Logo

Description automatically generated

**SECJ2154 – 02**

**OBJECT ORIENTED PROGRAMMING**

**EXERCISES AND LAB TASK**

**INTERFACE**

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| --- | --- |
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1. Implement the classes. Assuming that *Food* is an abstract class and *Convertible* is an interface.
2. The *Convertible* interface converts the following:
3. Weight in pound to gram
4. US currency to Malaysia Ringgit
5. The food class contains abstract method (named displayInfo()) whose purpose is to display brief information about a food, such as:

Text, letter

Description automatically generated



1. Write the application program to test the classes named FoodApp. The program must apply a polymorphism concept and the sample output of the application is as shown above.

Diagram

Description automatically generated

**interface Convertible {**

**final double poundToGram = 435.59;**

**final double UStoMalaysian = 3.45;**

**}**

**abstract class Food implements Convertible {**

**private String description;**

**private double price;**

**public Food(){**

**this.description = "";**

**this.price = 0.0;**

**}**

**public Food(String description, double price){**

**this.description = description;**

**this.price = price;**

**}**

**public String getDescription(){**

**return this.description;**

**}**

**public double getPrice(){**

**return this.price;**

**}**

**public double calcPriceInRinggit(){**

**return price \* UStoMalaysian;**

**}**

**public abstract String displayInfo();**

**}**

**class Vegetable extends Food{**

**private final int weight;**

**public Vegetable(String description, double price, int weight){**

**super(description, price);**

**this.weight = weight;**

**}**

**public double calcWeightInGram(){**

**return weight \* poundToGram;**

**}**

**public String displayInfo() {**

**String str;**

**str = "Food description: " + super.getDescription() + "\nWeight in pound: " +**

**weight+ " pound" + "\nWeight in grams: " + String.format("%.2f", calcWeightInGram()) + " grams" + "\nPrice : US" + String.format("%.2f", super.getPrice()) +**

**"\nPrice converted to Malaysian = RM" + String.format("%.2f", super.calcPriceInRinggit());**

**return str;**

**}**

**}**

**class CannedFood extends Food {**

**private String type;**

**private String expiredDate;**

**public CannedFood(String description, double price, String type, String expiredDate) {**

**super(description, price);**

**this.type = type;**

**this.expiredDate = expiredDate;**

**}**

**public String displayInfo(){**

**String str;**

**str = "\nFood descrption: " + super.getDescription() +**

**"\nCanned Food Type: " + type +**

**"\nExpired Date: " + expiredDate +**

**"\nPrice: US" + String.format("%.2f", super.getPrice()) +**

**"\nPrice converted to Malaysian = RM" + String.format("%.2f", super.calcPriceInRinggit());**

**return str;**

**}**

**}**

**public class FoodApp {**

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

**Vegetable v1 = new Vegetable("Celery", 3.00 , 1);**

**CannedFood c1 = new CannedFood("Rambutan in Syrup", 5.00, "fruit", "12/12/12");**

**System.out.println(v1.displayInfo());**

**System.out.println(c1.displayInfo());**

**}**

**}**