Lab 4

Overview

In this lab we will learn reading and processing text files

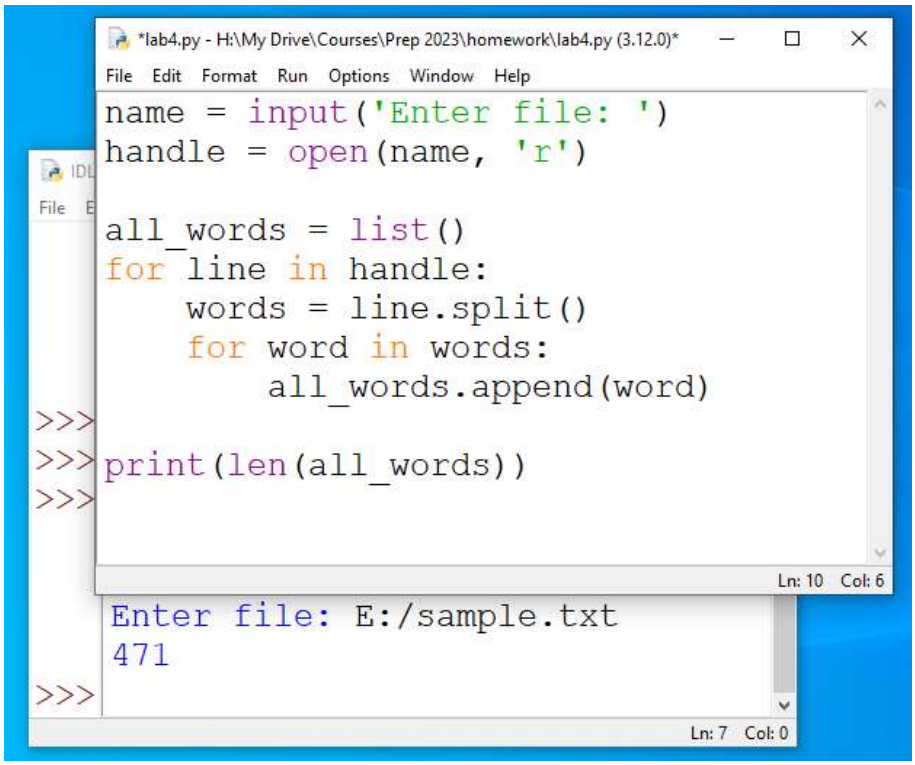
Steps

1. Copy the following paragraph into a text file named **sample.txt** and save it to your machine

python was conceived in the late 1980s as a successor to the abc programming language . which was inspired by setl . capable of exception handling and interfacing with the amoeba operating system. its implementation began in december 1989. van rossum shouldered sole responsibility for the project . as the lead developer . until 12 july 2018 . when he announced his permanent vacation from his responsibilities as python's benevolent dictator for life . a title the python community bestowed upon him to reflect his long-term commitment as the project's chief decision-maker. in january 2019 . active python core developers elected a five-member steering council to lead the project . python 2.0 was released on 16 october 2000 . with many major new features such as list comprehensions . cycle-detecting garbage collection . reference counting . and unicode support. python 3.0 . released on 3 december 2008 . with many of its major features backported to python 2.6.x and 2.7.x. releases of python 3 include the 2to3 utility . which automates the translation of python 2 code to python 3. python 2.7's end-of-life was initially set for 2015 . then postponed to 2020 out of concern that a large body of existing code could not easily be forward-ported to python 3. no further security patches or other improvements will be released for it. currently only 3.8 and later are supported . in 2021 . security updates were expedited . since all python versions were insecure because of security issues leading to possible remote code execution and web-cache poisoning. in 2022 . python 3.10.4 and 3.9.12 were expedited and 3.8.13 . because of many security issues. when python 3.9.13 was released in may 2022 . it was announced that the 3.9 series would only receive security fixes in the future. on 7 september 2022 . four new releases were made due to a potential denial-of-service attack: 3.10.7 . 3.9.14 . 3.8.14 . and 3.7.14. as of october 2023 . python 3.12 is the stable release . and 3.12 and 3.11 are the only versions with active support. notable changes in 3.11 from 3.10 include increased program execution speed and improved error reporting . python 3.12 adds syntax to the language . the new keyword type . and 3.11 for exception handling . and 3.10 the match and case keywords . for structural pattern matching statements. python 3.12 also drops outdated modules and functionality . and future versions will too . see below in development section . python 3.11 claims to be between 10 and 60% faster than python 3.10 . and python 3.12 adds another 5% on top of that. it also has improved error messages . and many other changes. since 27 june 2023 . python 3.8 is the oldest supported version of python . due to python 3.7 reaching end-of-life

