1.Check 2 person same[100%]

Code:-

```
package com.company;
import java.util.*;
public class Main {
    public static void main(String args[])
    { Scanner sc=new Scanner(System.in);
        String a=sc.nextLine();
        int b=sc.nextInt();
        sc.nextLine();
        String c=sc.nextLine();
        char x=c.charAt(0);
        String d=sc.nextLine();
        int e=sc.nextInt();
        sc.nextLine();
        String f=sc.nextLine();
        char y=f.charAt(0);
        Person p1 = new Person(a,b,x);
        Person p2 = new Person(d,e,y);
        if(p1.equals(p2))
            System.out.println("Two Persons are same.");
        else
            System.out.println("Two Persons are not same.");
    }
}
class Person
{
    String name;
    int age;
    char gender;
    public void setName(String name)
    {
        this.name = name;
    }
    public String getName()
    {
        return name;
    }
    public void setAge(int age)
    {
        this.age = age;
    }
    public int getAge()
    {
        return age;
    }
    public void setGender(char gender)
    {
        this.gender = gender;
    }
    public char getGender()
    {
        return gender;
    }
    public Person() {}
    public Person(String name,int age, char gender)
    {
```

```
        super();
        this.name = name;
        this.age = age;
        this.gender = gender;
    }

    @Override
    public boolean equals(Object obj)
    {
        if(obj == null)
            return false;
        if(!(obj instanceof Person))
            return false;
        Person other = (Person)obj;
        if(!(this.name.equals(other.name)))
            return false;
        if(this.age != other.age)
            return false;
        if(this.gender != other.gender)
        {
            return false;
        }
        return true;
    }
}
```

2.Book and Author{100%}

Code:-

```
package com.company;
import java.io.*;
import java.util.*;
import java.text.*;
import java.math.*;
import java.util.regex.*;

class Book {
    String isbn;
    String name;
    Author author[];
    double price;
    int qty=0;
    public Book(String isbn,String name,Author author[],double price,int
qty){
        super();
        this.isbn=isbn;
        this.name=name;
        this.author=author;
        this.price=price;
        this.qty=qty;
    }
    public Book(String isbn,String name,Author author[],double price){
        super();
        this.isbn=isbn;
        this.name=name;
        this.author=author;
```

```
        this.price=price;
    }

    public String getIsbn(){
        return isbn;
    }
    public void setIsbn(String isbn){
        this.isbn=isbn;
    }
    public String getName(){
        return name;
    }
    public void setName(String name){
        this.name=name;
    }
    public Author[] getAuthor(){
        return author;
    }
    public void setAuthor(Author author[]){
        this.author=author;
    }
    public double getPrice(){
        return price;
    }
    public void setPrice(double price){
        this.price=price;
    }
    public int getQty(){
        return qty;
    }
    public void setQty(int qty){
        this.qty=qty;
    }
    @Override
    public String toString(){
        return "Book[isbn=" +
isbn+",name="+name+",author="+Arrays.toString(author).replaceAll("\\s",
"")+",price="+price+",qty="+qty+"]";
    }
}
class Author
{
    Author(){
    }
    String name;
    String email;
    public String getName(){
        return name;
    }
    public void setName(String name){
        this.name=name;
    }
    public String getEmail() {
        return email;
    }
    public void setEmail(String email){
        this.email=email;
    }
    public Author(String name,String email){
        super();
        this.name=name;
```

```
        this.email=email;
    }
    @Override
    public String toString(){
        return "Author[name="+name+",email="+email+"]";
    }
}
public class Main{

    public static void main(String[] args) {
        Author[] authors=new Author[2];
        Scanner s=new Scanner(System.in);
        for (int i=0;i<authors.length;i++)
        {
            authors[i]=new Author();
            authors[i].name=s.next();
            authors[i].email=s.next();
            authors[i]=new Author(authors[i].name,authors[i].email);
        }
        String bid=s.next();
        s.nextLine();
        String bname=s.nextLine();
        double price=s.nextDouble();
        int qty=s.nextInt();

        Book b=new Book(bid,bname,authors,price,qty);

        System.out.println(b.toString());

    }
}
```

