

Overview

This exercise is intended to help us more effectively understand and efficiently evaluate your technical skills that are relevant and critical for the open position on our team. Please review the following information in order to successfully complete and submit the exercise for evaluation. It is expected to take 1 - 3 hours to successfully complete depending on your skill set.

In this exercise, you are expected to augment and complete the development of an existing ASP.NET CORE 3.1 MVC sample application satisfying the various user stories / requirements while complying with the instructions below. That sample application is called the “Core MVC Skills Evaluation”.

The screenshot(s) that may be associated with a user story are intended to provide further insight into the requested feature and convey additional user interface expectations. Consider the screenshot(s) as providing further detail to fully satisfy the respective user story.

Instructions

1. You are expected to test the results of your efforts on this exercise using the latest Chrome browser. This includes using the built in browser Developer Tools to emulate the iPad and iPhone 6 devices in portrait orientation to review the responsive behavior of the web pages. The Chrome browser is freely available [here](#).
2. You are expected to use the Visual Studio 2019 IDE (or equivalent) in order for you to perform development and testing of the MVC Skills Assessment. The sample application has been designed to use the database provided within the IDE and does not require an external database (e.g. no SQL Server). If you don't already have Visual Studio 2019 installed the community edition is freely available [here](#). Please note that Visual Studio may need to install or update packages the first time you open the project so make sure you have internet access and allow time for updates to occur.
3. You are expected to generate at least one (possibly more) Entity Framework Core (database) migration in order to satisfy one (or more) use cases.
4. If you think something is unclear or incomplete while doing the assessment, identify it and make a reasonable decision in order to proceed. Include that information in the CSHTML for the Index Method of the Home Controller. The ambiguity you came across may have been intentional or accidental. Either way, it is to your benefit to identify it and explain how you decided to proceed.
5. Upon completion, zip the complete contents of your MVC Skills Assessment directory (including all files and subdirectories). Name the file with the following format: <firstname>_<lastname>_exercise_submission.zip. For example, the application submitted by John Doe would have the following file name: john_doe_exercise_submission.zip. Submit the resulting zip file by

uploading it to the same Sharepoint folder where you downloaded the exercise. Also, notify via email the same point of contact that provided you the exercise letting them know that you have submitted it.

User Stories and Requirements

1. Add Phone Number Support to a User Record

User Story: As a user I need to be able to set the mandatory Phone Number of a user record when it is created in order to store that important contact information.

Acceptance Criteria:

- a. When creating a new user record, I can set the value for the phone number with a length of exactly 12 characters in the format XXX-XXX-XXXX (e.g. 202-555-1212).
- b. I cannot save the user record if the phone number is not in the proper format. If it is not in the proper format, I will receive a visual indicator letting me know, like in the following screenshot:

The screenshot shows a web application interface for creating a new user. At the top, there is a navigation bar with links: CoreMvcEvaluation, Home, Users, and Employee Types. Below the navigation bar, the title 'Create User' is displayed. The form contains several input fields: 'Email Address' (jane.smith@asp.biz), 'Last Name' (Smith), 'First Name' (Jane), 'Phone' (555-555-abcd), 'Employee Type' (Contractor), and 'Company Name' (Acme Software and Pizza). The 'Phone' field has a red border and a red error message below it: 'The Phone field is not a valid phone number.' There is also a checkbox for 'User Is Active' which is checked. A 'Create' button is located at the bottom right of the form. A link 'Back to List' is located at the bottom left of the form.

- c. I cannot save the user record without a phone number. If it does not have a value, I will receive a visual indicator letting me know, like in the following screenshot:

CoreMvcEvaluation Home Users Employee Types

Create User

Email Address

jane.smith@asp.biz

Last Name

Smith

First Name

Jane

Phone

The Phone field is required.

Employee Type

-- Select an Employee Type --

Company Name

Acme Software and Pizza

User Is Active

☒

Create

[Back to List](#)

2. Make Company Name Mandatory Sometimes

User Story: As a user when I create a new user record, I need to be forced to set a value for Company Name if the “Employee Type” field has “Contractor” as its value in order to capture the contractor’s company name.

Acceptance Criteria:

- When I create a user record with their “Employee Type” value set to “Contractor”, a non-blank value must be contained in the “Company Name” field for it to be valid.
- If Company Name is not valid when I try to create the record, I will receive a visual indicator letting me know like in the following screenshot:

CORE 3.1 MVC Skills Evaluation

CoreMvcEvaluation Home Users Employee Types

Create User

Email Address

jane.smith@test.biz

Last Name

Smith

First Name

Jane

Phone

555-555-5555

Employee Type

-- Select an Employee Type --

Company Name

Company Name is REQUIRED if Employee Type is Contractor.

User Is Active

☒

Create

[Back to List](#)

3. Display User Record Details in Modal Window

User Story: As a user I, need to be able to view the details of a user record in order to see all the record's pertinent information.

Acceptance Criteria:

- I can select to view the details of a particular user record from the user listing, like in the following screenshot.

