**OOPS Assignment**

1. **public** **class** Singleton

{

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

{

NewSingleton s1 = NewSingleton.*getInstance*();

NewSingleton s2 = NewSingleton.*getInstance*();

System.***out***.println("S1: "+s1);

System.***out***.println("S2: "+s2);

}

}

**class** NewSingleton

{

**static** NewSingleton *obj* = **new** NewSingleton();

String string;

**private** NewSingleton()

{

string = "This is the Private Constructor of the Singleton Class";

}

**public** **static** NewSingleton getInstance()

{

**return** *obj*;

}

}

**class** Abc **extends** NewSingleton

{

}

**Output:** Implicit super constructor NewSingleton() is not visible for default constructor. Must define an explicit constructor

1. **import** java.util.Scanner;

**public** **class** Employee

{

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

{

Manager m = **new** Manager();

m.salary();

m.incentive();

Labour l = **new** Labour();

l.salary();

l.overtime();

}

}

**class** Emp

{

**public** **void** salary()

{

System.***out***.println("Please Enter Salary of Employee: ");

}

}

**class** Manager **extends** Emp

{

**int** ins, msal;

**public** **void** salary()

{

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

System.***out***.println("Please Enter Salary of Manager: ");

msal = ms.nextInt();

}

**public** **void** incentive()

{

Scanner scan1 = **new** Scanner(System.***in***);

System.***out***.println("Please Enter Incentive of Manager: ");

ins = scan1.nextInt();

**int** totalsal1 = ins + msal;

System.***out***.println("Total Salary of Manager: "+totalsal1);

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

}

}

**class** Labour **extends** Emp

{

**int** lsal;

**public** **void** salary()

{

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

System.***out***.println("Please Enter Salary of Labour: ");

lsal = ls.nextInt();

}

**public** **void** overtime()

{

Scanner scan2 = **new** Scanner(System.***in***);

System.***out***.println("Please Enter Over Time of Labour: ");

**int** ot = scan2.nextInt();

**int** totalsal2 = lsal + ot;

System.***out***.println("Total Salary of Labour: "+totalsal2);

}

}

1. **public** **class** Account

{

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

{

Saving s = **new** Saving();

s.amount();

s.fixeddeposits();

Current c = **new** Current();

c.amount();

c.cashcredit();

}

}

**class** Bank

{

**public** **void** amount()

{

System.***out***.println("Savings and Current Account Balance");

}

}

**class** Saving **extends** Bank

{

**int** amt = 100000, fd = 200000, tamt1;

**public** **void** amount()

{

System.***out***.println("Savings Account");

System.***out***.println("Account Balance: "+amt);

}

**public** **void** fixeddeposits()

{

System.***out***.println("Fixed Deposit Balance: "+fd);

tamt1 = amt + fd;

System.***out***.println("Account Balance with Fixed Deposit Amount: "+tamt1);

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

}

}

**class** Current **extends** Bank

{

**int** amt = 30000, cc = 50000, tamt2;

**public** **void** amount()

{

System.***out***.println("Current Account");

System.***out***.println("Account Balance: "+amt);

}

**public** **void** cashcredit()

{

System.***out***.println("Fixed Cash Credit Balance: "+cc);

tamt2 = amt + cc;

System.***out***.println("Account Balance with Cash Credit Amount: "+tamt2);

}

}

1. **public** **class** AbClass

{

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

{

System.***out***.println("This is the Main Class");

animal an = **new** animal();

an.move();

}

}

**class** animal

{

**public** **void** move()

{

System.***out***.println("This Animal Moves!");

}

**public** **abstract** **void** eat();

}

**Output:** Exception in thread "main" java.lang.Error: Unresolved compilation problems:

The type animal must be an abstract class to define abstract methods

The abstract method eat in type animal can only be defined by an abstract class

at animal.<init>(AbClass.java:14)

at AbClass.main(AbClass.java:8)

1. **public** **class** AbClass

{

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

{

System.***out***.println("This is the Main Class");

animal an = **new** animal();

an.move();

}

}

**abstract** **class** animal

{

**public** **void** move()

{

System.***out***.println("This Animal Moves!");

}

**public** **abstract** **void** eat();

}

**Output:** Exception in thread "main" java.lang.Error: Unresolved compilation problem:

Cannot instantiate the type animal

at AbClass.main(AbClass.java:8)

1. **public** **class** AbClass

{

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

{

System.***out***.println("This is the Main Class");

}

}

**abstract** **class** animal

{

**public** **void** move()

{

System.***out***.println("This Animal Moves!");

