

Program 1 : Sum of prime numbers in range

```
class MOverload {
    void print(int n) {
        int sum = 0;
        for (int i=0; i<n; i++) {
            sum += i;
        }
        System.out.println("sum=" + sum);
    }

    void print(int m, int n) {
        System.out.println("prime nos in the range are:");
        for (int i=m; i<=n; i++) {
            int flag = 0;
            for (int j=2; j<i/2; j++) {
                if (i%j == 0) {
                    flag = 1;
                    break;
                }
            }
            if (flag == 0)
                System.out.println(i);
        }
    }
}
```

```
class Run {
    public static void main (String a[])
    {
        Moreloading obj = new Moreloading ();
        obj.print(5);
        obj.print(1,7);
    }
}
```

## PROGRAM 2:

```
class Grocery {
    string c_name;
    string c_phone;
    int total;
    Grocery (String Name, String Ph_Number)
    {
        c_name = Name;
        c_phone = Ph_Number;
    }
    void total (int dal, int pulses, int sugar)
    {
        Total = dal * 100 + pulses * 80 + sugar * 50;
    }
    void display ()
    {
        System.out.print ("Name = " + c_name + "\nPhone - no."
                        + c_phone + "\nTotal - amount = "
                        + Total);
    }
}
```

```

class Run {
    public static void main (String ac[])
    {
        Grocery g1 = new Grocery ("Rama", "8861011554");
        Grocery g2 = new Grocery ("Sam", "9845152317");
        Grocery g3 = new Grocery ("Tam", "9845152384");
        g1.total (1,2,3);
        g1.display ();
        g2.total (2,3,4);
        g2.display ();
        g3.total (3,4,5);
        g3.display ();
    }
}

```

### OUTPUT

Name = Rama  
 Phone-number = 8861011554  
 Total\_amount = 410

Name = Sam  
 Phone-number = 9845152384  
 Total\_amount = 640

Name = Tam  
 Phone-number = 9845152317  
 Total\_amount = 870

### PROGRAM 3

```
import java.util.Scanner;  
class Quad {  
    int a, b, c;  
    double root1, root2, d;  
    Scanner s = new Scanner (System.in);  
  
    void input ()  
    {  
        System.out.println ("Quadratic eqn : ax^2 + bx + c");  
        System.out.print ("Enter a : ");  
        a = s.nextInt ();  
        System.out.print ("Enter b : ");  
        b = s.nextInt ();  
        System.out.print ("Enter c : ");  
        c = s.nextInt ();  
    }  
  
    void discriminant () {  
        d = (b * b) - (4 * a * c);  
    }  
  
    void calculate Roots () {  
        if (d > 0)  
        {  
            System.out.println ("Roots are Real and unequal");  
            root1 = (-b + Math.sqrt(d)) / (2 * a);  
            root2 = (-b - Math.sqrt(d)) / (2 * a);  
            System.out.println ("First Root is : " + root1);  
            System.out.println ("2nd Root is : " + root2);  
        }  
    }  
}
```

```
    }  
    else if (d == 0)  
    {  
        System.out.print("Roots are real & equal");  
        root1 = (-b + Math.sqrt(d)) / (2 * a);  
    }  
    else
```

```
{  
    double real = -b / (2 * a);  
    double imaginary = Math.sqrt(d) / (2 * a);  
}
```

```
class Main {
```

```
    public static void main (String a[]) {
```

```
        Quad q = new Quad();
```

```
        q.input();
```

```
        q.discriminant();
```

```
        q.calculate();
```

```
}
```

```
}
```

Sele  
22/12/23

Program 1: Create a class Book that contains 4 members name, author, price and num\_pages. Include a constructor to set the values for the members. Include methods to set and get the details of the objects. Include a method that could display the complete details of book. Develop a java program to create n book objects.