CoreMvcEvaluation Home Users Employee Types

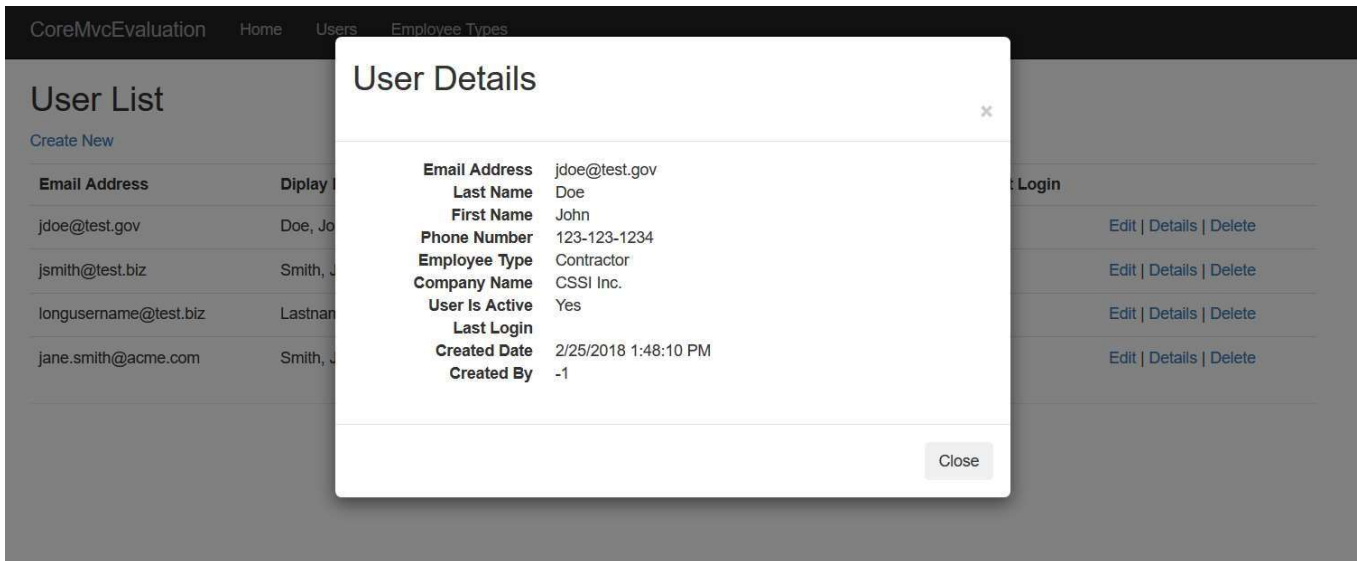
User List

[Create New](#)

Email Address	Display Name	Company Name	User is Active	Last Login
jdoe@test.gov	Doe, John	CSSI Inc.	<input checked="" type="checkbox"/>	Edit Details Delete
jsmith@test.biz	Smith, Jane	Acme Software & Pizza	<input checked="" type="checkbox"/>	Edit Details Delete
longusername@test.biz	Lastnameisverylong, Firstna...	Acme Engineering	<input checked="" type="checkbox"/>	Edit Details Delete
jane.smith@acme.com	Smith, Jane		<input checked="" type="checkbox"/>	Edit Details Delete

- I can view the details of a particular user record in a modal window, like in the following screenshot.

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4. Edit a User Record

User Story: As a user I need to be able to edit the details of a user record in order keep it accurate.

Acceptance Criteria:

- a. I can edit the details of a particular user record which I select from the user record listing.

CoreMvcEvaluation Home Users Employee Types				
User List				
Create New				
Email Address	Display Name	Company Name	User is Active	Last Login
jdoe@test.gov	Doe, John	CSSI Inc.	<input checked="" type="checkbox"/>	Edit Details Delete
jsmith@test.biz	Smith, Jane	Acme Software & Pizza	<input checked="" type="checkbox"/>	Edit Details Delete
longusername@test.biz	Lastnameisverylong, Firstna...	Acme Engineering	<input checked="" type="checkbox"/>	Edit Details Delete
jane.smith@acme.com	Smith, Jane		<input checked="" type="checkbox"/>	Edit Details Delete

- b. A user record cannot be successfully saved if any fields contain invalid information. When this occurs, the user is presented with the populated Edit User screen and visual indicators for each field that is invalid letting the user know what to do.

Edit User

Email Address	<input type="text"/>	The Email Address field is required.
Last Name	<input type="text"/>	The Last Name field is required.
First Name	<input type="text"/>	The First Name field is required.
Phone	<input type="text"/>	The Phone field is required.
Employee Type	-- Select an Employee Type --	You must select an Employee Type
Company Name	<input type="text"/>	
User Is Active	<input checked="" type="checkbox"/>	
<input type="button" value="Save"/>		

[Back to List](#)

- c. The following fields are mandatory and cannot be blank:
- Email
 - Last Name
 - First Name
 - Phone
 - Employee Type
 - Company Name, only if Employee Type is “Contractor”
- d. The Phone Number must have the following format XXX-XXX-XXXX to be valid.
- e. The Email Address must be unique and cannot match the value for any other user record to be valid.
- f. The following fields are displayed as read only text and cannot be changed in the Edit User process:
- Last Login Date/Time
 - Create Date
 - Created By

5. Add Unit Tests for User Class

The unit tests for the User class are not complete. Add additional unit tests that you think are sufficiently reasonable to provide increased confidence that the User class behaves as expected.

6. Review and Refactor the UserService Class

Although the UserService class behaves as expected functionally, the implementation can be improved. Review and refactor the UserService class implementation so it is “better” while not compromising its functional behavior.

BONUS: Optimize Exam

There are numerous known inefficiencies that exist in the evaluation. While these do not affect how the application works, they are not necessarily ‘best practices’. To further demonstrate your skills in consideration for this position, identify and optimize / correct as many of these inefficiencies as you can.

NOTE: You will be evaluated PRIMARILY on the above 6 user stories. This “Bonus” section does NOT “make up” points for the user stories above, but adds to it.

Evaluation Considerations

1. We will use the Chrome browser (v82 or greater) to view your submitted MVC Skills Assessment after extracting the zip file contents.
2. We will evaluate your submission by its adherence to the user stories / requirements and instructions.
3. We will also evaluate the underlying design and code used in your submission reflecting the various implementation decisions that you made.