Exercise (H6.1)

Write a function for each of the following tasks. Given a text file, return the number of:

- words
- visible characters without space
- visible characters including space
- all characters
- lines

Exercise (H6.2)

Write a function that returns a dictionary containing the vowel counts (case insensitive) of a given text file.

Exercise (H6.3)

Assume that a text file (e.g., flights.txt) contains information about flights. In particular, each line contains information about one flight described by the departure city, arrival city, flight code, departure time (hh:mm), and arrival time (hh:mm). All fields are separated by space.

Write a program that asks the user their departure and arrival locations and the preferred time slot among the 6 possible time slots (e.g., 08:00-12:00). The program then shows all the possible solutions that satisfy the user's requests and asks the user to choose one. Finally, the information concerning the flight chosen by the user is written in a new file (e.g., holidays_plan.txt).

Exercise (H6.4)

Repeat exercise h4.7 using a recursive function for flattening a list.

Exercise (H6.5)

Write a recursive function that checks if a given integer number is inside a given ordered list of integers (do not use ‘in’).

Exercise (H6.6)

Write a recursive function that prints the Pascal's triangle of order n. A Pascal's triangle begins with 1 on the top and with 1 running down on the two sides of the triangle. Then the triangle can be filled out from the top by adding together the two numbers just above to the left and right of each position in the triangle.
E.g., with n=5: