### 1. Problem Statement

Develop a Contact website using Blazor Server and EF Core, must be able to do view the contacts, add a contact, edit a contact, and delete a contact (CRUD operations)

# 2. Requirements

### 2.1. Assumptions

- User inputs will be done through inputs elements and forms on the website
- Database will be only updated via EF CORE and Blazor Server
- Contact Input Types

Attribute	Data Type
LastName	String
FirstName	String
PhoneNumber	String
BirthDate	DateTime

## 2.2. Specifications

# 2.2.1 Input Specifications

- Contacts List Page
  - Add Contact button will initiate the process Redirect to
     Add Contact Page
  - Edit/View link will initiate the process Redirect to Edit a
     Contact process
- Add a Contact Page
  - o User will enter 4 inputs below
    - Last Name (required)
    - First Name (required)
    - Birth Date (not required)

- Phone number (not required)
- Submit button will submit the information entered to be processed
- Cancel button will initiate the process Redirect to Contacts List Page

#### • Edit a Contact Page

- User will change the 4 inputs below
  - Last Name (required)
  - First Name (required)
  - Birth Date (not required)
  - Phone number (not required)
- Submit button will submit the updated information entered to be processed and initiate the Editing Contact process
- Delete button will initiate the process **Deleting a Contact**
- Cancel button will initiate the process Redirect to Contacts List Page

#### • Delete Contact Button

Initiate a process to delete a contact

#### • Input Errors

- Form values for Add a Contact and Edit a Contact
  - Last Name
    - The input value is blank
    - The input value is more than 250 characters
  - First Name
    - The input value is blank
    - The input value is more than 250 characters
  - Phone Number
    - The input value is more than 15 characters

### 2.2.2 Process Specifications

- Deleting a Contact
  - Delete contact information and redirect to the **Contacts List Page**
- Adding a Contact
  - Save new contact information and redirect to Contacts
     List Page
- Editing Contact

- Save updated contact information and redirect to Contacts
   List Page
- Retrieve Contact List
  - retrieve the entire contact list from database and redirect to Contacts List Page
- Redirect to Edit a Contact Page
  - Redirect to the Edit a Contact Page
- Redirect to Contacts List Page
  - Redirect to the Contacts List Page
- Redirect to Add Contact Page
  - Redirect to the Add List Page

### 2.2.3 Output Specifications

- Add Contact Page
  - Display the form to add a contact
- Edit Contact Page
  - Display contact information of the user id specified in the link
- Contact List Page
  - Display all the existing contacts

# 3. Decomposition Diagram

(Used to break program down into components visually. Can have as many components as needed. Defines functionality that will solve the problem – does NOT define a flow )

- Input
  - Add Contact Page
    - First Name, Last Name, Phone, and Address
    - Cancel Button
    - Save Button
  - Edit a Contact Page
    - First Name, Last Name, Phone, and Address
    - Delete Button
    - Cancel Button
    - Save Button
  - Contact List Page

- Add Contact Button
- Edit/View link

#### • Process

- Adding a Contact
- Updating a Contact
- Deleting a contact
- o Retrieve Contacts List
- o Redirect to Edit a Contact Page
- o Redirect to Contacts List Page
- o Redirect to Add Contact Page

### • Output

- o Add Contact Page
- Edit Contact Page
- Contact List Page

# 4. Test Strategy

Invalid and valid data

# 5. Test Plan Version 1

Test Strategy	Test #	Description	Input	Expected Output	Actual Output	Pass/Fail
Valid	1	User attempts to add a new contact and enters valid first name, last name, phone				

				1
		number, and birthdate		
Invalid	2	User attempts to add a new contact and enters valid first name, last name, and birthdate but invalid phone number		
Invalid	3	User attempts to add a new contact and enters valid first name, phone number and birthdate but invalid last name		
Invalid	4	User attempts to add a new contact and enters valid first name, phone number and birthdate but invalid last name (blank)		
Invalid	5	User attempts to add a new contact and enters valid last name,		

		phone number and birthdate but invalid first name		
Invalid	6	User attempts to add a new contact and enters valid last name, phone number and birthdate but invalid first name (blank)		
Valid	7	User attempts to update an existing contact and changes contact information with a valid first name, last name, phone, datetime		
Invalid	8	User attempts to update an existing contact with a valid last name, phone, birthdate but an invalid first name		
Invalid	9	User attempts to		

		update an existing contact with a valid last name, phone, birthdate but an invalid first name (blank)		
Invalid	10	User attempts to update an existing contact with a valid first name, phone, birthdate but an invalid last name		
Invalid	11	User attempts to update an existing contact with a valid first name, phone, birthdate but an invalid last name (blank)		
Invalid	12	User attempts to update an existing contact with valid first name, last name, and birthdate but an invalid phone		

Valid	13	User attempts to delete an existing contact		
Valid	14	User clicks "Cancel" Button on Add Contact Page		
	15	User clicks "Cancel" Button on Edit a Contact Page and redirects back to the Contact List Page		
Valid	16	User clicks "Add Contact" button and redirects to the Add Contact Page		
Valid	7	User clicks "view/edit" link for one of the contacts listed in the Contacts List Page and is redirected to the Edit a Contact Page		

# 6. Initial Algorithm

Your first algorithm should go here. DO NOT CHANGE ANYTHING ONCE YOU START CODING!!! What is the logic to follow in the program to solve the problem?

- 1. Contact List Page
  - a. "Add a Contact" button
    - i. Call method redirect to "Add a Contact" page
  - b. Table with the columns: Last name, first name, Birthdate, Phone No., Action
    - i. loop through the Contact List array
    - ii. For the action column, href link to redirect to "Edit a Contact" page
  - c. Implement method to redirect to "Add a Contact" page
  - d. Implement method to make a call to retrieve and then display all the contacts stored in the database in the Contact List array
  - e. Contact List array
    - i. contains a list of Contact objects
- 2. Add a Contact Page
  - a. Form with the following inputs: Last Name, First Name, Birthdate, Phone number
  - b. "Cancel" button
    - i. call method redirect to "Contact List" page
  - c. "Save" button
    - i. call method to save contact information to database and then redirect to "Contact List" page
  - d. Implement method to redirect to "Contact List" page
  - e. Implement method to save contact information to database and then redirect to "Contact List" page
- 3. Edit a Contact Page
  - a. Form with the following inputs: Last Name, First Name, Birthdate, Phone number
  - b. "Delete" button
    - call method to delete contact information from the database then redirect to "Contact List" page

- c. "Cancel" button
  - i. call method redirect to "Contact List" page
- d. "Save" button
  - i. call method to save the updated contact information to database and then redirect to "Contact List" page
- e. Implement method to redirect to "Contact List" page
- f. Implement method to save updated contact information to database and then redirect to "Contact List" page
- g. Implement method to delete contact information from the database then redirect to "Contact List" page
- h. Implement method to retrieve contact information from the database based on the Id record of the contact
- i. Contact Object instance
- 4. Contact Object Model

a. Last Name: Stringb. First Name: Stringc. Birthdate: Date

d. Phone Number:String

### 7. Test Plan Version 2

Test Strategy	Test #	Description	Input	Expected Output	Actual Output	Pass/Fail
Valid	1	User attempts to add a new contact and enters valid first name, last name, phone number, and birthdate	First Name: Peter , Last Name: Schubert, Phone: 111-111-1111, Birthdate: 8/29/21	User is successfully added		
Invalid	2	User attempts to add a new contact and	First Name: Peter , Last Name: Schubert, Phone: 111-111-1111	"Phone number is not valid"		

