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BATCH: B2

Q1: Define two different classes namely, Student and Employee. These classes are derived from a base class Person.

Define other two classes Staff and Faculty. Staff and Faculty classes are derived from Employee class.

The Person class has name and age data and display method to display the name and age of a person. The Student class has data like rollNo and branch and display method to display name, age, rollNo and branch of the student. Employee has ecNo and doj(date of joining) data and display method to display name, age, ecNo, doj of the stuff. Faculty has designation data (Assistant Professor, Associate Professor and Professor) and display method to display the name, age, ecNo, doj and designation of the Faculty. Staff has designation data (Technical and Clerical) and display method to display the name, age, ecNo, doj and designation of the Staff. Each class have their own constructor to initialize the value of each data field. Finally create MainDemoClass and create an object of each class.

The main class calls, all other class as API. Print the values of all objects in the MainDemoClass

Code:

//Package pack1

//Employee class

```
package pack1;

import java.util.*;

public class Employee extends Person {

    public int EcNO;

    public int year,month,day;

    public GregorianCalendar c;

    Scanner sc= new Scanner(System.in);

    public Employee(String name, int age,int EcNO) {

        super(name, age);

        this.EcNO=EcNO;

    }

    public void setDate(){

        System.out.println("Enter the year:");

        year=sc.nextInt();
```

```

        System.out.println("Enter the month:");
        month=sc.nextInt();

        System.out.println("Enter the day:");
        day=sc.nextInt();

        c=new GregorianCalendar(year,month,day);
    }

    public void display(){
        System.out.println("Your name is:"+name);
        System.out.println("Your age is:"+age);
        System.out.println("Your date of joining is :"+c.getTime());
        System.out.println("Your EcNo is: "+EcNO);

    }
}

```

// Person class

```

package pack1;

public class Person{
    public String name;
    public int age;
    public Person(String name,int age){
        this.name=name;
        this.age=age;
    }

    public void display(){
        System.out.println("Your name is:"+name);
        System.out.println("Your age is:"+age);
    }
}

```

// Student class

```
package pack1;

public class Student extends Person{

    int roll_no;

    String branch;

    public Student(String name, int age,int roll_no,String branch) {

        super(name, age);

        this.roll_no=roll_no;

        this.branch=branch;

    }

    public void display(){

        System.out.println("Details of Student");

        System.out.println("Your name is:"+name);

        System.out.println("Your age is:"+age);

        System.out.println("Your roll number is:"+roll_no);

        System.out.println("Your branch is :"+branch);

    }

}
```

// Package 2

//Faculty class

```
package pack2;

import java.util.GregorianCalendar;

import java.util.*;
```

```
import pack1.Employee;

// 1-Assistant Professor
// 2-Associate Professor
// 3-Professor

public class Faculty extends Employee {

    int des;

    int EcNO;

    int year,month,day;

    Scanner sc= new Scanner(System.in);

    GregorianCalendar c;

    public Faculty(String name, int age,int EcNO,int des) {

        super(name, age, EcNO);

        this.des=des;

    }

    public void display(){

        System.out.println("Details of Faculty");

        System.out.println("Your name is:"+name);

        System.out.println("Your age is:"+age);

        System.out.println("Your date of joining is :"+c.getTime());

        System.out.println("Your EcNo is: "+EcNO);

        switch(des){

            case 1:{

                System.out.println("Your designation is assistant professor");

                break;

            }

            case 2:{

                System.out.println("Your designation is associate professor");

                break;

            }

        }

    }

}
```

```

        case 3:{
            System.out.println("Your designation is professor");
            break;
        }
    }
}

    public void setDate(){
        System.out.println("Let's set the date of Faculty");
        System.out.println("Enter the year:");
        year = sc.nextInt();
        System.out.println("Enter the month:");
        month=sc.nextInt();
        System.out.println("Enter the day:");
        day=sc.nextInt();
        c=new GregorianCalendar(year,month,day);
    }
}

```

// Staff class

```

package pack2;

import java.util.*;
import pack1.Employee;

public class Staff extends Employee {
    public int desig;

    Scanner sc= new Scanner(System.in);

    public Staff(String name, int age, int EcNO,int desig) {

