**Basics of Java Day – 01**

**1. Write a program that takes a number from the user between 1 to 12 and displays the name of the month.**

**1)** import java.util.Scanner;

class MonthName {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter a number b/w 1 to 12 - ");

int number = sc.nextInt();

String month;

switch(number) {

case 1: month="January"; break;

case 2: month="February"; break;

case 3: month="March"; break;

case 4: month="April"; break;

case 5: month="May"; break;

case 6: month="June"; break;

case 7: month="July"; break;

case 8: month="August"; break;

case 9: month="September"; break;

case 10: month="October"; break;

case 11: month="November"; break;

case 12: month="December"; break;

default: month="Invalid Input"; break;

}

System.out.println("Month is - "+ month);

}

}

**2) Write a program to display calculated result of two numbers based on the mathematical operator entered.**

import java.util.Scanner;

class Calculator{

public static void main(String[] args){

Scanner sc = new Scanner(System.in);

System.out.println("Enter N1:");

int n1=sc.nextInt();

System.out.println("Enter N2:");

int n2=sc.nextInt();

System.out.println(“Enter Operation:”);

char operator=sc.next().charAt(0);

int result=0;

if(operator=='+'){

result = n1+n2; }

else if(operator=='-'){

result = n1-n2; }

else if(operator=='\*'){

result = n1\*n2; }

else if(operator=='/'){

result = n1/n2; }

else {

System.out.println("Invalid Operator");

}

System.out.println("Result is " +result);

}

}

**3). Write a Program to check the grade based on marks obtained by students.**

**For Example:**

**Percentage >= 60% : Grade A.**

**Percentage >= 45% : Grade B.**

**Percentage >= 35% : Grade C.**

**Percentage < 35% : Fail.**

import java.util.\*;

class GradeCalculate {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter Percentage:");

int p=sc.nextInt();

String Grade;

if(p>100 || p<0){

Grade="Percentage should be b/w 0 to 100";

}

else if(p>=60){

Grade=" A ";

}

else if(p>=45){

Grade=" B ";

}

else if(p>=35){

Grade=" C ";

}

else{

Grade="Fail";

}

System.out.println("Grade is "+Grade);

}

}

**4) Write a program to add two complex numbers.**

import java.util.\*;

class AddComplexNo {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter a R1:");

float r1=sc.nextFloat();

System.out.println("Enter a I1:");

float i1=sc.nextFloat();

System.out.println("Enter a R2:");

float r2=sc.nextFloat();

System.out.println("Enter a I2:");

float i2=sc.nextFloat();

float RealSum = r1+r2;

float ImgSum = i1+i2;

if(ImgSum >= 0){

System.out.println("The sum is "+RealSum+" + "+ImgSum+"i");

}

else{

System.out.println("The sum is "+RealSum+" - "+(-ImgSum)+"i");

}

}

}

**5) Write a program to check if a given integer is Odd or Even.**

import java.util.\*;

class OddEven {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

String result;

if(n%2==0){

result="Even";

}

else{

result="Odd";

}

System.out.println("Number entered is "+result);

}

}

**6) Write a program to find the largest of three numbers.**

import java.util.\*;

class Largest {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter a N1:");

int n1=sc.nextInt();

System.out.println("Enter a N2:");

int n2=sc.nextInt();

System.out.println("Enter a N3:");

int n3=sc.nextInt();

int result;

if(n1>n2 && n1>n3){

result=n1;

}

else if(n2>n3){

result=n2;

}

else{

result=n3;

}

System.out.println("Largest Number is "+result);

}

}

**7. Write a program to find LCM of two numbers**

import java.util.\*;

class CalculateLCM {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter N1:");

int a=sc.nextInt();

System.out.println("Enter N2:");

int b=sc.nextInt();

int n1=a, n2=b;

while(n2 != 0){

int x=n2;

n2=n1%n2;

n1=x;

}

int gcd=n1;

int lcm=(a\*b)/gcd;

System.out.println("The LCM is "+lcm);

}

}

**8. Write a program to find GCD or HCF of two numbers.**

import java.util.\*;

class CalculateGCD {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter A:");

int a=sc.nextInt();

System.out.println("Enter B:");

int b=sc.nextInt();

int n1=a, n2=b;

while(n2 != 0){

int x=n2;

n2=n1%n2;

n1=x;

}

int gcd=n1;

System.out.println("The GCD is "+gcd);

}

}

**9. Write a program to find all the prime numbers from 1 to N.**

import java.util.\*;

class PrimeNumbers {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter the N value:");

int n=sc.nextInt();

System.out.println("The Prime numbers are:");

for(int i=2;i<=n;i++){

boolean check=true;

for(int j=2;j<=Math.sqrt(i);j++){

if(i%j==0){

check=false;

break;

}

}

if(check){

System.out.println(i);

}

}

}

}

**10. Write a program to find whether a given year is a Leap Year or not.**

import java.util.\*;

class CheckLeapYear {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter the Year:");

int year=sc.nextInt();

if((year%4==0 && year%100!=0) || (year%400==0)){

System.out.println("This is a leap year");

