/\*1.Create a class named Employee that consists following members to support Employee automation and print the Employee Salary details:-

#.define instance variables to store empCode(string), empName(string), post(string), basic(double) of the Employee.

**#.define constructors to initialise Employee information in corresponding instance/object variable.** 

**#.define methods to calculate Employee Salary by applying the following conditions:-**

\*Dearness Allowance must be 30% of the basic pay if the basic pay is more than Rs.15000/- per month otherwise @25%.

\*House Rent Allowance must be 15% of the basic pay if the basic pay is less than Rs.10000/- per month otherwise @20%.

\*Medical allowance is fixed Rs.2500/- paid to each Employee per month.

\*Income Tax is deducted @12% of the Gross/Total salary only if the gross salary exceeds Rs.20000/- per month.

#.define method to print stored Employee salary information.

Display the complete functionality

[Make suitable assumption if necessary]

\*/

```
import java.util.*;
class Employee{
private String empCode="",empName="",post="";
```

```
private double basic;
private final double ma=2500.0;
Employee(){}
Employee(String empCode,String empName,String post,double basic){
this.empCode=empCode;
this.empName=empName;
this.post=post;
this.basic=basic;
}
void accept(String empCode,String empName,String post,double basic){
this.empCode=empCode;
this.empName=empName;
this.post=post;
this.basic=basic;
}
void accept(double basic){
this.basic=basic;
double getDa(){
return(basic>15000?basic*30/100:basic*25/100);
}
double getHra(){
return(basic<10000?basic*15/100:basic*20/100);
}
double gross(){
```

```
return(basic+getDa()+getHra()+ma);
}
double getItax(){
return(gross()>20000?gross()*12/100:0.0);
}
double getNetSal(){
return(gross()-getItax());
}
void print(){
System.out.println("=====Employee Salary Details===dated::"+new Date());
                                            :"+empCode.toUpperCase());
System.out.println("Employee Code
System.out.println("Employee Name
                                            :"+empName.toUpperCase());
System.out.println("Post/Designation
                                            :"+post.toUpperCase());
System.out.println("-----
                                                -----"):
System.out.println("Basic Pay in Rs.
                                            :"+basic);
System.out.println("Dearness allowance in Rs.
                                            :"+getDa());
System.out.println("House Rent allowance in Rs.
                                            :"+getHra());
System.out.println("Medical allowance in Rs.
                                            :"+ma);
System.out.println("Gross/Total Salary in Rs.
                                            :"+gross());
System.out.println("Income Tax deduction in Rs. :"+getItax());
System.out.println("-----");
                                            :"+getNetSal());
System.out.println("Net Salary in Rs.
System.out.println("=========");
}
}//Close of class Employee
```

```
class OEmployee{
public static void main(String args[]){
Scanner s=new Scanner(System.in);
System.out.println();
System.out.println("Begin Inserting Employee Information....");
System.out.print("Enter Employee Code
                                                 ::");
String empCode=s.nextLine();
//System.out.println(empCode);
System.out.print("Enter Employee Name
String empName=s.nextLine();
//System.out.println(empName);
System.out.print("Enter Employee Post
String post=s.nextLine();
//System.out.println(post);
System.out.print("Enter Basic pay in Rs.
                                                 ::");
double basic=s.nextDouble();
//System.out.println(basic);
Employee E=new Employee(empCode,empName,post,basic);
E.print();
System.out.print("Enter New Basic pay in Rs.
                                                 ::");
basic=s.nextDouble();
//System.out.println(basic);
E.accept(basic);
E.print();
}//Close of main
```

## }//Close of class OEmployee

### // OUTPUT

Begin Inserting Employee Information.....

