

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**  
“JnanaSangama”, Belgaum -590014, Karnataka.



**LAB REPORT**  
**on**

**Object Oriented Java Programming**  
**(23CS3PCOOJ)**

*Submitted by*

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*in partial fulfillment for the award of the degree of*  
**BACHELOR OF ENGINEERING**  
*in*

**B.M.S. COLLEGE OF ENGINEERING**  
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**B.M.S. College of Engineering,  
Bull Temple Road, Bangalore 560019**  
(Affiliated To Visvesvaraya Technological University, Belgaum)  
**Department of Computer Science and Engineering**



**CERTIFICATE**

This is to certify that the Lab work entitled “Object Oriented Java Programming (23CS3PCOOJ)” carried out by **Student Name: Samarth Joshi (1BF24CS267)**, who is bonafide student of **B.M.S. College of Engineering**. It is in partial fulfilment for the award of **Bachelor of Engineering in Computer Science and Engineering** of the Visvesvaraya Technological University, Belgaum. The Lab report has been approved as it satisfies the academic requirements in respect of an Object-Oriented Java Programming (23CS3PCOOJ) work prescribed for the said degree.

Dr. Seema Patil Associate Professor Department of CSE, BMSCE	Dr. Kavitha Sooda Professor & HOD Department of CSE, BMSCE
--	--

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GitHub Link:

[https://github.com/samarth1928/1BF24CS267\\_JAVA](https://github.com/samarth1928/1BF24CS267_JAVA)

Program 1  
**Implement Quadratic Equation**

```
import java.util.Scanner;
import java.lang.Math;
class quadratic{
    public static void main(String args[]){
        int a,b,c;
        double r1,r2;
        Scanner s=new Scanner(System.in);
        System.out.println("Enter values for a,b,c:");
        a=s.nextInt();
        b=s.nextInt();
        c=s.nextInt();
        if(a==0)
        {
            System.out.println("Not a Quadratic Equation");
        }
        int d = b*b-4*a*c;
        if(d==0)
        {
            r1 = r2= (-b)/(2*a);
            System.out.println("Roots are real and equal");
            System.out.println("The roots are:"+r1+"and"+r2);
        }
        else if(d>0){
            r1 = ((-b) + (Math.sqrt(d)))/(double)(2*a);
            r2 = ((-b) - (Math.sqrt(d)))/(double)(2*a);
            System.out.println("The roots are:"+r1+"and"+r2);
        }
        else if(d<0){
            System.out.println("Roots are imaginary");
            r1 = (-b)/(2*a);
            r2 = Math.sqrt(-d)/(2*a);
            System.out.println("The roots are:"+r1+"and"+r2);
        }
        else{
            System.out.println("Invalid");
        }
    }
}
```

```
Enter values for a,b,c:  
1 2 3  
Roots are imaginary  
The roots are:-1.0and1.4142135623730951  
PS C:\Users\Admin\Desktop\Samarth_1BF24CS267> "c:\Users\Admin\Desktop\Samarth_1BF24CS267\" ; if ($?) { javac quadratic.java } ; if (?) { java quadratic }  
c:\Users\Admin\Desktop\Samarth_1BF24CS267\  
Enter values for a,b,c:  
-1 2 3  
The roots are:-1.0and3.0  
PS C:\Users\Admin\Desktop\Samarth_1BF24CS267> "c:\Users\Admin\Desktop\Samarth_1BF24CS267\" ; if ($?) { javac quadratic.java } ; if (?) { java quadratic }  
c:\Users\Admin\Desktop\Samarth_1BF24CS267\  
Enter values for a,b,c:  
1 -4 4  
Roots are real and equal  
The roots are:2.0and2.0  
PS C:\Users\Admin\Desktop\Samarth_1BF24CS267>
```

## ➤ Program 2: Calculating SGPA

```
import java.util.Scanner;

class Student{
    String name;
    String USN;
    int n;
    int credit[];
    int marks[];
    double totalcredits;
    double totalpoints;
    int gradepoints;
    double sgpa;

void accept(){
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter Student Name:");
    name=sc.nextLine();
    System.out.println("Enter Student USN:");
    USN=sc.nextLine();

    System.out.println("Enter number of subject: ");
    n=sc.nextInt();

    credit=new int[n];
    marks=new int[n];

    for (int i=0; i<n; i++){
        System.out.println("Enter subject "+(i+1)+" details");
        System.out.println("Enter marks:");
        marks[i]=sc.nextInt();
        sc.nextLine();
        System.out.println("Enter credits for the subject:");
        credit[i]=sc.nextInt();
        sc.nextLine();
    }
}

void display(){
    System.out.println("Student Details ");
    System.out.println("Student Name : "+name);
    System.out.println("Student USN : "+USN);
}

void sgpa(){

for (int i=0; i<n; i++){
    if (marks[i]>=90){
        gradepoints=10;
    }
    else if(marks[i]>=80 && marks[i]<90){


