Project - Network based pattern searching
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The project aims at creating a **network application - where a multithreaded server and a client is implemented**. The client would send to the server a filename and a word to be searched in the file. If the specified filename is not found, **an exception could be raised.**

If the specified filename is found, then all the lines in the file that contains the word or pattern is captured into a list and sent back to the client.

The project needs to have the following program files

1. **search.py**
2. **client.py**
3. **server.py**

The **program - search.py** - should have **a class named Search** that has the following methods

a. **__init__** - takes the filename as an argument (a default filename could also be specified in the testing phase) and reads every line and puts in a list which is added as an attribute to the object

b. **clean** - this method removes the special characters by using regular expressions and any of the functional programming tools like map or list comprehension

c. **getLines** - takes a word or pattern as an argument and extracts every line that contains the pattern/word into a list in the following format

A list where the first element is the word the user is searching for, and a series of tuples that has two elements viz., line number and the actual line. For example if the user is searching for the word “land” and if the word is present in two lines - line number 3 and 7, the list would look like

[“land”,(3,”This is my land”),(7,”I love my land”)]

The program - client.py - should connect to the server and send the filename (if the default filename is not specified in the search.py in the __init__ of search.py) and the word that need to be searched. The result got from the server **in the json format need to be parsed and result displayed to the user**

The program - server.py - listens for the client connection at a particular port. It accepts the filename (if the default filename is not specified in the search.py in the __init__ of search.py) and the word to be searched. The server imports the search module, then creates the object of the Search class and use the helper methods there to get the result.

The result got in this format

[“land”,(3,”This is my land”),(7,”I love my land”)]

need to be converted to json format and send to the client.