Enter Employee Code ::e001

Enter Employee Name ::rajnish ranjan

Enter Employee Post ::manager

Enter Basic pay in Rs. ::80000.0

=====Employee Salary Details===dated::Fri Jan 08 21:33:58 IST 2016

Employee Code :E001

Employee Name :RAJNISH RANJAN

Post/Designation :MANAGER

\_\_\_\_\_

Basic Pay in Rs. :80000.0

Dearness allowance in Rs. :24000.0

House Rent allowance in Rs. :16000.0

Medical allowance in Rs. :2500.0

Gross/Total Salary in Rs. :122500.0

Income Tax deduction in Rs. :14700.0

\_\_\_\_\_

Net Salary in Rs. :107800.0

\_\_\_\_\_

Enter New Basic pay in Rs. ::100000.0

=====Employee Salary Details===dated::Fri Jan 08 21:34:00 IST 2016

Employee Code :E001

Employee Name :RAJNISH RANJAN

Post/Designation :MANAGER

-----

Basic Pay in Rs. :100000.0

Dearness allowance in Rs. :30000.0

House Rent allowance in Rs. :20000.0

Medical allowance in Rs. :2500.0

Gross/Total Salary in Rs. :152500.0

Income Tax deduction in Rs. :18300.0

\_\_\_\_\_

Net Salary in Rs. :134200.0

\_\_\_\_\_

/\*2.Create a class named Billing/Invoicing that consists following members to generate and print bill.

#.define instance variables itemCode(string), itemName(string), companyName(string), tpye(string), qty(double) and mrp(double).

- #.define constructors to automatic initialisation.
- #.define methods to change input.
- #.define methods to ccompute invoice/bill by applying the following conditions:-

\*flat 40% discount is available on Garments on purchase amount and also 30% on Footwear and 10% on other products.

\*1% VAT is to be paid by consumer on getting bill.

\*define method to print invoice/bill.

## Display the complete functionality

this.mrp=mrp;

# [Make suitable assumption if necessary]

```
import java.util.*;
class Invoice{
private String itemCode="",itemName="",companyName="",productType="
private double mrp,qty;
Invoice(){}
Invoice(String itemCode,String itemName,String companyName,String
productType,double mrp,double qty){
this.itemCode=itemCode;
this.itemName=itemName;
this.companyName=companyName;
this.productType=productType;
this.mrp=mrp;
this.qty=qty;
void change(String itemCode,String itemName,String companyName,String
productType,double mrp,double qty){
this.itemCode=itemCode;
this.itemName=itemName;
this.companyName=companyName;
this.productType=productType;
```

```
this.qty=qty;
}
void change(double mrp,double qty){
this.mrp=mrp;
this.qty=qty;
}
double purchaseAmt(){
return(mrp * qty);
}
double getDiscountRate(){
double slab=10.0;
if(productType.equalsIgnoreCase("GARMENT"))
 slab=40.0;
else if(productType.equalsIgnoreCase("FOOTWEAR"));
     slab=30.0;
return(slab);
double getDiscountAmt(){
return(purchaseAmt() * getDiscountRate() / 100);
}
double getPayableAmt(){
return(purchaseAmt() - getDiscountAmt());
}
double getVAT(){
return(getPayableAmt() * 1/100);
```

```
}
double netBillAmt(){
return(getPayableAmt() + getVAT());
}
void print(){
System.out.println("======Bill/Invoice details====dated:"+new Date());
System.out.println("Item Code
                                     ::"+itemCode.toUpperCase());
                                     ::"+itemName.toUpperCase());
System.out.println("Item Name
System.out.println("Company Name
                                     ::"+companyName.toUpperCase());
System.out.println("Item Type
                                     ::"+productType.toUpperCase());
System.out.println("M.R.P in Rs.
                                     ::"+mrp);
                                     ::"+qty);
System.out.println("Quantity taken
System.out.println("-----
System.out.println("Purchase Amount in Rs. ::"+purchaseAmt());
System.out.println("Discount Rate in Percentage ::"+getDiscountRate()+"%");
System.out.println("Discount Amount in Rs. ::"+getDiscountAmt());
System.out.println("-----");
System.out.println("Payable Amount in Rs. ::"+getPayableAmt());
System.out.println("1% VAT in Rs.
                                    ::"+getVAT());
System.out.println("-----");
System.out.println("Net Bill/Invoice Amount in Rs. ::"+netBillAmt());
System.out.println("========");
}
}//Close of class Invoice
class Olnvoice{
```

```
public static void main(String args[]){
Scanner s=new Scanner(System.in);
System.out.println();
System.out.println("Begin Inserting Purchase Item details......");
System.out.print("Enter Item Code
                                           :");
String itemCode=s.nextLine();
//System.out.println(itemCode);
                                           :");
System.out.print("Enter Item Name
String itemName=s.nextLine();
//System.out.println(itemName);
System.out.print("Enter Company Name
String companyName=s.nextLine();
//System.out.println(companyName);
System.out.print("Enter Item Type
String productType=s.nextLine();
//System.out.println(productType);
System.out.print("Enter M.R.P. In Rs.
                                           :");
double mrp=s.nextDouble();
//System.out.println(mrp);
System.out.print("Enter Quantity taken
                                           :");
double qty=s.nextDouble();
//System.out.println(qty);
Invoice bill=new Invoice(itemCode,itemName,companyName,productType,mrp,qty);
bill.print();
System.out.print("Enter New M.R.P. In Rs. ::");
```

```
mrp=s.nextDouble();
//System.out.println(mrp);
System.out.print("Enter New Quantity taken::");
qty=s.nextDouble();
//System.out.println(qty);
bill.change(mrp,qty);
bill.print();
}//Close of Olnvoice class
```

