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OOP PROGRAMMING LAB (JAVA)

ASSIGNMENT 2

Problem 1:

CODE:

BankAcct.java

```
import java.util.Scanner;

class BankAcct{
        private String acc_number;
        private double balance;
        private double int_rate;

    public BankAcct(){
        acc_number = "NA";
        balance = 0.0;
        int_rate = 0.0;
    }

    public void acceptAccount(double r){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Account Number:");
        acc_number = sc.nextLine();
        System.out.println("Enter Deposit Balance:");
        balance  = sc.nextDouble();
        sc.nextLine();
        int_rate = r;
    }

    public void displayAccount(){
        System.out.println("Account Number: " + acc_number);
        System.out.println("Current Balance: Rs. " + balance);
        System.out.println("Current Rate of Interest: " + int_rate + "%");
    }

    public double returnInterest(){
        return (balance * int_rate)/100 ;
    }
```

```
    public void updateRate(double r){
        int_rate = r;
    }

    public double returnBalance(){
        return balance;
    }

    public String returnAccNumber(){
        return acc_number;
    }
}
```

Bank.java

```
import java.util.ArrayList;
import java.util.Scanner;

public class Bank {
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
        ArrayList<BankAcct> acc_list = new ArrayList<>();
        BankAcct ac;
        int ch = 0, flag = 0, index = 0;
        String name;
        double rate = 0, interest = 0, balance = 0;
        while(ch!=6){
            ch = menu();
            switch(ch){
                case 1:
                    if(rate == 0){
                        System.out.println("No Rate issued by bank! Please Contact the Manager.");
                        break;
                    }
                    ac = new BankAcct();
                    ac.acceptAccount(rate);
                    index = isAvailable(ac.returnAccNumber(), acc_list);
                    if(index != -1){
                        System.out.println("Account already present! Want to update? (Y/N)");
                        String yes = sc.nextLine();
                        if(yes.toUpperCase().equals("Y")){
                            acc_list.set(index, ac);
                            System.out.println("Account Updated!");
                            break;
                        }
                        else{
                            System.out.println("No Changes Made!");
                            break;
                        }
                    }
```

```
            acc_list.add(ac);
            System.out.println("Account Added!");
            break;

        case 2:
            if(acc_list.size() == 0){
                System.out.println("No Accounts to Display!");
                break;
            }
            System.out.println("Enter Account Number:");
            name = sc.nextLine();
            index = isAvailable(name, acc_list);
            if(index == -1){
                System.out.println("Account does not exist!");
                break;
            }
            acc_list.get(index).displayAccount();
            break;

        case 3:
            System.out.println("Current Rate of Interest(per annum): " + rate + "%");
            System.out.println("Enter New Rate:");
            rate = sc.nextDouble();
            sc.nextLine();
            updateAllRates(acc_list, rate);
            System.out.println("Rate Updated!");
            break;

        case 4:
            if(acc_list.size() == 0){
                System.out.println("No Accounts Available!");
                break;
            }
            System.out.println("Enter Account Number:");
            name = sc.nextLine();
            index = isAvailable(name, acc_list);
            if(index == -1){
                System.out.println("Account does not exist!");
                break;
            }
            balance = acc_list.get(index).returnBalance();
            interest = acc_list.get(index).returnInterest();
            System.out.println("Current Interest on balance Rs. " + balance + ": Rs. " + interest);
            break;

        case 5:
            if(acc_list.size() == 0){
                System.out.println("No Accounts Available!");
                break;
            }
            displayAllAccounts(acc_list);
            break;
```

```
            case 6:
                System.exit(0);

            default:
                System.out.println("Wrong Choice!");
        }
    }
}
static int menu(){
    Scanner sc = new Scanner(System.in);
    System.out.println("\n***BANK MNAGEMENT SYSTEM***");
    System.out.println("1. Add Account.");
    System.out.println("2. Display Account.");
    System.out.println("3. Enter/Change Rate of Interest(same for all accounts): ");
    System.out.println("4. Calculate and Return Interest(per annum).");
    System.out.println("5. Display All Accounts.");
    System.out.println("6. Exit.");
    int choice;
    System.out.println("Enter Your Choice:");
    choice = sc.nextInt();
    sc.nextLine();
    return choice;
}

static int isAvailable(String name, ArrayList<BankAcct> acc_list){
    int index = 0;
    for(BankAcct a: acc_list){
        if(a.returnAccNumber().equals(name)){
            return index;
        }
        index++;
    }
    return -1;
}

static void updateAllRates(ArrayList<BankAcct> list, double rate){
    for(BankAcct a : list){
        a.updateRate(rate);
    }
}

static void displayAllAccounts(ArrayList<BankAcct> list){
    for(BankAcct a : list){
        a.displayAccount();
    }
}
}
```