3.Beauty parlor{100%}

Code:-

```
package com.company;
import java.util.*;

class Customers {

    String name ;

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name=name;
    }

    public boolean isMemebr() {
        return member;
    }

    public void setMember(boolean member) {
        this.member=member;
    }
```

```
    public String getMembertype() {
        return membertype;
    }

    public void setMembertype(String membertype) {
        this.membertype=membertype;
    }

    boolean member;
    String membertype;
    Customers(String name) {
        this.name=name;
    }

    public String toString() {
        return "Customer [name=" + name + ", member=" + member + ",
membertype=" + membertype + "]";
    }


}


class Visit {
    String name;
    Customers cust;
    double serviceExpense;
    double productExpense;
    double totalExpense;

    Visit(Customers cust) {
        this.cust=cust;
    }

    public String getName() {
        return cust.getName();
    }

    public double getServiceExpense() {
        return serviceExpense;
    }

    public void setServiceExpense(double serviceExpense) {
        this.serviceExpense=serviceExpense;
    }

    public double getProductExpense() {
        return productExpense;
    }

    public void setProductExpense(double productExpense) {
        this.productExpense=productExpense;
    }

    public double totalExpense() {
        double dis=0;
        double dis1=0;
        if(cust.getMembertype().equals("null")) {
            return serviceExpense+productExpense;
        }
        else
```

```
            dis= serviceExpense *
DiscountRate.getServiceDiscountRate(cust.getMembertype());
        dis1=productExpense*DiscountRate.proddiscount;
        double prodiscount=productExpense-dis1;
        double totalExpense1=serviceExpense-dis;
        System.out.println( totalExpense1);

        double totalExpense2=productExpense-dis1;
        System.out.println( totalExpense2);



        return totalExpense=totalExpense1 + totalExpense2;


    }

    public String toString() {
        return "[Customer Name:" + cust + "Service Expense:" +
serviceExpense + "Discount:" +
DiscountRate.getServiceDiscountRate(cust.getMembertype()) + "]";

    }

}

class DiscountRate
{
    static double premiumService=0.2;
    static double goldService=0.15;
    static double silverService=0.1;

    static double prodsilverService=0.1;
    static double prodgoldService=0.1;
    static double prodpremiumService=0.1;
    static double proddiscount=0.1;

    public static double getServiceDiscountRate(String service) {
        if(service.equals("Premium")) {
            return premiumService;
        }
        else if(service.equals("Gold")) {
            return goldService;
        }
        else if(service.equals("Silver")) {
            return silverService;
        }
        else if(service.equals("null")) {
            System.out.println("Not Qualified for any Discounts on
Service/products");
        }
        return 0;
    }

    public static double getProductDiscountRate(String service) {
        if(service.equals("Premium")) {
            return prodpremiumService;
        }
        else if(service.equals("Gold")) {
            return prodgoldService;
```

```
        }
        else if(service.equals("Silver")) {
            return prodsilverService;
        }
        else
            return 0;
    }


}

public class Main {
    public static void main(String[] args) {
        Scanner s=new Scanner(System.in);
        String name=s.next();
        boolean b=s.nextBoolean();
        String mtype=s.next();
        double serexp=s.nextDouble();
        double prodexp=s.nextDouble();
        Customers c=new Customers(name);
        Visit v=new Visit(c);
        c.setMember(b);
        c.setMembertype(mtype);
        v.setServiceExpense(serexp);
        v.setProductExpense(prodexp);
        DiscountRate.getServiceDiscountRate(c.getMembertype());
        System.out.println( c.getName());
        System.out.println( c.getMembertype());
        System.out.println( v.getServiceExpense());
        System.out.println( v.getProductExpense());
        System.out.println( v.totalExpense());

    }
}
```

4.Batsman and Bowler{100%}

Code:-

```
package com.company;
import java.util.Scanner;
interface IPlayer {
    String play();
}
class Batsman implements IPlayer{
    @Override
    public String play() {
        return "Batsman is batting";
    }
}
class Bowler implements IPlayer{
    public String  play(){
        return "Bowler is bowling";
    }
}
class Coach {
```

```
    private IPlayer player;
    void setPlayer(IPlayer player) {
        this.player = player;
    }
    String coach() {
        return player.play();
    }
}
public class Main {
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        String s = sc.next();
        Coach c = new Coach();
        if (s.equals("Batsman"))
        {
            Batsman ip = new Batsman();
            c.setPlayer(ip);
            System.out.println(c.coach());
        }
        else if(s.equals("Bowler"))
        {
            Bowler ip = new Bowler();
            c.setPlayer(ip);
            System.out.println(c.coach());
        }
        else
        {
            System.out.println("Invalid Input");
        }
    }
}
```