}

**public** **abstract** **void** eat();

}

**class** dog **extends** animal

{

}

**Output:** The type dog must implement the inherited abstract method animal.eat()

There are two solutions for this:

**After Overriding:**

**public** **class** AbClass

{

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

{

System.***out***.println("This is the Main Class");

}

}

**abstract** **class** animal

{

**public** **void** move()

{

System.***out***.println("This Animal Moves!");

}

**public** **abstract** **void** eat();

}

**class** dog **extends** animal

{

@Override

**public** **void** eat() {

// **TODO** Auto-generated method stub

}

}

**After Making Dog Class Abstract:**

**public** **class** AbClass

{

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

{

System.***out***.println("This is the Main Class");

}

}

**abstract** **class** animal

{

**public** **void** move()

{

System.***out***.println("This Animal Moves!");

}

**public** **abstract** **void** eat();

}

**abstract** **class** dog **extends** animal

{

}

1. **public** **class** AbClass

{

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

{

System.***out***.println("This is the Main Class");

animal an = **new** animal();

an.move();

}

}

**private** **abstract** **class** animal

{

**public** **void** move()

{

System.***out***.println("This Animal Moves!");

}

**public** **abstract** **void** eat();

}

**Output:** Illegal modifier for the class animal; only public, abstract & final are permitted.

1. **public** **class** AbClass

{

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

{

System.***out***.println("This is the Main Class");

}

}

**abstract** **final** **class** animal

{

**public** **void** move()

{

System.***out***.println("This Animal Moves!");

}

**public** **abstract** **void** eat();

}

**Output:** Illegal modifier for the class animal; only public, abstract & final are permitted. The class animal can be either abstract or final, not both.

1. **public** **class** AbClass

{

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

{

System.***out***.println("This is the Main Class");

}

}

**abstract** **class** animal

{

**public** **void** move()

{

System.***out***.println("This Animal Moves!");

}

}

1. **public** **class** Geometry

{

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

{

line line = **new** line();

line.draw();

rectangle rectangle = **new** rectangle();

rectangle.draw();

cube cube = **new** cube();

cube.draw();

}

}

**abstract** **class** shape

{

**public** **abstract** **void** draw();

}

**class** line **extends** shape

{

**public** **void** draw()

{

System.***out***.println("Line Drawn!");

}

}

**class** rectangle **extends** shape

{

**public** **void** draw()

{

System.***out***.println("Rectangle Drawn!");

}

}

**class** cube **extends** shape

{

**public** **void** draw()

{

System.***out***.println("Cube Drawn!");

}

}

1. **import** java.util.Scanner;

**public** **class** QuestionSix

{

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

{

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

System.***out***.println("Enter the Persistence Type you want your data to be saved in: ");

String persistence = sc.nextLine();

**if** (persistence.equals("File Persistence"))

{

FilePersistence fp = **new** FilePersistence() {};

fp.persist();

}

**if** (persistence.equals("Database Persistence"))

{

DatabasePersistence db = **new** DatabasePersistence() {};

db.persist();

}

}

}

**abstract** **class** Persistence

{

**public** **abstract** **void** persist();

}

**abstract** **class** FilePersistence **extends** Persistence

{

**public** **void** persist()

{

System.***out***.println("The Data is stored in Files");

}

}

**abstract** **class** DatabasePersistence **extends** Persistence

{

**public** **void** persist()

{

System.***out***.println("The Data is stored in Database");

}

}

1. **import** java.util.Scanner;

**public** **class** DessertShop

{

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

{

Role gr = **new** Role();

gr.role();

}

}

**class** Role **extends** DessertItem

{

**public** **static** Scanner *ro* = **new** Scanner(System.***in***);

**public** **static** **int** *choose*;

**public** **void** role()

{

System.***out***.println("Tell Us Who You Are? Enter Number: ");

System.***out***.println("1.Customer");

System.***out***.println("2.Owner");

*choose* = *ro*.nextInt();

**if** (*choose* == 1)

{

System.***out***.println("Welcome Customer! Please Select any one Item from our Menu. Enter Number: ");

System.***out***.println("1.Candy");

System.***out***.println("2.Cookie");

System.***out***.println("3.Icecream");

*choose* = *ro*.nextInt();

**if** (*choose* == 1)

{

System.***out***.println("You Chose Candy!");

Candy candy = **new** Candy();

candy.getCost();

}

**if** (*choose* == 2)

{

System.***out***.println("You Chose Cookie!");

Cookie cookie = **new** Cookie();

cookie.getCost();

