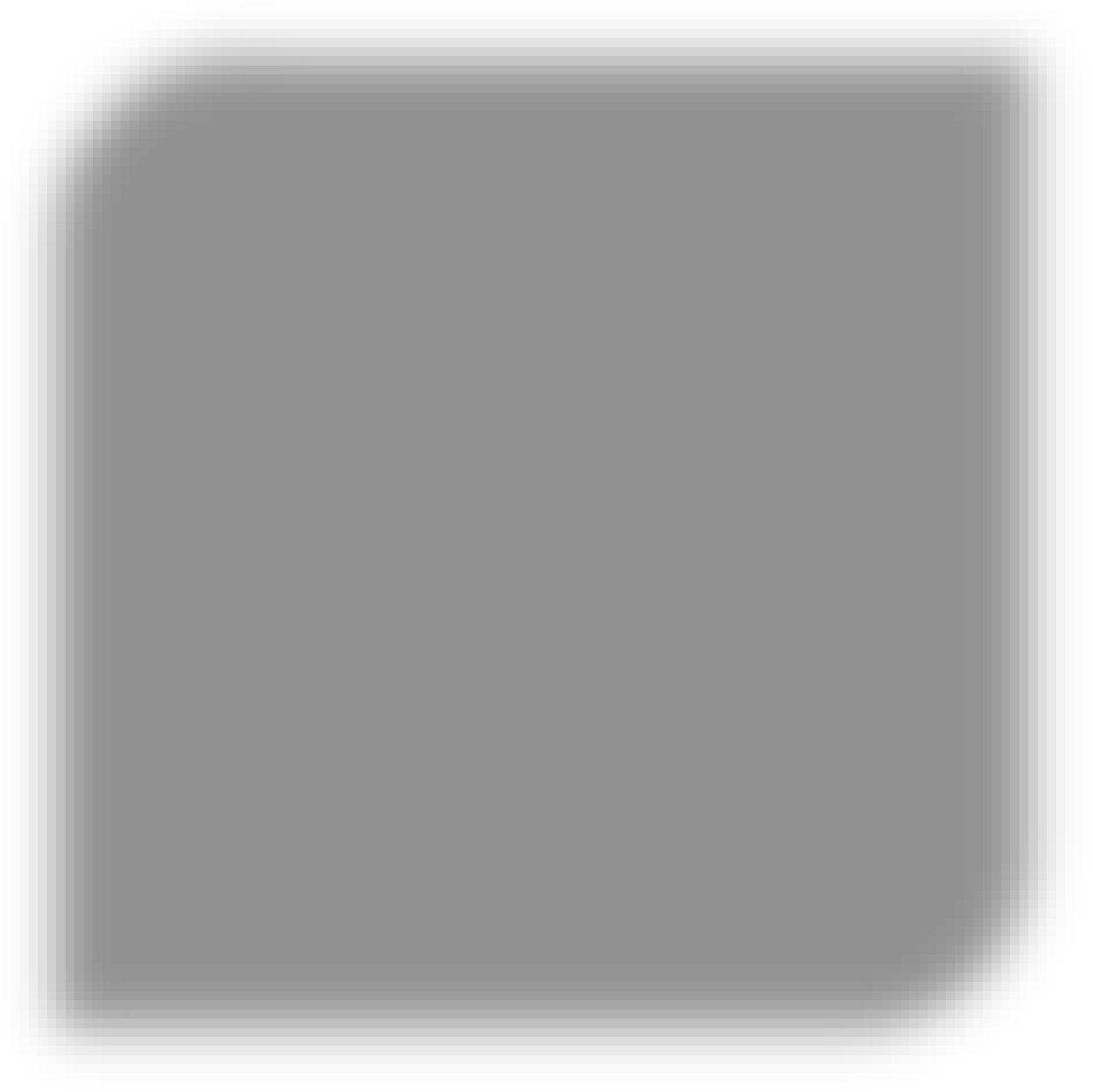
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# Object Oriented Programming

