Concurrent and Network Programming Project

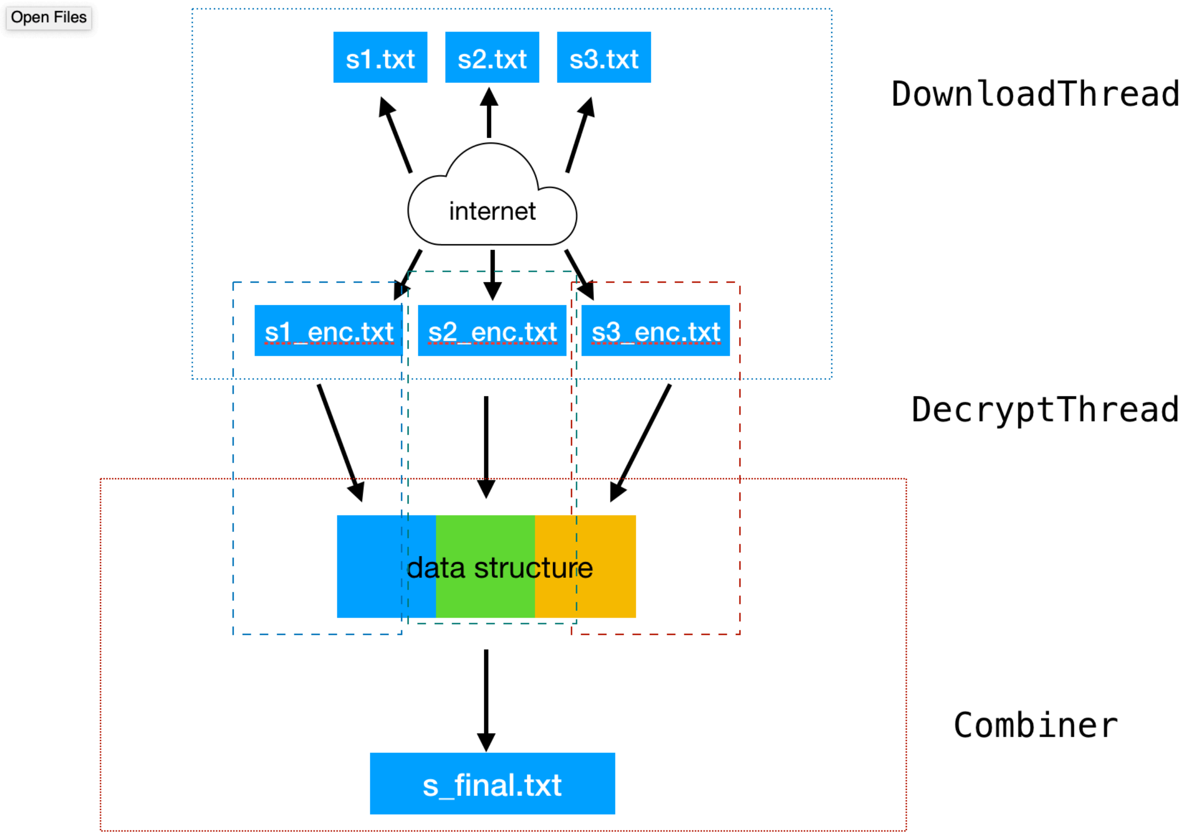
This project is a little more complex than the previous ones, it combines elements of concurrent programming with elements of network programming.

The requirements are as it follows:

1. Build a thread called `DownloadThread` that will connect to a specified URL and download a file on the local filesystem. The file is encrypted using a simple Caesar encryption algorithm (https://en.wikipedia.org/wiki/Caesar_cipher). Make three instances of this thread that will connect to the following locations:

- `https://advancedpython.000webhostapp.com/s1.txt`
- `https://advancedpython.000webhostapp.com/s2.txt`
- `https://advancedpython.000webhostapp.com/s3.txt`

The threads will save the downloaded content to the files `s1_enc.txt`, `s2_enc_txt`, `s3_enc.txt`, accordingly



2. Build a thread called DecryptThread which will open a file specified at the previous step and then will decrypt its content using Caesar algorithm, taking into account that the offset is 8. Every decrypted content will be saved into a data structure in memory.

3. Build a class called Combiner which will retrieve the content saved in the data structure at the previous step and then will write it in a file called s_final.txt. Be careful that we need the content of the file written in order. Because the threads could execute in random order, it is possible that the content of the data structure to look like

```
[s2.txt, s2.txt, s1.txt]
```

or

```
 [s3.txt, s2.txt, s1.txt]
```

etc

but we want it like

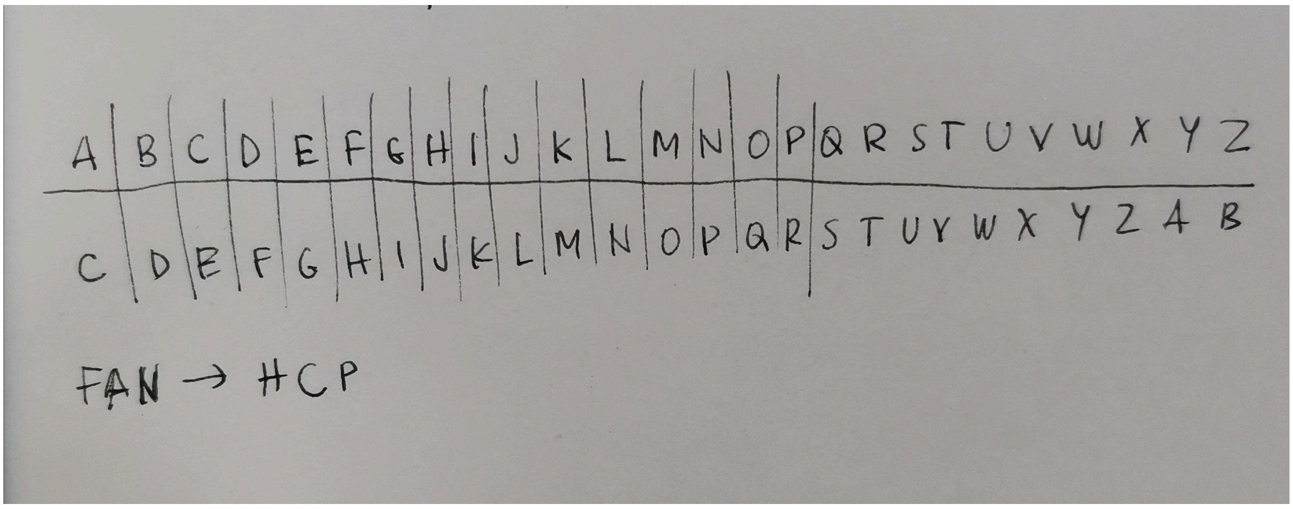
```
[s1.txt, s2.txt, s3.txt]
```

Also pay attention to the concurrency issues that could occur when you access shared memory data structures.

4. The main program should contain (in pseudo-ccode):

```
1. instantiate DownloadThread
2. start and join DownloadThread
3. instantiate DecryptThread
4. start and join DecryptThread
5. instantiate Combiner
6. display the content of the s_final.txt file
```

Example of Caesar translation


A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
C D E F G H I J K L M N O P Q R S T U V W X Y Z A B
FAN → HCP