}

**if** (*choose* == 3)

{

System.***out***.println("You Chose Icecream!");

Icecream icecream = **new** Icecream();

icecream.getCost();

}

}

**else** **if** (*choose* == 2)

{

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

System.***out***.println("Welcome Owner!");

System.***out***.println("Enter the Name of the Dessert Item to be added in the list: ");

String newdessert = c.toString();

System.***out***.println("t1"+newdessert);

}

}

**void** getCost()

{

}

}

**abstract** **class** DessertItem

{

**abstract** **void** getCost();

}

**class** Candy **extends** DessertItem

{

**int** total1;

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

**public** **static** **int** *choose*,*quantity*;

**void** getCost()

{

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

System.***out***.println("Types of Candies:");

System.***out***.println("1.Skittles-------$20+tax");

System.***out***.println("2.M&M's-------$20+tax");

System.***out***.println("3.Dairy Milk-------$10+tax");

System.***out***.println("4.Cadbury Silk-------$50+tax");

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

System.***out***.println("Select Candy(s) by entering their respective number: ");

*choose* = c.nextInt();

**if**(*choose* == 1)

{

System.***out***.println("You chose Skittles!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*20)+4;

System.***out***.println("Total Amount: $"+total1);

}

**if**(*choose* == 2)

{

System.***out***.println("You chose M&M's!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*20)+4;

System.***out***.println("Total Amount: $"+total1);

}

**if**(*choose* == 3)

{

System.***out***.println("You chose Dairy Milk!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*10)+2;

System.***out***.println("Total Amount: $"+total1);

}

**if**(*choose* == 4)

{

System.***out***.println("You chose Cadbury Silk!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*50)+10;

System.***out***.println("Total Amount: $"+total1);

}

}

}

**class** Cookie **extends** DessertItem

{

**int** total1;

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

**public** **static** **int** *choose*,*quantity*;

**void** getCost()

{

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

System.***out***.println("Types of Cookies:");

System.***out***.println("1.Chocolate Chip Cookies-------€10+tax");

System.***out***.println("2.Biscotti Cookies-------€20+tax");

System.***out***.println("3.Sugar Cookies-------€15+tax");

System.***out***.println("4.Oatmeal Raisin Cookies-------€30+tax");

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

System.***out***.println("Select Cookie(s) by entering their respective number: ");

*choose* = c.nextInt();

**if**(*choose* == 1)

{

System.***out***.println("You chose Chocolate Chip Cookies!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*10)+2;

System.***out***.println("Total Amount: €"+total1);

}

**if**(*choose* == 2)

{

System.***out***.println("You chose Biscotti Cookies!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*20)+4;

System.***out***.println("Total Amount: €"+total1);

}

**if**(*choose* == 3)

{

System.***out***.println("You chose Sugar Cookies!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*15)+2;

System.***out***.println("Total Amount: €"+total1);

}

**if**(*choose* == 4)

{

System.***out***.println("You chose Oatmeal Raisin Cookies!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*30)+5;

System.***out***.println("Total Amount: €"+total1);

}

}

}

**class** Icecream **extends** DessertItem

{

**int** total1;

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

**public** **static** **int** *choose*,*quantity*;

**void** getCost()

{

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

System.***out***.println("Types of Icecreams:");

System.***out***.println("1.Vanilla Icecream-------Rs30+tax");

System.***out***.println("2.Black Current Icecream-------Rs60+tax");

System.***out***.println("3.Chocholate Icecream-------Rs20+tax");

System.***out***.println("4.Butterscotch Icecream-------Rs30+tax");

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

System.***out***.println("Select Icecream(s) by entering their respective number: ");

*choose* = c.nextInt();

**if**(*choose* == 1)

{

System.***out***.println("You chose Vanilla Icecream!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*30)+2;

System.***out***.println("Total Amount: Rs "+total1);

}

**if**(*choose* == 2)

{

System.***out***.println("You chose Black Current Icecream!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*60)+6;

System.***out***.println("Total Amount: Rs "+total1);

}

**if**(*choose* == 3)

{

System.***out***.println("You chose Chocholate Icecream!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*20)+2;

System.***out***.println("Total Amount: Rs "+total1);

}

**if**(*choose* == 4)

{

System.***out***.println("You chose Butterscotch Icecream!");

System.***out***.println("Enter Quantity in Numbers:");

*quantity* = c.nextInt();

total1 = (*quantity*\*30)+5;

System.***out***.println("Total Amount: Rs "+total1);

}

}

}

This last code is not yet completed. 20% of the code is still remaining.