**Java OOPS Concepts Assignment**

1.

package com.CoreJavaAssignment2;  
  
class SingletonClass {  
 private static SingletonClass *instance*;  
  
 private SingletonClass()  
 {  
 System.*out*.println("This is the Constructor from Singleton Class");  
 }  
  
 public static SingletonClass getInstance()  
 {  
 if(*instance* == null)  
 {  
 *instance* = new SingletonClass();  
 }  
 return *instance*;  
 }  
}

2.

Employee.java

package com.OrganizationHierarchy;  
  
public class Employee {  
  
 String name;  
 int age;  
 double salary;  
 public Employee(String name , int age , double salary )  
 {  
 this.name = name;  
 this.age = age;  
 this.salary = salary;  
 }  
 void getTotalSalary()  
 {  
 System.*out*.println("Total Salary of Employee is : " + salary );  
 }  
}  
  
Manager.java

package com.OrganizationHierarchy;  
  
public class Manager extends Employee  
{  
 double incentives;  
 public Manager(String name , int age , double salary , double incentives)  
 {  
 super(name , age , salary);  
 this.incentives = incentives;  
 }  
 void getTotalSalary()  
 {  
 this.salary += incentives;  
 System.*out*.println("Total Salary of Manager :" + salary);  
 }  
  
}

Labour.java

package com.OrganizationHierarchy;  
  
public class Labour extends Employee{  
  
 double overTime;  
  
 public Labour(String name , int age , double salary , double overTime)  
 {  
 super(name , age , salary);  
 this.overTime = overTime;  
 }  
  
 void getTotalSalary()  
 {  
 this.salary += overTime;  
 System.*out*.println("Total Salary of Labour :" + salary);  
 }  
}

Main.java  
  
package com.OrganizationHierarchy;  
  
public class Main {  
 public static void main(String[] args) {  
 Employee e1 = new Employee("Aman",40,650000);  
 Manager m1 = new Manager("Anil",32,450000 , 35000);  
 Labour l1 = new Labour("Raju", 29, 250000, 5000);  
  
  
 e1.getTotalSalary();  
 m1.getTotalSalary();  
 l1.getTotalSalary();  
 }  
}

3.

BankAccount.java  
  
package com.BankAccounts;  
  
public class BankAccount {  
 String name;  
 double accountBalance;  
 static double *totalCashInBank*;  
 public void getTotalCash()  
 {  
 System.*out*.println("Total Cash in Bank : " + *totalCashInBank*);  
 }  
}  
  
SavingsAccount.java  
  
package com.BankAccounts;  
public class SavingsAccount extends BankAccount{  
 double fixedDeposits;  
 public SavingsAccount(String name, double accountBalance , double fixedDeposits )  
 {  
 this.name = name;  
 this.accountBalance = accountBalance;  
 this.fixedDeposits = fixedDeposits;  
 BankAccount.*totalCashInBank* += this.fixedDeposits + this.accountBalance;  
 }  
 public void getTotalCash()  
 {  
 System.*out*.println("Total cash in " + this.name + " Savings Account : " + accountBalance + " + FixedDeposits of :" + fixedDeposits);  
 }  
}

CurrentAccount.java

package com.BankAccounts;  
public class CurrentAccount extends BankAccount{  
 double cashCredit;  
 public CurrentAccount(String name, double accountBalance , double cashCredit )  
 {  
 this.name = name;  
 this.accountBalance = accountBalance;  
 BankAccount.*totalCashInBank* += this.accountBalance ;  
 this.cashCredit = cashCredit;  
 BankAccount.*totalCashInBank* -= this.cashCredit ;  
 }  
 public void getTotalCash()  
 {  
 System.*out*.println("Total cash in " + this.name + " Current Account : " + accountBalance + " + cashCredit :" +cashCredit);  
 }  
}  
  
Main.java  
  
package com.BankAccounts;  
public class Main {  
 public static void main(String[] args) {  
 BankAccount b1 = new BankAccount();  
 SavingsAccount s1 = new SavingsAccount("Ajay",350000,25000);  
 s1.getTotalCash();  
 b1.getTotalCash();  
 CurrentAccount c1 = new CurrentAccount("Vijay",250000,50000);  
 c1.getTotalCash();  
 b1.getTotalCash();  
 }  
}

4.