## //OUTPUT

Begin Inserting Purchase Item details......

Enter Item Code :i001

Enter Item Name :iphone

Enter Company Name :apple

Enter Item Type :electronics

Enter M.R.P. In Rs. :60000.0

Enter Quantity taken :1.0

=====Bill/Invoice details====dated:Sat Jan 09 00:06:56 IST 2016

Item Code ::I001

Item Name ::IPHONE

Company Name ::APPLE

Item Type ::ELECTRONICS

M.R.P in Rs. ::60000.0

Quantity taken ::1.0

\_\_\_\_\_

Purchase Amount in Rs. ::60000.0

Discount Rate in Percentage ::30.0%

Discount Amount in Rs. ::18000.0

-----

Payable Amount in Rs. ::42000.0

1% VAT in Rs. ::420.0

-----

Net Bill/Invoice Amount in Rs. ::42420.0

\_\_\_\_\_

Enter New M.R.P. In Rs. ::55000.0

Enter New Quantity taken::2.0

=====Bill/Invoice details====dated:Sat Jan 09 00:07:00 IST 2016

Item Code ::I001

Item Name ::IPHONE

Company Name ::APPLE

Item Type ::ELECTRONICS

M.R.P in Rs. ::55000.0

Quantity taken ::2.0

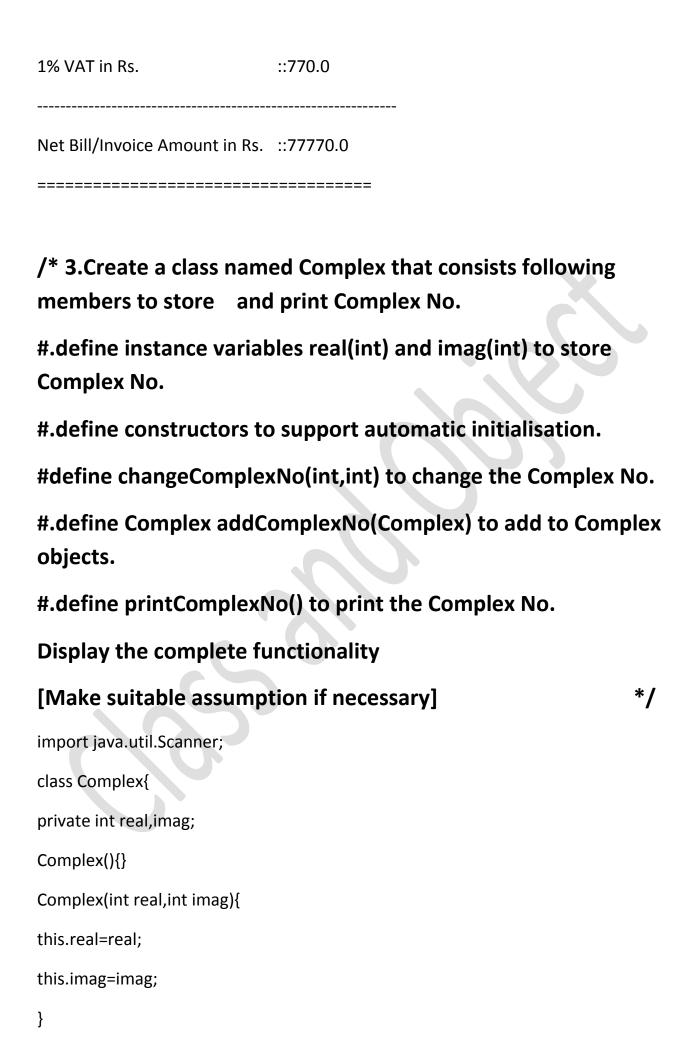
Purchase Amount in Rs. ::110000.0

Discount Rate in Percentage ::30.0%

Discount Amount in Rs. ::33000.0

-----

Payable Amount in Rs. ::77000.0



```
void changeComplexNo(int real,int imag){
this.real=real;
this.imag=imag;
}
void changeComplexNo(int real){
this.real=real;
}
Complex addComplexNo(Complex x){
Complex temp=new Complex();
temp.real=this.real+x.real;
temp.imag=imag+x.imag;
return (temp);
}
void printComplexNo(){
String ch="";
if(imag>=0)
ch="+":
System.out.println(real+ch+imag+"i");
}
}//Close of class Complex
class OComplex{
public static void main(String args[]){
Scanner s=new Scanner(System.in);
System.out.println();
System.out.print("Enter real and imaginary value for First Complex No. ::");
```

```