2. From Windows start menu, Open Python IDLE
3. Go to the File menu and select “New File”

4. Copy the following program to the window



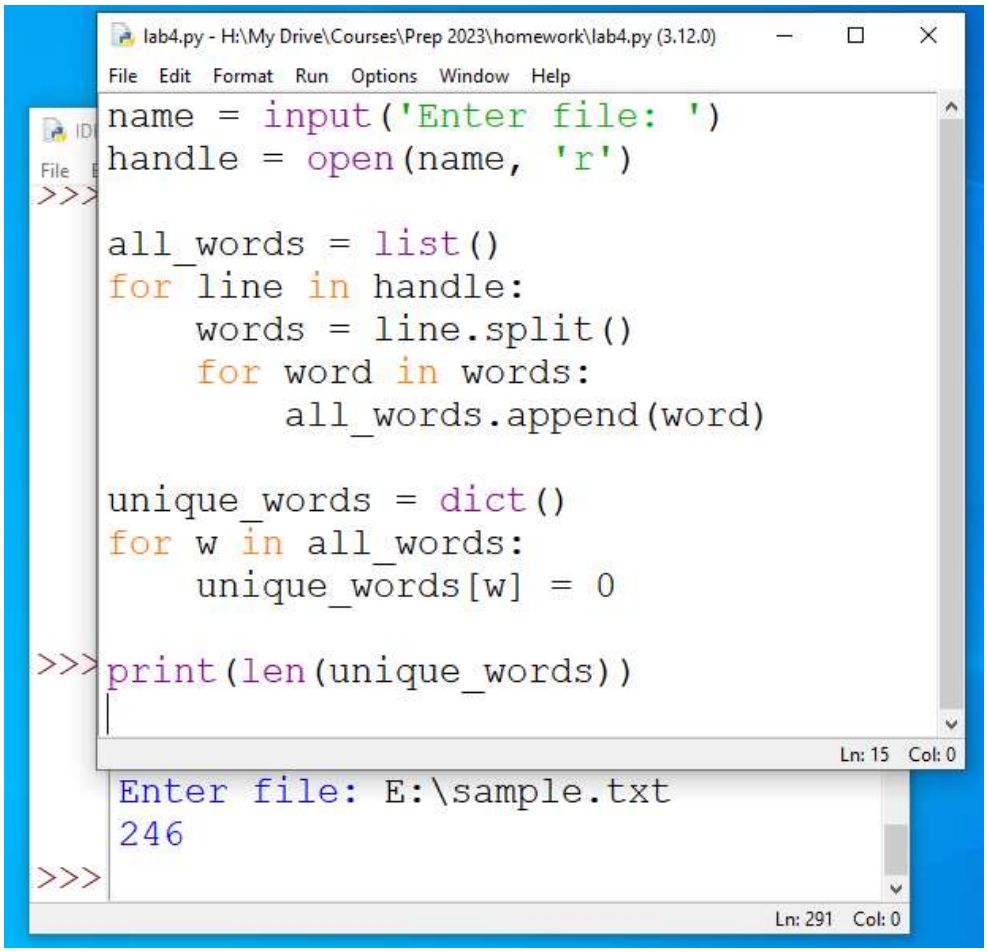
5. Go to the File menu and select “Save”, and save the program at the Desktop. Please use your student-id as the name of the file, and use “py” as an extension to the program
6. Go to the Run menu and select “Run Module” and see the output

Exercise 1:

- **What is the meaning of the number that was printed at the program?**
- **Change the program to print the list named all_words**

Part 2: Words Count

In Part 1, we read the file and stored it into a list. Some words are repeated multiple times in the file. In this part we want to get unique words in the file, so we will modify the program as follows:



Exercise 2:

- **What is the meaning of the number that was printed at the program now?**
- **Change the program to print how many times each word is repeated.**
  Hint: In the lecture, we see a program that was doing that exactly
- **What is the most frequent word in the file?**
  Hint: In the first lecture, we see a program that was doing that exactly

Part 3: Searching

Now let us allow the user to search for words in the file.

Exercise 3:

It is required that you modify the program to act as follows

1. You will ask the user for the file path and for a word to search for
2. If the word exists in the file, you will tell the user how many times it is there

```
Enter file: E:/sample.txt
Enter the word: python
The word "python" was found 22 times in the file
```

3. If the word doesn't exist, you will tell the user that it doesn't exist as follows

```
Enter file: E:/sample.txt
Enter the word: java
This word does not exist in the file
```