5.Rail Compartment{100%}

Code:-

```
package com.company;
import java.util.Random;
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        Scanner s=new Scanner(System.in);
        int i=0;
        int arr []=new int[10];
        int p=s.nextInt();
        Random rand = new Random();
        int upperbound = 4;
        int int_random = rand.nextInt(upperbound);
        int_random=int_random+1;
        if(p==1)
        {
            FirstClass a= new FirstClass();
            for(i=0;i<10;i++)
            {
                a.notice();
```

```
            }
        }
        else if(p==2)
        {
            General a= new General();
            for(i=0;i<10;i++)
            {
                a.notice();
            }
        }
        else if(p==3)
        {
            Ladies a= new Ladies();
            for(i=0;i<10;i++)
            {
                a.notice();
            }
        }
        else
        {
            Luggage a= new Luggage();
            for(i=0;i<10;i++)
            {
                a.notice();
            }
        }
    }
}
abstract class Compartment
{
    abstract void notice();
}
class FirstClass extends Compartment
{
    public void notice()
    {
        System.out.println("FirstClass Compartment");
    }
}
class Ladies extends Compartment
{
    public void notice()
    {
        System.out.println("Ladies Compartment");
    }
}
class General extends Compartment
{
    public void notice()
    {
        System.out.println("General Compartment");
    }
}
class Luggage extends Compartment
{
    public void notice()
    {
        System.out.println("Luggage Compartment");
    }
}
```

6.Fund Transfer{100%}

Code:-

```
package com.company;
import java.util.*;

class Account1
{
    String id;
    String name;
    int balance =0;
    Account1(String id,String name)
    {
        this.id=id;
        this.name=name;
    }
    Account1(String id,String name,int balance)
    {
        this.id=id;
        this.name=name;
        this.balance=balance;
    }
    String getID(){
        return this.id;
    }
    String getName(){
        return this.name;
    }
    int getBalance(){
        return this.balance;
    }
    int credit(int amount){
        this.balance=amount+this.balance;
        return this.balance;
    }
    int debit(int amount){
        if(amount<=this.balance)
            this.balance=this.balance - amount;
        else
            System.out.print("Amount exceeded balance");
        return this.balance;
    }
    int transferTo(Account1 another,int amount){
        if(amount<balance){
            this.debit(amount);
            another.credit(amount);
        }
        else
            System.out.println("Insufficient Balance");
        return this.balance;
    }
    public String toString() {
        return String.format("Account[id=%s,name=%s,balance=%d]",
id,name,balance);
    }
}
public class Main
{
```

```
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        String id1=sc.nextLine();
        String name1=sc.nextLine();
        int balance1=sc.nextInt(); sc.nextLine();
        String id2=sc.nextLine();
        String name2=sc.nextLine();
        int amount1=sc.nextInt();
        int amount2=sc.nextInt();
        int amount3=sc.nextInt();
        Account1 a1 = new Account1(id1,name1,balance1);
        System.out.println(a1.toString());
        Account1 a2 = new Account1(id2,name2);
        System.out.println(a2.toString());
        a1.credit(amount1);
        a1.debit(amount2);
        a1.transferTo(a2,amount3);
        System.out.println(a1.toString());
        System.out.println(a2.toString());
    }
}
```

7.Registered Customer{100%}

Code:-

```
package com.company;
import java.util.*;
class Address
{
    String l1,l2,city,pin;
    Address(String a,String b,String c,String d)
    {
        l1=a;
        l2=b;
        city=c;
        pin=d;
    }
    void setl1(String x)
    {
        this.l1=x;
    }
    String getl1()
    {
        return this.l1;
    }
    void setl2(String x)
    {
        this.l2=x;
    }
    String getl2()
    {
        return this.l2;
    }
    void setcity(String x)
    {
        this.city=x;
```

```
    }
    String getcity()
    {
        return this.city;
    }
    void setpin(String x)
    {
        this.pin=x;
    }
    String getpin()
    {
        return this.pin;
    }
}
class Cust
{
    String custid, custname;
    Address address;
    Cust(String custid, String custname, Address address)
    {
        this.custid=custid;
        this.custname=custname;
        this.address=address;
    }
    String getcustid()
    {
        return this.custid;
    }
    String getcustname()
    {
        return this.custname;
    }
    String getl1()
    {
        return this.address.l1;
    }
    String getl2()
    {
        return this.address.l2;
    }
    String getcity()
    {
        return this.address.city;
    }
    String getpin()
    {
        return this.address.pin;
    }
}
class RegCustomer extends Cust
{
    double fees;
    RegCustomer(String custid, String custname, Address address,double
fees)
    {
        super(custid,custname,address);
        this.fees=fees;
    }
    void setcustid(String x)
    {
        this.custid=x;
```

```
    }
    void setcustname(String x)
    {
        this.custname=x;
    }
    void setfees(double x)
    {
        this.fees=x;
    }
    void setl1(String x)
    {
        this.address.l1=x;
    }
    void setl2(String x)
    {
        this.address.l2=x;
    }
    void setcity(String x)
    {
        this.address.city=x;
    }
    void setpin(String x)
    {
        this.address.pin=x;
    }
    double getfees()
    {
        return this.fees;
    }
    void display()
    {

System.out.println("CustomerId:"+this.custid+"\nCustomerName:"+this.custnam
e+"\nCustomerfees:"+this.fees);

System.out.println("Address1:"+this.address.l1+"\nAddress2:"+this.address.l
2+"\nCity:"+this.address.city);
        System.out.println("Pin:"+this.address.pin);
    }
}
public class Main
{
    public static void main(String args[])
    {
        Scanner sc=new Scanner(System.in);
        String l1=sc.nextLine();
        String l2=sc.nextLine();
        String city=sc.nextLine();
        String pin=sc.nextLine();
        Address a=new Address(l1,l2,city,pin);
        String custId=sc.nextLine();
        String custName=sc.nextLine();
        double fees=sc.nextDouble();
        RegCustomer ob=new RegCustomer(custId,custName,a,fees);
        ob.display();
    }
}
```

