BASIC OF JAVA

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

A) **package** org.mphasis.exercise;

**import** java.util.Scanner;

**public** **class** Month {

**public** **static** **void** main(String[] args) {

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

System.out.println("Please Enter The Number : ");

**int** a = sc.nextInt();

**switch** (a) {

**case** 1: System.out.println("January");

**break**;

**case** 2: System.out.println("February");

**break**;

**case** 3: System.out.println("March");

**break**;

**case** 4: System.out.println("April");

**break**;

**case** 5: System.out.println("May");

**break**;

**case** 6: System.out.println("June");

**break**;

**case** 7: System.out.println("June");

**break**;

**case** 8: System.out.println("July");

**break**;

**case** 9: System.out.println("August");

**break**;

**case** 10: System.out.println("September");

**break**;

**case** 11: System.out.println("October");

**break**;

**case** 12: System.out.println("November");

**break**;

**default**:

System.out.println("Sorry Invalid Data Entry");

}

}

}

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

**package** PracticeExercise;

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

**public** **class** MathamaticalOperation {

**static** **void** result(**int** n1, **int** n2, **char** ch) {

**if** (ch == '+')

System.***out***.println("The Sum is " + (n1 + n2));

**else** **if** (ch == '-')

System.***out***.println("The Difference is " + (n1 - n2));

**else** **if** (ch == '\*')

System.***out***.println("The Multiplication is " + (n1 \* n2));

**else** **if** (ch == '/')

System.***out***.println("The Division is " + (n1 % n2));

**else** **if** (ch == '%')

System.***out***.println("The Division is " + (n1 % n2));

**else**

System.***out***.println(" InValid Operator");

}

**public** **static** **void** main(String[] args) {

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

System.***out***.println("Enter First Number");

**int** n1 = sc.nextInt();

System.***out***.println("Enter Second Number");

**int** n2 = sc.nextInt();

System.***out***.println("Enter Mathamatical Operator");

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

*result*(n1, n2, ch);

}

}

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

**package** PracticeExercise;

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

**public** **class** Grade {

**static** **void** result(**int** percentage) {

**if** (percentage >= 60 && percentage <= 100 )

System.***out***.println("A Grade");

**else** **if** (percentage >= 45 && percentage < 60 )

System.***out***.println("B Grade");

**else** **if** (percentage >= 35 && percentage < 45 )

System.***out***.println("C Grade");

**else** **if** (percentage >= 0 && percentage < 35 )

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

**else**

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

}

**public** **static** **void** main(String[] args) {

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

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

**int** percentage = sc.nextInt();

*result*(percentage);

}

}

4. Write a program to add two complex numbers.

**package** org.software.com;

**import** java.util.Scanner;

**public** **class** Complex {

**public** **static** **void** main(String[] args) {

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

System.***out***.println("Enter First Real number");

**double** a=sc.nextDouble();

System.***out***.println("Enter First imaginary number");

**double** b=sc.nextDouble();

System.***out***.println("Enter Second Real number");

**double** c=sc.nextDouble();

System.***out***.println("Enter Second imaginary number");

**double** d=sc.nextDouble();

**double** real=a+c;

**double** imaginary=b+d;

**if**(imaginary>=0)

System.***out***.println(real+"+"+imaginary+"i");

**else**

System.***out***.println(real+""+imaginary+"i");

}

}

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

package org.mphasis.practice;

import java.util.Scanner;

public class OddEven {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

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

        int number = sc.nextInt();

        if (number % 2 == 0) {

            System.out.println(number + " is even.");

        } else {

            System.out.println(number + " is odd.");

        }

    }

}

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

package org.mphasis.exercise;

import java.util.Scanner;

public class LagestOfThree {

    private static void toLagestOfThree(int a,int b,int c) {

                     if(a>b && a>c)

                         System.out.println(a+ " ");

                     else if(b>a && b>c)

                         System.out.println(b+ " ");

                     else  if(c>b && c>a)

                         System.out.println(c+ " ");

                     else

                         System.out.println("Sorry");

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Please Enter The Number : ");

        int a = sc.nextInt();

        int b = sc.nextInt();

        int c = sc.nextInt();

        toLagestOfThree(a,b,c);

    }

}

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

package org.mphasis.practice;

import java.util.Scanner;

public class LCM {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

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

        int a = sc.nextInt();

        System.out.println("Enter Second Number :");

        int b = sc.nextInt();

        int ans=(a>b)? a:b;

        while(true) {

            if(ans %a==0 &&  ans%b==0)

                break;

            ans++;

        }

        System.out.println("LCM of  "+a+"  and  "+b+"  is :  "+ans);

    }

}

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

**package** org.software.com;

**import** java.io.\*;

**public class** HCMorGCD {

**public** **static** **int** gcd(**int** a, **int** b) {

**while** (b != 0) {

**int** temp = b;

b = a % b;

a = temp;