```

```

        gradepoints=9;
    }
    else if(marks[i]>=70 && marks[i]<80){
        gradepoints=8;
    }
    else if(marks[i]>=60 && marks[i]<70){
        gradepoints=7;
    }
    else if(marks[i]>=50 && marks[i]<60){
        gradepoints=6;
    }
    else if(marks[i]>=40 && marks[i]<50){
        gradepoints=5;
    }
    else{
        gradepoints=4;
    }

    totalpoints+=gradepoints*credit[i];
    totalcredits+=credit[i];
}
sgpa=totalpoints/totalcredits;
System.out.println("The Sgpa of the student is : "+sgpa);
}

}

class demo{
    public static void main(String args[]){
        int m=2;
        Student[] students= new Student[m];
        for(int i=0;i<m;i++){
            System.out.println("Enter "+(i+1)+" student details");
            students[i]=new Student();
            students[i].accept();
        }
        for(int i=0;i<m;i++){
            System.out.println("Details of "+(i+1)+" student");
            students[i].display();
            students[i].sgpa();
        }
    }
}

```

```
C:\Users\samar\OneDrive\Desktop\1BF24CS267_samarth> cmd /C ""C:\Program Files\Eclipse Adoptium\jdk-17.0.16.8-hotspot\bin\java.exe" -XX:+ShowCodeDetailsInExceptionMessages -cp C:\Users\samar\AppData\Roaming\Code\User\workspaceStorage\48edbe55c7536ca3fff025db1de49285\redhat.java\jdt_ws\1BF24CS267_samarth_385b3a51\bin Main "
Enter 1st student details

Enter student's name:
samarth
Enter student's USN:
1bf24cs267
Enter number of subjects:
8
Enter subject 1 marks:
80
Enter subject 1 credits:
3
Enter subject 2 marks:
90
Enter subject 2 credits:
3
Enter subject 3 marks:
56
Enter subject 3 credits:
1
Enter subject 4 marks:
87
Enter subject 4 credits:
1
Enter subject 5 marks:
92
Enter subject 5 credits:
1
```

```
Enter subject 3 credits:
1
Enter subject 4 marks:
87
Enter subject 4 credits:
1
Enter subject 5 marks:
92
Enter subject 5 credits:
1
Enter subject 6 marks:
86
Enter subject 6 credits:
3
Enter subject 7 marks:
87
Enter subject 7 credits:
4
Enter subject 8 marks:
91
Enter subject 8 credits:
4
```

```
Enter 2st student details

Enter student's name:
sai
Enter student's USN:
1bf24cs264
Enter number of subjects:
8
Enter subject 1 marks:
89
Enter subject 1 credits:
3
Enter subject 2 marks:
87
Enter subject 2 credits:
3
Enter subject 3 marks:
77
Enter subject 3 credits:
1
Enter subject 4 marks:
66
Enter subject 4 credits:
1
Enter subject 5 marks:
89
Enter subject 5 credits:
1
Enter subject 6 marks:
86
Enter subject 6 credits:
3
```

```
Enter subject 7 marks:
86
Enter subject 7 credits:
4
Enter subject 8 marks:
92
Enter subject 8 credits:
4
Details of 1 student
Name: samarth
USN: 1bf24cs267
Subject 1: Marks = 80, Credits = 3, Grade = 9
Subject 2: Marks = 90, Credits = 3, Grade = 10
Subject 3: Marks = 56, Credits = 1, Grade = 6
Subject 4: Marks = 87, Credits = 1, Grade = 9
Subject 5: Marks = 92, Credits = 1, Grade = 10
Subject 6: Marks = 86, Credits = 3, Grade = 9
Subject 7: Marks = 87, Credits = 4, Grade = 9
Subject 8: Marks = 91, Credits = 4, Grade = 10
SGPA: 9.25
Details of 2 student
Name: sai
USN: 1bf24cs264
Subject 1: Marks = 89, Credits = 3, Grade = 9
Subject 2: Marks = 87, Credits = 3, Grade = 9
Subject 3: Marks = 77, Credits = 1, Grade = 8
Subject 4: Marks = 66, Credits = 1, Grade = 7
Subject 5: Marks = 89, Credits = 1, Grade = 9
Subject 6: Marks = 86, Credits = 3, Grade = 9
Subject 7: Marks = 86, Credits = 4, Grade = 9
Subject 8: Marks = 92, Credits = 4, Grade = 10
SGPA: 9.05
```

