Auto-generated method stub

System.***out***.println("This is first subclass");

}

}

class secondsubclass extends parent{

*@Override*

void message() {

// **TODO** Auto-generated method stub

System.***out***.println("This is second subclass");

}

}

public class Q\_25 {

public static void main(String[] args) {

firstsubclass f1 = new firstsubclass();

secondsubclass s1 = new secondsubclass();

f1.message();

s1.message();

}

}

Q.26 W.A.J.P. which will ask the user to enter his/her marks (out of 100). Define a method that will display grades according to the marks entered as below:

Marks Grade

91-100 AA

81-90 AB

71-80 BB

61-70 BC

51-60 CD

41-50 DD

<=40 Fail

Ans.

package assignment;

import java.util.Scanner;

public class Q\_26 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.***in***);

System.***out***.println("Enter marks : " );

int marks = sc.nextInt();

if (marks >=91 && marks <=100) {

System.***out***.println("AA");

}

else if (marks >=81 && marks <= 90) {

System.***out***.println("AB");

}

else if (marks >=71 && marks <=80) {

System.***out***.println("BB");

}

else if (marks >=61 && marks <= 70) {

System.***out***.println("BC");

}

else if (marks >=51 && marks <= 60) {

System.***out***.println("CD");

}

else if (marks >=41 && marks <= 50) {

System.***out***.println("DD");

}

else if (marks <=40 ) {

System.***out***.println("Fail");

}

else {

System.***out***.println("Invalid input");

}

}

}