Problem 2:

CODE:

Metric.java

```
import java.util.Scanner;

class Metric{
   public static void main(String args[]){
      Scanner sc = new Scanner(System.in);
      double argument;
      int choice = 0;
      while(choice != 3){
         choice = menu();
         switch(choice){
            case 1:
               System.out.println("Enter Kilometer value:");
               argument = sc.nextDouble();
               sc.nextLine();
               System.out.println(argument + " kms = " + kiloToMile(argument) + " miles.");
               break;
            case 2:
               System.out.println("Enter Miles value:");
               argument = sc.nextDouble();
               sc.nextLine();
               System.out.println(argument + " miles = " + mileToKilo(argument) + " kms.");
               break;
            case 3:
               System.exit(0);
            default:
               System.out.println("Wrong Choice!");
         }
      }
   }

   static int menu(){
      Scanner sc = new Scanner(System.in);
      System.out.println("\n**UNIT CONVERSION MENU**");
      System.out.println("1. Kilometers to Miles.");
      System.out.println("2. Miles to Kilometers.");
      System.out.println("3. Exit.");
      System.out.println("Enter Your Choice:");
      int choice = sc.nextInt();
      sc.nextLine();
      return choice;
   }

   static double kiloToMile(double kilometers){
      return kilometers/1.5 ;
```

```
    }

    static double mileToKilo(double miles){
        return miles*1.5;
    }
}
```

Problem 3:

CODE:

StringOperations.java

```
import java.util.*;
import java.util.stream.*;

class StringOperations{
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
        String input = "";

        System.out.println("\nEnter the String:");
        input = sc.nextLine();

        char arrayOfChars[] = input.replaceAll(" ", "").toCharArray();
        String arrayOfWords[] = input.split("\\s+|\\@|\\.");

        int choice = 0;

        while(choice != 6){
            choice = menu();
            switch(choice){
                case 1:
                    System.out.println("Number of a's : " + numberOfACharacter(arrayOfChars, 'a'));
                    System.out.println("Number of A's : " + numberOfACharacter(arrayOfChars, 'A'));
                    break;

                case 2:
                    System.out.print("Number of 'and's : " + numberOfAWord(arrayOfWords, "and"));
                    break;

                case 3:
                    if(input.startsWith("The", 0)){
                        System.out.println("Yes.");
                    }
                    else{
                        System.out.println("No.");
```

```
            }
            break;

        case 4:
            System.out.println("Array of Characters:");
            for(char c : arrayOfChars){
                System.out.println(c);
            }
            break;

        case 5:
            System.out.println("Array of Words(tokens):");
            List<String> myStringList = new ArrayList<String>(arrayOfWords.length);
            for (String s : arrayOfWords) {
                myStringList.add(s);
            }

            myStringList.removeAll(Collections.singleton(" "));
            // arrayOfWords = myStringList.toArray(new String[0]);

            for(String s : myStringList){
                System.out.println(s);
            }
            break;

        case 6:
            System.out.println("Wrorng Choice!");
            System.exit(0);

        default:
            System.out.println("Wrorng Choice!");
      }
   }
}

static int menu(){
   Scanner sc = new Scanner(System.in);
   System.out.println("\nMENU");
   System.out.println("1. Number of a's in the sting.");
   System.out.println("2. Number of 'and's in the string.");
   System.out.println("3. Does the string starts with 'The'?");
   System.out.println("4. Display string as Array of characters.");
   System.out.println("5. Display all words of the string.");
   System.out.println("6. Exit.");
   int choice;
   System.out.println("Enter Your Choice:");
   choice = sc.nextInt();
   sc.nextLine();
   return choice;
}

static int numberOfACharacter(char[] array, char ch){
   int count = 0;
```

```
        for(char c : array){
            if(c == ch){
                count++;
            }
        }
        return count;
    }

    static int numberOfAWord(String[] array, String word){
        int count = 0;
        for(String s : array){
            if(s.equals(word)){
                count++;
            }
        }
        return count;
    }

}
```