8.Customer and Address{100%}

Code:-

```
package com.company;
import java.util.*;
public class Main{

    public static void main(String[] args) {
        EmployeeDemo demo = new EmployeeDemo();
        Employee emp = new Employee();
        demo.storeData(emp);
        demo.showData(emp);
    }

}
class Employee
{
    String empId;
    String empName;
    Address address;

    void setEmpId(String empId)
    {
        this.empId = empId;
    }
    String getEmpId()
    {
        return empId;
    }
    void setEmpName(String empName)
    {
        this.empName = empName;
    }
    String getEmpName()
    {
        return empName;
    }
    void setAddress(Address address)
    {
        this.address = address;
    }
    Address getAddress()
    {
        return address;
    }

}
class Address
{
    String addr1, addr2, city;
    int pin;
    void setAddr1(String addr1)
    {
        this.addr1 = addr1;
    }
    String getAddr1()
    {
        return addr1;
```

```
    }
    void setAddr2(String addr2)
    {
        this.addr2 = addr2;
    }
    String getAddr2()
    {
        return addr2;
    }
    void setCity(String city)
    {
        this.city = city;
    }
    String getCity()
    {
        return city;
    }
    void setPin(int pin)
    {
        this.pin = pin;
    }
    int getPin()
    {
        return pin;
    }

}
class EmployeeDemo
{
    void storeData(Employee emp)
    {
        Address address = new Address();
        Scanner sc = new Scanner(System.in);
        String empId = sc.nextLine();
        String ename = sc.nextLine();
        String addr1 = sc.nextLine();
        String addr2 = sc.nextLine();
        String city = sc.nextLine();
        int pin = sc.nextInt();
        emp.setEmpId(empId);
        emp.setEmpName(ename);
        address.setAddr1(addr1);
        address.setAddr2(addr2);
        address.setCity(city);
        address.setPin(pin);
        emp.setAddress(address);

    }
    void showData(Employee emp)
    {
        System.out.println("Employee Id :"+emp.getEmpId());
        System.out.println("Employee Name :"+emp.getEmpName());
        System.out.println("Address 1 :"+emp.getAddress().getAddr1());
        System.out.println("Address 2 :"+emp.getAddress().getAddr2());
        System.out.println("City :"+emp.getAddress().getCity());
        System.out.println("Pin :"+emp.getAddress().getPin());

    }
}
```

9.Customer and Invoice{100%}

Code:-

```
package com.company;
import java.util.*;

public class Main{
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int id = sc.nextInt();
        String name = sc.next();
        int discount = sc.nextInt();
        int invoice = sc.nextInt();
        double amount = sc.nextDouble();
        Customer customer1 = new Customer(id, name, discount);
        Invoice invoice1 = new Invoice(invoice, customer1, amount);
        System.out.println("Invoice Id="+invoice+"Name:" +
invoice1.getCustomerName()+"Discount:"+discount+"After Discount:" +
invoice1.getAmountAfterDiscount());

    }
}

class Customer {
    private int id;
    private String name;
    private int discount;

    public Customer(int id, String name, int discount) {
        this.id = id;
        this.name = name;
        this.discount = discount;
    }

    public int getId() {
        return id;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public int getDiscount() {
        return discount;
    }

    public void setDiscount(int discount) {
        this.discount = discount;
    }
}

class Invoice {
    private int id;
    private Customer customer;
```

```
    private double amount;

    public Invoice(int id, Customer customer, double amount) {
        this.id = id;
        this.customer = customer;
        this.amount = amount;
    }

    public int getId() {
        return id;
    }

    public Customer getCustomer() {
        return customer;
    }

    public void setCustomer(Customer customer) {
        this.customer = customer;
    }

    public double getAmount() {
        return amount;
    }

    public void setAmount(double amount) {
        this.amount = amount;
    }

    public String getCustomerName() {
        return customer.getName();
    }

    public double getAmountAfterDiscount() {
        return amount - amount * customer.getDiscount() / 100;
    }
}
```