		enters valid first name, last name, and birthdate but invalid phone number	1-1111, Birthdate: 8/29/21		
Invalid	3	User attempts to add a new contact and enters valid first name, phone number and birthdate but invalid last name	First Name: Peter , Last Name:kadsfndakf kdfnadfknsdalfns dakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsfkadsf ndakfkdfnadfknsd alfnsdakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsf, Phone: 111-111-1111, Birthdate: 8/29/21	"Last name is not valid"	
Invalid	4	User attempts to add a new contact and enters valid first name, phone number and birthdate but	First Name: Peter , Last Name: "", Phone: 111-111-1111, Birthdate: 8/29/21	"Last name is required"	

		invalid last name (blank)			
Invalid	5	User attempts to add a new contact and enters valid last name, phone number and birthdate but invalid first name	First Name: Name:kadsfndakf kdfnadfknsdalfns dakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsfkadsf ndakfkdfnadfknsd alfnsdakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsf, Last Name: Schubert, Phone: 111-111-1111, Birthdate: 8/29/21	"First name is not valid"	
Invalid	6	User attempts to add a new contact and enters valid last name, phone number and birthdate but invalid first name (blank)	First Name: "", Last Name: Schubert, Phone: 111-111-1111, Birthdate: 8/29/21	"First name is required"	

Valid	7	User attempts to update an existing contact and changes contact information with a valid first name, last name, phone, datetime	First Name: Max, Last Name: Schubert, Phone: 111-111-1111, Birthdate: 8/29/21		
Invalid	8	User attempts to update an existing contact with a valid last name, phone, birthdate but an invalid first name	irst Name: Name:kadsfndakf kdfnadfknsdalfns dakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsfkadsf ndakfkdfnadfknsd alfnsdakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsf, Last Name: Schubert, Phone: 111-111-1111, Birthdate: 8/29/21		
Invalid	9	User attempts to update an existing	First Name: "", Last Name: Schubert, Phone: 111-111-1111,	"First name is required"	

		contact with a valid last name, phone, birthdate but an invalid first name (blank)	Birthdate: 8/29/21		
Invalid	10	User attempts to update an existing contact with a valid first name, phone, birthdate but an invalid last name	First Name: Peter , Last Name:kadsfndakf kdfnadfknsdalfns dakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsfkadsf ndakfkdfnadfknsd alfnsdakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsf, Phone: 111-111-1111, Birthdate: 8/29/21	"Last name is not valid"	
Invalid	11	User attempts to update an existing contact with a valid first name, phone, birthdate but	First Name: Peter, Last Name: "", Phone: 111-111-1111, Birthdate: 8/29/21	"Last name is required"	

		an invalid last name (blank)			
Invalid	12	User attempts to update an existing contact with valid first name, last name, and birthdate but an invalid phone	First Name: Peter , Last Name: Schubert, Phone: 111-111-1111 1-1111, Birthdate: 8/29/21	"Phone number is valid"	
Valid	13	User attempts to delete an existing contact	Click "delete" button on the edit/view page	user is deleted	
Valid	14	User clicks "Cancel" Button on Add Contact Page	N/A	user is redirected to contact list page	
	15	User clicks "Cancel" Button on Edit a Contact Page and redirects back to the Contact List Page	N/A	user is redirected to contact list page	
Valid	16	User clicks "Add Contact" button and redirects to the Add	N/A	user is redirected to contact list page	

		Contact Page			
Valid	17	User clicks "view/edit" link for one of the contacts listed in the Contacts List Page and is redirected to the Edit a Contact Page	N/A	user is redirected to Edit Contact Page	

### 8. Code

\*See Github for code

# 9. Updated Algorithm

- 5. Contact List Page
  - a. "Add a Contact" button
    - i. Call method redirect to "Add a Contact" page
  - b. Table with the columns: Last name, first name, Birthdate, Phone No., Action
    - i. loop through the Contact List array
    - ii. For the action column, href link to redirect to "Edit a Contact" page
  - c. Implement method to redirect to "Add a Contact" page
  - d. Implement method to make a call to retrieve and then display all the contacts stored in the database in the Contact List array
  - e. Contact List array
    - i. contains a list of Contact objects