int real=s.nextInt();
//System.out.println(real);
int imag=s.nextInt();
//System.out.println(imag);
Complex c1=new Complex(real,imag);
c1.printComplexNo();
System.out.print("Enter real and imaginary value for Second Complex No. ::");
real=s.nextInt();
//System.out.println(real);
imag=s.nextInt();
//System.out.println(imag);
Complex c2=new Complex();
c2.changeComplexNo(real,imag);
c2.printComplexNo();
System.out.print("Enter new real value for Second Complex No. ::");
real=s.nextInt();
//System.out.println(real);
c2.changeComplexNo(real);
c2.printComplexNo();
Complex add=c1.addComplexNo(c2);
System.out.println("Adding First and Second Complex No.----");
c1.printComplexNo();
c2.printComplexNo();
System.out.println("----");
add.printComplexNo();
```

```
}//Close of main
}//Close of class OComplex
//OUTPUT
Enter real and imaginary value for First Complex No. ::5
-2
5-2i
Enter real and imaginary value for Second Complex No. ::8
4
8+4i
Enter new real value for Second Complex No. ::6
6+4i
Adding First and Second Complex No.--
5-2i
6+4i
11+2i
```

/\*4.Create a Time class having following members to support input and output of the given time:-

#.define instance variables:-hour(int), min(int), and sec(int) to store time.

#.define constructors to support automatic initialisation of time.#.define void changeTime(int,int,int) to change existing time.

```
#.define void changeTime(int,int) to assign/update time.
#.define Time addTime(Time) to add two time object.
#.define void printTime() to display/print time in format:-
                      [hh:mm:ss]
```

# Display the complete functionality

void changeTime(int hour,int minute,int second){

this.hour=hour;

}

this.minute=minute;

