Assignment # 1

Submission instructions:

- You are required to submit your source code (.py) for each question unless specified otherwise.
- At the beginning of each code add a comment specifying your name, assignment #, and question # following the below format:

```
‘’’
Your name [First last]
ID
Homework x
Question x
‘’’
```

- At the end of your code add as a comment your answer for each question (if any) along with your code sample output.
- Compress the source code file(s) (using zip or tar) and submit the compressed file through Moodle.

Q1. Write an application that inputs one number consisting of five digits from the user, separates the number into its individual digits and prints the digits separated from one another by three spaces each. For example, if the user types in the number 42339, the program should print:

```
4  2  3  3  9
```

Assume that the user enters the correct number of digits. What happens when you execute the program and type a number with more than five digits? What happens when you execute the program and type a number with fewer than five digits? Answer these questions as a comment in your code
[*Hint:* It’s possible to do this exercise with the techniques you learned. You’ll need to use both int division and remainder operations to “pick off” each digit.]

Q2. Write a program that asks the user for the number of males and the number of females registered in a class. The program should display the percentage of males and females in the class. **(Use the built-in format method to show the percentage)**
[Hint: Suppose there are 8 males and 12 females in a class. There are 20 students in the class. The percentage of males can be calculated as 8 ÷ 20 = 0.4 or 40%.]

Q3. As of 2019 and according to searchenginejournal.com, Snapchat hit 203 million. how many months will it take for Snapchat to grow its user base to >= 800 million users? How many months will it take for Snapchat to grow its user base to >= 1.5 billion users? Write a program to show this.

Use the following formula to determine the number of users per year:

$$a = p\,(1 + r)^n$$

where:
p is the original number of users (i.e., 203 million, note that in python you can write 10^3 using 10**3)
r is the annual interest rate (e.g., use 0.05 for 5%)
n is the number of months
a is the number of users at the end of the nth month.

Assume the growing rate of snapchat (r) is 4.5% per month.
Million = 10^6
Billion = 10^9

You can solve it using either Math library methods or loop.

Sample output:

```
Snapchat needs 32 months to reach >= 800 million users
Snapchat needs 46 months to reach >= 1.5 billion users
```