#### 6. Add a Contact Page

- a. Form with the following inputs: Last Name, First Name, Birthdate, Phone number
- b. "Cancel" button
  - i. call method redirect to "Contact List" page
- c. "Save" button
  - i. call method to save contact information to database and then redirect to "Contact List" page
- d. Implement method to redirect to "Contact List" page
- e. Implement method to save contact information to database and then redirect to "Contact List" page

#### 7. Edit a Contact Page

- a. Form with the following inputs: Last Name, First Name, Birthdate, Phone number
- b. "Delete" button
  - i. call method to delete contact information from the database then redirect to "Contact List" page
- c. "Cancel" button
  - i. call method redirect to "Contact List" page
- d. "Save" button
  - i. call method to save the updated contact information to database and then redirect to "Contact List" page
- e. Implement method to redirect to "Contact List" page
- f. Implement method to save updated contact information to database and then redirect to "Contact List" page
- g. Implement method to delete contact information from the database then redirect to "Contact List" page
- h. Implement method to retrieve contact information from the database based on the Id record of the contact
- i. Contact Object instance

#### 8. Contact Object Model

- a. Last Name: String
- b. First Name:String
- c. Birthdate: Date
- d. Phone Number:String

# 10. Test Plan Version 3

Test Strategy	Test #	Description	Input	Expected Output	Actual Output	Pass/Fail
Valid	1	User attempts to add a new contact and enters valid first name, last name, phone number, and birthdate	First Name: Peter , Last Name: Schubert, Phone: 111-111-1111, Birthdate: 8/29/21	User is successfully added	*See screenshots below	Pass
Invalid	2	User attempts to add a new contact and enters valid first name, last name, and birthdate but invalid phone number	First Name: Peter , Last Name: Schubert, Phone: 111-111-1111 1-1111, Birthdate: 8/29/21	"Phone number is not valid"	*See screenshots below	Pass
Invalid	3	User attempts to add a new contact and enters valid first name, phone number and birthdate but invalid last name	First Name: Peter , Last Name:kadsfndakf kdfnadfknsdalfns dakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns	"Last name is not valid"	*See screenshots below	Pass

			dlfkmsdaozklfjds ozljsdaofdjsfkadsf ndakfkdfnadfknsd alfnsdakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsf, Phone: 111-111-1111, Birthdate: 8/29/21			
Invalid	4	User attempts to add a new contact and enters valid first name, phone number and birthdate but invalid last name (blank)	First Name: Peter , Last Name: "", Phone: 111-111-1111, Birthdate: 8/29/21	"Last name is required"	*See screenshots below	Pass
Invalid	5	User attempts to add a new contact and enters valid last name, phone number and birthdate but invalid first name	First Name: Name:kadsfndakf kdfnadfknsdalfns dakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsfkadsf ndakfkdfnadfknsd alfnsdakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk	"First name is not valid"	*See screenshots below	Pass