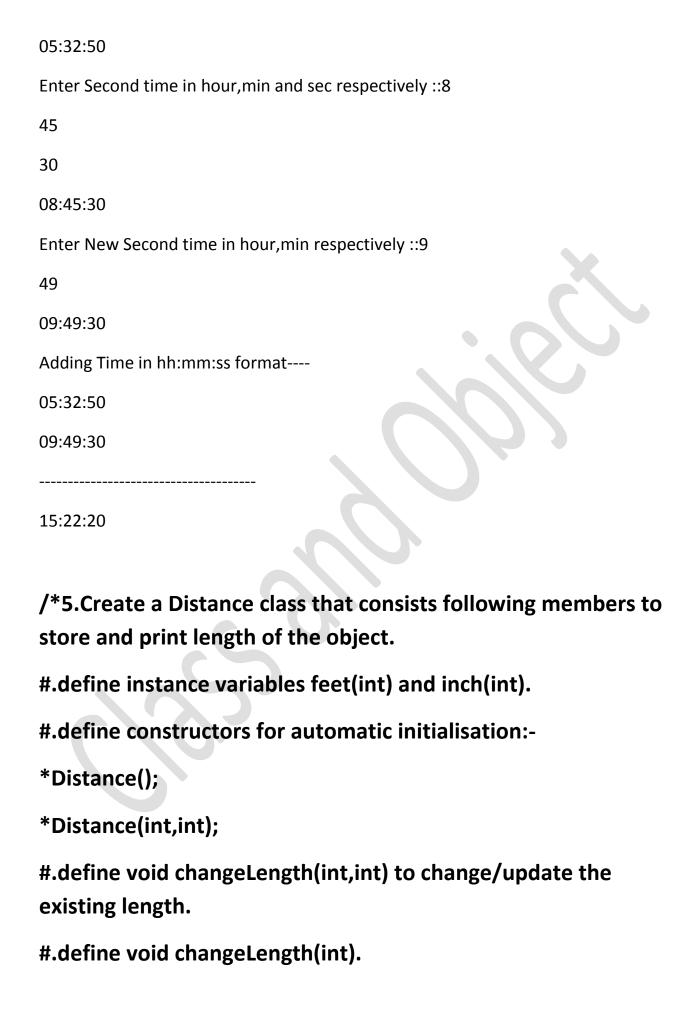
this.second=second;

```
[Make suitable assumption if necessary]
import java.util.Scanner;
class Time{
private int hour, minute, second;
Time(){}
Time(int hour,int minute,int second){
this.hour=hour;
this.minute=minute;
this.second=second;
}
Time(int hour,int minute){
this.hour=hour;
this.minute=minute;
}
```

```
void changeTime(int hour,int minute){
this.hour=hour;
this.minute=minute;
}
Time addTime(Time t){
Time temp=new Time();
temp.hour=this.hour+t.hour;
temp.minute=this.minute+t.minute;
temp.second=this.second+t.second;
return (temp);
}
void printTime(){
String hr,mn,sc;
hr=mn=sc="";
if(second>59){
minute=minute+second/60;
second=second%60;
if(minute>59){
hour=hour+minute/60;
minute=minute%60;
}
if(hour>23)
hour=0;
if(hour<10)
```

```
hr="0";
if(minute<10)
mn="0";
if(second<10)
sc="0";
System.out.println(hr+hour+":"+mn+minute+":"+sc+second);
}
}//Close of class Time
class OTime{
public static void main(String args[]){
Scanner s=new Scanner(System.in);
System.out.println();
System.out.print("Enter First time in hour,min and sec respectively ::");
int hour=s.nextInt();
//System.out.println(hour);
int minute=s.nextInt();
//System.out.println(minute);
int second=s.nextInt();
//System.out.println(second);
Time t1=new Time(hour,minute,second);
t1.printTime();
System.out.print("Enter Second time in hour,min and sec respectively ::");
hour=s.nextInt();
//System.out.println(hour);
minute=s.nextInt();
```

```
//System.out.println(minute);
second=s.nextInt();
//System.out.println(second);
Time t2=new Time(hour,minute,second);
t2.printTime();
System.out.print("Enter New Second time in hour,min respectively ::");
hour=s.nextInt();
//System.out.println(hour);
minute=s.nextInt();
//System.out.println(minute);
t2.changeTime(hour,minute);
t2.printTime();
Time add=t1.addTime(t2);
System.out.println("Adding Time in hh:mm:ss format----");
t1.printTime();
t2.printTime();
System.out.println("-
add.printTime();
}//Close of main
}//Close of class
//OUTPUT
Enter First time in hour, min and sec respectively ::5
32
```



**#.define Distance addDistance(Distance) to add two distance object.** 

**#.define void printDistance() to print length of the object in** format:-

[feet'inch"]