~~#~~: class Books

```
{  
    String name;  
    String author;  
    int price;  
    int num_pages;  
    Books () { }  
}
```

Books (String name, String author, int price, int num\_pages)

```
{  
    this.name = name;
```

```
    this.author = author;
```

```
    this.price = price;
```

```
    this.num_pages = num_pages;
```

```
}
```

public String toString ()

```
{  
    String name, author, price, num_pages,
```

```
    name = "Book name:" + this.name + "\n";
```

```
    author = "Author name:" + this.author + "\n";
```

```
    price = "Price:" + this.price + "\n";
```

```
    num_pages = "no. of pages:" + this.num_pages + "\n";
```

```
    return name + author + price + num_pages ;
```

```
3  
{  
class Main  
{  
public static void main (String args[])  
{  
Scanner s = new Scanner (System.in);  
int n;  
String name;  
String author;  
int price;  
int num_pages;  
System.out.print ("Enter the no. of books: ");  
n = s.nextInt();  
Books b[];  
b = new Books [n];  
for (int i=0; i<n; i++)  
{  
System.out.print ("Book "+(i+1)+": ");  
System.out.print ("Enter name of book: ");  
name = s.next();  
System.out.print ("Enter author: ");  
author = s.next();  
System.out.print ("Enter price");  
price = s.nextInt();  
System.out.print ("Enter no. of pages");  
num_pages = s.nextInt();  
b[i] = new Books (name, author, price, num_pages);  
}  
}
```

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

```
    System.out.print ("Book : " + (i+1) + ": " + b[i]);
```

```
}
```

```
}
```

## OUTPUT

Enter the number of books : 1

Book 1

Enter the name of the book : Silent Patient

Enter the author of the book : Alex Michaelides

Enter the price of the book : 1000

Enter no. of pages of the book : 560

## Program 2: Marks of student

```
2: class Student {
```

```
    int n;
```

```
    string USN;
```

```
    String Name;
```

```
    String stud[] = new String [n];
```

```
    double marks[] = new double [6];
```

```
    void input () {
```

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

```
        System.out.println ("Enter USN: ");
```

```
        USN = sc.nextLine();
```

```
        System.out.println ("Enter name ");
```

```
        Name = sc.nextLine();
```

```
        System.out.println ("Enter marks of 6 subjects out of 100: ");
```

~~```
        for (int i=0; i<6; i++) {
```~~~~```
            marks[i] = sc.nextInt();
```~~~~```
        }
```~~~~```
}
```~~

```
    double percentage () {
```

```
        double per, sum = 0;
```

```
        int i;
```

```
        for (i=0; i<6; i++) {
```

```
            sum = sum + marks[i];
```

```
        }
```

```
        per = (sum / 600) * 100;
```

```
        System.out.println (sum);
```

return per;

{

}

~~void input()~~ {

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

~~System.out.print("Enter USN");~~

~~USN:~~

Class Run {

public static void main( String [] args) {

int n;

System.out.print("Enter no. of students : ");

Scanner sc = new Scanner (System.in);

n = sc.nextInt();

Student s[] = new Student [n];

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

Student si = new Student ();

si.input();

double x = si.percentage();

System.out.print("The percentage of " + si.name + " with USN " + si.USN + " is : " + x);

}

}

}

### OUTPUT :

Enter no. of students : 1

Name : Varsha

USN : 1BM22CS321

Enter marks : 100 100 100 100 100 100

The percentage of varsha with 1BM22CS321 is : 100%

19/01/24

Program 1 : Area

```
abstract class Shape {  
    double a, double b;  
    shape (double l, double k)  
    {  
        a = l;  
        b = k;  
    }  
}
```

```
shape (double a)  
{  
    a = a;
```

```
}  
abstract void PrintArea();
```

```
class Rectangle extends shape  
{  
    Rectangle (double l, double b)  
    {  
        super (l, b);  
    }  
}
```

```
void PrintArea()  
{  
    double area;  
    area = a * b;  
    System.out.println ("Area of rectangle = " + area);  
}
```

```
Class Triangle extends shape  
{  
    Triangle (double b, double h)  
    {  
        super (b, h);  
    }  
}
```

```
void PrintArea ()  
{  
    double area;  
    area = (l*b)/2;  
    System.out.println ("Area of triangle "+area)  
}  
  
class Circle extends Shape  
{  
    Circle (double r)  
    {  
        Super (r);  
    }  
}  
void PrintArea ()  
{  
    double area;  
    area = 3.14 * a*a;  
    System.out.println ("Area of Circle = "+area);  
}
```