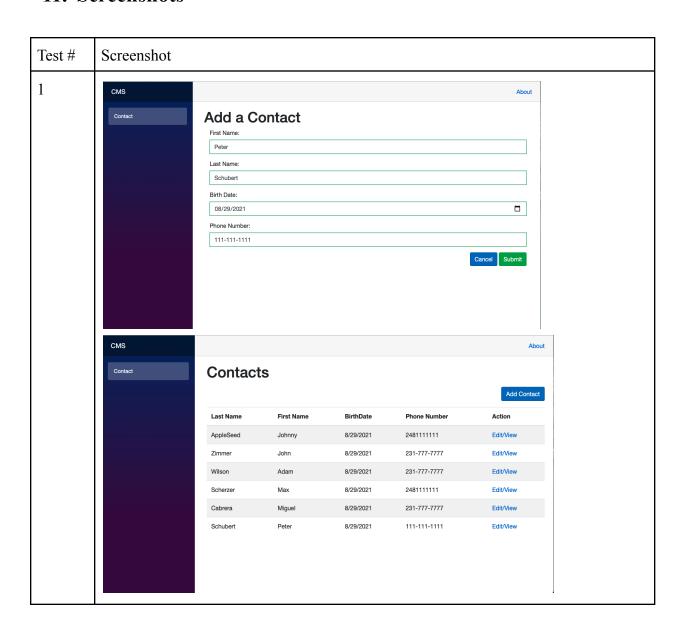
			v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsf, Last Name: Schubert, Phone: 111-111-1111, Birthdate: 8/29/21			
Invalid	6	User attempts to add a new contact and enters valid last name, phone number and birthdate but invalid first name (blank)	First Name: "", Last Name: Schubert, Phone: 111-111-1111, Birthdate: 8/29/21	"First name is required"	*See screenshots below	Pass
Valid	7	User attempts to update an existing contact and changes contact information with a valid first name, last name, phone, datetime	First Name: Max, Last Name: Scherzer , Phone: 333-333-3333, Birthdate: 8/31/21	user is successfully updated	*See screenshots below	Pass
Invalid	8	User attempts to update an existing contact with a valid last name,	First Name: Name:kadsfndakf kdfnadfknsdalfns dakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v		*See screenshots below	Pass

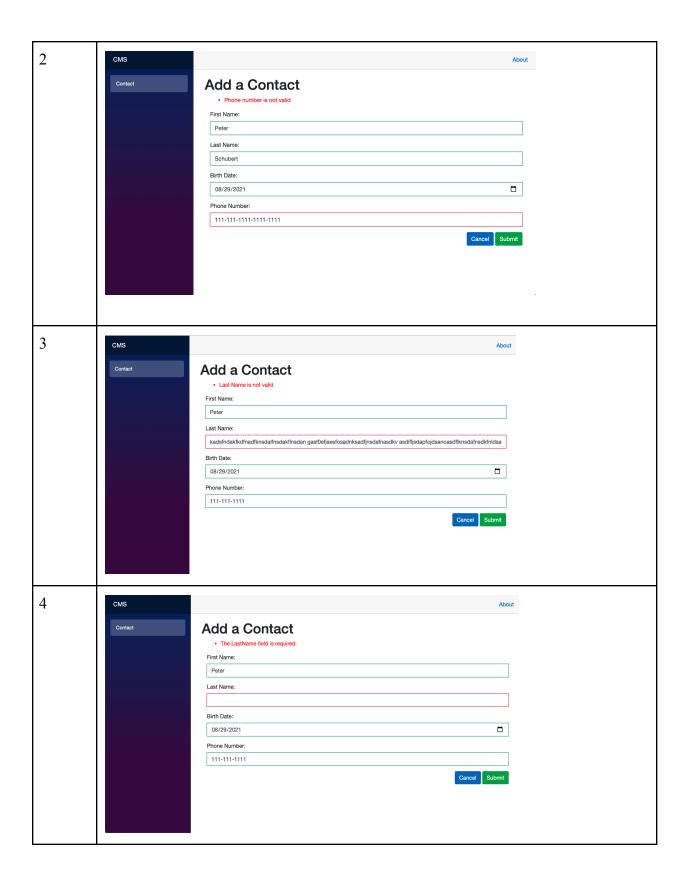
		phone, birthdate but an invalid first name	asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsfkadsf ndakfkdfnadfknsd alfnsdakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsf, Last Name: Schubert, Phone: 111-111-1111, Birthdate: 8/29/21			
Invalid	9	User attempts to update an existing contact with a valid last name, phone, birthdate but an invalid first name (blank)	First Name: "", Last Name: Schubert, Phone: 111-111-1111, Birthdate: 8/29/21	"First name is required"	*See screenshots below	Pass
Invalid	10	User attempts to update an existing contact with a valid first name, phone, birthdate but an invalid last name	First Name: Peter , Last Name:kadsfndakf kdfnadfknsdalfns dakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds	"Last name is not valid"	*See screenshots below	Pass