Problem 4:

CODE:

Wrapper.java

```
import java.util.Scanner;

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

        // basic type to wrapper class object
        int i1 = 10;
        Integer a1 = Integer.valueOf(i1); //explicitly
        Integer j1 = a1;                  //autoboxing
        System.out.println("Output (i): " + a1 + " " + j1);


        // wrapper class object to basic type
        // unboxing
        Integer a2 = new Integer(5);
        int i2 = a2.intValue();         //explicitly
        int j2 = a2;                    //unboxing
        System.out.println("Output (ii): " + a2 + " " + j2);


        // basic type to String
        int i3 = 9;
```

```
        String s1 = Integer.toString(i3);
        System.out.println("Output (iii): " + i3 + " " + s1);


        // String to wrapper class object
        String s2 = "15";
        Integer a3 = new Integer(s2);
        System.out.println("Output (iv): " + s2 + " " + a3);


        // wrapper class object to String
        Integer a4 = new Integer(45);
        String s3 = Integer.toString(a4);
        System.out.println("Output (v): " + a4 + " " + s3);
    }
}
```

Problem 5:

CODE:

Customer.java

```
import java.util.Scanner;

class Customer{
        private String cusId;
        private String phnNumber;
        private String name;
        private double currLoan;
        private double credit;
        private boolean isPrivileged;

    public Customer(){
        cusId = "";
        name = "";
        currLoan = 0.0;
        phnNumber = "";
        credit = 0.0;
        isPrivileged = false;
    }

    public void acceptData(int id){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Name:");
        name = sc.nextLine();
        System.out.println("Enter Phone Number:");
        phnNumber = sc.nextLine();
        cusId = this.generateId(id);
```

```
    System.out.println("Auto-Generated ID: " + cusId);
}

public void displayCustomer(){
    System.out.println("\nCustomer ID: " + cusId);
    System.out.println("Customer Name: " + name);
    System.out.println("Customer Phone Number: " + phnNumber);
    System.out.println("Current Credit Limit: Rs. " + credit);
    System.out.println("Current Loan: Rs. " + currLoan);
}

public String generateId(int i){
    return "100" + String.valueOf(i);
}

public void updateCredit(double c){
    credit = c;
}

public void updateName(String n){
    name = n;
}

public void updatePhone(String p){
    phnNumber = p;
}

public boolean isLoanAvailable(double amt){
    if((amt + currLoan) <= credit){
        currLoan += amt;
        return true;
    }
    return false;
}

public void makePriviliged(double amt){
    isPrivileged = true;
    credit = amt;
}

public String returnName(){
    return name;
}

public double returnCurrentLoan(){
    return currLoan;
}

public double returnCredit(){
    return credit;
}
```

```
    public String returnPhone(){
        return phnNumber;
    }

    public boolean isPriv(){
        return isPrivileged;
    }

    public double canSeek(){
        return credit - currLoan;
    }

    public String returnID(){
        return cusId;
    }
}
```