10.Instruments{100%}

Code:-

```
package com.company;
import java.io.*;
import java.util.*;
import java.text.*;
import java.math.*;
import java.util.regex.*;

abstract class Instrument
{
    abstract void play();
}
class Piano extends Instrument {
    @Override
    void play() {
        System.out.println("Piano");
```

```
    }
}
class Flute extends Instrument
{
    @Override
    void play()
    {
        System.out.println("Flute");
    }
}
class Guitar extends Instrument
{
    @Override
    void play()
    {
        System.out.println("Guitar");
    }
}
public class Main{
    public static void main(String[] args)
    {
        Scanner in = new Scanner(System.in);
        Instrument[] is = new Instrument[10];



        int a;
        a = in.nextInt();
        if (a == 1) {
            for (int i = 0; i < 10; i++) {
                is[i] = new Piano();
            }
            for (int i = 0; i < 10; i++) {
                is[i].play();
            }
                /*for (int i = 0; i < 10; i++) {
                    if (is[i] instanceof Piano) {
                        System.out.println("Piano is Stored at index " +
i);

                    }
                }*/
        }
        else
        if (a==2)
        {
            for (int i=0;i<10;i++)
            {
                is[i]=new Flute();
            }
            for (int i=0; i<10;i++) {
                is[i].play();
            }
                    /*for (int i = 0; i < 10; i++) {
                        if (is[i] instanceof Flute) {
                            System.out.println("Flute is stored at index"+
i);
                        }
                    }*/

        }
```

```
        else
        {
            for (int i=0;i<10;i++)
            {
                is[i]=new Guitar();
            }
            for (int i=0;i<10;i++)
            {
                is[i].play();
            }
                   /* for (int i = 0; i < 10; i++)
                    {
                        if (is[i] instanceof Guitar)
                        {
                            System.out.println("Guitar is stored at index"
+ i);
                        }*/
        }
    }

}
```

11.NoInteraction Exception{100%}

Code:-

```
package com.company;
import java.util.*;

class NoInteractionException extends Exception
{
    public NoInteractionException ()
    {
        System.out.println ("This Exception is Occured due to No-
Interaction");
    }
}
class Trainer {
    public void askQuestion(String quest, String ans)
    {
        try
        {
            if(ans.equals("null"))
            {
                System.out.println ("Question:"+quest);
                System.out.println ("Answer:null");
                throw new NoInteractionException();
            }
            else
            {
                System.out.println ("Question:"+quest);
                System.out.println ("Answer:"+ans);
            }
        }
        catch(Exception e)
```

```
        {
            System.out.println ("NoInteractionException");
        }
    }
}
public class Main
{
    public static void main (String[] args)
    {
        String q="",a="";
        Scanner sc=new Scanner(System.in);
        q=sc.nextLine();
        a=sc.nextLine();
        Trainer ob=new Trainer();
        ob.askQuestion(q,a);
    }
}
```

12.StackException

Code:-

```
package com.company;
import java.util.*;
public class Main {
    public static void main(String[] args) {
        UnionStack u = new UnionStack();
        java.util.Scanner scan = new Scanner(System.in);
        int a = scan.nextInt();
        if(a==1)
        {
            try{
                while(scan.hasNext())
                {
                    int z = scan.nextInt();
                    u.push(z);
                }
            }
            catch(FullStackException e)
            {
                System.out.println(e.getMessage());
            }
        }
        if(a==2)
        {
            try{
                while(scan.hasNext())
                {
                    int s = scan.nextInt();
                    u.push(s);
                }
                u.display();
                u.pop();
```

```
            }
            catch(FullStackException e)
            {
                System.out.println(e.getMessage());
            }
            catch(EmptyStackException e)
            {
                System.out.println(e.getMessage());
            }
        }
    }

}
class UnionStack
{
    int top=0;
    int array[] = new int[10];
    void push(int data) throws FullStackException
    {
        if(top<10){
            array[top] = data;
            top++;
        }
        else
            throw new FullStackException("Stack overflow");
    }
    int pop() throws EmptyStackException
    {
        if(top>=0){
            int a = array[top-1];
            array[top-1] = 0;
            top--;
            return a;
        }
        else
            throw new EmptyStackException("Stack empty");
    }
    void display() throws EmptyStackException
    {
        for(int i=0;i<top;i++)
        {
            System.out.println(array[i]);
        }
        if (top==0)
        { throw new EmptyStackException("Empty stack");
        }
    }
}
class FullStackException extends Exception
{
    FullStackException()
    {

    }
    public FullStackException(String message)
    {
        super(message);
    }
}
class EmptyStackException extends Exception
{
```

```
    EmptyStackException()
    {

    }
    public EmptyStackException(String message)
    {
        super(message);
    }
}
```