# Display the complete functionality

# [Make suitable assumption if necessary]

```
import java.util.Scanner;
class Distance{
private int feet, inch;
Distance(){}
Distance(int feet,int inch){
this.feet=feet;
this.inch=inch;
}
void changeLength(int feet,int inch){
this.feet=feet;
this.inch=inch;
}
void changeLength(int inch){
this.inch=inch;
}
Distance addDistance(Distance x){
Distance temp=new Distance();
```

```
temp.feet=this.feet+x.feet;
temp.inch=inch+x.inch;
return(temp);
}
void printDistance(){
if(inch>=12){
feet=feet+inch/12;
inch=inch%12;}
System.out.println("Measured Lenfth="+feet+"""+inch+
}
}//Close of class Distance
class ODistance{
public static void main(String args[]){
Scanner s=new Scanner(System.in);
System.out.println();
System.out.print("Enter measured lenfth(i.e.feet and inch) of first Object ::");
int feet=s.nextInt();
//System.out.println(feet);
int inch=s.nextInt();
//System.out.println(inch);
Distance D1=new Distance(feet,inch);
D1.printDistance();
System.out.print("Enter measured lenfth(i.e.feet and inch) of Second Object ::");
feet=s.nextInt();
//System.out.println(feet);
```

```
inch=s.nextInt();
//System.out.println(inch);
Distance D2=new Distance();
D2.changeLength(feet,inch);
D2.printDistance();
System.out.print("Enter new measured lenfth(i.e.inch) of Second Object ::");
inch=s.nextInt();
//System.out.println(inch);
D2.changeLength(inch);
D2.printDistance();
Distance add=D1.addDistance(D2);
System.out.println("Adding First and Second Distance Object-----");
D1.printDistance();
D2.printDistance();
System.out.println("-
add.printDistance();
}//Close of main
}//Close of class ODistance
//OUTPUT
Enter measured lenfth(i.e.feet and inch) of first Object ::3
10
Measured Lenfth=3'10"
Enter measured lenfth(i.e.feet and inch) of Second Object ::2
```

Measured Lenfth=2'11"
Enter new measured lenfth(i.e.inch) of Second Object ::15
Measured Lenfth=3'3"
Adding First and Second Distance Object
Measured Lenfth=3'10"
Measured Lenfth=3'3"
Measured Lenfth=7'1"

/\* 6.Create a Student class that consists following members to support Student Result automation by applying the following condition:-

#.define instance variables enrolNo(string), sname(string), eprog(string) and marks obtained in vb(double), cpp(double) and java(double) of the Student.

#.define constructors to support automatic initialisation.

#.define void input(string, string, string, double, double, double) method to accept student informations and obtained marks in semester exam.

#.define methods to compute/calculate the Student result as per the given condition below:-

- \*Each paper(i.e.; language) is of maximum marks "150"
- \*Pass mark is 30% of the maximum marks
- \*Calculate remarks according to the condition below:-

```
if a student passed in all subject(i.e.; languages) and
```

```
80%>=aggregate <=100%------Excellent
60%>=aggregate <=79% ------Very Good
40%>=aggregate <=59% ------Good
30%>=aggregate <=39% -------Pass
otherwise -------FAIL
```

#.define printResult() method to print Student VI semester result.

# Display the complete functionality

}

```
[Make suitable assumption if necessary] */
import java.util.*;
class Student{
private String enrolNo,sname,eprog,sem="VI";
private double vb,cpp,java,max=150;
Student(){}
Student(String enrolNo,String sname,String eprog,double vb,double cpp,double java){
this.enrolNo=enrolNo;
this.sname=sname;
this.eprog=eprog;
this.vb=vb;
this.cpp=cpp;
this.java=java;
```

```
void input(String enrolNo,String sname,String eprog,double vb,double cpp,double
java){
this.enrolNo=enrolNo;
this.sname=sname;
this.eprog=eprog;
this.vb=vb;
this.cpp=cpp;
this.java=java;
}
double getTotal(){
return(vb+cpp+java);
}
double aggregate(){
return(getTotal()*100/(max*3));
}
String remarks(){
String rem="FAIL";
double agg=aggregate();
double pass=max*30/100;
if (vb>=pass && cpp>=pass && java>=pass)
 if(agg>=40)
 if(agg<=59)
  rem="GOOD";
 else if(agg<=79)
```

