Lab 5 Files and Exceptions

1. Word List File Writer and Reader

Write a program that asks the user how many words they would like to write to a file, and then asks the user to enter that many words, one at a time. The words should be written to a file.

Output example

```
Enter a number of word you want to write to a file:10
Enter a word: zebra
Enter a word: horse
Enter a word: alligator
Enter a word: elephant
Enter a word: dog
Enter a word: cat
Enter a word: lion
Enter a word: duck
Enter a word: dolphin
Enter a word: Saccharomyces
```

Then write another program that reads the words from the created file and displays the following data:

• The number of words in the file.

• The longest word in the file.

• The average length of all of the words in the file.

Output example

```
The number of word in file: 10
The longest word in the file: Saccharomyces
The average length of all of the words in the file: 6.1
```

Source: Gaddis, T., & Agarwal, R.. Starting out with Python. Pearson

2. Average Steps Taken

A Personal Fitness Tracker is a wearable device that tracks your physical activity, calories burned, heart rate, sleeping patterns, and so on. One common physical activity that most of these devices track is the number of steps you take each day. The steps.txt file contains the number of steps a person has taken each day for a year. There are 365 lines in the file, and each line contains the number of steps taken during a day. (The first line is the number of steps taken on January 1st, the second line is the number of steps taken on January 2nd, and so forth.) Write a program that reads the file, then displays the average number of steps taken for each month. (The data is from a year that was not a leap year, so February has 28 days.)

Output example

```
The average steps in January is 7950.06
The average steps in February is 8218.57
The average steps in March is 11037.94
The average steps in April is 10886.67
```

```
The average steps in May is 15395.16
The average steps in June is 15753.57
The average steps in July is 15463.00
The average steps in August is 15563.58
The average steps in September is 15385.80
The average steps in October is 11482.58
The average steps in November is 7979.07
The average steps in December is 7919.58
```

Source: Gaddis, T., & Agarwal, R.. Starting out with Python. Pearson

3. Average of Numbers and Exception Handling

Write a program that asks the user for a file name of a file that contains a series of integers then calculates the average of all the numbers stored in the file. The program should handle the following exceptions:

• It should handle if the file specified by the user does not exist and keep asking until the valid file name is given

• It should handle any ValueError exceptions that are raised when the items that are read from the file are converted to a number by displaying the default error message and ignore that line.

Output example 1

```
Enter a file name: number.txt
[Errno 2] No such file or directory: 'number.txt'
Enter a file name: number1.txt
[Errno 2] No such file or directory: 'number1.txt'
Enter a file name: numbers.txt
invalid literal for int() with base 10: 'six\n'
invalid literal for int() with base 10: 'one\n'
The average is 17.142857142857142
```

Output example 2

```
Enter a file name: numbersClean.txt
The average is 24.0
```

Source: Modified from Gaddis, T., & Agarwal, R.. Starting out with Python. Pearson