CSC435 – Object Oriented Programming
Academic Session October 2023 – February 2024
Lab Assignment 3 – Classes and Array of Object

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

3.1   Class `Salesperson` has the following attributes and methods:

Attributes:
- Name
- Id
- Sales

Methods:
- Default constructor
- Normal constructor
- Copy Constructor
- Setter methods
- Getter methods
- Processor method – calculate commission

    The calculation of the commission is based on the rate in the following table:

Sales	Commission rate
Less than 500.00	10%
500.00 and less than 1000.00	15%
1000.00 and less than 2000.00	20%
2000.00 and above	25%

- Method `toString()` to print object information

Application:
Write a program that will read the name, id and sales for a group of salespersons in a company. The number of salespersons is entered by the user. Use an array of Salesperson objects to store the data. Print a slip for each the salesperson that displays the details of the salesperson including commission.

At the end of the process, print a report that displays the following information:
- The total sales for all salespersons, the maximum sales, and the minimum sales.
- The total commission and average commission for all salespersons.

3.2   Given the following class `Cloth` consists of the following attributes:

- Name   //customer's name. e.g: Siti Salwa Ahmad
- Price   //price of the cloth per meter. e.g: 15.50
- Length   //length of the cloth in meter: e.g: 2.5

a) Write a complete class for the following methods:

i)   A default/normal/copy constructor.
ii)   Mutator for each attribute.
iii)   Accessor for each attribute.
iv)   A printer method named `toString ()` to display information of the object.
v)   A processor method named `calcPayment()` to calculate and return the price to be paid by the customer based on price per meter and length of the cloth. The 6% of GST will be imposed from the price paid.

b) Write an application program that performs the following:

i)   Declare an array of the object for `cloth` object.

ii)   Input some data in the array of the object.

iii)   Display all customer information, including the payment price.

iv)   Calculate and display the total payment paid by customers.

3.3   Given the following class `AlumniSTJ` represents alumni of STJ School. It has the following attributes:

- Name of the member
- IC number
- Gender : 'f' – female, 'm' – male
- Batch: SPM year such as 1995, 1996, etc
- Employment: `true` if employed. Otherwise `false`
- Education level: Secondary, Diploma, Degree, etc.

a) Write a complete class definition in Java with the following methods:

i)   Normal and default constructors.
ii)   Mutator for each attribute.
iii)   Accessor for each attribute.
iv)   A printer method `toString ()` to display information of the object.
v)   Processor method named `calculateAge()` to calculate age based on the first two characters of IC number. Assume the current year is 2015.
vi)   Processor method named `calculateFees()` to determine the registration fee based on the employment status. Registration fees are

RM30 a year for employed members and RM15 for unemployed members.

a) Write an application program that performs the following:

    i)   Declare an array of the object for `AlumniSTJ` object

    ii)   Input some data onto the array of object

    iii)   Count and display the number of male and female members.

    iv)   Count and display the number of employed and unemployed members.

    v)   Display the member information from SPM batch year 1995.

    vi)   Display the member information who age >= 50 years old.

    vii)   Calculate and display the total of fee paid by the members.

    viii)   Find the oldest member and display the information.

3.4   By referring to the **Final Examination Paper (December 2016), PART B, QUESTION 2**. Write a complete Java program. For each class, consider the following method:
- Constructor (Default/Normal/Copy)
- Setter/Mutator
- Getter/Accessor/Retriever
- Processor
- Printer

3.5   By referring to the **Final Examination Paper (December 2019), PART B, QUESTION 2**. Write a complete Java program. For each class, consider the following method:
- Constructor (Default/Normal/Copy)
- Setter/Mutator
- Getter/Accessor/Retriever
- Processor
- Printer

3.6   By referring to the **Final Examination Paper (June 2013), PART B, QUESTION 3**. Write a complete Java program. For each class, consider the following method:
- Constructor (Default/Normal/Copy)
- Setter/Mutator
- Getter/Accessor/Retriever
- Processor
- Printer