

## Core Java

Duration: 3 Hours

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### Instructions:

1. Use of Eclipse editor is only allowed.
  2. Switch off Cell phone during exam
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### Q. 1 – Section A

A **product table** contains column in following order about products:

**Product ID,ProductName,Price,Quantity**

P101,SIM-CARD,100,500

P102,DATA-CABLE,200,300

Design a class **Product** which contains following members

```
productID    String
productName  String
price        double
quantity     int
```

Parameterized constructor and getter methods for all instance variables.

Design a class **ProductLoader** will have following private instance variable and methods as per given signature:

static products ArrayList of Product

***public static void loadProduct( )*** which will load all products data from file **product.txt**.

To perform this, instantiate the Product object by reading the values from product table. Each line contains information about one product.

***public static ArrayList getProductList( )*** the method will return the ArrayList containing all products.

***public static Product searchProduct( String productID)*** the method will return the Product object whose product id passed as an argument.

Q 1 - A	Functionality
a)	Proper design of the class <b>Product</b>
b)	Proper design of <b><i>loadProduct( )</i></b> of class ProductLoader
c)	Proper design of <b><i>getProductList ( )</i></b> of class ProductLoader
d)	Proper design of <b><i>searchProduct( )</i></b> of class ProductLoader

## Q. 1 – Section B

Write the main method in class **TestProduct** in which following functionality need to be implemented -

- i) Load the product data into ArrayList of ProductLoader class
- ii) Get the all product list and display all details of products on console
- iii) Read the product id from user and use searchProduct method of ProductLoader class to check the existence of the product. If exists, display the details of that product.
- iv) If product does not exist, create a new product with given id along with other details taken from user and add it to existing arraylist as well as in **product table** as new record.
- v) Finally display the size of ArrayList on console.

Q 1 - B	Steps
a)	Proper loading of data into ArrayList using loadProduct( )
b)	Getting product list using getProductList()
c)	Displaying details of all products on console
d)	Proper Searching of product using searchProduct()
e)	Displaying details of searched product
f)	Adding product to ArrayList and file
g)	Displaying size of ArrayList
h)	Proper comments, coding conventions , indentation & implementation of OOP concepts

## Question-2

### (Calculation of Club Members Fees) - Object Oriented Programming

A Golf club has 3 categories of memberships: Regular, Gold and Silver. Members can utilize the club's services as per their category. Club personal wants to calculate the charges based on the number of months the services have been utilized by its member.

### Objective

Working with classes and inheritance

Problem Statement

The Golf Club charges its regular-members on monthly basis for using the services as below:

- 1) No Membership fee
- 2) No Enrollment fee
- 3) Golf services Rs 20,000 per month

However if any member wants to enroll as a Gold or Silver member, then charges are as below:

### A. Gold Members:

- 1) Membership fee---->90,000
- 2) Enrollment fee---> 10,000
- 3) Free Golf service for 6 months, then after Rs 10,000 per month

### B. Silver Members:

- 1) Membership fee---->15,000
- 2) Enrollment fee---> 5000
- 3) Free Golf service for 6 months, then after Rs 20,000 per month

Define the classes for all the member types with following details:

Fields:

- Enrollment fee
- Membership fee

Method:

1. double CalculateBill(int noOfmonths)

**Tasks to be completed:**

1. Define the two classes RegularMember, GoldMember and SilverMember and make use of proper inheritance and access specifiers.
2. Define and implement the class methods logics.
3. Display the amount of bill based on choice of membership and number of months of services used.

**Question-3– Section A**

In a cruise from India to Singapore there are 3 types of tickets.

- 1) crew member :- free (idno,name,age,trip name)
- 2) Adult above 10 years:- Rs 500 (tno,name,age,phoneno,address)
- 3) Children below 10 years :-Rs 250(tno,name,age)

Enter details of all the passengers and count no of crew members ,Adult and children traveling .

Also display the details of all the travellers.Using HashMap.

Display total amount of the ticket sold.

**Question-3– Section B**

According to a survey

In a locality few use colgate,few use pepsodent,few use patanjali,few use dabur red.

enter the details of the children,women,men of the locality .

find the maximum use of a brand.Using HashMap.