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## **JAVA LAB-4**

### **INTERFACE**

1. Create an interface called Runner. The interface has an abstract method called run() that displays a message describing the meaning of run to the class. Create classes called Machine, Athlete, and Political Candidate that all implement Runner. Create an application that demonstrates the use of the classes. Save the files as Runner.java, Machine.java, Athlete.java, PoliticalCandidate.java, and DemoRunners.java.

#### **Runner.java**

```
package Run;

interface Runner{
    public void run();
}
```

#### **Machine.java**

```
package Run;
import java.util.Scanner;

public class Machine implements Runner{
    public void run(){
        System.out.println("Your machine " + machine() + " is running!");
    }
    public String machine(){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the machine you're working with:");
        String mac = sc.nextLine();
        return mac;
    }
}
```

## Athlete.java

```
package Run;

import java.util.Scanner;

public class Athlete implements Runner{
    public void run(){
        System.out.println(athlete() + " is running!");
    }
    public String athlete(){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter your name:");
        String name = sc.nextLine();
        return name;
    }
}
```

## PoliticalCandidate.java

```
package Run;
import java.util.Scanner;
import java.util.Date;

public class PoliticalCandidate implements Runner {
    public void run(){
        Date d = new Date();
        System.out.println("Your election is " + politics() + " which is now running at " + d.toString());
    }
    public String politics(){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter your election details:");
        String elec = sc.nextLine();
        return elec;
    }
}
```

## DemoRunners.java

```
package Run;
import java.util.Scanner;

public class DemoRunners {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Are you running machine, an election or an athlete?");
        String ans = sc.nextLine();
        if (ans.equals("machine")) {
            Runner m = new Machine();
            m.run();
        }
        if (ans.equals("athlete")) {
            Runner a = new Athlete();
            a.run();
        }
        if (ans.equals("election")) {
            Runner e = new PoliticalCandidate();
            e.run();
        }
    }
}
```

```
Are you running machine, an election or an athlete?
election
Enter your election details:
State election
Your election is State election which is now running at Wed Aug 24 14:58:07 IST 2022

Process finished with exit code 0
|
```

```
Are you running machine, an election or an athlete?
machine
Enter the machine you're working with:
Drill
Your machine Drill is running!

Process finished with exit code 0
|
```

```
Are you running machine, an election or an athlete?  
athlete  
Enter your name:  
Shang  
Shang is running!  
  
Process finished with exit code 0  
|
```

## 2. Bank Loans

### Types of Loans

Business Loan

Personal Loan

Vehicle Loan

Depends on type loan limitation varies and interest rate varies. Use Interface concept get details ( Annual income, type of loan, loan amount) from customer and check the eligibility and assign the loan amount to customer

### GetDetails.java

```
package Loan;  
  
interface GetDetails {  
    public int income();  
    public int amount();  
    public void display();  
}
```

## Business.java

```
package Loan;
import java.util.Scanner;

public class Business implements GetDetails{
    Scanner sc = new Scanner(System.in);
    private int inc;
    private int amc;

    public void setIncome(){
        System.out.println("Enter your annual income:");
        this.inc = sc.nextInt();
    }

    public void setAmount(){
        System.out.println("Enter your loan amount:");
        this.amc = sc.nextInt();
    }

    public int income(){
        return this.inc;
    }

    public int amount(){
        return this.amc;
    }

    public void display(){
        setIncome();
        setAmount();
        if(income() < 2000000){
            System.out.println("Your income is too low, you are not
eligible for this business loan!");
        }
        else if(amount() > 1000000000){
            System.out.println("Thats too much, we cannot loan you that
much. Goodbye.");
        }
        else{
            System.out.println("Congrats! You are eligible for this
Business loan. Your loan amount assigned to you is: " + amount());
        }
    }
}
```

## Personal.java

```
package Loan;
import java.util.Scanner;

public class Personal implements GetDetails{
    Scanner sc = new Scanner(System.in);
    private int inc;
    private int amc;
    public void setIncome(){
        System.out.println("Enter your annual income:");
        this.inc = sc.nextInt();
    }
    public void setAmount(){
        System.out.println("Enter your loan amount:");
        this.amc = sc.nextInt();
    }

    public int income(){
        return this.inc;
    }
    public int amount(){
        return this.amc;
    }
    public void display(){
        setIncome();
        setAmount();
        if(income() < 300000){
            System.out.println("Your income is too low, you are not
eligible for this business loan!");
        }
        else if(amount() > 200000){
            System.out.println("Thats too much, we cannot loan you that
much. Goodbye.");
        }else{
            System.out.println("Congrats! You are eligible for this
Personal loan. Your loan amount assigned to you is: " + amount());
        }
    }
}
```

## Vehicle.java

```
package Loan;
import java.util.Scanner;

public class Vehicle implements GetDetails{
    Scanner sc = new Scanner(System.in);
    private int inc;
    private int amc;
    private String carr;
    public void setIncome(){
        System.out.println("Enter your annual income:");
        this.inc = sc.nextInt();
    }
    public void setAmount(){
        System.out.println("Enter your loan amount:");
        this.amc = sc.nextInt();
    }
    public void setCar(){
        sc.nextLine();
        System.out.println("Enter the car you wanna buy:");
        this.carr = sc.nextLine();
    }

    public int income(){
        return this.inc;
    }
    public int amount(){
        return this.amc;
    }
    public String car(){
        return this.carr;
    }

    public void display(){
        setIncome();
        setAmount();
        setCar();
        if(income() < 500000){
            System.out.println("Your income is too low, you are not eligible for this business loan!");
        }
        else if(amount() > 700000){
            System.out.println("Thats too much for a Vehicle loan, we cannot loan you that much. Goodbye.");
        }
        else{
            System.out.println("Congrats! You are eligible for this Vehicle loan. Your loan amount assigned to you is: " + amount());
            System.out.println("Enjoy driving your " + car());
        }
    }
}
```

## DemoLoan.java

```
package Loan;
import java.util.Scanner;

public class DemoLoan {
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
        System.out.println("Are you taking a Business, Personal or a
Vehicle loan?");
        String ans = sc.nextLine();
        if(ans.equals("Business")){
            GetDetails b = new Business();
            b.income();
            b.amount();
            b.display();
        }
        if(ans.equals("Personal")){
            GetDetails p = new Personal();
            p.income();
            p.amount();
            p.display();
        }
        if(ans.equals("Vehicle")){
            GetDetails v = new Vehicle();
            v.income();
            v.amount();
            v.display();
        }
    }
}
```

```
Are you taking a Business, Personal or a Vehicle loan?
Business
Enter your annual income:
5000000
Enter your loan amount:
85000000
Congrats! You are eligible for this Business loan. Your loan amount assigned to you is: 85000000
```

Process finished with exit code 0

|

```
Are you taking a Business, Personal or a Vehicle loan?
Personal
Enter your annual income:
700000
Enter your loan amount:
100000
Congrats! You are eligible for this Personal loan. Your loan amount assigned to you is: 100000
```

Process finished with exit code 0

|



```
Are you taking a Business, Personal or a Vehicle loan?  
Vehicle  
Enter your annual income:  
900000  
Enter your loan amount:  
500000  
Enter the car you wanna buy:  
Porsche  
Congrats! You are eligible for this Vehicle loan. Your loan amount assigned to you is: 500000  
Enjoy driving your Porsche  
  
Process finished with exit code 0
```