## INSTRUCTIONS

Please read the instructions carefully before doing the questions.

- You are **NOT allowed** to use any device to share data with others.
- You must use **Visual Studio 2019 or above, MSSQL Server 2012 or above** for your development tools.

IMPORTANT – before you start doing your solution, MUST do the following steps:

1. Create Solution/Project in Visual Studio named **PRN231PE_SP24_530491_StudentCode**.
2. Create your MS SQL database named **Stocks2024DB** by running code in script **Stocks2024DB.sql**
3. Set the default Client application for your project as **Login** page
4. *You are not allowed to connect direct to database from ASP.NET Core Web API, every database connection must be used with Repository and Data Access Objects.*
5. *The database connection string must get from appsettings.json file.*
6. *Note: Please check before you submit your work, no syntax error(s) in the submitted PE.* ***If there are syntax errors or compilation errors in your PE program, you will not pass the PE requirements, the mark will be 0.***

Implement a part of Stock Application. The below Figure is a part of **Stocks2024DB** database.
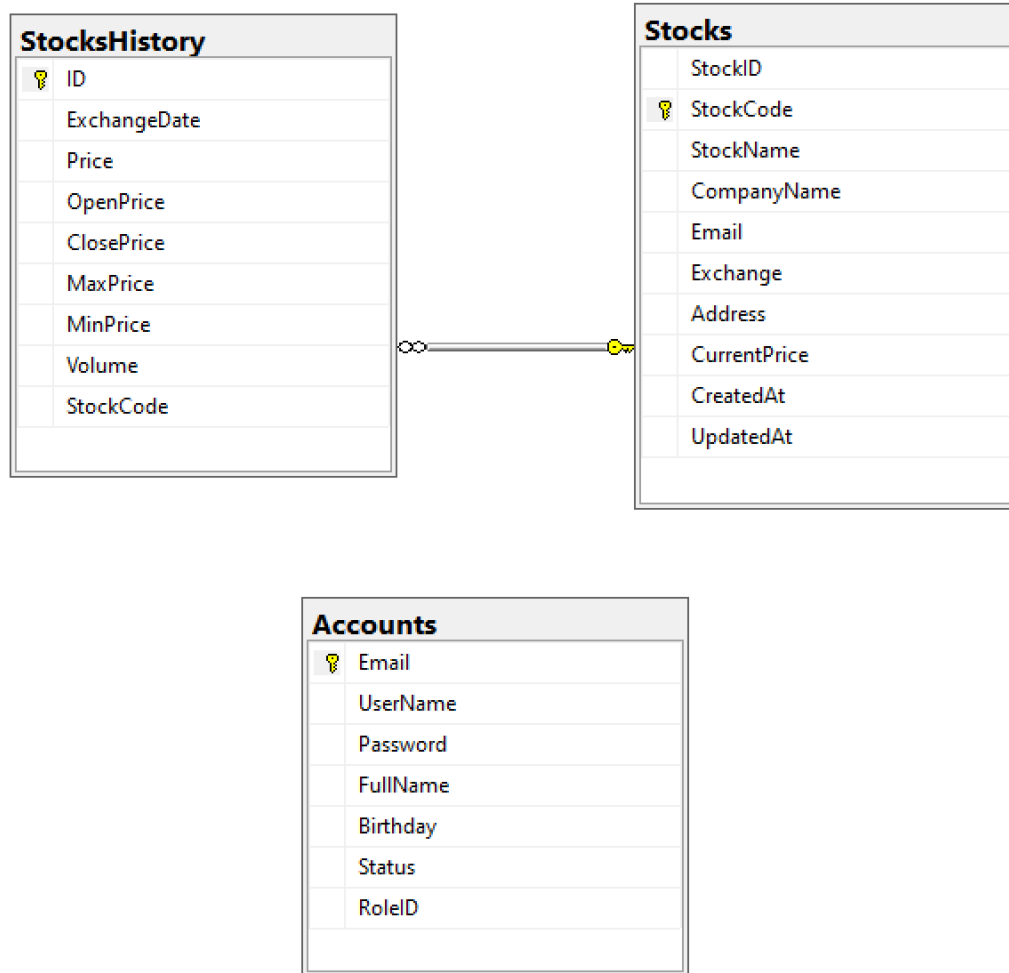
Note that: *RoleID: Administrator = 1; Staff = 2; Manager= 3, Customer=4.*

Value for Status in Accounts Table is only active or ban

Part 01 (7.0 marks). Create an API using **ASP.NET Core Web API** with Entity Framework Core. A MS SQL Server database will be created to persist the data and it will be used for reading and managing data.

1. Check authentication/authorization with the ASP.NET Core Web API with JSON Web Token (JWT)
   - *Administrator role will have a permission to to all actions (CRUD and search).*
   - *Staff role will have only permission to searh information.*

   Note that the permission for Login process is using Email, Password and Status

2. You must use OData to implement the ASP.NET Core Web API. CORS is using in this case.
   - Implement CRUD actions with **Stocks** table. Add new item with the r*equirements:*
     - All fields are required.

- o Value for StockName includes a-z, A-Z and digit 0-9. Each word of the StockName must begin with the capital letter.
  - o StockCode is only A-Z, digit 0-9, MinLength = 3 characters and MaxLength = 7 characters.
  - o Value for CreatedDate = UpdatedAt = current date. CreatedAt can't update
  - o The value for CurrentPrice must be >= 1000
- Get all stocks information includes StockID, StockCode, StockName, CompanyName, Email, CurrentPrice, Exchange, CreatedDate and UpdatedAt.
- With *Administrator* can view detail stock history after selects a stock code on the list of stocks.
- Search all stock information with 2 conditions: StockCode or CurrentPrice (using relative search)

Part 02 (3.0 marks).

Student can choose one of these options for client application

- *ASP.NET Core Web App with MVC*
- *ASP.NET Core Razor Pages*
- *Windows Forms*
- *Windows Presentation Foundation*

1. Authentication function

   If user with a *administrator role or staff role* logs in successfully, save this information to a temporary parameter.

   - ▪ *All CRUD actions are required with administrator role*
   - ▪ *Search information is required with administrator role or staff role.*

   In the case login unsuccessfully, display *"You are not allowed to access this function!"*

2. Check if login successfully, search all stocks information with 2 conditions: StockCode or CurrentPrice (using relative search)

3. Check if login successfully, delete the selected item with the confirmation then update the list of stocks.

4. Check if login successfully, add new item with the r*equirements:*

   - o All fields are required.
   - o Value for StockName includes a-z, A-Z and digit 0-9. Each word of the StockName must begin with the capital letter.
   - o StockCode is only A-Z, digit 0-9,minLength = 3 characters and maxLength = 7 characters.
   - o Value for CreatedDate = UpdatedAt = current date. CreatedAt can't update
   - o The value for CurrentPrice must be >= 1000