Bank.java

```
import java.util.ArrayList;
import java.util.Scanner;

public class Bank {
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
        ArrayList<Customer> cus_list = new ArrayList<>();
        Customer cu;
        int ch = 0, flag = 0, index = 0, priv = 0;
        String id, name, phn;
        double creditP = 0, creditNP = 0, loan = 0, temp = 0;
        while(ch != 10){
            ch = menu();
            switch(ch){
                case 1:
                    if(creditP == 0 && creditNP == 0){
                        System.out.println("No Credit issued by bank! Please Contact the Manager.");
                        break;
                    }
                    cu = new Customer();
                    cu.acceptData(cus_list.size() + 1);
                    index = isAvailable(cu.returnPhone(), cus_list);
                    if(index != -1){
                        System.out.println("Customer Phone Number Already Present! Want to update?
(Y/N)");
                        String yes = sc.nextLine();
                        if(yes.toUpperCase().equals("Y")){
                            cus_list.set(index, cu);
                            System.out.println("Customer Updated!");
                            break;
                        }
                        else{
```

```
            System.out.println("No Changes Made!");
            break;
        }
    }
    if(cu.isPriv())
        cu.updateCredit(creditP);
    else
        cu.updateCredit(creditNP);
    cus_list.add(cu);
    System.out.println("Account Added!");
    break;

case 2:
    if(cus_list.size() == 0){
        System.out.println("No Customers to Display!");
        break;
    }
    System.out.println("Enter Customer Id:");
    id = sc.nextLine();
    index = isIDAvailable(id, cus_list);
    if(index == -1){
        System.out.println("Customer does not exist!");
        break;
    }
    cus_list.get(index).displayCustomer();
    break;

case 3:
    System.out.println("1. Change Credit of Privileged.");
    System.out.println("2. Change Credit of Non-Privileged.");
    System.out.println("Enter Your Choice:");
    priv = sc.nextInt();
    sc.nextLine();
    switch(priv){
        case 1:
            System.out.println("Current Credit Limit of Privileged: Rs. " + creditP);
            System.out.println("Enter New Credit:");
            temp = creditP;
            creditP = sc.nextDouble();
            sc.nextLine();
            if(creditP < creditNP){
                System.out.println("Please enter a value higher than Rs. " + creditNP);
                creditP = temp;
                break;
            }
            updateAllPCredits(cus_list, creditP);
            System.out.println("Credit Updated!");
            break;
        case 2:
            System.out.println("Current Credit Limit of Non-Privileged: Rs. " + creditNP);
            System.out.println("Enter New Credit:");
            temp = creditP;
```

```
            creditNP = sc.nextDouble();
            sc.nextLine();
            if(creditNP > creditP && creditP != 0){
               System.out.println("Please enter a value less than Rs. " + creditP);
               break;
            }
            updateAllNPCredits(cus_list, creditNP);
            System.out.println("Credit Updated!");
            break;
      }
      break;

   case 4:
      if(cus_list.size() == 0){
         System.out.println("No Customers Available!");
         break;
      }
      System.out.println("Enter Customer Id:");
      id = sc.nextLine();
      index = isIDAvailable(id, cus_list);
      if(index == -1){
         System.out.println("Customer does not exist!");
         break;
      }
      String prevName = cus_list.get(index).returnName();
      System.out.println("Enter New Name:");
      name = sc.nextLine();
      updateName(cus_list, name, prevName);
      System.out.println("Name Updated!");
      break;

   case 5:
      if(cus_list.size() == 0){
         System.out.println("No Customers Available!");
         break;
      }
      System.out.println("Enter Customer Id:");
      id = sc.nextLine();
      index = isIDAvailable(id, cus_list);
      if(index == -1){
         System.out.println("Customer does not exist!");
         break;
      }
      String prevPhone = cus_list.get(index).returnPhone();
      System.out.println("Enter New Phone Number:");
      phn = sc.nextLine();
      updatePhone(cus_list, phn, prevPhone);
      System.out.println("Phone Updated!");
      break;

   case 6:
      if(cus_list.size() == 0){
```

```
                System.out.println("No Customers Available!");
                break;
            }
            if(creditP == 0.0){
                System.out.println("No Privileged Credit issued by bank! Please Contact the
Manager.");
                break;
            }
            System.out.println("Enter Customer Id:");
            id = sc.nextLine();
            index = isIDAvailable(id, cus_list);
            if(index == -1){
                System.out.println("Customer does not exist!");
                break;
            }
            if(cus_list.get(index).isPriv()){
                System.out.println("Customer Aready Privileged!");
                break;
            }
            cus_list.get(index).makePriviliged(creditP);
            System.out.println("Credit Limit changed!");
            break;

        case 7:
            if(cus_list.size() == 0){
                System.out.println("No Customers Available!");
                break;
            }
            System.out.println("Enter Customer Id:");
            id = sc.nextLine();
            index = isIDAvailable(id, cus_list);
            if(index == -1){
                System.out.println("Customer does not exist!");
                break;
            }
            System.out.println("Enter Loan Amount");
            loan = sc.nextDouble();
            sc.nextLine();
            boolean done = cus_list.get(index).isLoanAvailable(loan);
            if(done){
                System.out.println("Loan Sanctioned!");
            }
            else{
                System.out.println("Credit Limit Reached!");
            }
            break;
        case 8:
            if(cus_list.size() == 0){
                System.out.println("No Customers Available!");
                break;
            }
            System.out.println("Enter Customer Id:");
```

```
                id = sc.nextLine();
                index = isIDAvailable(id, cus_list);
                if(index == -1){
                    System.out.println("Customer does not exist!");
                    break;
                }
                cus_list.get(index).displayCustomer();
                System.out.println("Can seek a loan of less than or equal to Rs. " +
cus_list.get(index).canSeek());
                break;

            case 9:
                if(cus_list.size() == 0){
                    System.out.println("No Customers Available!");
                    break;
                }
                displayAllAccounts(cus_list);
                break;

            case 10:
                System.exit(0);

            default:
                System.out.println("Wrong Choice!");
        }
    }
}

static int menu(){
    Scanner sc = new Scanner(System.in);
    System.out.println("\n***BANK MNAGEMENT SYSTEM***");
    System.out.println("1. Add Customer.");
    System.out.println("2. Display Customer Details.");
    System.out.println("3. Enter/Change Credit Limit(same for all customers): ");
    System.out.println("4. Update Name.");
    System.out.println("5. Update Phone Number.");
    System.out.println("6. Make Customer Privileged.");
    System.out.println("7. Request for Loan.");
    System.out.println("8. Show Credit and Loan Details.");
    System.out.println("9. Display All Accounts.");
    System.out.println("10. Exit.");
    int choice;
    System.out.println("Enter Your Choice:");
    choice = sc.nextInt();
    sc.nextLine();
    return choice;
}

static int isAvailable(String phone, ArrayList<Customer> cu_list){
    int index = 0;
    for(Customer a: cu_list){
        if(a.returnPhone().equals(phone)){
```

```
            return index;
        }
        index++;
    }
    return -1;
}

static int isIDAvailable(String id, ArrayList<Customer> cu_list){
    int index = 0;
    for(Customer a: cu_list){
        if(a.returnID().equals(id)){
            return index;
        }
        index++;
    }
    return -1;
}

static void updateAllNPCredits(ArrayList<Customer> list, double credit){
    for(Customer a : list){
        if(!a.isPriv())
            a.updateCredit(credit);
    }
}

static void updateAllPCredits(ArrayList<Customer> list, double credit){
    for(Customer a : list){
        if(a.isPriv())
            a.updateCredit(credit);
    }
}

static void updateName(ArrayList<Customer> list, String name, String prevName){
    for(Customer a : list){
        if(a.returnName().equals(prevName)){
            a.updateName(name);
        }
    }
}

static void updatePhone(ArrayList<Customer> list, String phone, String prevPhone){
    for(Customer a : list){
        if(a.returnName().equals(prevPhone)){
            a.updateName(phone);
        }
    }
}

static void displayAllAccounts(ArrayList<Customer> list){
    for(Customer a : list){
        a.displayCustomer();
    }
```

```
    }
}
```