```

```
        super(name,age,EcNO);  
        this.desig=desig;  
    }  
  
    public void setDate(){  
        System.out.println("Let's set the date of Staff");  
        System.out.println("Enter the year:");  
        year=sc.nextInt();  
        System.out.println("Enter the month:");  
        month=sc.nextInt();  
        System.out.println("Enter the day:");  
        day=sc.nextInt();  
        c=new GregorianCalendar(year,month,day);  
    }  
  
    public void display(){  
        System.out.println("Details of Staff:");  
        System.out.println("Your name is:"+name);  
        System.out.println("Your age is:"+age);  
        System.out.println("Your date of joining is :"+c.getTime());  
        System.out.println("Your EcNo is: "+EcNO);  
        switch(desig){  
            case 1:{  
                System.out.println("Your designation is Technical");  
                break;  
            }  
            case 2:{  
                System.out.println("Your designation is Clerical");  
                break;  
            }  
        }  
    }  
}
```

```

    }
}
}

```

//Maindemo class

```

import pack1.*;
import pack2.*;
import java.util.*;
public class Maindemo {
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter name of Staff:");
        String name=sc.next();
        System.out.println("Enter age of Staff:");
        int age= sc.nextInt();
        System.out.println("Enter EcNo of Staff:");
        int EcNO=sc.nextInt();
        System.out.println("Enter the designation of Staff");
        System.out.println("1)Technical\n2)Clerical");
        int des=sc.nextInt();
        Staff s=new Staff(name, age, EcNO, des);
        s.setDate();
        s.display();
        Faculty f= new Faculty("Akash",23,1234,2);
        f.setDate();
        f.display();
        Student st= new Student("Rohit",23,100,"ComputerEngineering");
        st.display();
    }
}

```

```
}
```

```
}
```

Output:

```
1
```

```
Your designation is Technical
```

```
Your branch is :ComputerEngineering
```

Q2:

### Program 2:

Create a GST class in package myPackage, that calculates the tax for a product. The class has rate of interest defined based on type of GST and has calculateGST(type, amount)

There are four different types of GST as listed below:

- The Central Goods and Services Tax (CGST) - Rate 5%
- The State Goods and Services Tax (SGST) -Rate 10%
- The Union Territory Goods and Services Tax (UTGST) -Rate 12%
- The Integrated Goods and Services Tax (IGST) - Rate 15%

Create Driver class not in myPackage with main function

to calculate the GST of a product input by the user.

Display the GST amount.

Code:

```
// myPackage
```

Gst class

```
/*
```

```
1=cgst
```

```
2=sgst
```

```
3=igst
```

```
4=utgst
```

```
float rct=0.05f;
```

```
float rst=0.1f;
```

```
float rit=0.15f;
```



```

        float rut=0.12f;
    */
package myPackage;

public class GST{

    public void calculateGST(int type,int amount){

        int totamt=0;

        switch(type){

            case 1:{

                totamt+=amount + amount*0.05;

                System.out.println("Total amount with tax is:"+totamt);

                break;

            }

            case 2:

            {

                totamt+=amount + amount*0.1;

                System.out.println("Total amount with tax is:"+totamt);

                break;

            }

            case 3:

            {

                totamt+=amount + amount*0.15;

                System.out.println("Total amount with tax is:"+totamt);

                break;

            }

            case 4:

            {

                totamt+=amount + amount*0.12;

                System.out.println("Total amount with tax is:"+totamt);

```

```

        break;
    }
}
}
}
}

```

// No Pacakge

Driver class

```

import myPackage.*;
import java.util.*;

/*1=cgst
  2=sgst
  3=igst
  4=utgst */

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

        GST g= new GST();

        int amt;

        int type;

        System.out.println("Enter the amount:");

        amt=sc.nextInt();

        System.out.println("Enter the type");

        System.out.println("1)CGST\n2)SGST\n3)IGST\n4)UTGST\n");

        type=sc.nextInt();

        g.calculateGST(type, amt);
    }
}

```

Output:

```
PS C:\Users\aspur\OneDrive\Desktop\Packages\JavaPrograms> |
```