

Machine Learning



Lab 01: Python environment

The goal of this lab exercise is to install the Anaconda Python 3.8 environment (<https://www.anaconda.com/products/individual>) and to implement some simple functions.

Task 1.

The Fibonacci numbers are the numbers in the following integer sequence:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, ...

By definition, the first two numbers in the Fibonacci sequence are 0 and 1, and each subsequent number is the sum of the previous two, i.e. $f_i = f_{i-1} + f_{i-2}$.

Create a program that creates a list and will populate it with the first 40 Fibonacci numbers.

The program should then ask the user to enter an integer value between 1 and 40 to indicate which number in the Fibonacci series they would like to see and the application should display that number. For example, if the user enters 13, the 13th number is 144.

Task 2.

Write a program that reads the contents of the Bram Stoker's Dracula. The eBook can be downloaded at <http://www.gutenberg.org/cache/epub/345/pg345.txt>.

The objective of this program is to read all the data from this file and output words that occur at a specific frequency within the text.

Your program should read all words from the file. It should record all words that have a character length of at least *minWordLength* along with their frequency of occurrence in the novel.

Your program should then print each word along with the frequency of the word, which occurs more often in the novel than *minWordOccurence*.

The result of *minWordLength*=3 and *minWordOccurence*=300 should be:

- "which" -> 636
- "could" -> 458
- "would" -> 408
- "there" -> 508
- "shall" -> 410