13.Date Month Year{100%}

Code:-

```
package com.company;
import java.util.*;

class DayException extends Exception{
    public void DayException(){}
}
class MonthException extends Exception{
    public void MonthException(){}
}
class YearException extends Exception{
    public void YearException(){}
}

class Check{
    public static int readDay(int day,int month) throws DayException
    {
        try{
            if(day<=29&&month==2){
                return day;
            }
            else if(day<=30&&(month==4||month==6||month==9||month==11))
            {
                return day;
            }
            else if(day<=31&&month<12)
            {
                return day;
            }
            else {
                throw new DayException();
            }
        }
        catch (DayException e) {
            throw new DayException();

        }
    }

    public static int readMonthNumber(int month) throws MonthException
    {
        try{
            if(month<=12)
```

```
            {
                return month;
            }
            else{
                throw new MonthException();
            }
        }
        catch(MonthException e)
        {
            throw new MonthException();
        }
    }
    public static int readYearNumber(int year) throws YearException
    {
        try{
            if(year>=1000&&year<=3000)
            {
                return year;
            }
            else{
                throw new YearException();
            }
        }
        catch(YearException e)
        {
            throw new YearException();
        }
    }

    public static int maximumDay(int monthNumber)
    {

if(monthNumber==1||monthNumber==3||monthNumber==5||monthNumber==7||monthNum
ber==8||monthNumber==10||monthNumber==12)
        {
            return 31;
        }
        else if(monthNumber==2)
        {
            return 29;
        }
        else{
            return 30;
        }
    }

    public static String monthString(int monthNumber) throws MonthException
    {
        try{
            if(monthNumber<=12)
            {
                String[]
arr={"January","Feburary","March","April","May","June","July","August","Sep
tember","October","November","December"};
                return arr[monthNumber-1];
            }
            else{
                throw new MonthException();
            }
        }
        catch(MonthException e){
```

```
            throw new MonthException();
        }
    }

}
public class Main
{
    public static void main(String []args)
    {
        Scanner sc=new Scanner(System.in);
        int month=sc.nextInt();
        int day=sc.nextInt();
        int year=sc.nextInt();
        try{
            String a=Check.monthString(month);
            int b=Check.readDay(day,month);
            int c=Check.readYearNumber(year);
            System.out.println("Date:"+a+"-"+b+"-"+c);
        }
        catch(DayException e)
        {
            System.out.println("Invalid Day");
        }
        catch(MonthException e)
        {
            System.out.println("Invalid Month");
        }
        catch(YearException e)
        {
            System.out.println("Invalid Year");
        }
    }
}
```