AbstractClass.javapackage com.AbstractClasses;  
  
public class AbstractClass {  
  
 abstract public void SampleMethod()  
 {  
 System.*out*.println("This is an Abstract Class");  
 }  
   
 public static void method2(){  
 System.*out*.println("This is method 2 ");  
 }  
}

5.

Shape.java

package com.DrawShapes;  
abstract public class Shape {  
 abstract public void draw();  
}  
  
Line.java

package com.DrawShapes;  
public class Line extends Shape{  
 public void draw() {  
 System.*out*.println("Method to draw a Line");  
 }  
}

Rectangle.java

package com.DrawShapes;  
public class Rectangle extends Shape{  
 public void draw()  
 {  
 System.*out*.println("Method to Draw a Rectangle");  
 }  
}

Cube.java

package com.DrawShapes;  
public class Rectangle extends Shape{  
 public void draw()  
 {  
 System.*out*.println("Method to Draw a Rectangle");  
 }  
}

Main.java

package com.DrawShapes;  
  
public class Main {  
 public static void main(String[] args) {  
 Shape line = new Line();  
 Shape cube = new Cube();  
 Shape rectangle = new Rectangle();  
  
 line.draw();  
 cube.draw();  
 rectangle.draw();  
  
  
 }  
}

6.

Persistance.java

package com.Persistance;  
  
abstract public class Persistance {  
  
 abstract void persist(int input);  
  
}

FilePersistance.java

package com.Persistance;  
  
public class FilePersistance extends Persistance{  
  
 int input;  
 void persist(int input)  
 {  
 this.input = input;  
 System.*out*.println("Data saved in File");  
 }  
}

DatabasePersistance.java

package com.Persistance;  
public class DatabasePersistance extends Persistance{  
 int input;  
 void persist(int input)  
 {  
 this.input = input;  
 System.*out*.println("Data saved in Database");} }

Main.java

package com.Persistance;  
  
import java.util.Scanner;  
  
public class Main {  
 public static void main(String[] args) {  
 Scanner input = new Scanner(System.*in*);  
 System.*out*.println("Enter your age: ");  
 int Age = input.nextInt();  
 Persistance p;  
 if(Age > 25)  
 {  
 p = new DatabasePersistance();  
 }  
 else{  
 p = new FilePersistance();  
 }  
 System.*out*.println("Enter the (Integer) data which is to be saved ");  
 p.persist(input.nextInt());  
 }  
}

7.

**Main.java**

package com.DessertShop;  
  
import java.util.Scanner;  
  
public class Main {  
 public static void main(String[] args) {  
 Scanner input = new Scanner(System.*in*);  
 int choice;  
 do{  
 *DisplayMenu*();  
 choice = input.nextInt();  
 switch (choice) {  
 case 1:  
 Owner.*AddItems*();  
 break;  
 case 2:  
 Customer.*orderItems*();  
 break;  
 case 3:  
 System.*out*.println("Bye");  
 break;  
 default:  
 System.*out*.println("Invalid Input ! Choose a correct Role. Try Again");  
 break;  
 }  
 }while (choice!=3);  
 }  
  
 public static void DisplayMenu()  
 {  
 System.*out*.println();  
 System.*out*.println("Welcome to DessertShop!");  
 System.*out*.println("Choose your Role: ");  
 System.*out*.println("1. Owner ");  
 System.*out*.println("2. Customer ");  
 System.*out*.println("3. Exit ");  
 System.*out*.print("Enter your Choice: ");  
 }  
}

**Owner.java**  
  
package com.DessertShop;  
  
import java.util.Scanner;  
  
public class Owner {  
 public static void AddItems()  
 {  
 Scanner input = new Scanner(System.*in*);  
 System.*out*.println();  
 System.*out*.println("Choose the Item to Add: ");  
 System.*out*.println("1. Candy ");  
 System.*out*.println("2. Cookie ");  
 System.*out*.println("3. Ice Cream ");  
 System.*out*.print("Enter your Choice: ");  
 int choice = input.nextInt();  
 switch (choice) {  
 case 1:  
 *AddTheItem*("Candy");break;  
 case 2:  
 *AddTheItem*("Cookie");break;  
 case 3:  
 *AddTheItem*("IceCream");break;  
 }  
 }  
  
 public static void AddTheItem(String ItemName)  
 {  
 Scanner item = new Scanner(System.*in*);  
 if(ItemName.equals("Candy"))  
 {  
 *AddItemDetails*("Candy");  
 DessertItem Candy = new Candy(item.next(), item.nextDouble());  
 }  
 else if(ItemName.equals("Cookie"))  
 {  
 *AddItemDetails*("Cookie");  
 DessertItem Candy = new Cookie(item.next(), item.nextDouble());  
 }  
 else if(ItemName.equals("IceCream"))  
 {  
 *AddItemDetails*("IceCream");  
 DessertItem Candy = new IceCream(item.next(), item.nextDouble());  
 }  
 }  
  
 private static void AddItemDetails(String ItemName)  
 {  
 System.*out*.println();  
 System.*out*.print("Enter the Name of " + ItemName + " and Cost(in Rupees) : ");  
 }  
  