Class Run {  
 Public static void main (String [] args)  
 {  
 Rectangle r = new Rectangle (2,4);  
 Triangle t = new Triangle (2,6);  
 Circle c = new Circle (3);  
 Shape s;  
 s = r;  
 s.printArea();  
 s = t;  
 s.printArea();  
 s = c;  
 s.printArea();  
 }  
}

Output:

area of rectangle = 16

area of triangle = 6

area of circle = 28.26

## Program 2: Bank

```
import java.util.Scanner;  
class Account {  
    String customerName;  
    long accno;  
    String accountType;  
    double balance;  
    public Account (String customerName, long accno, String  
    {  
        this.customerName = customerName;  
        this.accno = accno;  
        this.accountType = accountType;  
        this.balance = 0.0;  
    }  
    public void displayBalance () {  
        System.out.println ("Account Number = " + accno);  
        System.out.println ("Customer Name = " + customerName);  
        System.out.println ("Account Type = " + accountType);  
        System.out.println ("Balance : $" + balance);  
    }  
}  
  
class CurAcct extends Account {  
    double minBalance;  
    double serviceCharge;  
    public CurAcct (String customerName, long accno) {  
        super (customerName, accno, "Current");  
        this.minBalance = 500.0;  
        this.serviceCharge = 50.0;  
    }  
}
```

```
public void withdraw(double amount) {
    if (balance - amount >= minBalance) {
        balance -= amount;
        System.out.println("Withdrawal successful. Current Balance: $" + balance);
    } else {
        System.out.println("Insufficient funds. Withdrawal not allowed");
    }
}

public void imposeServiceCharge() {
    if (balance < minBalance) {
        balance -= serviceCharge;
        System.out.println("Service charge imposed. Current Balance: $" + balance);
    }
}

class SavAcc extends Account {
    double interestRate;

    public SavAcc(String customerName, long accno) {
        super(customerName, accno, "Savings");
        this.interestRate = 0.05;
    }

    public void depositInterest() {
        double interest = balance * interestRate;
        balance += interest;
        System.out.println("Interest deposited. Current Balance: $" + balance);
    }
}
```

```
public void compoundInterest (double initialAmount,  
double compoundInterest = initialAmount + Math.pow ((  
interestRate), term) - initialAmount;  
balance += compoundInterest;  
System.out.println ("Compound interest deposited :  
Balance: Rs " + balance);  
}  
}
```

public class Bank {

```
public static void main (String [] args) {  
Scanner scanner = new Scanner (System.in);  
System.out.println ("Choose account type:");  
System.out.println ("1. Current")  
System.out.print ("2. Savings");  
System.out.println ("Enter choice (1 or 2):");  
int choice = scanner.nextInt();  
System.out.println ("Enter customer name:");  
String customerName = scanner.next();  
System.out.println ("Enter account number");  
long accno = scanner.nextLong();  
if (choice == 1) {  
CurAccount curAccount = new CurAcct (customerName);  
System.out.print ("Enter initial balance: $");  
double initialBalance = scanner.nextDouble();  
curAccount.balance = initialBalance;  
System.out.print ("Enter withdrawal amount: $");  
double withdrawalAmount = scanner.nextDouble();  
curAccount.withdrawal (withdrawalAmount);  
curAccount.imposeServiceCharge ();  
curAccount.displayBalance();  
}
```

```
else if (choice == 2) {  
    SavAcct savAccount = new SavAcct (Customer Name, accno);  
    system.out.print ("Enter initial Balance : $");  
    double initial Balance = scanner.nextDouble();  
    savAccount.balance = initial Balance;  
    system.out.print ("Enter withdrawal amount");  
    double withdrawal Amount = scanner.nextDouble();  
    savAccount.balance = withdrawal Amount;  
    system.out.print ("Withdrawal successful. Current Balance : $  
                      + savAccount.Balance);  
  
    system.out.print ("Enter interest rate");  
    double interest Rate = scanner.nextDouble();  
    savAccount.interest Rate = interest Rate;  
    savAccount.displayBalance();  
    system.out.print ("Enter term (in years) for compound  
                     interest calculation");  
  
    int term = scanner.nextInt();  
    savAccount.compoundInterest (initial Balance, term);  
    savAccount.displayBalance();  
}  
else {  
    system.out.print ("Invalid choice");  
}
```