**Assignment # 03**

**Muhammad Muzzammil SP22-BCS-058**

**Submitted to: Mam Sajida Kalsoom**

**Question 1 :**

**class** Package{  
 **protected** String senderName;  
 **protected** String senderAdress;  
 **protected** String recipientName;  
 **protected** String recipientAddress;  
 **protected double** weight;  
 **protected double** costPerOunce;  
  
  
 **public** Package(){  
  
 }  
  
 **public** Package(String senderName, String senderAdress, String recipientName, String recipientAddress, **double** weight, **double** costPerOunce) {  
 **this**.senderName = senderName;  
 **this**.senderAdress = senderAdress;  
 **this**.recipientName = recipientName;  
 **this**.recipientAddress = recipientAddress;  
 **this**.weight = weight;  
 **this**.costPerOunce = costPerOunce;  
 }  
  
 **public** String getSenderName() {  
 **return** senderName;  
 }  
  
 **public void** setSenderName(String senderName) {  
 **this**.senderName = senderName;  
 }  
  
 **public** String getSenderAdress() {  
 **return** senderAdress;  
 }  
  
 **public void** setSenderAdress(String senderAdress) {  
 **this**.senderAdress = senderAdress;  
 }  
  
 **public** String getRecipientName() {  
 **return** recipientName;  
 }  
  
 **public void** setRecipientName(String recipientName) {  
 **this**.recipientName = recipientName;  
 }  
  
 **public** String getRecipientAddress() {  
 **return** recipientAddress;  
 }  
  
 **public void** setRecipientAddress(String recipientAddress) {  
 **this**.recipientAddress = recipientAddress;  
 }  
  
 **public double** getWeight() {  
 **return** weight;  
 }  
  
 **public void** setWeight(**double** weight) {  
 **this**.weight = weight;  
 }  
  
 **public double** getCostPerOunce() {  
 **return** costPerOunce;  
 }  
  
 **public void** setCostPerOunce(**double** costPerOunce) {  
 **this**.costPerOunce = costPerOunce;  
 }  
  
 **public double** calCost() {  
 **return this**.weight \* **this**.costPerOunce;  
 }  
}  
**class** TwoDayPackage **extends** Package{  
 **private double** flatFee;  
  
 **public** TwoDayPackage(){  
  
 }  
 **public** TwoDayPackage(String senderName, String senderAdress, String recipientName, String recipientAddress, **double** weight, **double** costPerOunce,**double** flatFee){  
 **super**(senderName,senderAdress,recipientName,recipientAddress,weight,costPerOunce);  
 **this**.flatFee=flatFee;  
 }  
  
 **public double** calCost(){  
 **return super**.calCost()+**this**.flatFee;  
 }  
 **public void** setFlatFee(**double** flatFee) {  
 **this**.flatFee = flatFee;  
 }  
 **public double** getFlatFee() {  
 **return** flatFee;  
 }  
  
  
}  
**class** OverNightPackage **extends** Package{  
 **private double** additionalFee;  
  
 **public** OverNightPackage(){  
  
 }  
 **public** OverNightPackage(String senderName, String senderAdress, String recipientName, String recipientAddress, **double** weight, **double** costPerOunce,**double** additionalFee){  
 **super**(senderName,senderAdress,recipientName,recipientAddress,weight,costPerOunce);  
 **this**.additionalFee=additionalFee;  
  
 }  
  
 **public double** getAdditionalFee() {  
 **return** additionalFee;  
 }  
  
 **public void** setAdditionalFee(**double** additionalFee) {  
 **this**.additionalFee = additionalFee;  
 }  
 **public double** calCost(){  
 **return super**.calCost() + **this**.additionalFee;  
 }  
}  
**public class** PackageDelivery {  
 **public static void** main(String[] args) {  
 Package p1=**new** Package("hello","123","Hey","234",34.5,0.5);  
 TwoDayPackage p2=**new** TwoDayPackage("hello","123","Hey","234",34.5,0.5,12.3);  
 System.*out*.println("The cost of simple Package "+p1.calCost());  
 System.*out*.println("The cost of Two Day Package "+p2.calCost());  
  
 }  
  
}

**Question 2 :**

**abstract class** Person{  
 **private** String name;  
 **public** Person(){  
  
 }  
 **public** Person(String name){  
 **this**.name=name;  
  