Problem 6:

CODE:

Address.java

```
import java.util.Scanner;

public class Address {
    private String premiseNo;
    private String street;
    private String city;
    private String pin;
    private String state;


    public void acceptValues(){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Premise Number:");
        premiseNo = sc.nextLine();
        System.out.println("Enter Street:");
        street = sc.nextLine();
        System.out.println("Enter City:");
        city = sc.nextLine();
        System.out.println("Enter Pin:");
        pin = sc.nextLine();
        System.out.println("Enter State:");
        state = sc.nextLine();
    }

    public void displayValues(){
        System.out.println("Address: " + premiseNo + ", " + street + ", " + city + ", " + state + "-" +
pin);
    }

    public void updatePremise(String temp){
        premiseNo = temp;
    }
    public void updateStreet(String temp){
        street = temp;
    }
    public void updateCity(String temp){
        city = temp;
    }
    public void updatePin(String temp){
```

```
        pin = temp;
    }
    public void updateState(String temp){
        state = temp;
    }
}
```

Person.java

```
import java.util.Scanner;

class Person{
    private String name;
    private Address address;
    private String phone;
    private Strg email;


    public Person(){
        name="";
        address = new Address();
        phone="";
        email="";
    }

    public void acceptData(){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Name:");
        name = sc.nextLine();
        System.out.println("Address:");
        address.acceptValues();
        System.out.println("Enter Phone:");
        phone = sc.nextLine();
        System.out.println("Enter Email-Id:");
        email = sc.nextLine();
    }

    public void displayData(){
        System.out.println("\nName: " + name);
        address.displayValues();
        System.out.println("Phone: " + phone);
        System.out.println("Email-Id: " + email);
    }

    public void changeAddress(int choice, String change){
        if(choice == 1){
            address.updatePremise(change);
        }
        else if(choice == 2){
            address.updateStreet(change);
        }
```

```
        else if(choice == 3){
            address.updateCity(change);
        }
        else if(choice == 4){
            address.updatePin(change);
        }
        else{
            address.updateState(change);
        }
    }
}
```