14.Phone Book{100%}

Code:-

```
package com.company;
import java.util.*;

class Contact
{
    private String empid,fname,lname,cellno,emailid;
    public Contact(String empid, String fname, String lname,String
cellno,String emailid)
    {
        this.empid=empid;
        this.fname=fname;
        this.lname=lname;
        this.cellno=cellno;
        this.emailid=emailid;
    }
    public void setempid(String empid)
    {
        this.empid=empid;
```

```
    }
    public void setfname(String fname)
    {
        this.fname=fname;
    }
    public void setlname(String lname)
    {
        this.lname=lname;
    }
    public void setcellno(String cellno)
    {
        this.cellno=cellno;
    }
    public void setemailid(String emailid)
    {
        this.emailid=emailid;
    }

    public String getempid()
    {
        return empid;
    }
    public String getfname()
    {
        return fname;
    }
    public String getlname()
    {
        return lname;
    }
    public String getcellno()
    {
        return cellno;
    }
    public String getemailid()
    {
        return emailid;
    }
}
public class Main
{
    public static void main(String []args)
    {
        Scanner sc=new Scanner(System.in);
        ArrayList<Contact> al=new ArrayList<Contact>();

        String id=sc.nextLine();
        String fn=sc.nextLine();
        String ln=sc.nextLine();
        String cn=sc.nextLine();
        String em=sc.nextLine();
        String id1=sc.nextLine();
        String fn1=sc.nextLine();
        String ln1=sc.nextLine();
        String cn1=sc.nextLine();
        String em1=sc.nextLine();
        String id2=sc.nextLine();
        String fn2=sc.nextLine();
        String ln2=sc.nextLine();
        String cn2=sc.nextLine();
        String em2=sc.nextLine();
```

```
        String id3=sc.nextLine();
        String fn3=sc.nextLine();
        String ln3=sc.nextLine();
        String cn3=sc.nextLine();
        String em3=sc.nextLine();
        String id4=sc.nextLine();
        String fn4=sc.nextLine();
        String ln4=sc.nextLine();
        String cn4=sc.nextLine();
        String em4=sc.nextLine();
        Contact c1=new Contact(id,fn,ln,cn,em);
        Contact c2=new Contact(id1,fn1,ln1,cn1,em1);
        Contact c3=new Contact(id2,fn2,ln2,cn2,em2);
        Contact c4=new Contact(id3,fn3,ln3,cn3,em3);
        Contact c5=new Contact(id4,fn4,ln4,cn4,em4);


        al.add(c1);
        al.add(c2);
        al.add(c3);
        al.add(c4);
        al.add(c5);
        Iterator<Contact> it=al.iterator();


        while(it.hasNext())
        {
            Contact c=(Contact)it.next();
            if(c.getlname().equals("Dcruz"))
            {

                System.out.println("Id:"+c.getempid());
                System.out.println("Name:"+c.getfname());
                System.out.println("Lastname:"+c.getlname());
                System.out.println("PhoneNumber:"+c.getcellno());
                System.out.println("Email:"+c.getemailid());


            }
        }

    }
}
```

15.Medicine App{100%}

Code:-

```
package com.company;
import java.util.*;

abstract class Medicine
{
    public void  label(String CompanyName, String Address)
    {
        System.out.println("Company Name:"+CompanyName);
        System.out.println("Address:"+Address);
    }

}
class Ointment extends Medicine{
    public void label(String CompanyName, String Address)
    {
        System.out.println("Company Name:"+CompanyName);
        System.out.println("Company Address:"+Address);
        System.out.println("for external use only");
    }
}
class Syrup extends Medicine{
    public void label(String CompanyName,String Address)
    {
        System.out.println("Company Name:"+CompanyName);
        System.out.println("Company Address:"+Address);
        System.out.println("Store it in a dry place");
    }
}
class Tablet extends Medicine{
    public void label(String CompanyName,String Address)
    {
        System.out.println("Company Name:"+CompanyName);
        System.out.println("Company Address:"+Address);
        System.out.println("store in a cool dry place");
    }
}
public class Main
{
    public static void main(String[] args)
    {
        String CompanyName="Himalaya Syrup";
        String Address="Bangalore";
        Scanner sc=new Scanner(System.in);
        int choice=sc.nextInt();
        if(choice==3)
        {
            for(int i=0;i<4;i++)
            {
                Tablet t=new Tablet();
                t.label(CompanyName,Address);
            }
        }
        else if(choice==2)
        {
            for(int i=0;i<4;i++)
```

```
            {
                Ointment o=new Ointment();
                o.label(CompanyName,Address);
            }
        }
        else if(choice==1)
        {
            for(int i=0;i<4;i++)
            {
                Syrup s=new Syrup();
                s.label(CompanyName,Address);
            }
        }
        else {
            System.out.println("invalid input");
        }
    }
}
```

