CSC186 – Object Oriented Programming
Academic Session March 2023 – August 2023
Lab Assignment 6 - Inheritance

Course Outcomes (CO)	LO1	LO2	LO3
CO1			
CO2	√	√	√
CO3			

1.1 Given the following superclass named `Food` and subclass named `WesternFood`.

Super Class	:	`Food`

Attributes	:	`String name; // customer's name`
		`int quantityOfOrder; //quantity order made`
		`boolean member; //true – if member, otherwise`
		`//false`

Methods	:	Constructor, mutator, retriever, printer

Sub Class	:	`WesternFood`

Attributes	:	`int foodSet; //1- lamb chop, 2- chicken`
		`//chop, 3 – fish and chip`
		
		`boolean desert; //true – if wants banana`
		`//pie, otherwise false`

Methods	:	Constructor, mutator, retriever, processor, printer

a) Complete the above classes by considering the following methods:

i. Write the default and normal constructor methods.

ii. Write the mutator methods for each attribute.

iii. The accessor methods for each attribute

iv. Write the printer method to return object information.

v. Write the processor methods named `Payment()` which calculates and returns the amount to be paid by the customer based on the following table:

Set	Set Description	Amount (RM)
1	Lamb Chop	30.00
2	Chicken Chop	20.00
3	Fish and Chip	15.00

The customers need to pay extra RM 10.90 if they want the set that comes with dessert. Besides, 10% discount will be given to the members.

b) Write a Java application which uses the concept of inheritance to:

i. Store data into an array of objects. The number of data to be stored and information on each of the customers is given by the user.

ii. Display the details of customer's information, including the payment.

iii. Count and display the number of customers who make a desert order.

iv. Calculate and display the total amount from the member's customers.

v. Calculate and display the total amount of charges for all customers.

vi. Display the details of customer's information who make an order the Lamb Chop set.

1.2 Given the following superclass named `Artist` and subclasses named `Performer` and `Painter`.

Superclass	:	`Artist`

Attributes:	:	`String artistProfession;`
		`//singer/musician/actor painter/animator`
		`String artistName;  //artist name`
		`double payment; //payment for the given service`

Methods:	:	constructor, mutator, retriever, printer

Subclass	:	`Performer`

Attributes:	:	`int workingHours;  // total of working hour`
		`String genre;// e.g: rock/r&b/theater/magician`

Methods:	:	constructor, mutator, retriever, printer, processor method

Subclass	:	`Painter`
Attributes:	:	`int numOfPainting;  //number of paintings painted  //by painter`
Methods:	:	constructor, mutator, retriever, printer, processor method

The total payment for performer based on payment of the given service and working hour *(payment * working hour)*. If the total of working hour is more than 24 hours, extra allowance RM500.00 need to be added to the total payment

Meanwhile, the total payment for painter is calculated based on the payment and the number of painting (payment * number of painting). A token of appreciation, that worth 10% of total payment will be given if the number of paintings more than five (5).

Answer the following questions by implementing the inheritance concepts:

a) Complete the above classes by considering the following methods:

   i. Write the default and normal constructor for class.

   ii. Write the mutator for each class

   iii. Write the accessor for each class

   iv. Write the printer for each class to return object information

   v. Write a method named `payArtist()` for each subclass to calculate and return the total payment paid to customers.

b) Write a Java application program for each of the following question:

   i. Declare an array of object to store FIFTY (50) data on various types of artists and store data onto the object.

   ii. Display the details of `Performer` objects from the Rock genre which receives payment for more than RM 10000.00

   iii. Display the details of `Painter` objects which sold more than 10 painting.

1.3 By referring to the **Final Examination Paper (Feb 2023), QUESTION 3**. Write a complete Java program.

1.4 By referring to the **Final Examination Paper (August 2022), QUESTION 3**. Write a complete Java program.

1.5 By referring to the **Final Examination Paper (February 2022), QUESTION 3**. Write a complete Java program.

1.6 By referring to the **Final Examination Paper (July 2021), QUESTION 2**. Write a complete Java program.

1.7 By referring to the **Final Examination Paper (February 2021), QUESTION 2.** Write a complete Java program.

****Please take note EACH class must have the following methods:

a. Constructor (Default/Normal)
b. Setter/Mutator
c. Getter/Retriever/Accessor
d. Processor (if any)
e. Printer.