CS489 – Applied Software Development

Lab 1

(October 2025)

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1. The estimated time allotted for completing this task is 2 hours.
2. You are expected to use your Computer with an IDE or any Code Editor tool of your choice to implement your solution. Also, make appropriate use of AI tools!
3. *For the tasks/operations in the question, you are expected to take screenshot(s) of your work/result(s), save each into a .png or .jpg image file, placed inside a folder named, screenshots and include these in your submission, making sure to include all your project source code. When you have completed your solution, you are required to take each of the set of 5 or 6 evidential sample screenshots, which have been included in this Lab1 task document.*
4. Upon completion, to submit your work for review and grading, simply commit and push your entire Project folder (including the screenshots folder) into a repository on your github account and then submit the url to the Assignment item on Sakai.

Make sure to include the screenshots of your work/results, as required.

Software Development Tools/Environment Setup Tasks and Coding (10 points)

1. (10 points) **Setup and exercise your Dev Environment and Tools by implementing a basic CLI Application Project, and publish it to Github**

Note 1: *You are expected to use your computer with an IDE or any Code Editor tool of your choice, including AI tools, to implement your solution.*

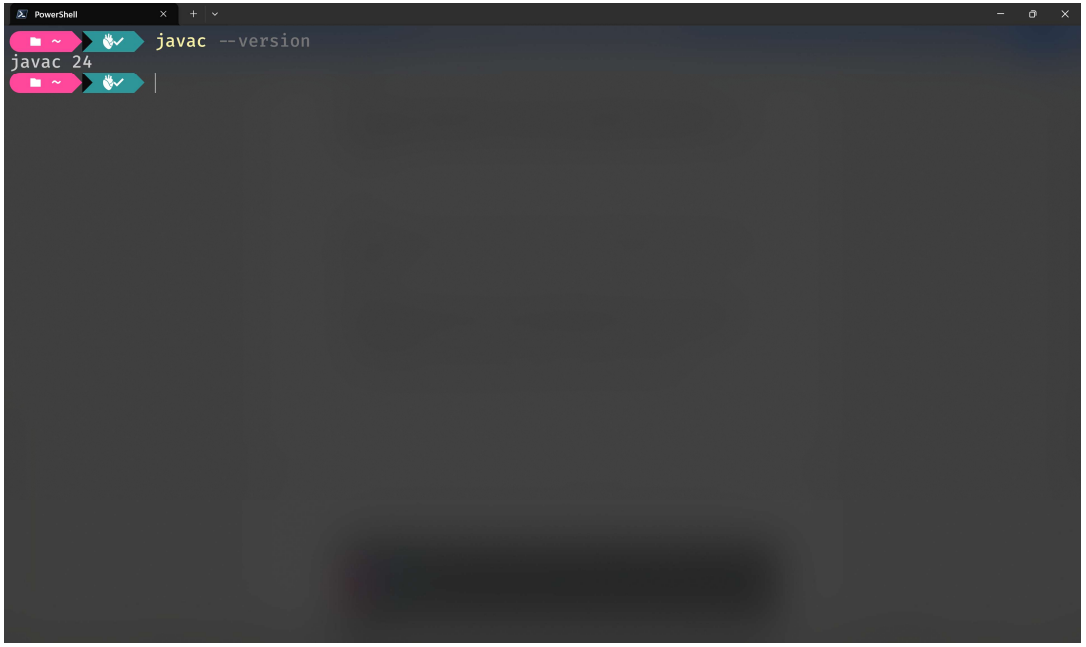
Note 2: *For the tasks in this question, you are expected to take screenshot(s) of your work/result(s), save each into a .png or .jpg image file, placed inside a folder named, screenshots and include these in your project/solution folder, which you push to repo on github and you submit the URL.*

Note 3: *For this question, when you complete your own solution, you are required to take each of the set of 5 or 6 evidential sample screenshots, which have been included at the end of the question. See below.*

Upon completion, to submit, simply commit and push your entire project, into a repository on github and submit the url to the Lab Assignment item on Sakai, as your submission.