16.Restaurent Info{100%}

Code:-

```
package com.company;
import java.util.*;

class Restaurent
{
    String name,location,Cuisine,rating;
    public Restaurent(String name,String location, String Cuisine,String
rating)
    {
        this.name=name;
        this.location=location;
        this.Cuisine=Cuisine;
        this.rating=rating;
    }
    public void setName(String name)
    {
        this.name=name;
    }
    public void setLocation(String location)
    {
        this.location=location;
    }
    public void setCuisine(String Cuisine)
    {
        this.Cuisine=Cuisine;
    }
    public void setRating(String rating)
    {
        this.rating=rating;
    }
    public String getName()
    {
        return name;
```

```
    }
    public String getLocation()
    {
        return location;
    }
    public String getCuisine()
    {
        return Cuisine;
    }
    public String getRating()
    {
        return rating;
    }
}

class DaoLayer{
    Restaurent searchRestaurent(ArrayList<Restaurent> al,String info)
    {
        Iterator<Restaurent> it=al.iterator();
        while(it.hasNext())
        {
            Restaurent o=it.next();
            if(o.getName().equals(info))
            {
                System.out.println("Name:"+o.getName());
                System.out.println("Location:"+o.getLocation());
                System.out.println("Cuisine:"+o.getCuisine());
                System.out.println("Rating:"+o.getRating());
                return o;
            }
        }
        return null;
    }

    void addRestaurent(ArrayList<Restaurent> al)
    {
        Iterator<Restaurent> it=al.iterator();
        while(it.hasNext())
        {
            Restaurent o=it.next();
            System.out.println("Name:"+o.getName());
            System.out.println("Location:"+o.getLocation());
            System.out.println("Cuisine:"+o.getCuisine());
            System.out.println("Rating:"+o.getRating());
        }
    }
}

public class Main
{
    public static void main(String []args)
    {
        Scanner sc=new Scanner(System.in);
        String choice=sc.nextLine();
        ArrayList<Restaurent> al=new ArrayList<Restaurent>();
        if(choice.equals("1"))
        {
            String n1=sc.nextLine();
            String l1=sc.nextLine();
            String c1=sc.nextLine();
            String r1=sc.nextLine();
```

```
            String n2=sc.nextLine();
            String l2=sc.nextLine();
            String c2=sc.nextLine();
            String r2=sc.nextLine();
            Restaurent obj1=new Restaurent(n1,l1,c1,r1);
            Restaurent obj2=new Restaurent(n2,l2,c2,r2);
            al.add(obj1);
            al.add(obj2);
            DaoLayer d=new DaoLayer();
            d.addRestaurent(al);
        }
        else{
            String info=sc.nextLine();
            DaoLayer d=new DaoLayer();
            d.searchRestaurent(al,info);
        }
    }
}
```

17.Contact app{100%}

Code:-

```
package com.company;
import java.util.*;

class Contact
{
    private String fName,lName,phNum,emailAdd;
    public Contact(String fName, String lName, String phNum,String
emailAdd)
    {
        this.fName=fName;
        this.lName=lName;
        this.phNum=phNum;
        this.emailAdd=emailAdd;
    }
    public void setFname(String fName)
    {
        this.fName=fName;
    }
    public void setLname(String lName)
    {
        this.lName=lName;
    }
    public void setPhNum(String phNum)
    {
        this.phNum=phNum;
    }
    public void setEmailAdd(String emailAdd)
    {
        this.emailAdd=emailAdd;
    }
    public String getFname()
    {
        return fName;
```

```
    }
    public String getLname()
    {
        return lName;
    }
    public String getPhNum()
    {
        return phNum;
    }
    public String getEmailAdd()
    {
        return emailAdd;
    }

}
class DAOLayer
{
    public Contact searchPerson(ArrayList<Contact> al,String info)
    {
        Iterator<Contact> it=al.iterator();
        while(it.hasNext())
        {
            if(it.next().getFname()==info)
            {
                Contact c=it.next();
                System.out.println("Name:"+c.getFname());
                System.out.println("LastName:"+c.getLname());
                System.out.println("Phone:"+c.getPhNum());
                System.out.println("Email:"+c.getEmailAdd());
                return it.next();
            }
        }
        return null;
    }

    public void addContact(ArrayList<Contact> al)
    {
        Iterator<Contact> it=al.iterator();
        while(it.hasNext())
        {
            Contact c=it.next();
            System.out.println("Name:"+c.getFname());
            System.out.println("LastName:"+c.getLname());
            System.out.println("Phone:"+c.getPhNum());
            System.out.println("Email:"+c.getEmailAdd());
        }
    }
}

public class Main
{
    public static void main(String []args)
    {
        Scanner sc=new Scanner(System.in);
        ArrayList<Contact> al=new ArrayList<Contact>();
        String choice=sc.nextLine();
        if(choice.equals("1"))
        {
            String fn=sc.nextLine();
            String ln=sc.nextLine();
            String ph=sc.nextLine();
```

```
            String e=sc.nextLine();
            String fn1=sc.nextLine();
            String ln1=sc.nextLine();
            String ph1=sc.nextLine();
            String e1=sc.nextLine();
            Contact c1=new Contact(fn,ln,ph,e);
            Contact c2=new Contact(fn1,ln1,ph1,e1);

            al.add(c1);
            al.add(c2);
            DAOLayer obj1=new DAOLayer();
            obj1.addContact(al);
        }
        else{
            String fn=sc.nextLine();
            DAOLayer obj=new DAOLayer();
            obj.searchPerson(al,fn);
        }


    }
}
```