**PRACTICAL EXAMINATION**

**Subject code: PRO192 – SPRING 2025 Duration: 85 minutes**

Develop a Warehouse Product Management OOP applications with the following components and requirements:

# Create an MVC console application in NetBeans:

* 1. Define the Product Class with the Following Attributes and Methods: **(2 marks)**
* Attributes:
  + productID (Unique identifier for the product)
  + name (Product name)
  + category (Product category)
  + quantity (Number of items available)
  + price (Unit price)
  + dateAdded (Date the product was added to the warehouse)
* Methods:
  + Constructors: Initialize product attributes.
  + Getter/Setter Methods: Provide access and modification of product details.
  + toString() Method: Return a string representation of product details.
  + Validation:
    - Ensure dateAdded follows the format "dd/MM/yyyy".
    - Ensure the dateAdded is not in the future.
  + Method getProductAge(): Return the age of the product in the warehouse based on dateAdded.

1. Define the ProductList Class with the Following Attributes and Methods :**(3 marks)**

+ List of products

+ Read text file to load data for ProductList – ProductData.txt is provided. (If the data is incorrect the skip is not added to the list.).

+ Add new productsto List

+ Sort productsascending by quantity

+ Search productsby different criteria

* + - Search by name.
    - Search by category.

+ Delete products that have been in storage over 2 years.

1. Develop ProductsManagement class for application. **(4 marks)**

+ The application menu for execution includes:

* + Display all products.
  + Sort products by quantity.
  + Search products (by name, category).
  + Add a new product.
  + Delete products that have been in storage for ≥ 2 years.

+ Productssearch includes :

* + Search by product name.
  + Search by product category.

# 2. Technical requirements(1 mark):

+ Create a **model** package contains Product and ProductList classes.

+ Create a **view** package contains Menu class.

+ Create a **controller** package contains ProductManagement class.

***Note:***

*1. If the student wants to separate view and controller, the student can let the input and output-related methods into the ProductView class. In that case, the view package will contain both the Menu and ProductView classes.*

1. *Students must strictly follow all requirements as described above for marking. Any modification of the requirement details is not allowed and will receive no marks!*
2. *Students must submit the project folder (that created in Netbean), submitting any other file formats (such as .doc, .txt…) will receive 0 points.*

User interface of application as sample images below:

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