}

else{

System.out.println("This is not a leap year");

}

}

}

**11. Write a program to check whether a character is Vowel or Consonant.**

import java.util.\*;

class Checker {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter a character:");

char ch=sc.next().charAt(0);

String result;

if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u'){

result="Vowel";

}

else{

result="Consonant";

}

System.out.println("Character is "+result);

}

}

**12. Write a program to calculate simple interest**

import java.util.\*;

class CalculateSI {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter principal amount:");

int p=sc.nextInt();

System.out.println("Enter interest rate:");

float r=sc.nextFloat();

System.out.println("Enter time:");

int t=sc.nextInt();

if(p>0 && r>0 && t>0){

float SI=(p\*r\*t)/100;

System.out.println("Simple Interest is "+SI);

}

else {

System.out.println(“One of the entered values is Invalid”);

}

}

}

**13. Write a program to calculate compound interest.**

import java.util.\*;

class CalculateCI {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter principal amount:");

int p=sc.nextInt();

System.out.println("Enter interest rate:");

float r=sc.nextFloat();

System.out.println("Enter time:");

int t=sc.nextInt();

System.out.println("Enter no. of times interest is compounded:");

int n=sc.nextInt();

double CI=p\*Math.pow((1+r/100),(n\*t))-p;

System.out.println("Compound Interest is "+CI);

}

}

**14. Write a program to find the perimeter of a Rectangle.**

import java.util.\*;

class Perimeter {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter length:");

int l=sc.nextInt();

System.out.println("Enter breadth:");

int b=sc.nextInt();

int perimeter=2\*(l+b);

System.out.println("Perimeter is "+perimeter);

}

}

**15. Write a program that prompts the user to input an integer and then outputs the number with the**

**digits reversed.**

import java.util.\*;

class ReverseNumber {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

int reverse=0;

while(n != 0){

int d=n%10;

reverse=reverse\*10+d;

n = n/10;

}

System.out.println("Reversed number is "+reverse);

}

}

**16. Write a program to accept two numbers and find the power of each (Do not use Java built-in**

**method)**

import java.util.\*;

class Exponent {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

System.out.println("Enter a Exponent:");

int e=sc.nextInt();

int result=1;

while(e != 0){

result=result\*n;

e--;

}

System.out.println("Result is "+result);

}

}

**17. Write a program to check Armstrong number between two integers.**

import java.util.\*;

class CheckArmstrong {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter the a:");

int a=sc.nextInt();

System.out.println("Enter the b:");

int b=sc.nextInt();

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

int x=i;

int sum=0;

int digits=String.valueOf(i).length();

while(x != 0){

int digit=x%10;

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

x = x/10;

}

if(sum==i){

System.out.println("The Armstrong number is "+i);

}

}

}

}

**18. Write a program to check if a number is Neon Number or Not.**

**(Note: A neon number is a number where the sum of digits of the square of the number**

**is equal to the number)**

import java.util.\*;

class CheckNeonNumber {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

int square=n\*n, sum=0;

while(square > 0){

sum += square%10;

square /= 10;

}

if(sum==n){

System.out.println("The Number is neon");

}

else{

System.out.println("The Number is not neon");

}

}

}

**19. Write a program to find the factorial of a given number.**

import java.util.\*;

class CalculateFactorial {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

int result=1;

if(n>0){

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

result \*= i;

}

System.out.println("The factorial of "+n+" is "+result);

}

else {

System.out.println(“Invalid Input”);

}

}

}

**20. Write a program to find the sum of Fibonacci Series numbers of first N even indexes.**

import java.util.\*;

class CalculateSum {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

int sum=0, a=0, b=1, i=0;

for(int j=0;j<n;j++){

int f=a;

a=b;

b=f+b;

if(i%2==0){

sum += f;

}

i++;

}

System.out.println(“Sum is ”+sum);

}}

**21. Write a program to print right triangle star pattern.**

import java.util.\*;

class RightTriangle {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

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

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

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

}

System.out.println();

}

}

}

**22. Write a program to print reverse pyramid star patter**

import java.util.\*;

class ReversePyramid {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

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

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

System.out.print(" ");

}

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

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

}

System.out.println();

}

}

}

**23. Write a program to print upper star triangle pattern.**

import java.util.\*;

class UpperStarTriangle {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int n = sc.nextInt();

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

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

System.out.print(" ");

}

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

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

}

System.out.println("");

}

}

}

**24. Write a program to print diamond shape star pattern.**

**import java.util.\*;**

Class DiamondPattern {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

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

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

System.out.print(" ");

}

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

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

}

System.out.println();

}

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

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

System.out.print(" ");

}

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

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

}

System.out.println();

}

}

}

**25. Write a program to print square star pattern.**

import java.util.\*;

class SquarePattern {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

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

for(int j=0;j<n;j++){

if(i==0 || i==n-1 || j==0 || j==n-1 ){

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

}

else{

System.out.print(" ");

}

}

System.out.println();

}

}

}