

CSC 221 - Lab 1

Lab objectives:

- Demonstrate mastery of CSC 121 concepts:
 - object-oriented concepts like classes and objects;
 - control structures like selection, and iteration, and
 - basic algorithms like linear search
 - Learn to use the Eclipse IDE for Java development. You will be using the Eclipse IDE for all your development this semester, and emailing the project files when you submit your assignments.
1. Using Eclipse, develop the Java program detailed below. Name the project file as follows: If your UNCW username is *abc1234*, then name your project *abc1234Lab1*
 2. When complete, zip up the project file and email it to yourself as an attachment
 3. Unzip the emailed attachment and import it into Eclipse as a new project. Check to make sure your project works as intended.

Each line below lists the **Ticker Symbol**, **Company Name**, **lowest price during the last year** and **highest price during the last year** for some stocks.

MSFT	Microsoft	42	82.5
INTL	Intel	37.5	92.7
ORCL	Oracle	45.5	109
DELL	Dell	34.5	87
WMRT	WalMart	22.3	45.5

Write a Java program that does the following:

- **Prompts** the user for this information and **stores** it.
- **After** all the information has been entered, the user is **prompted** for a **ticker symbol**. The program then displays ALL the information for that particular stock, including the average price of the stock in the last year.
- The previous step is repeated till the user types in QUIT when asked for a ticker symbol.

Program Design: Your program should have two classes.

1. A class named **Stock**, which
 - Embodies all the information pertinent to a stock. All instance variables in this class should be **private**.
 - The class should also contain **instance methods** named **getHigh** and **getLow** that return the high and low price of the stock, respectively, and **instance methods** named **getTickerSymbol**, and **getName**, for retrieving a stock's ticker symbol and name, respectively.
 - **A constructor** to correctly process the instantiation of a stock using the relevant data.

2. A second class named **PortfolioManager** which contains a **main** method that is used to:
 - (a) **Phase 1:** Acquire and store the necessary information
 - i. If required, create any windows and other objects that you may need to support your program
 - ii. Determine how many stocks are owned by the user. Use this information to create a **portfolio**, which is declared as an **array** of **Stock** objects.
 - iii. In a **loop**, for each stock owned by the user
 - A. Prompt the user for information related to the stock
 - B. Instantiate a **Stock** object using the information provided
 - C. Store the object created in the previous step, in the **portfolio**
 - (b) **Phase 2:** Allow the user to search the information stored in Phase 1
 - i. **Repeatedly** accept ticker symbols from the user and print all related stock information, and average price of the stock, **till the user enters QUIT**.

Your program should be capable of being used with other data sets, NOT JUST THE DATA PROVIDED ON THIS SHEET.

3. Add code to the **main** method of **PortfolioManager** that identifies the **most volatile stock**, that is the stock with the greatest trading range (difference between low and high price), and the **least volatile stock**. Once the stock is identified the program prints out all the information for the stock, saying "The most volatile stock is" etc.