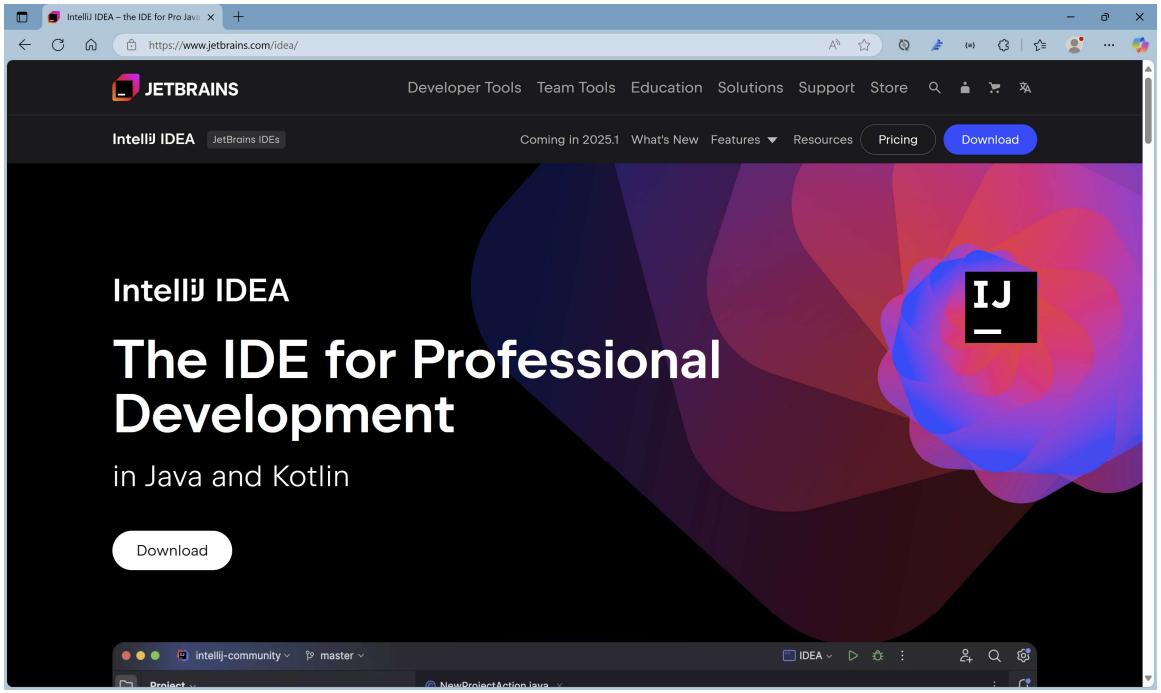
TASK 1:

Obtain, install and configure the Java JDK for your OS. Minimum required version is JDK17. Recommended version for this course is JDK21. Note: JDK25 is also available. When done (or if already done), open a command terminal/shell and execute the command, javac -version. Take a screenshot of your computer, showing the result like the one below:



TASK 2:

Obtain and install an IDE for Java application development. Jetbrains IntelliJ IDEA is highly recommended. Visual Studio Code is also available.

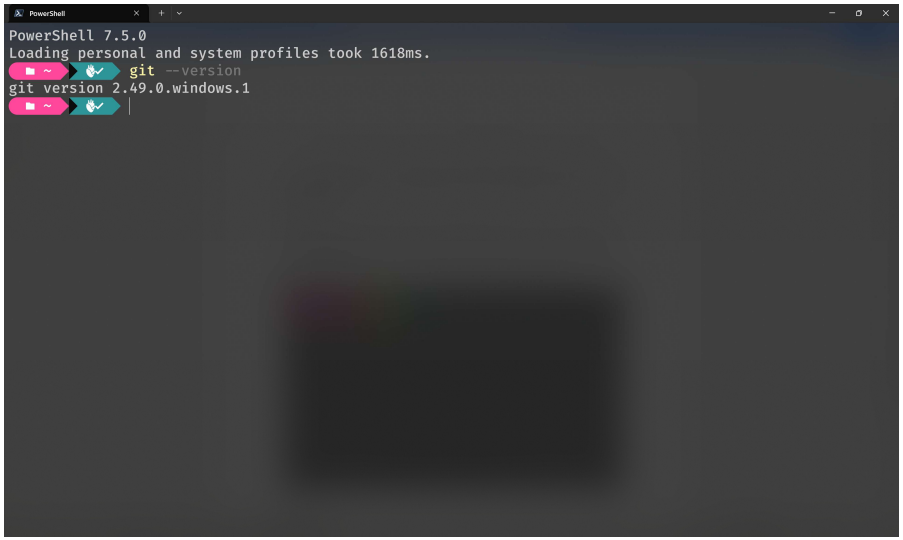


TASK 3:

Obtain, install and configure Git for your OS. Minimum required version is 2.50.0. When done (or if already done), open a command terminal/shell and execute the command,

git --version.