### OUTPUT:

Choose account type:

1. Savings Current

2. Savings

Enter choice (1 or 2): 1

Enter customer name: Varsha

Enter account number: 0,

Enter initial balance: \$1000

Enter withdrawal amount : \$100  
withdrawal successful.

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16/02/24

1) Package CIE

```
public class Student {  
    public String USN;  
    public String name;  
    public int sem;
```

```
    public Student(String USN, String name, int sem) {
```

```
        this.USN = USN;
```

```
        this.name = name;
```

```
        this.sem = sem;
```

```
}
```

```
public class Internals extends Student {
```

```
    public int[] marks;
```

```
    public Internals(int[] marks) {
```

```
        this.marks = marks;
```

```
}
```

```
{
```

package SEE

```
import CIE.Student
```

public class External extends Student {

```
    public int[] marks;
```

```
    super(USN, name, sem);
```

```
    this.marks = marks;
```

```
}
```

```
import CIE.Student;
```

```
import SEE.Student;
```

```
→
```

```
public class Main {
```

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

```
        Student s1 = new Student ("CS321", "Vaesha", 3);
```

```
        int [] setmarks = {95, 90, 92, 97, 90};
```

```
        External s2 = new External ("CS321", "Varsha", 3);  
        System.out.println("Student 1");
```

```
        System.out.println ("USN: " + s1.usn);
```

```
        System.out.println ("Name: " + s1.name);
```

```
        System.out.println ("Sem: " + s1.sem);
```

```
        System.out.println ("Student 2: ");
```

```
        System.out.println ("USN: " + s2.usn);
```

```
        System.out.println ("Name: " + s2.name);
```

```
        System.out.println ("Sem 2: " + s2.sem);
```

```
}
```

```
}
```

O/P 1:

Student 1

USN: CS321

Name: Vaesha

Sem: 3

Student 2

USN: CS321

Name: Varsha

Sem: 3

O/P 2: Sons age can't be greater than father's

2) class WrongAge extends Exception {  
public WrongAge (String str) {  
super (str);  
}}

O/P:

class Father {  
int fAge;  
public Father (int fAge) throws WrongAge {  
if (fAge < 0) {  
System.out.println ("Invalid age input");  
}  
this.fAge = fAge;  
}}

public Son extends Father {  
int sonAge;  
public Son (int sonAge, int fAge) throws WrongAge {  
super (fAge);  
if (sonAge > fAge) {  
System.out.println ("Sons age can't be greater than fathers age");  
}  
this.sonAge = sonAge;  
}}

public class Main {  
public static void main (String [] args) {  
try {  
Father f = new Father (50);  
Son s = new Son (70, 50);  
catch (WrongAge e) {  
S.O.P (e);  
}}

3). WAP which creates 2 threads

- ① BMS college of engineering every 10 seconds
- ② "CSE" once every 2 seconds

Thread 1 extends Thread

{

public void run()

{

try {

for (i=0; i<10; i++)

{

SOP ("BMS college of Engineering ");

Thread.sleep(10000);

}

} catch (InterruptedException e)

{

SOP ("Exception1occurred ");