Student.java

```
import java.util.Scanner;

class Student extends Person {
    private String roll;
    private String course;

    public Student(){
        super();
        roll = "";
        course = "";
    }

    public void acceptData(int id){
        super.acceptData();
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Course of Study:");
        course = sc.nextLine();
        roll = this.generateRoll(id);
        System.out.println("Auto-generated Roll: " + roll);
    }

    public void displayData(){
        super.displayData();
        System.out.println("Roll Number: " + roll);
        System.out.println("Course of Study: " + course);
    }

    public String generateRoll(int id){
        return "100" + String.valueOf(id);
    }

    public String returnRoll(){
        return roll;
    }
}
```

Faculty.java

```
import java.util.Scanner;

class Faculty extends Person{
    private String empId;
    private String dept;
    private String specialisation;

    public Faculty(){
        super();
        empId = "";
        dept = "";
        specialisation = "";
    }

    public void acceptData(int id){
        super.acceptData();
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Department:");
        dept = sc.nextLine();
        System.out.println("Enter Specialisation:");
        specialisation = sc.nextLine();
        empId = this.generateID(id);
        System.out.println("Auto-generated Employee ID: " + empId);
    }

    public void displayData(){
        super.displayData();
        System.out.println("Employee ID: " + empId);
        System.out.println("Department: " + dept);
        System.out.println("Specialiastion: " + specialisation);
    }

    public String generateID(int id){
        return "100" + String.valueOf(id);
    }

    public String returnID(){
        return empId;
    }
}
```

Institute.java

```
import java.util.Scanner;
import java.util.ArrayList;

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

```
Scanner sc = new Scanner(System.in);
ArrayList<Student> s_list = new ArrayList<>();
ArrayList<Faculty> f_list = new ArrayList<>();

Faculty ft;
Student st;

int choice = 0, sub_choice1 = 0, sub_choice2 = 0, index;
String id, change;
while(choice != 5){
   choice = menu();
   switch(choice){
      case 1:
         ft = new Faculty();
         ft.acceptData(f_list.size() + 1);
         f_list.add(ft);
         break;

      case 2:
         st = new Student();
         st.acceptData(s_list.size() + 1);
         s_list.add(st);
         break;

      case 3:
         if(f_list.size() == 0 && s_list.size() == 0){
            System.out.println("No Student or Faculty Added!");
            break;
         }
         sub_choice1 = sub_menu1();
         switch(sub_choice1){
            case 1:
               System.out.println("Enter Employee ID:");
               id = sc.nextLine();
               index = isFaccultyPresent(f_list, id);
               if(index != -1){
                  f_list.get(index).displayData();
               }
               else{
                  System.out.println("Faculty Not Present!");
                  break;
               }
               break;

            case 2:
               System.out.println("Enter Roll Number:");
               id = sc.nextLine();
               index = isStudentPresent(s_list, id);
               if(index != -1){
                  s_list.get(index).displayData();
               }
               else{
```

```
                System.out.println("Student Not Present!");
                break;
            }
            break;

        default:
            System.out.println("Wrong Choice!");
    }
    break;

case 4:
    if(f_list.size() == 0 && s_list.size() == 0){
        System.out.println("No Student or Faculty Added!");
        break;
    }
    sub_choice1 = sub_menu1();
    switch(sub_choice1){
        case 1:
            System.out.println("Enter Employee ID:");
            id = sc.nextLine();
            index = isFaccultyPresent(f_list, id);
            if(index != -1){
                while(sub_choice2 != 6){
                    sub_choice2 = sub_menu2();
                    switch(sub_choice2){
                        case 1:
                            System.out.println("Enter New Premise No.:");
                            change = sc.nextLine();
                            f_list.get(index).changeAddress(sub_choice2, change);
                            System.out.println("Premise Changed!");
                            break;

