

Topics:

Data structure selection: String, List, Dictionary, Tuple.

[120 points]

1. Book Statistics

[30 points]

Write a program that reads a file (a book), processes the text (divides into words, removes unnecessary symbols, etc.), and calculates the following as a result:

- a) Total number of words in the book;
 - b) Total number of different words;
 - c) 10 most frequently used words in the book;
 - d) Given a word list, print out all the words in the book that are not in the word list.
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2. "Guess Number" Game

[20 points]

Write a program that will generate a random number from 0 to 100, and ask the user to guess it. Each time the user enters a number the program shall say whether the given number is bigger or smaller than the desired result.

- a) The game runs repeatedly until the user finds the number, and display the total number of guesses made;
 - b) The program gives maximum of seven trials.
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3. Probability

[20 points]

Exercise 13.5 in the textbook

4. Count Types

[30 points]

Write a function called `count_types` that accepts any number of elements of any type as an argument, and prints out all the existing types in the given list in alphabetic order and the number of elements that belong to each type.

Ex:

```
>>> count_types(7, 'a', (1,2,3), 3.14, 2015, "SDU", 10010110)
float:      1
int:        3
str:        2
tuple:      1
```

5-Bonus. Markov Analysis

[20 points]

Exercise 13.8 in the textbook

=====END.