Lab 10: writing to a file & work on project

Reading from a file in Python

Now we are going to look at reading information from a file. To read from a file we use 'r' mode when opening the file connection. And we can use a for loop to read from a file line-by-line. Use the numbers.txt file created in last week's lab. See the below example:

```python
with open("numbers.txt","r") as connection:
    for line in connection:
        print(line)
```

In the above code, the for loop syntax allows us to read from the file line by line and process each line on an iteration of the for loop.

1. Use the numbers.txt file that we generated in the first exercise
2. Write Python code to read each number from the file.
3. Add code to add the numbers in the file.
4. Add code to find the average of the numbers in the file. (we need to count how many numbers are in the file)
5. Add code to find the largest number in the file
6. Deal with exceptions that might occur e.g. IOError if the file could not be found.

Reading from a file in Python

1. Create a text file containing a name on each line
2. Write a program to read each name and display it on the screen. Remove any extra leading or trailing whitespace characters using strip().
3. Modify the code to display each name in uppercase.
4. Add code to also display the length of each name (use len()).
5. Add code to write each name in lowercase to a file called "lower.txt".

Reading from a file – strings and numbers

A file contains students' IDs and grade as follows:
R00012345 45
R00046574 67

R00036475 91
R00084637 34

1. Add code to loop through the file line by line.
2. Split each line into 2 parts: the first part is the id and the second is the grade, which must be converted into an integer.
3. Find the ID(s) of the student(s) with the highest grade.