Take a screenshot of your computer, showing the result like the one below:



TASK 4:

Problem Statement:

Assume that a National Groceries supply company has hired you to develop a Command-Line Interface (CLI) application for their Products Management system, which they will be using to manage data about the Products they supply.

Here are the attributes for the **Product** entity, including some useful descriptions and/or sample data values:

Product:

productId, (e.g. 31288741190182539912, 29274582650152771644, etc.)
Note: These productIds are numeric data

name, (e.g. Banana, Apple, Carrot etc.)

dateSupplied, (e.g. 2025-01-24, 2024-12-09, 2025-03-31 etc.)

quantityInStock, (e.g. 124, 18, 89 etc.)

unitPrice, This is money (in dollars and cents) (e.g. $0.55, $1.09, $2.99 etc.)

Data:

Here is the company's existing data, which you are expected to load/use it your Program and print as output upon its execution:

Products data:

Product Id	Name	Date Supplied	Quantity In Stock	Unit Price (in US$)
31288741190182539912	Banana	2025-01-24	124	0.55
29274582650152771644	Apple	2024-12-09	18	1.09
91899274600128155167	Carrot	2025-03-31	89	2.99
31288741190182539913	Banana	2025-02-13	240	0.65

For this question, do the following:

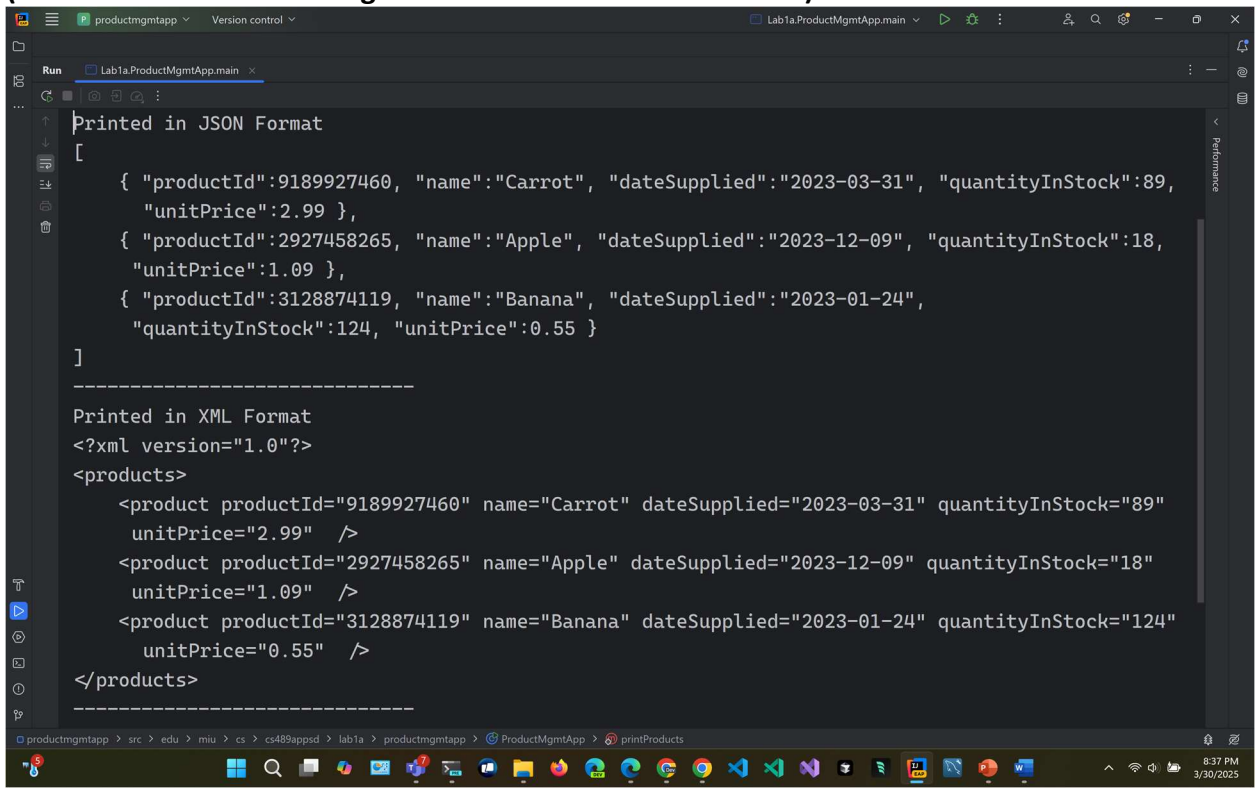
1. Create a new Command-Line Interface application project.
2. In the project, implement code for the class named, **Product**, including each of the data fields required by the specification above, add 3 constructors including the default constructor, and getter (accessor) and setter (mutator) methods. Make the class be inside a package/namespace named, "edu.miu.cs.cs489appsd.lab1.productmgmtapp.model".
3. Add and code an executable class named, ProductMgmtApp, and in it include the main method. And, in the main method, create an array of Products using the company's data, as given above. Also, implement a method named, printProducts, that takes as input the array of products data and it prints them out to the console, sorted in ascending order of the Product Name and then descending order by the product Unit Price, in each of the following formats: JSON, XML and CSV.