## ➤ Program 3: Implementation of `toString()` method

```
import java.util.Scanner;

class books{
    String name;
    String author;
    int price;
    int numpages;

    books(String name, String author, int price, int numpages){
        this.name=name;
        this.author=author;
        this.price=price;
        this.numpages=numpages;
    }

    public String toString(){
        String name, author, price, numpages;

        name = "Book name: " + this.name + "\n";
        author = "Author name: " + this.author + "\n";
        price = "Price: " + this.price + "\n";
        numpages = "Number of pages: " + this.numpages + "\n";

        return name + author + price + numpages;
    }
}

class BookDetails{
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n;
        String name;
        String author;
        int price;
        int numpages;

        System.out.println("Number of books to enter: ");
        n=sc.nextInt();
        sc.nextLine();

        books[] b = new books[n];

        for (int i=0; i<n; i++){
            System.out.println("Enter book name: ");
            sc.nextLine();
            name = sc.nextLine();
            System.out.println("Enter author name: ");
            author=sc.nextLine();
            System.out.println("Enter book price: ");
        }
    }
}
```

```

        price=sc.nextInt();
        System.out.println("Enter total number of pages: ");
        numpages=sc.nextInt();
        b[i]= new books(name,author,price,numpages);
    }

    for (int i=0; i<n; i++){
        String s="Book "+(i+1)+" details are :" +b[i];
        System.out.println(s);
    }
}

```

```

C:\Users\samar\OneDrive\Desktop\java> cmd /C ""C:\Program Files\Eclipse Adoptium\jdk-17.0.16.8-hotspot\bin\java.exe" -XX:+ShowCodeDetailsInExceptionMessages -cp C:\Users\samar\AppData\Roaming\Code\User\workspaceStorage\f11146f43cbf54497c694854019b7d96\redhat.java\jdt_ws\java_f9feb9c2\bin BookDetails
"
Number of books to enter:
3
Enter book name:
java

Enter author name:
samarth
Enter book price:
500
Enter total number of pages:
200
Enter book name:
python
Enter author name:
ram
Enter book price:
600
Enter total number of pages:
150
Enter book name:
chemistry
Enter author name:
aditya
Enter book price:
1000

```

```
Enter book name:  
chemistry  
Enter author name:  
aditya  
Enter book price:  
1000  
Enter total number of pages:  
400  
Book 1 details are :Book name:  
Author name: samarth  
Price: 500  
Number of pages: 200  
  
Book 2 details are :Book name: python  
Author name: ram  
Price: 600  
Number of pages: 150  
  
Book 3 details are :Book name: chemistry  
Author name: aditya  
Price: 1000  
Number of pages: 400
```

```
C:\Users\samar\OneDrive\Desktop\java>■
```

## ➤ Program 4: Demonstration of abstract class

```
import java.util.Scanner;
abstract class Shape{
    int l;
    int b;
    Shape(int l,int b){
        this.l=l;
        this.b=b;
    }
    abstract void printArea();
}
class Rectangle extends Shape{
    Rectangle(int l,int b){
        super(l,b);
    }
    void printArea(){
        System.out.println("Area of rectangle:"+l*b);
    }
}
class Circle extends Shape{
    Circle(int r){
        super(r,0);
    }
    void printArea(){
        System.out.println("Area of circle:"+double)(3.14*l*l));
    }
}
class Triangle extends Shape{
    Triangle(int base,int height){
        super(base,height);
    }
    void printArea(){
        System.out.println("Area of Triangle:"+(double)(0.5*l*b));
    }
}
public class Main{
    public static void main(String[] args){
        int l,b,r,base,height;
        Scanner s=new Scanner(System.in);
        System.out.println("Enter the dimensions of rectangle(length and breadth):");
        l=s.nextInt();
        b=s.nextInt();
        System.out.println("Enter the dimensions of circle(radius):");
        r=s.nextInt();
        System.out.println("Enter the dimensions of triangle(base and height):");
        base=s.nextInt();
        height=s.nextInt();
        Shape ob1=new Rectangle(l,b);
        Shape ob2=new Circle(r);
        Shape ob3=new Triangle(base,height);
        ob1.printArea();
```

```
    ob2.printArea();
    ob3.printArea();

}
```

```
PS C:\Users\BMSCECSE\Desktop\samarth> & 'C:\Program Files\Java\jdk-24\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\BMSCECSE\AppData\Roaming\Code\User\workspaceStorage\130bda9621ee79dc477b562469255132\redhat.java\jdt_ws\samarth_7cf90a6c\bin' 'Main'
Enter the dimensions of rectangle(length and breadth):
2 3
Enter the dimensions of circle(radius):
3
Enter the dimensions of triangle(base and height):
2 4
Area of rectangle:6
Area of circle:28.259999999999998
Area of Triangle:4.0
PS C:\Users\BMSCECSE\Desktop\samarth> []
```