}

**return** a;

}

**public** **static** **void** main(String[] args) {

**int** a = 15, b = 25;

**int** gcd = *gcd*(a, b);

System.***out***.println("GCD of " + a + " and " + b + " is: " + gcd);

}

}

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

**package** SecondTest;

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

**public** **class** PrimeNumbers {

**private** **static** **void** primeNumbers(**int** range) {

**for** (**int** i = 2; i <= range; i++) {

**if** (*isPrime*(i))

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

}

}

**static** **boolean** isPrime(**int** num) {

**for** (**int** i = 2; i <= num / 2; i++) {

**if** (num % i == 0)

**return** **false**;

}

**return** **true**;

}

**public** **static** **void** main(String[] args) {

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

System.***out***.println("Enter Range");

**int** range = sc.nextInt();

*primeNumbers*(range);

}

}

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

**package** org.software.com;

**import** java.util.Scanner;

**public** **class** LeapYearOrNot {

**public** **static** **boolean** isLeapYearOrNot(**int** year) {

**return** (year % 4 == 0 && (year % 100 != 0 || year % 400 == 0));

}

**public** **static** **void** main(String[] args) {

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

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

**int** year = sc.nextInt();

**if** (*isLeapYearOrNot*(year)) {

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

} **else** {

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

}

}

}

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

**package** org.software.com;

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

**public** **class** VowelsAndConsonants {

**static** String isVowel(**char** c) {

**if** (c=='a' ||c=='e' ||c=='i' ||c=='o' ||c=='u' ||c=='A' ||c=='E' ||c=='I' ||c=='O' ||c=='U' )

**return** "Vowel";

**else**

**return** "Consonant";

}

**public** **static** **void** main(String[] args) {

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

System.***out***.println("Enter Character");

**char** c = sc.next().charAt(0);

System.***out***.println(c +" is "+*isVowel*(c));

}

}

12. Write a program to calculate simple interest.

**package** org.software.com;

**import** java.util.Scanner;

**public** **class** SimpleIntrest {

**public** **static** **void** main(String[] args) {

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

System.***out***.println("Please Enter Price : ");

**int** price = sc.nextInt();

System.***out***.println("Please Enter Rate Of Intest in Percent : ");

**float** interest = sc.nextFloat();

System.***out***.println("Please Enter Time Duration in Years : ");

**int** time = sc.nextInt();

**float** si =(price\*interest\*time)/100;

System.***out***.println(" The Simple Interest is : " +si);

}

}

13. Write a program to calculate compound interest.

**package** org.software.com;

**import** java.util.Scanner;

**public** **class** CompoundInterest {

**public** **static** **double** isCompoundInterest(**double** principal, **double** rate, **double** time) {

**int** n = 12;

**double** amount = principal;

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

amount \*= (1 + rate / (100 \* n));

}

**double** compound = amount - principal;

**return** compound;

}

**public** **static** **void** main(String[] args) {

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

System.***out***.print("Enter Principal Amount (P): ");

**double** principal = sc.nextDouble();

System.***out***.print("Enter Annual Interest Rate (R): ");

**double** rate = sc.nextDouble();

System.***out***.print("Enter Time Period in Years (T): ");

**double** time = sc.nextDouble();

**double** CI = *isCompoundInterest*(principal, rate, time);

System.***out***.println("Principal Amount : " + principal);

System.***out***.println("Annual Interest Rate: " + rate);

System.***out***.println("Time Period in Years : " + time);

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

}

}

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

package org.mphasis.practice;

import java.util.Scanner;

public class PerimeterOfRectAngle {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Please Enter The Length of Rectangle : ");

        int length = sc.nextInt();

        System.out.println("Please Enter The Length of Rectangle : ");

        int breadth = sc.nextInt();

        int perimeter = 2 \* (length + breadth);

        System.out.println(" The Perimeter of a Rectangle is : " + perimeter);

    }

}

Iterating with Loops

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

package org.mphasis.exercise;

import java.util.Scanner;

public class ReverseIntegers {

    private static void toReverse(int a) {

        int num=0;

            while(a>0) {

                 int last=a%10;

                 num=num\*10+last;

                 a=a/10;

            }

            System.out.println(num);

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Please Enter The Number : ");

        int a = sc.nextInt();

        toReverse(a);

    }

}

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

package org.mphasis.exercise;

import java.util.Scanner;

public class FindPower {

    private static int toPower(int number, int power) {

        int pow = number;

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

            pow = pow \* number;

        }

        return pow;

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Please Enter The Number : ");

        int number = sc.nextInt();

        System.out.println("Please Enter The Power : ");

        int power = sc.nextInt();

        System.out.println(toPower(number, power));

    }

}

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

package org.mphasis.exercise;

import java.util.Scanner;

public class ArmstrongOrNot {

    private static int toArmstrongOrNot(int number) {

        int pow = toCount(number);

        int sum=0;

        while(number!=0) {

            int last=number%10;

            int val=last;