   Make the ProductMgmtApp class be inside a package named, "edu.miu.cs.cs489appsd.lab1a.productmgmtapp".

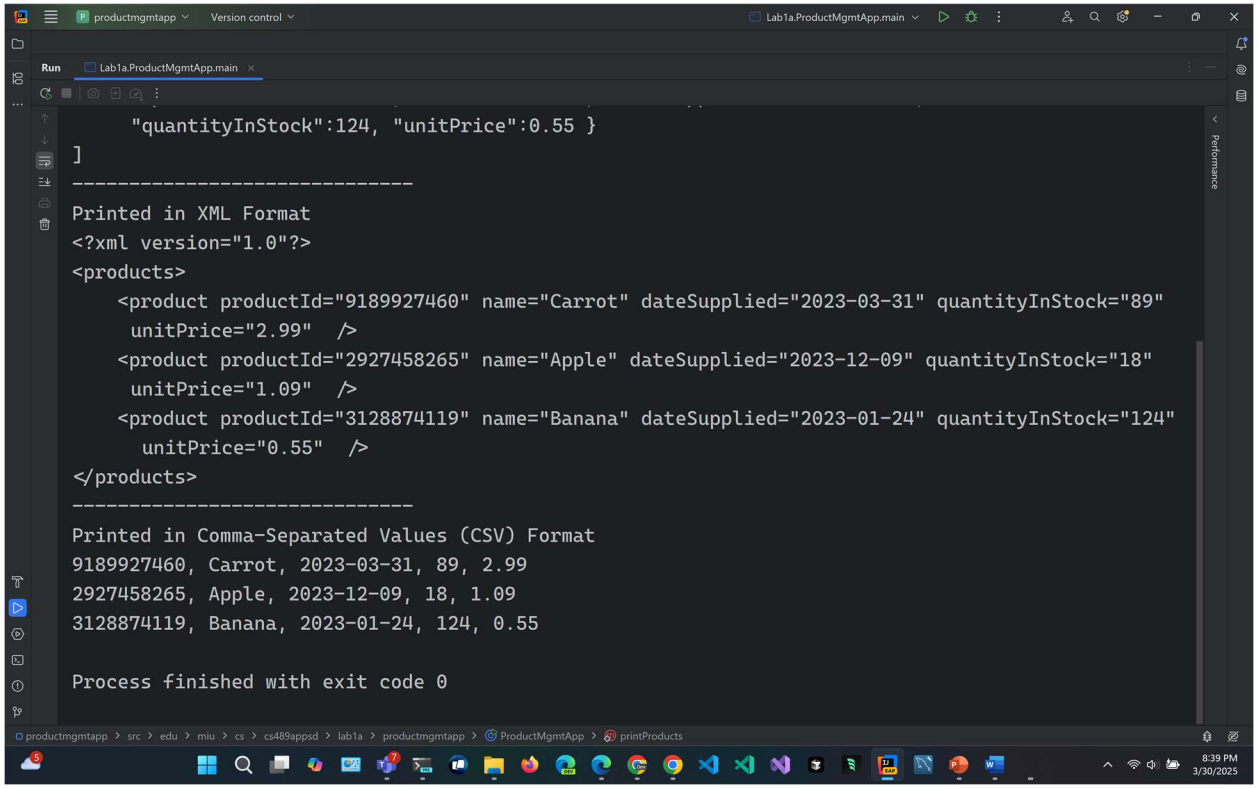
4. In the main method, add code to invoke your printProducts(…) method and execute your program, take a screenshot of the IDE showing the output/result

Shown below are sample screenshots and data presentation for the above requirements.

JSON-formatted and XML-formatted list of all Products:
(Note: Sorted in descending order of the Product Unit Prices)



CSV-formatted data:



//-- The End --//