Project

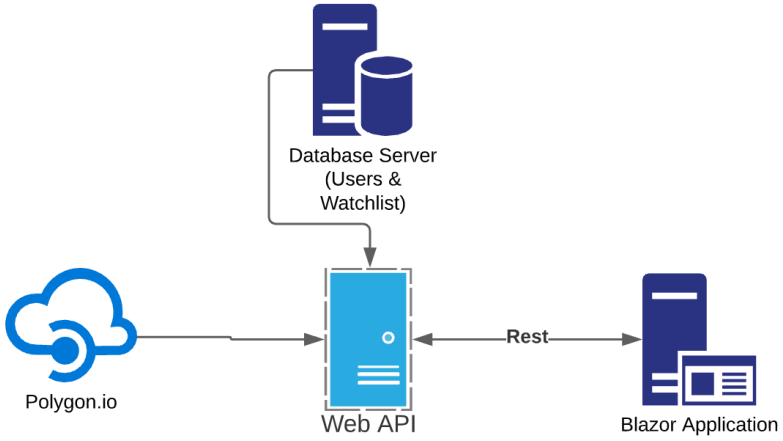
The designed SPA application will use the technologies described during the exercises. It will be a single-page application (SPA) using REST API, Blazor and database.

The app will be somewhat similar to https://finance.yahoo.com

For example:

https://finance.yahoo.com/quote/TSLA?p=TSLA&.tsrc=fin-srch

The application architecture is presented below.



Blazor application – an application written with Blazer will represent the interface of our application (the "frontend").

Web API – REST API application serves as the "backend". The application communicates with the Blazor frontend application as well as the external Polygon.ai website and database.

Database server – MS SQL Server database that allows us to save the data about users and companies.

Polygon.ai – an external service that allows you to obtain information on the quotations of listed companies.

Our service will allow for:

1. Registration and logging in. All functions are available only for the logged in user.
2. Searching and displaying data on a selected listed company - including the OHLC chart - Open-High-Low-Close from the selected date range.
3. Adding the company to the list of watched companies.

A simple prototype representing the application is available at the following link:

https://xd.adobe.com/view/0cab9a61-7f6e-4848-a1cf-c1e49ca10f81-59f8/

Scenario: Searching for a company

Actor: Logged-in user

Main flow:

1) The actor logs into the system and goes to the "Dashboard" screen
2) The actor enters "TLS ..." in the search box
3) The system displays hints in the form of companies with matching names.
4) The actor chooses the company "TESLA".
5) The system downloads data from Polygoin.io about a given company. We save company data in a local database. By default, we display data on the current day on the screen. If a customer requests data from the same company again - if the Polygon.io API is not available - we display data from our local database.

Alternative scenarios:

5a) The user clicks "+" and adds the selected company to the list of followed companies.

5b) The user can change the time period shown in the OHLC chart. After selecting a different time range - the graph should refresh without refreshing the entire page.

Logging, registration and other functions are presented in the prototype.

Additional remarks:

- Please bear in mind the good practices discussed during the classes.
- In order to communicate with Polygon.io you need to set up a free account:
    - You should find all the necessary information in the documentation
    - https://polygon.io/docs
- For quick implementation of the graphical interface, use ready-made Syncfusion trial controls.https://www.syncfusion.com/blazor-components
    - Following controls may be particularly useful:
        - For searching:
            - https://www.syncfusion.com/blazor-components/blazor-autocomplete
        - For managing elements on the page:
            - https://www.syncfusion.com/blazor-components/blazor-dashboard
        - For information grouping:
            - https://www.syncfusion.com/blazor-components/blazor-tabs
        - To display a stock price movement chart:
            - https://www.syncfusion.com/blazor-components/blazor-stock-chart

1. Details of the listed company for the chosen „ticker”

   Sample answer for TSLA:


```
{
 "logo": "https://s3.polygon.io/logos/tsla/logo.png",
 "listdate": "2010-06-29",
 "cik": "1318605",
 "bloomberg": "EQ0000000003531703",
 "figi": null,
 "lei": null,
 "sic": 3711,
 "country": "usa",
 "industry": "Autos",
 "sector": "Consumer Cyclical",
 "marketcap": 59838568121,
 "employees": 37543,
 "phone": "+1 650 681-5000",
 "ceo": "Elon Musk",
 "url": "https://www.tesla.com",
 "description": "Tesla Inc is a vertically integrated sustainable energy
company. It designs, develops, manufactures and sells high-performance
fully electric vehicles and electric vehicle powertrain components.",
 "exchange": "Nasdaq Global Select",
 "name": "Tesla Inc.",
 "symbol": "TSLA",
 "exchangeSymbol": "NGS",
 "hq_address": "3500 Deer Creek Road Palo Alto CA, 94304",
 "hq_state": "CA",
 "hq_country": "USA",
 "type": "CS",
 "updated": "11/16/2018",
 "tags": [
  "Consumer Cyclical",
  "Auto Manufacturers",
  "Autos"
 ],
 "similar": [
  "HMC",
  "TM",
  "F",
  "GM"
 ],
 "active": true
}
```

2. Price at the end of the session for the selected company (ticker) and date


```
{
 "status": "OK",
 "from": "2020-10-14",
 "symbol": "TSLA",
 "open": 449.78,
 "high": 465.9,
 "low": 447.35,
   "close": 461.3,
   "volume": 48045394,
   "afterHours": 460.35,
   "preMarket": 448
}
```


3. Collection of prices for the selected company (for the purposes of the OHLC chart - Open-high-low-close) Example of responses for TSLA from the three selected days


```
{
 "ticker": "TSLA",
 "queryCount": 3,
 "resultsCount": 3,
 "adjusted": false,
 "results": [
  {
   "v": 48045394,
   "vw": 459.5257,
   "o": 449.78,
   "c": 461.3,
   "h": 465.9,
   "l": 447.35,
   "t": 1602648000000,
   "n": 839944
  },
  {
   "v": 35672354,
   "vw": 448.7489,
   "o": 450.31,
   "c": 448.88,
   "h": 456.57,
   "l": 442.5,
   "t": 1602734400000,
   "n": 644704
  },
  {
   "v": 32749204,
   "vw": 447.8034,
   "o": 454.44,
   "c": 439.67,
   "h": 455.9499,
   "l": 438.85,
   "t": 1602820800000,
   "n": 576318
  }
```

```
 ],
 "status": "OK",
 "request_id": "492a9e15ac521f1c332499416f90d285",
 "count": 3
}
```