

## OPS 807 Homework 3

### In-class exercise/Homework

**Due date:** 7/27/19 11:59 pm

**Problem 1:** (The Stock class) Design a class named Stock to represent a company's stock that contains:

- A private string data field named symbol for the stock's symbol.
- A private string data field named name for the stock's name.
- A private float data field named previousClosingPrice that stores the stock price for the previous day.
- A private float data field named currentPrice that stores the stock price for the current time.
- A constructor that creates a stock with the specified symbol, name, previous price, and current price.
- A get method for returning the stock name.
- A get method for returning the stock symbol.
- Get and set methods for getting/setting the stock's previous price.
- Get and set methods for getting/setting the stock's current price.
- A method named getChangePercent() that returns the percentage changed from previousClosingPrice to currentPrice.

### Optional assignment:

(The Account class) Design a class named Account that contains:

1. A private int data field named id.
  2. A private float data field named balance.
  3. A private float data field named annualInterestRate that stores the current interest rate.
  4. A constructor that creates an account with the specified id (default 0), initial balance (default 100), and annual interest rate (default 0).
  5. The accessor and mutator methods for id, balance, and annualInterestRate.
  6. A method named getMonthlyInterestRate() that returns the monthly interest rate.
  7. A method named getMonthlyInterest() that returns the monthly interest.
  8. A method named withdraw that withdraws a specified amount from the account.
  9. A method named deposit that deposits a specified amount to the account (Hint: The method getMonthlyInterest() is to return the monthly interest amount, not the interest rate. Use this formula to calculate the monthly interest:  $\text{balance} * \text{monthlyInterestRate}$ . monthlyInterestRate is  $\text{annualInterestRate} / 12$ . Note that annualInterestRate is a percent (like 4.5%). You need to divide it by 100.)
  10. Write a test program that creates an Account object with an account id of 1122, a balance of \$20,000, and an annual interest rate of 4.5%. Use the withdraw method to withdraw \$2,500, use the deposit method to deposit \$3,000, and print the id, balance, monthly interest rate, and monthly interest.
- Please, upload your code to SMC MBA course website dropbox. Include your name/team-name (if you are submitting the homework as a team please include your team member names in the comments) in your submission title, i.e. hw2\_jahanghofraniha.zip/hw2\_jahanghofraniha.py, ..... Any

explanation of the code should be done as comments (use multi-line comments) in the program. If you have issues with uploading Python code (.py) onto SMC MBA website, first zip your file and upload the zip file rather than .py file.