## ➤ Program 5: Savings And Current Account using Inheritance

```
import java.util.Scanner;

class Account {
    String Cname;
    int accno;
    String acctype;
    double balance;

    Account(String cname, int accno, String type, double b) {
        Cname = cname;
        this.accno = accno;
        acctype = type;
        balance = b;
    }

    void deposit(double amount) {
        if (amount > 0) {
            balance += amount;
            System.out.println("Deposited amount: " + amount);
        } else {
            System.out.println("Invalid deposit amount!");
        }
    }

    void withdraw(double amount) {
        if (amount <= 0) {
            System.out.println("Invalid withdrawal amount!");
            return;
        }
        if (amount > balance) {
            System.out.println("Insufficient balance!");
            return;
        }
        balance -= amount;
        System.out.println("Withdrawn amount: " + amount);
    }

    void displayBalance() {
        System.out.println("\n--- Account Details ---");
        System.out.println("Account Holder: " + Cname);
        System.out.println("Account Number: " + accno);
        System.out.println("Account Type: " + acctype);
        System.out.println("Current Balance: Rs." + balance);
    }
}

class Savings extends Account {
    double intrate = 0.05;

    Savings(String name, int accno, double balance) {
```

```

        super(name, accno, "savings", balance);
    }

void CI(int years) {
    double interest = balance * Math.pow((1 + intrate), years) - balance;
    balance += interest;
    System.out.println("Interest of Rs " + interest + " added.");
}

class Current extends Account {
    double minbalance = 1000;
    double sercharge = 100;

    Current(String name, int accno, double balance) {
        super(name, accno, "current", balance);
    }

    void withdraw(double amount) {
        super.withdraw(amount);
        if (balance < minbalance) {
            balance -= sercharge;
            System.out.println("A service charge of " + sercharge + " has been applied.");
            System.out.println("Balance after service charge: " + balance);
        }
    }
}

class Bank {
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);

        System.out.print("Enter customer name: ");
        String name = s.nextLine();

        System.out.print("Enter account number: ");
        int accno = s.nextInt();
        s.nextLine(); // consume newline

        System.out.print("Enter account type (savings/current): ");
        String type = s.nextLine().toLowerCase();

        System.out.print("Enter initial balance: ");
        double balance = s.nextDouble();

        // Declare both objects here (no null)
        Savings sv = new Savings(name, accno, balance);
        Current ct = new Current(name, accno, balance);

        System.out.println("\nMENU");
        System.out.println("1. Deposit");
        System.out.println("2. Withdraw");
    }
}

```

```

System.out.println("3. Compound Interest");
System.out.println("4. Show Balance");
System.out.println("5. Exit");

int c;
System.out.print("Enter choice: ");
c = s.nextInt();

while (c != 5) {
    switch (c) {
        case 1:
            System.out.print("Enter the deposit amount: ");
            double deposit = s.nextDouble();
            if (type.equals("savings"))
                sv.deposit(deposit);
            else
                ct.deposit(deposit);
            break;

        case 2:
            System.out.print("Enter the withdrawal amount: ");
            double withdraw = s.nextDouble();
            if (type.equals("savings"))
                sv.withdraw(withdraw);
            else
                ct.withdraw(withdraw);
            break;

        case 3:
            if (type.equals("savings")) {
                System.out.print("Enter number of years: ");
                int years = s.nextInt();
                sv.CI(years);
            } else {
                System.out.println("Interest not applicable for current account.");
            }
            break;

        case 4:
            if (type.equals("savings"))
                sv.displayBalance();
            else
                ct.displayBalance();
            break;

        default:
            System.out.println("Invalid choice!");
    }

    System.out.println("\n1. Deposit");
    System.out.println("2. Withdraw");
    System.out.println("3. Compound Interest");
}

