**Assignment 3** (5 points for each question)

Q1. Create a data frame that contains the following information.

|  | **Price** | | | **Price to earnings ratio (P/E)** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **date** | **Facebook** | **Google** | **Microsoft** | **Facebook** | **Google** | **Microsoft** |
| **2017-06-05** | 155 | 955 | 66 | 37.10 | 32.0 | 30.31 |
| **2017-06-06** | 150 | 987 | 69 | 36.98 | 31.3 | 30.56 |
| **2017-06-07** | 153 | 963 | 62 | 36.78 | 31.7 | 30.46 |
| **2017-06-08** | 155 | 1000 | 61 | 36.11 | 31.2 | 30.11 |
| **2017-06-09** | 156 | 1012 | 66 | 37.07 | 30.0 | 31.00 |

Q2. Set the index to be the date. Then show the information for each date and each company. Example output (shows just the first row):

|  |  | **Price** | **Price to earnings ratio (P/E)** |
| --- | --- | --- | --- |
| **(date, )** |  |  |  |
| **2017-06-05** | **Facebook** | 155 | 37.10 |
| **Google** | 955 | 32.00 |
| **Microsoft** | 66 | 30.31 |

Q3. Use the result from Q1 to find the average price and average P/E ratio per stock name.

Q4. Consider a scenario where John is 20, Bob is 30, and Suzan is 22. Suppose that there are three courses: CS 233, CS 455, and ENGL 433. Next, suppose that John took CS 233 and got a C, took CS 455 and got a B, and Suzan took ENGL 433 and got an A. Create three data frames. The student data frame should store the student name and age. The course data frame should store the department, course number, and description. Finally, the takes data frame should store the department name, course number, and grade. You can assume that each student has unique name.

Q5. Write code that finds the GPA of each student. The value should be 0 if the student has taken no classes.

Q6. Write code that prints the names of students that have taken no classes.

Q7. Create a Series. The index should be all the business days in 2018. The values should be the numbers from 0 to 260.

Q8. Create a data frame that contains the number of Mondays, Tuesday, ... , Sundays in 2018. You should compute the result using the pandas library.

Q9. Which day of the week (e.g., Monday, Tuesday?) is most profitable for the GOOG stock in 2017? Compute the difference between the opening and closing price for each day of the week and sum over the whole year. Expected output:

|  | **Profit** |
| --- | --- |
| **DOW** |  |
| **Wednesday** | 77.895081 |
| **Tuesday** | 42.460205 |
| **Monday** | 38.770020 |
| **Thursday** | 5.105225 |
| **Friday** | 1.340271 |