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

                val=val\*last;

            }

            sum=sum+val;

            number=number/10;

        }

        return sum;

    }

    private static int toCount(int num) {

        int count = 0;

        while (num > 0) {

            count++;

            num = num / 10;

        }

        return count ;

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Please Enter The Number : ");

        int a = sc.nextInt();

        if(toArmstrongOrNot(a)==a)

            System.out.println(a+" is a ArmStrong Number");

        else

            System.out.println(a+" is Not a ArmStrong Number");

    }

}

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

package org.mphasis.exercise;

import java.util.Scanner;

public class NeonNumber {

    private static int toNeon(int number ) {

        int num=number\*number;

        int sum=0;

        while(num>0) {

            int last=num%10;

            sum=sum+last;

            num=num/10;

        }

        return sum;

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Please Enter The Number : ");

        int number = sc.nextInt();

        if(toNeon(number)==number)

            System.out.println("Neon Number");

        else

            System.out.println("Not a Neon Number");

    }

}

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

package org.mphasis.exercise;

import java.util.Scanner;

public class Factorial {

    private static int  toFactorial(int a) {

        int fac = 1;

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

            fac = fac \* i;

        }

        return fac;

    }

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Please Enter The Number : ");

        int a = sc.nextInt();

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

    }

}

20. Write a program to find the sum of Fibonacci Series numbers of first N even indexes.**package** org.software.com;

**import** java.util.Scanner;

**public** **class** FibonacciSum {

**public** **static** **void** main(String[] args) {

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

System.***out***.println("Enter The Number");

**int** number = sc.nextInt();

**int** n1 = 0, n2 = 1, num = number, count = 2, sum = 0;

**while** (**true**) {

**int** n3 = n1 + n2;

**if** (count % 2 == 0) {

sum = sum + n3;

number--;

}

count++;

n1 = n2;

n2 = n3;

**if** (number == 0)

**break**;

}

**if** (num == 0)

System.***out***.println("the Sum of Even Numbers are : " + 0);

**else** **if** (num == 1)

System.***out***.println("the Sum of Even Numbers are : " + 1);

**else**

System.***out***.println("the Sum of Even Numbers are : " + sum);

}

}

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

package org.software.com;

import java.util.Iterator;

import java.util.Scanner;

public class TrianglePattern {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Please Enter The Number : ");

int rows = sc.nextInt();

toPrint(rows);

}

private static void toPrint(int rows) {

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

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

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

}

System.out.println();

}

}

}

22. Write a program to print reverse pyramid star pattern

package org.mphasis.exercise;

import java.util.Iterator;

import java.util.Scanner;

public class PyramidStar {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Please Enter The Number : ");

        int rows = sc.nextInt();

        toPrint(rows);

    }

    private static void toPrint(int rows) {

        int space = 0;

        int col = rows \* 2 - 1;

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

            for (int k = 1; k <= space; k++) {

                System.out.print("    ");

            }

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

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

            }

            col = col - 2;

            space++;

            System.out.println();

        }

    }

}

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

package org.mphasis.exercise;

import java.util.Iterator;

import java.util.Scanner;

public class LeftTriangle {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Please Enter The Number : ");

        int rows = sc.nextInt();

        toPrint(rows);

    }

    private static void toPrint(int rows) {

        int space = rows-1;

        int star=1;

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

            for (int k = 0; k < space; k++) {

                System.out.print("   ");

            }

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

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

            }

            star++;

            space--;

            System.out.println();

        }

    }

}

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

**package** org.software.com;

**import** java.util.Scanner;

**public** **class** DiamondShape {

**public** **static** **void** main(String[] args) {

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

System.***out***.println("Please Enter The Number of Rows: ");

**int** rows = sc.nextInt();

*toPrint*(rows);

}

**private** **static** **void** toPrint(**int** rows) {

**int** space = rows - 1;

**int** col = 1;

// Top half of the diamond

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

**for** (**int** k = 1; k <= space; k++) {

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

}

**for** (**int** j = 1; j <= col; j++) {

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

}

col += 2;

space--;

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

}

// Bottom half of the diamond

space = 1;

col = rows \* 2 - 3;

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

**for** (**int** k = 1; k <= space; k++) {

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

}

**for** (**int** j = 1; j <= col; j++) {

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

}

col -= 2;

space++;

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

}

}

}

25. Write a program to print square star pattern.

package org.mphasis.exercise;

import java.util.Scanner;

public class SquarePattern {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Please Enter The Number : ");

        int rows = sc.nextInt();

        toPrint(rows);

    }

    private static void toPrint(int rows) {

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

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

                if(i==1 || j==1||j==rows||i==rows)

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

            else

                System.out.print("   ");

            }

            System.out.println();

        }

        }

    }