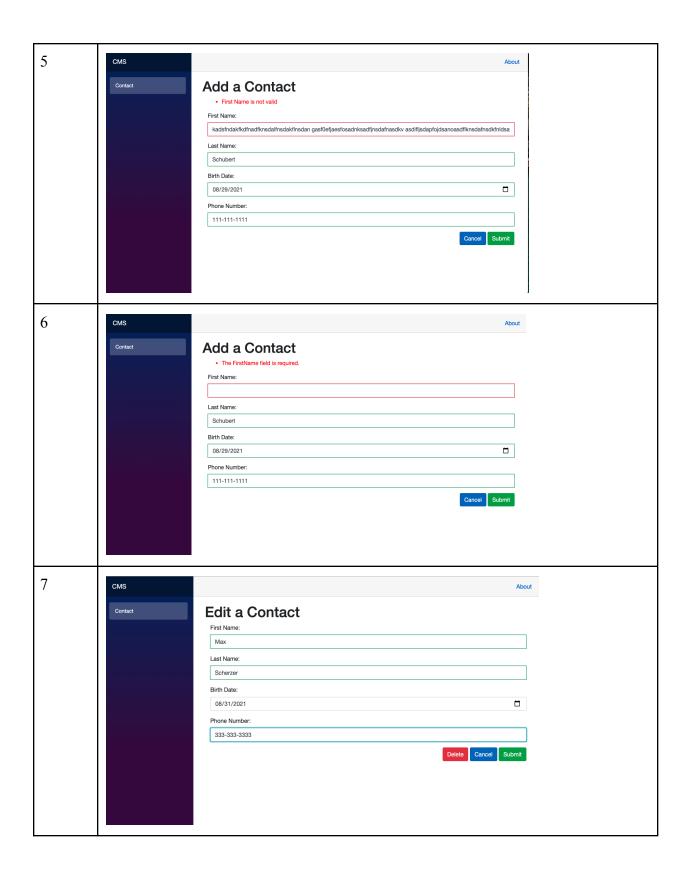
			ozljsdaofdjsfkadsf ndakfkdfnadfknsd alfnsdakflnsdan gasf0efjaesfosadn ksadfjnsdafnasdk v asdifljsdapfojdsan oasdflknsdafnsdkf nldsafndascklvns dlfkmsdaozklfjds ozljsdaofdjsf, Phone: 111-111-1111, Birthdate: 8/29/21			
Invalid	11	User attempts to update an existing contact with a valid first name, phone, birthdate but an invalid last name (blank)	First Name: Peter, Last Name: "", Phone: 111-111-1111, Birthdate: 8/29/21	"Last name is required"	*See screenshots below	Pass
Invalid	12	User attempts to update an existing contact with valid first name, last name, and birthdate but an invalid phone	First Name: Peter , Last Name: Schubert, Phone: 111-111-1111 1-1111, Birthdate: 8/29/21	"Phone number is valid"		Pass
Valid	13	User attempts to delete an existing contact	Click "delete" button on the edit/view page	user is deleted	*See screenshots below	

