**Program -I**

Write a program to create a .NET Core Web API project with following feature:  
1. Create a background host service which read a data record from a csv file line by line and loads in memory in data structure i.e Dictionary. The key is stock name(Symbol) and value is   
DateTime, OpenPrice, HighPrice, LowPrice, ClosePrice, Volume,OI  
  
The background service keep reading line data from file every 10 milliseconds and store in data structure. The REST API must return a latest data from a memory of a given symbol  
  
The csv file is of below format  
symbolname,date,time,open,high,low,close,volume,oi  
BANKNIFTY04AUG2235500PE,25-07-2022,09:15:00,140,142.25,123.8,129.25,7825,104400  
BANKNIFTY04AUG2237800CE,25-07-2022,09:15:00,136.15,170.75,136.15,157.55,7075,16825  
BANKNIFTY04AUG2235500CE,25-07-2022,09:15:00,1449.9,1519,1440.9,1519,600,30375  
BANKNIFTY04AUG2237500PE,25-07-2022,09:15:00,939,939,858.3,875.75,1500,11325  
BANKNIFTY04AUG2237200PE,25-07-2022,09:15:00,719.4,719.4,690.2,690.2,1275,2550  
BANKNIFTY04AUG2236000CE,25-07-2022,09:15:00,1016.9,1114.65,1016.9,1082.8,2150,79250  
BANKNIFTY04AUG2236800PE,25-07-2022,09:15:00,575,575,468.65,488,9350,17700  
BANKNIFTY28JUL2235900CE,25-07-2022,09:15:00,930.35,1063.65,930.35,1036,3400,81700  
NIFTY04AUG2215800PE,25-07-2022,09:15:00,17.5,17.5,15.5,16.4,8400,256200  
NIFTY04AUG2216000PE,25-07-2022,09:15:00,30.75,31.85,27.55,28.4,16950,471900  
  
The assignment includes a csv file with a name of MDServerOHLCData\_25072022\_085347.csv

2. Create a REST GET API to fetch a latest price based on symbol  
3. Make all API private using a JWT based authentication  
4. Use SeriLog  
5. Create a Web Page to show a live price based on REST API of any user defined symbol  
  
  
**Program -II**  
Write a program to generate a unique identifier called contract name as below  
  
NIFTY31JAN202418500CE  
The above name is divided into following information

|  |  |  |  |
| --- | --- | --- | --- |
| SymbolName | Expiry Date | StrikePrice | Option Type (CE/PE) |
| NIFTY | 31JAN2024 | 185000 | CE |

The pattern of above name is  
Symbol|Expiry Date in ddMMMyyyy format|Strike Price is some unique number associated with the contract name| specific type of contract called CE or PE  
  
The shall generate a series of such contract name like  
NIFTY31JAN202418500CE  
NIFTY31JAN202418550CE  
NIFTY31JAN202418600CE  
NIFTY31JAN202418650CE

…..  
  
Notice here ever strike price is incremented by 50 value. The 50 is constant called strike Gap

1. Write a program to generate such series of 100 contract names starting from first contract name NIFTY31JAN202418500CE in ascending order of strike price.  
   The function input is:  
   string symbolName i.e NIFTY  
   DateTime expiry i.e 31-01-2024  
   int startStrike Price i.e 18500  
   int strikeGap i.e 50
2. The 100 series is generated from first step.   
   Find a instrument name based on user provided number which is closest to strike price in a given series  
     
   Example   
   string FindClosestStrikeInstrument(18501)  
    It must return NIFTY31JAN202418500CE  
     
   string FindClosestStrikeInstrument(18526)  
    It must return NIFTY31JAN202418550CE since 18550 is closest to 18526

**Excerscise III**  
Install a REDIS Docker and use it in your program

**Excerscise IV(To check how quickly you can pick any new programming language)**  
Write a program in golang for taking input from user a series of number and calculate following statistics  
1. Mean, Median, Mode of a series  
2. Standard deviation of series  
3. Sort the series in ascending order  
4. Find Min Max of a series  
5. Find all prime numbers of series  
6. Find a number in series using binary search