                        case 2:
                            System.out.println("Enter New Street:");
                            change = sc.nextLine();
                            f_list.get(index).changeAddress(sub_choice2, change);
                            System.out.println("Street Changed!");
                            break;

                        case 3:
                            System.out.println("Enter New City:");
                            change = sc.nextLine();
                            f_list.get(index).changeAddress(sub_choice2, change);
                            System.out.println("City Changed!");
                            break;

                        case 4:
                            System.out.println("Enter New Pin:");
                            change = sc.nextLine();
                            f_list.get(index).changeAddress(sub_choice2, change);
                            System.out.println("Premise Changed!");
                            break;
```

```
                case 5:
                    System.out.println("Enter New State:");
                    change = sc.nextLine();
                    f_list.get(index).changeAddress(sub_choice2, change);
                    System.out.println("State Changed!");
                    break;

                case 6:
                    break;

                default:
                    System.out.println("Wrong Choice!");
            }
        }
    }
    else{
        System.out.println("Faculty Not Present!");
        break;
    }
    break;

case 2:
    System.out.println("Enter Roll Number:");
    id = sc.nextLine();
    index = isStudentPresent(s_list, id);
    if(index != -1){
        while(sub_choice2 != 6){
            sub_choice2 = sub_menu2();
            switch(sub_choice2){
                case 1:
                    System.out.println("Enter New Premise No.:");
                    change = sc.nextLine();
                    s_list.get(index).changeAddress(sub_choice2, change);
                    System.out.println("Premise Changed!");
                    break;

                case 2:
                    System.out.println("Enter New Street:");
                    change = sc.nextLine();
                    s_list.get(index).changeAddress(sub_choice2, change);
                    System.out.println("Street Changed!");
                    break;

                case 3:
                    System.out.println("Enter New City:");
                    change = sc.nextLine();
                    s_list.get(index).changeAddress(sub_choice2, change);
                    System.out.println("City Changed!");
                    break;

                case 4:
```

```
                        System.out.println("Enter New Pin:");
                        change = sc.nextLine();
                        s_list.get(index).changeAddress(sub_choice2, change);
                        System.out.println("Premise Changed!");
                        break;

                    case 5:
                        System.out.println("Enter New State:");
                        change = sc.nextLine();
                        s_list.get(index).changeAddress(sub_choice2, change);
                        System.out.println("State Changed!");
                        break;

                    case 6:
                        break;

                    default:
                        System.out.println("Wrong Choice!");
                    }
                }

            }
            else{
                System.out.println("Student Not Present!");
                break;
            }
            break;

        default:
            System.out.println("Wrong Choice!");
        }
        break;

    case 5:
        System.exit(0);

    default:
        System.out.println("Wrong Choice!");
    }
  }

}

static int menu(){
    Scanner sc = new Scanner(System.in);
    System.out.println("\n****INSTITUTE MANAGEMENT SYSTEM****");
    System.out.println("1. Add Faculty.");
    System.out.println("2. Add Student.");
    System.out.println("3. Display Details.");
    System.out.println("4. Change Address of a Person.");
    System.out.println("5. Exit.");
    System.out.println("Enter Your Choice:");
```

```
        int choice;
        choice = sc.nextInt();
        sc.nextLine();
        return choice;
    }

    static int sub_menu1(){
        Scanner sc = new Scanner(System.in);
        System.out.println("\n1. Faculty.");
        System.out.println("2. Student.");
        System.out.println("Enter Your Choice: ");
        int choice = sc.nextInt();
        sc.nextLine();
        return choice;
    }

    static int sub_menu2(){
        Scanner sc = new Scanner(System.in);
        System.out.println("\n1. Premise Number.");
        System.out.println("2. Street.");
        System.out.println("3. City.");
        System.out.println("4. Pin.");
        System.out.println("5. State.");
        System.out.println("6. Exit.");
        System.out.println("Enter Your Choice: ");
        int choice = sc.nextInt();
        sc.nextLine();
        return choice;
    }

    static int isStudentPresent(ArrayList<Student> list, String id){
        int index = 0;
        for(Student ft : list){
            if(ft.returnRoll().equals(id))
                return index;
            index++;
        }
        return -1;
    }

    static int isFaccultyPresent(ArrayList<Faculty> list, String id){
        int index = 0;
        for(Faculty ft : list){
            if(ft.returnID().equals(id))
                return index;
            index++;
        }
        return -1;
    }
}
```