**ASSIGNMENT 1**

Sanjana Kumbhar

PGDAC (Aug2024)

1. Write a program to define finalize method for garbage collection. Display a message after garbage collection.  
   [Hint the finalize method is called when an object is about to get garbage collected. That can be at any time after it has become eligible for garbage collection.]
2. Create an application for an organization having base abstract class named person containing abstract methods like getData () and non abstract method named info.  
   a. Create an interface having password set to 123 and methods named displayData()  
   b. In class employee inherit both of class and interface and implement its behavior.  
   c. Employee class contains various fields like name, dept number and code.  
   d. Override getData and displayData () to retrieve and print employee record.  
   e. Create another class mainclass having main method, call above both methods in  
   mainclass.  
   f. Restrict mainclass from being inherited further.

**Package.java**

**package** assign2.org;

**abstract** **class** Person{

**abstract** **void** getData();

**void** info() {

System.***out***.println("Info method");

}

}

**Inter.java**

**package** assign2.org;

**interface** Inter{

**int** ***password***=123;

**void** displayData();

}

**Employee.java**

**package** assign2.org;

**import** java.util.Scanner;

**class** Employee **extends** Person **implements** Inter{

Scanner sc= **new** Scanner(System.***in***);

**int** dept\_no;

String name;

**double** code;

**void** getData() {

System.***out***.println("enter employee name");

name=sc.nextLine();

System.***out***.println("enter dept\_no");

dept\_no=sc.nextInt();

System.***out***.println("enter code");

code=sc.nextDouble();

}

**public** **void** displayData() {

System.***out***.println("Employee Details:");

System.***out***.println("employee name: "+name+" dept\_no: "+dept\_no+" code "+code);

}

}

**Mainclass.java**

**package** assign2.org;

**final** **public** **class** mainclass {

**public** **static** **void** main(String[] args) {

Employee e1 =**new** Employee();

e1.getData();

e1.displayData();

}

}

**OUTPUT-**

enter employee name

sanjana

enter dept\_no

11

enter code

12.33

Employee Details:

employee name: sanjana dept\_no: 11 code 12.33

1. Create three classes. named Order, ShippedOrder, and UseOrder.  
   The Order class will have four private instance variables. These variables will be for the customer name (String), the customer number (integer), the order quantity (double) and the unit cost (double).  
   a. The Order class will have the following instance methods - get/set customer name, get/set customer number, get/set order quantity, get/set unit cost. The Order class will also have a computePrice instance method. This method should return the result of multiplying the order quantity times the unit cost.  
   b. The computePrice() method cannot have any arguments passed to it.  
   c. The ShippedOrder class will be a subclass of the Order class. This class will have one new private instance variable.  
   d. This instance variable will store a shipping and handling charge. Set the shipping and handling charge to a constant Rs.40.  
   e. The ShippedOrder class will have one new method. This method must be named computePrice and it must override the computePrice method in the Order superclass. The computePrice method in the ShippedOrder class should return the order cost (quantity times unit cost plus the shipping and  
   handling charge). No additional components should be displayed under these circumstances.  
   The UseOrder class will display the customer name, customer number, order quantity, and unit cost. After the appropriate object is created, print all the values of the instance variables and the order’s total cost.  
   f. You must use the get methods to retrieve the values from the object and you must use the computePrice method to “retrieve” the order’s total cost.

**Order.java**

**package** assign2.orders;

**public** **class** Order {

String cname;

**int** cnum;

**double** Oquan;

**double** Ucost;

**void** setName(String s)

{

cname=s;

}

String getName()

{

**return** cname;

}

**void** setNum(**int** n)

{

cnum=n;

}

**int** getNum()

{

**return** cnum;

}

**void** setOquan(**double** o)

{

Oquan=o;

}

**double** getOquan()

{

**return** Oquan;

}

**void** setUcost(**double** u)

{

Ucost=u;

}

**double** getUcost()

{

**return** Ucost;

}

**double** computePrice () {

**return** Oquan\*Ucost;

}

**public** **static** **void** main(String[] args) {

}

}

**ShippedOrder.java**

**package** assign2.orders;

**public** **class** ShippedOrder **extends** Order {

**final** **private** **int** S\_H\_charge=40;

**double** computePrice() {

**return** ((Oquan\*Ucost)+S\_H\_charge);

}

}

**UseOrder.java**

**package** assign2.orders;

**public** **class** UseOrder{

**void** display(Order o) {

System.***out***.println("Customer name "+o.getName());

System.***out***.println("customer number "+o.getNum());

System.***out***.println("order quantity "+o.getOquan());

System.***out***.println("unit cost "+ o.getUcost());

}

**public** **static** **void** main(String[] args) {

UseOrder u1 = **new** UseOrder();

ShippedOrder s1 = **new** ShippedOrder();

Order o1 = **new** Order();

o1.setName("sanjana");

o1.setNum(10);

o1.setOquan(2);

o1.setUcost(3);

System.***out***.println("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

u1.display(o1);

System.***out***.println("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

**double** result1= s1.computePrice();

System.***out***.println("computed price with shipping charges is "+result1);

System.***out***.println("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

**double** result2= o1.computePrice();

System.***out***.println("computed price without shipping charges is "+result2);

}

}

**Output-**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Customer name sanjana

customer number 10

order quantity 2.0

unit cost 3.0

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

computed price with shipping charges is 40.0

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

computed price without shipping charges is 6.0

1. Create a class phonebook having fields like name ,phone ,address and also contains nested class personal having field like relation and method like getinput and putinput() .Take all necessary input for record .  
   a. Create another nested static class business having fields like organization, dept, mobile . and methods like accept and show  
   b. Create another class containing main function , that ask employee choice  
   c. If choice of user is one ask personal record. Else take business entry and display them .
2. Write a program in java. A class Teacher contains two fields Name and Qualification. Extends the class to department it contains dept. no and Dept Name. An interface named as college it contains one field name of the college. Using the above classes and interface get the appropriate information and display it.

**Teacher.java**

**package** assign2.teaching;

**public** **class** Teacher {

String Name;

String Qualification;

**public** String getTname() {

**return** Name;

}

**public** **void** setTname(String name) {

Name = name;

}

**public** String getQualification() {

**return** Qualification;

}

**public** **void** setQualification(String qualification) {

Qualification = qualification;

}

}

**College.java**

**package** assign2.teaching;

**public** **interface** College {

String ***cname***="CDAC Noida";

}

**Department.java**

**package** assign2.teaching;

**public** **class** Department **extends** Teacher **implements** College {

**int** dnum;

String dname;

**public** **int** getDnum() {

**return** dnum;

}

**public** **void** setDnum(**int** dnum) {

**this**.dnum = dnum;

}

**public** String getDname() {

**return** dname;

}

**public** **void** setDname(String dname) {

**this**.dname = dname;

}

**public** **static** **void** main(String[] args) {

Department d= **new** Department();

d.setDnum(11);

d.setDname("ENTC");

d.setTname("ABC Mam");

d.setQualification("M.Tech");

System.***out***.println("Department Number :"+d.getDnum());

System.***out***.println("Department Name :"+d.getDname());

System.***out***.println("College Name :"+***cname***);

System.***out***.println("Teacher Name :"+d.getTname());

System.***out***.println("Teachers Qualification :"+d.Qualification);

}

}

**Output-**

Department Number :11

Department Name :ENTC

College Name :CDAC Noida

Teacher Name :ABC Mam

Teachers Qualification :M.Tech