}

}

class Thread2 extends Thread {

public void run ()

{

try {

for (i=0; i<10; i++)

{

SOP ("CSE ");

Thread.sleep(2000);

} catch (InterruptedException e)

{

SOP ("Exception2occurred ");

{

}

```
class Main {  
    public static void main (String [] args)  
    {  
        Thread t1 = new Thread1();  
        Thread t2 = new Thread2();  
        t1.start();  
        t2.start();  
    }  
}
```

O/p:  
BMS College of Engineering

CSE

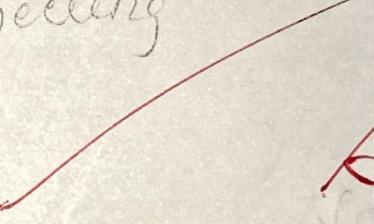
CSE

CSE

CSE

CSE

BMS college of engineering

  
Sneha  
16/2/24

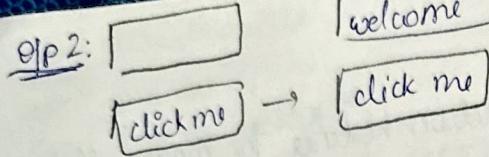
Program 1: Creating label, button and TextField in a Frame using AWT

```
import java.awt.*;
import java.awt.event.*;
public class AWTExample extends WindowAdapter {
    Frame f;
    AWTExample() {
        f = new Frame();
        f.addWindowListener(this);
        Label l = new Label("Employee id:");
        Button b = new Button("Submit");
        TextField t = new TextField();
        l.setBounds(20, 80, 80, 30);
        t.setBounds(20, 100, 80, 30);
        b.setBounds(100, 100, 80, 30);
        f.add(b);
        f.add(l);
        f.add(t);
        f.setSize(400, 300);
        f.setTitle("Employee info");
        f.setLayout(null);
        f.setVisible(true);
    }
    public void windowClosing(WindowEvent e) {
        System.exit(0);
    }
    public static void main(String[] args) {
        AWTExample awt_obj = new AWTExample();
    }
}
```

Employee id  
Submit

Program 2: Create a button and a action listener for mouse click

```
import java.awt.*;
import java.awt.event.*;
public class EventHandling extends WindowAdapter implements ActionListener {
    Frame f;
    JTextField tf;
    EventHandling() {
        f = new Frame();
        f.addWindowListener(this);
        tf = new JTextField();
        tf.setBounds(60, 50, 170, 20);
        Button b = new Button("click me");
        b.setBounds(100, 120, 80, 30);
        b.addActionListener(this);
        f.add(b); f.add(tf);
        f.setSize(300, 300);
        f.setLayout(null);
        f.setVisible(true);
    }
    public void actionPerformed(ActionEvent e) {
        tf.setText("Welcome");
    }
    public void windowClosing(WindowEvent e) {
        System.exit(0);
    }
    public static void main(String args[]) {
        new EventHandling();
    }
}
```



Program 3: 16

```

import java.io.*;
public class ByteArrayInput {
    public static void main (String [] args) throws IOException {
        byte [] buf = {35, 36, 37, 38};
        ByteArrayInputStream byt = new ByteArrayInputStream (buf);
        int k;
        while ((k=byt.read ()) != -1) {
            char ch = (char) k;
            System.out.println ("ASCII value of character " + k + " : special character : " + ch);
        }
    }
}

```

Program 4: 16

```

public class FileEx {
    public static void main (String arg []) throws IOException {
        FileInputStream fin = new FileInputStream ("Example.txt");
        int content;
        System.out.println ("Remaining bytes that can be read : " + fin.available ());
        content = fin.read ();
        System.out.println ("has content : " + content);
        System.out.println ("content : " + content);
    }
}

```

Q1 P3: Remaining bytes that can be read : 1  
 Remaining bytes that can be read : 0  
 Q2 P3: no. of bytes read : 20  
 Byte read : Hello it is good.