}

**Customer.java**

package com.DessertShop;  
import java.util.Scanner;  
public class Customer {  
 public static void orderItems()  
 {  
 Scanner input = new Scanner(System.*in*);  
 System.*out*.println();  
 System.*out*.println("Available Dessert Choices : ");  
 System.*out*.println("1. Candy ");  
 System.*out*.println("2. Cookie ");  
 System.*out*.println("3. Ice Cream ");  
 System.*out*.println("4. Enter 4 to exit ");  
 System.*out*.print("Enter your Choice: ");  
 int choice = input.nextInt();  
 switch (choice) {  
 case 1:  
 *itemSelected*("Candy");break;  
 case 2:  
 *itemSelected*("Cookie");break;  
 case 3:  
 *itemSelected*("IceCream");break;  
 }  
 }  
  
 public static void itemSelected(String ItemName)  
 {  
 if(ItemName.equals("Candy"))  
 Order.*orderItem*("Candy");  
 else if(ItemName.equals("Cookie"))  
 Order.*orderItem*("Cookie");  
 else if(ItemName.equals("IceCream"))  
 Order.*orderItem*("IceCream");  
 }  
}

**DessertItem.java**

package com.DessertShop;  
  
abstract public class DessertItem {  
 String itemName;  
 abstract public double getCost();  
}

**IceCream.java**

package com.DessertShop;  
  
public class IceCream extends DessertItem{  
 static double *cost*;  
  
 IceCream(){}  
 IceCream(String Name, double cost)  
 {  
 this.itemName = Name;  
 IceCream.*cost* = cost;  
 System.*out*.println(this.itemName + " has been added to Storage");  
 }  
  
 @Override  
 public double getCost() {  
 if(IceCream.*cost*==0)  
 {  
 System.*out*.println("NO stocks for IceCream Sorry!");  
 return 0;  
 }  
 return *cost*;  
 }  
}

**Candy.java**

package com.DessertShop;  
  
public class Candy extends DessertItem{  
 static double *cost*;  
  
 Candy(){}  
 Candy(String Name, double cost)  
 {  
 this.itemName = Name;  
 Candy.*cost* = (cost/60);  
 System.*out*.println(this.itemName + " has been added to Storage");  
 }  
  
 @Override  
 public double getCost() {  
 if(Candy.*cost*==0)  
 {  
 System.*out*.println("NO stocks for Candy Sorry!");  
 return 0;  
 }  
 return *cost*;  
 }  
}

**Cookie.java**

package com.DessertShop;  
  
public class Cookie extends DessertItem{  
 static double *cost*;  
  
 Cookie(){}  
 Cookie(String Name, double cost)  
 {  
 this.itemName = Name;  
 Cookie.*cost* = (cost/70);  
 System.*out*.println(this.itemName + " has been added to Storage");  
 }  
  
 @Override  
 public double getCost() {  
 if(Cookie.*cost*==0)  
 {  
 System.*out*.println("NO stocks for Cookie Sorry!");  
 return 0;  
 }  
 return *cost*;  
 }  
}

**Order.java**  
public class Order{  
 public static void orderItem(String ItemName)  
 {  
 DessertItem itemToOrder = null;  
 String currency = null;  
  
 if(ItemName.equals("Candy")) {  
 itemToOrder = new Candy();  
 currency = "Dollar";  
 }  
 else if(ItemName.equals("Cookie"))  
 {  
 itemToOrder = new Cookie();  
 currency = "Euros";  
 }  
 else if(ItemName.equals("IceCream")) {  
 itemToOrder = new IceCream();  
 currency = "Rupees";  
 }  
  
 if(itemToOrder.getCost() != 0)  
 {  
 System.*out*.println("Price: " + itemToOrder.getCost() + " " + currency );  
 System.*out*.println("Order has been placed for " + ItemName);  
 }  
 }  
}