```

```
        System.out.println("4. Show Balance");
        System.out.println("5. Exit");
        System.out.print("Enter choice: ");
        c = s.nextInt();
    }
}
}
```

The screenshot shows a terminal window with the following content:

```
PS C:\Users\Admin\Desktop\samarth> & 'C:\Program Files\Java\jdk-21\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\Admin\AppData\Roaming\Code\User\workspaceStorage\1cdcd0c2ecd8a1385baeffaf98149029\redhat.java\jdt_ws\samarth_ec5ce32\bin' 'Bank'
Enter customer name: samarth
Enter account number: 1234
Enter account type (savings/current): savings
Enter initial balance: 3000

MENU
1. Deposit
2. Withdraw
3. Compound Interest
4. Show Balance
5. Exit
Enter choice: 1
Enter the deposit amount: 2000
Deposited amount: 2000.0

1. Deposit
2. Withdraw
3. Compound Interest
4. Show Balance
5. Exit
Enter choice: 2
Enter the withdrawal amount: 1000
Withdrawn amount: 1000.0

1. Deposit
2. Withdraw
3. Compound Interest
4. Show Balance
5. Exit
Enter choice: 3
Enter number of years: 3
Interest of Rs 630.500000000009 added.
```

```
Withdrawn amount: 1000.0
```

- 1. Deposit
- 2. Withdraw
- 3. Compound Interest
- 4. Show Balance
- 5. Exit

```
Enter choice: 3
```

```
Enter number of years: 3
```

```
Interest of Rs 630.500000000009 added.
```

- 1. Deposit
- 2. Withdraw
- 3. Compound Interest
- 4. Show Balance
- 5. Exit

```
Enter choice: 4
```

```
--- Account Details ---
```

```
Account Holder: samarth
```

```
Account Number: 1234
```

```
Account Type: savings
```

```
Current Balance: Rs.4630.50000000001
```

- 1. Deposit
- 2. Withdraw
- 3. Compound Interest
- 4. Show Balance
- 5. Exit

```
Enter choice: 5
```

```
PS C:\Users\Admin\Desktop\samarth> █
```

## ➤ Program 6: Calculating total marks using packages

```
package CIE;

import java.util.Scanner;

public class student {

    public String name;
    public String USN;
    public int sem;

    public void inputdetails() {

        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 Semester: ");

        sem = sc.nextInt();

    }

    public void displaydetails() {

        System.out.println("USN: " + USN);

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

        System.out.println("Semester: " + sem);

    }

}
```

```

package CIE;
import java.util.Scanner;

public class internals extends student {
    public int internalmarks[] = new int[5];

    public void CIEmarks() {
        Scanner sc = new Scanner(System.in);
        for (int i = 0; i < 5; i++) {
            System.out.println("Enter internal marks for subject " + (i+1));
            internalmarks[i] = sc.nextInt();
        }
    }
}

package SEE;

import java.util.Scanner;

import Cie.internals;

public class externals extends internals {
    public int marks[] = new int[5];
    public int finalmarks[] = new int[5];

    public void SEEmarks() {
        Scanner sc = new Scanner(System.in);
        for (int i = 0; i < 5; i++) {
            System.out.println("Enter SEE marks for subject " + (i+1));
            marks[i] = sc.nextInt();
        }
    }

    public void Totalmarks() {
        for (int i = 0; i < 5; i++) {
            finalmarks[i] = (int)(marks[i] / 2.0) + internalmarks[i];
        }
    }
}

import SEE.externals;
import java.util.Scanner;

public class TotalP {
    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter number of students: ");
        int n = sc.nextInt();

        externals see[] = new externals[n];
    }
}

```

```

for (int i = 0; i < n; i++) {
    System.out.println("Enter details for Student " + (i+1));

    see[i] = new externals();

    see[i].inputdetails();
    see[i].CIEmarks();
    see[i].SEEmarks();
    see[i].Totalmarks();
}

System.out.println("Final marks of students:");

for (int i = 0; i < n; i++) {
    System.out.println("Student " + (i+1));
    see[i].displaydetails();

    System.out.println("Final marks:");
    for (int j = 0; j < 5; j++) {
        System.out.println("Subject " + (j+1) + ": " + see[i].finalmarks[j]);
    }
}
}