 }  
 **public void** setName(String name) {  
 **this**.name = name;  
 }  
 **public** String getName() {  
 **return** name;  
 }  
 **abstract boolean** isOutstanding();  
  
}  
  
**class** Student **extends** Person{  
 **private double** CGPA;  
  
 **public** Student(){  
  
 }  
 **public** Student(String name,**double** CGPA){  
 **super**(name);  
 **this**.CGPA=CGPA;  
 }  
 **public void** setCGPA(**double** CGPA) {  
 **this**.CGPA = CGPA;  
 }  
  
 **public double** getCGPA() {  
 **return** CGPA;  
 }  
 @Override  
 **public boolean** isOutstanding() {  
 **if**(**this**.CGPA > 3.5){  
 **return true**;  
 }  
 **else**{  
 **return false**;  
 }  
 }  
  
}  
**class** Professor **extends** Person{  
 **private int** numberOfPublication;  
  
 **public** Professor(){  
  
 }  
 **public** Professor(String name,**int** numberOfPublication){  
 **super**(name);  
 **this**.numberOfPublication=numberOfPublication;  
 }  
  
  
 **public int** getNumberOfPublication() {  
 **return** numberOfPublication;  
 }  
  
 **public void** setNumberOfPublication(**int** numberOfPublication) {  
 **this**.numberOfPublication = numberOfPublication;  
 }  
  
 **public boolean** isOutstanding(){  
 **if**(**this**.numberOfPublication > 50){  
 **return true**;  
 }  
 **else**{  
 **return false**;  
 }  
 }  
}  
**public class** Person\_Lab\_Task\_2 {  
 **public static void** main(String[] args) {  
 Person[] person=**new** Person[2];  
 person[0]=**new** Student("Muzamil",3.7);  
 person[1]=**new** Professor("Sohail",12);  
  
  
 **for**(**int** i=0;i< person.length;i++){  
 System.*out*.println("Name : is " + person[i].getName());  
 }  
  
  
  
 Professor professor=(Professor) person[1];  
 professor.setNumberOfPublication(100);  
 System.*out*.println(professor.getName() + " is outstanding ");}}

**Question 3 :**

**abstract class** Convert{  
 **protected double** val1;  
 **protected double** val2;  
  
 **public** Convert(){  
  
 }  
 **public** Convert(**double** val1){  
 **this**.val1=val1;  
 }  
  
 **public abstract void** convert();  
  
 **public double** getVal1() {  
 **return** val1;  
 }  
  
 **public double** getVal2() {  
 **return** val2;  
 }  
}  
**class** LitersToGallons **extends** Convert{  
 **public** LitersToGallons(){  
  
 }  
 **public** LitersToGallons(**double** val1){  
 **super**(val1);  
 }  
 **public void** convert(){  
 val2 = val1 \* 0.264172;  
 }  
}  
**class** FarenhiteToCelcius **extends** Convert{  
 **public** FarenhiteToCelcius(){  
  
 }  
 **public** FarenhiteToCelcius(**double** val1){  
 **super**(val1);  
 }  
 **public void** convert(){  
 val2 = (val1-32) \* 5/9;  
 }  
}  
**class** FeetToMeters **extends** Convert{  
 **public** FeetToMeters(){  
  
 }  
 **public** FeetToMeters(**double** val1){  
 **super**(val1);  
 }  
 **public void** convert(){  
 val2=val1\*0.3048;  
 }  
  
}  
  
**public class** Conversions\_Lab\_TAsk\_3 {  
 **public static void** main(String[] args) {  
  
 Convert con;  
  
 con=**new** LitersToGallons(13);  
 con.convert();  
 System.*out*.println(con.getVal1() +" Liters is equal to "+ con.getVal2() +" Gallons ");  
  
 con=**new** FarenhiteToCelcius(15);  
 con.convert();  
 System.*out*.println(con.getVal1() +" Farenhite is equal to "+ con.getVal2()+" Celcius");  
  
 con=**new** FeetToMeters(18);  
 con.convert();  
 System.*out*.println(con.getVal1() +" Feet is equal to "+ con.getVal2()+" Meters");  
  
 }  
}