Assignment 3

In this Assignment, you need to build upon Assignment 2. Now, all the arguments to the server are not given directly, but instead through a configuration file. The relative path of config file is provided as a command line argument to the server. You also need to implement reverse-proxy feature in the server. The structure of config file is -

```
{
        Port : //port number on which to listen ;
        Logfile : //Absolute path of logfile where to store logs ;
        Log_Headers : {header1,header2….headern};
                        //these are headers to be logged in the logfile.
        Proxy : //this header may or may not be present. If present, that means
                Server should act as a reverse-proxy to address given here.
                E.g. 127.0.0.1:9000;
        Proxy_Headers : {header1:new_value,header2:new_value…..};
                        //these headers must be changed when you send
                        Request to application server.
        Response_Headers : {header1:new_value,header2:new_value…..};
                            //These headers must be changed when you send
                             Response of application server back.
}
```

When a Proxy key is present in Configuration file, you can assume that the address of application server given will be valid, and will follow the HTTP Protocol for communication.
The format of storing logs is as follows -

```
{
        Id: //timestamp of the request in Unix time,
        HeaderName: value,
        HeaderName: value,
        ..
        ..
        HeaderName: value
},
{
        //same structure as above
}, and so on.
```

The Header fields in logs should be lexicographically sorted. For example, if you need to log two headers Host and Referrer, then Host must appear before Referrer. (Hence sort the header fields given in Config file before logging).

Things to Keep in Mind-

1. Server Must exit gracefully in case of any sort of failures. Hence wherever you expect some error to happen, handle that gracefully. e.g. Some header given in config file might not be valid, application server might send no response etc
2. Wait for only 10 seconds for application server to send the response. If no response is sent, send response to main client “Request Timed Out”.
3. Assume a default path of configuration file if no command line argument is given. The default path is “/tmp/myconfig.cfg”.