```

```

PS C:\Users\Admin\Desktop\1BF24CS267> & 'C:\Program Files\Java\jdk-21\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\Admin\AppData\Roaming\Code\User\worksapceStorage\b9b141efd734b0eaf3977baf1b821ea6f\redhat.java\jdt_ws\1BF24CS267_37831afe\bin' 'Final'
Enter number of students:
1
Enter details for Student 1
Enter USN:
1234
Enter Name:
sam
Enter Semester:
3
Enter internal marks for subject 1
35
Enter internal marks for subject 2
38
Enter internal marks for subject 3
37
Enter internal marks for subject 4
39
Enter internal marks for subject 5
38
Enter SEE marks for subject 1
90
Enter SEE marks for subject 2
98
Enter SEE marks for subject 3
70
Enter SEE marks for subject 4
80
Enter SEE marks for subject 5
65
Final marks of students
Student 1
USN: 1234
Name: sam
Semester: 3
Final marks:
Subject 1: 80
Subject 2: 87
Subject 3: 72
Subject 4: 79
Subject 5: 70
PS C:\Users\Admin\Desktop\1BF24CS267>

```

## Program 7: Wrong Age Exception

```
import java.util.Scanner;

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

class Father{
    int fage;
    Father(int fage) throws WrongAge{
        this.fage=fage;
        if(fage< 0) {
            throw new WrongAge("Age cannot be negative");
        }
    }
}
class Son extends Father {
    int sage;

    Son(int fage, int sage) throws WrongAge {
        super(fage);
        this.sage=sage;

        if (sage < 0) {
            throw new WrongAge("Age cannot be negative");
        }
        if (sage >= fage) {
            throw new WrongAge("Son's age cannot be greater than father's age");
        }
    }

    void display1() {
        System.out.println("Father's Age: " + fage);
        System.out.println("Son's Age: " + sage);
    }
}

public class age{
    public static void main(String[] args){
        try{
            Scanner s = new Scanner(System.in);
            System.out.println("Enter Father's age:");
            int fage=s.nextInt();
            System.out.print("Enter Son Age: ");
            int sage = s.nextInt();
            Son ob=new Son(fage,sage);
            ob.display1();
        }
    }
}
```

```
        catch(WrongAge e){
            System.out.println("error:"+e);
        }
    }
}
```

The screenshot shows a terminal window with the following content:

```
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Admin\Desktop\sam> cd "c:\Users\Admin\Desktop\sam\" ; if ($?) { javac age.java } ; if (?) { java age
}
Enter Father's age:
30
Enter Son Age: 10
Father's Age: 30
Son's Age: 10
PS C:\Users\Admin\Desktop\sam> cd "c:\Users\Admin\Desktop\sam\" ; if ($?) { javac age.java } ; if (?) { java age
}
Enter Father's age:
-10
Enter Son Age: 20
error:WrongAge: Age cannot be negative
PS C:\Users\Admin\Desktop\sam> cd "c:\Users\Admin\Desktop\sam\" ; if ($?) { javac age.java } ; if (?) { java age
}
Enter Father's age:
30
Enter Son Age: 35
error:WrongAge: Son's age cannot be greater than father's age
PS C:\Users\Admin\Desktop\sam>
```

## Program 8: Demonstration of Threads

```
class test extends Thread {  
    public void run() {  
        try {  
            for(int i=0;i<5;i++){  
                System.out.println("BMS College of Engineering");  
                Thread.sleep(10000); // 10 seconds  
            }  
        } catch (InterruptedException e) {  
            System.out.println("CollegeThread interrupted");  
        }  
    }  
}  
  
class demo extends Thread {  
    public void run() {  
        try {  
            for(int i=0;i<5;i++){  
                System.out.println("CSE");  
                Thread.sleep(2000); // 2 seconds  
            }  
        } catch (InterruptedException e) {  
            System.out.println("CSEThread interrupted");  
        }  
    }  
}  
  
public class threadss {  
    public static void main(String[] args) {  
        test t1 = new test();  
        demo t2 = new demo();  
  
        t1.start();  
        t2.start();  
    }  
}
```

ode\Users\workspaceStorage\8eeacdd70d8e2831473eee5a0676e4f3\redhat.java\jdt\_ws\sam\_705fea4d\bin\` `threadss`  
BMS College of Engineering  
CSE  
CSE  
CSE  
CSE  
CSE  
BMS College of Engineering  
BMS College of Engineering  
BMS College of Engineering  
BMS College of Engineering  
PS C:\Users\Admin\Desktop\sam>  
failed-fwd-i-search: \_