rem=" VERY GOOD";

```
else
  rem="EXCELLENT";
else
rem="PASS";
return(rem);
}
void printResult(){
System.out.println("= = = Student Result = = = Dated :"+new Date());
System.out.println("Enrolment No.
                                           :"+enrolNo);
System.out.println("Student Name
                                            :"+sname);
                                           :"+eprog);
System.out.println("Enrolled-in-Programme
System.out.println("Semester
                                           :"+sem);
System.out.println("Marks obtained in Visual Basic
                                                 :"+vb);
System.out.println("Marks obtained in C++
                                           :"+cpp);
System.out.println("Marks obtained in Java
                                           :"+java);
System.out.println("-----
                                                 :"+getTotal());
System.out.println("Total Marks obtained
System.out.println("Aggregate
                                           :"+aggregate()+"%");
System.out.println("-----");
System.out.println("Remarks
                                           :"+remarks());
System.out.println("=========");
}
}//Close of class Student
class OStudent{
public static void main(String args[]){
```

```
Scanner s=new Scanner(System.in);
System.out.println();
System.out.println("Begin Inserting Student Information......");
System.out.print("Enter Student Enrolment No.
                                                        :");
String enrolNo=s.nextLine().toUpperCase();
//System.out.println(enrolNo);
                                                        :");
System.out.print("Enter Student Name
String sname=s.nextLine().toUpperCase();
//System.out.println(sname);
System.out.print("Enter Enrolled-in-Programme
String eprog=s.nextLine().toUpperCase();
//System.out.println(eprog);
System.out.print("Enter Marks obtained in Visual Basic
double vb=s.nextDouble();
//System.out.println(vb);
System.out.print("Enter Marks obtained in C++
                                                        :");
double cpp=s.nextDouble();
//System.out.println(cpp);
System.out.print("Enter Marks obtained in Java
                                                        :");
double java=s.nextDouble();
//System.out.println(java);
Student X=new Student(enrolNo,sname,eprog,vb,cpp,java);
X.printResult();
System.out.println("Begin Inserting Student Information......");
System.out.print("Enter Student Enrolment No.
                                                        :");
```

```
s.nextLine();
enrolNo=s.nextLine().toUpperCase();
//System.out.println(enrolNo);
                                                       :");
System.out.print("Enter Student Name
sname=s.nextLine().toUpperCase();
//System.out.println(sname);
                                                        :");
System.out.print("Enter Enrolled-in-Programme
eprog=s.nextLine().toUpperCase();
//System.out.println(eprog);
System.out.print("Enter Marks obtained in Visual Basic
vb=s.nextDouble();
//System.out.println(vb);
                                                        :");
System.out.print("Enter Marks obtained in C++
cpp=s.nextDouble();
//System.out.println(cpp);
System.out.print("Enter Marks obtained in Java
                                                       :");
java=s.nextDouble();
//System.out.println(java);
Student Y=new Student();
Y.input(enrolNo,sname,eprog,vb,cpp,java);
Y.printResult();
}//Close of main
}//Close of class OStudent
```

Begin Inserting Student Information......

Enter Student Enrolment No. :S001

Enter Student Name :RAJNISH RANJAN

Enter Enrolled-in-Programme :BCA

Enter Marks obtained in Visual Basic :111.0

Enter Marks obtained in C++ :122.0

Enter Marks obtained in Java :133.0

= = = Student Result = = = Dated :Mon Jan 11 17:43:14 IST 2016

Enrolment No. :S001

Student Name :RAJNISH RANJAN

Enrolled-in-Programme :BCA

Semester :VI

Marks obtained in Visual Basic :111.0

Marks obtained in C++ :122.0

Marks obtained in Java :133.0

\_\_\_\_\_

Total Marks obtained :366.0

Aggregate :81.333333333333333

-----

Remarks :EXCELLENT

\_\_\_\_\_

Begin Inserting Student Information.......

Enter Student Enrolment No. :S002

Enter Student Name :ADITYA KUMAR

Enter Enrolled-in-Programme :BCA

Enter Marks obtained in Visual Basic :100.0

Enter Marks obtained in C++ :111.0

Enter Marks obtained in Java :105.0

= = = Student Result = = = Dated :Mon Jan 11 17:44:36 IST 2016

Enrolment No. :S002

Student Name :ADITYA KUMAR

Enrolled-in-Programme :BCA

Semester :VI

Marks obtained in Visual Basic :100.0

Marks obtained in C++ :111.0

Marks obtained in Java :105.0

-----

Total Marks obtained :316.0

Aggregate :70.22222222223%

Remarks : VERY GOOD