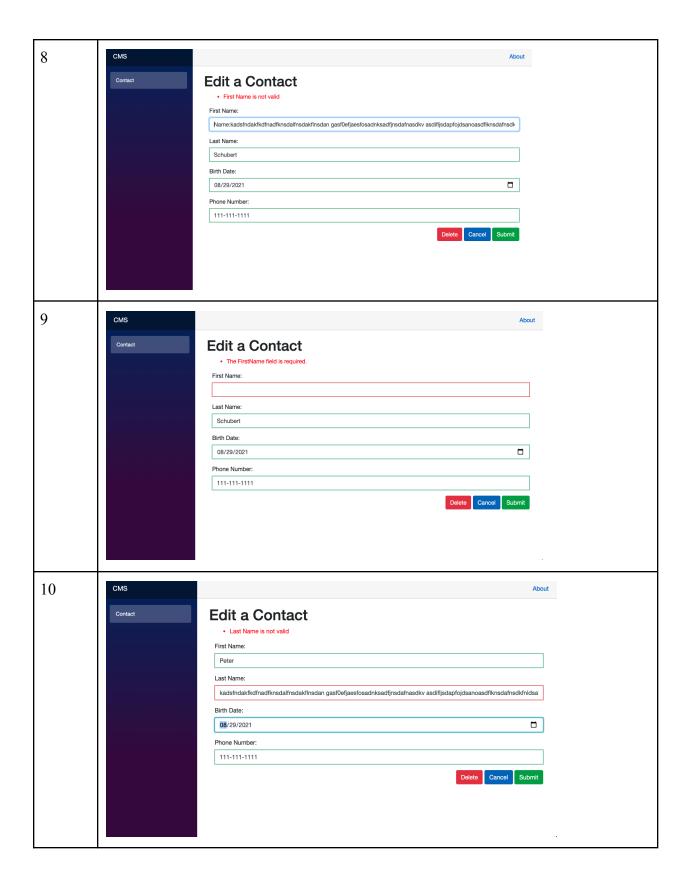
Valid	14	User clicks "Cancel" Button on Add Contact Page	N/A	user is redirected to contact list page		
Valid	15	User clicks "Cancel" Button on Edit a Contact Page and redirects back to the Contact List Page	N/A	user is redirected to contact list page	*See screenshots below	Pass
Valid	16	User clicks "Add Contact" button and redirects to the Add Contact Page	N/A	user is redirected to contact list page	*See screenshots below	
Valid	17	User clicks "view/edit" link for one of the contacts listed in the Contacts List Page and is redirected to the Edit a Contact Page	N/A	user is redirected to Edit Contact Page	*See screenshots below	Pass

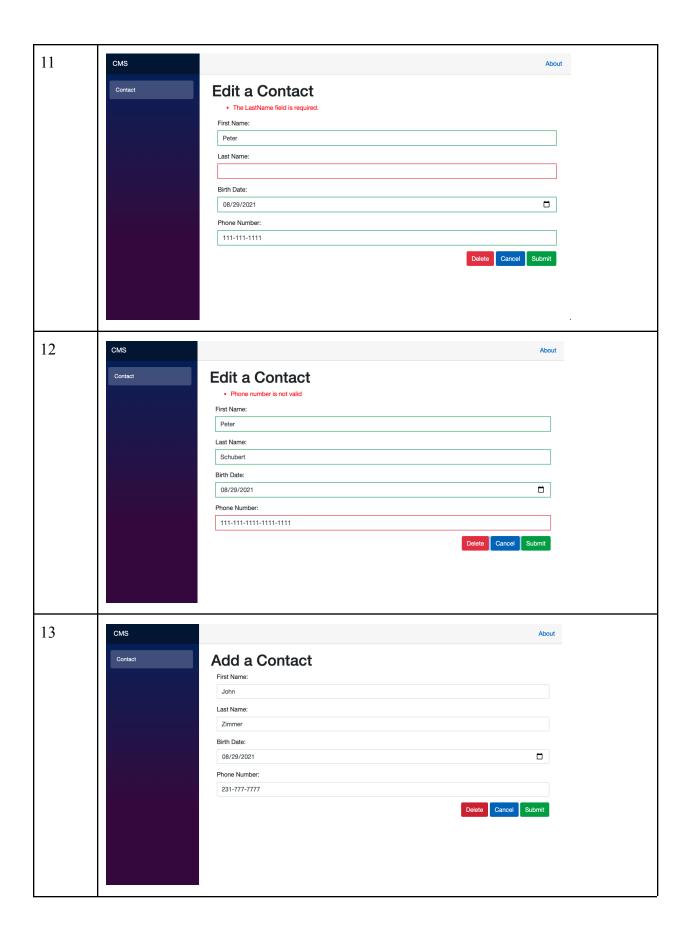
# 11. Screenshots

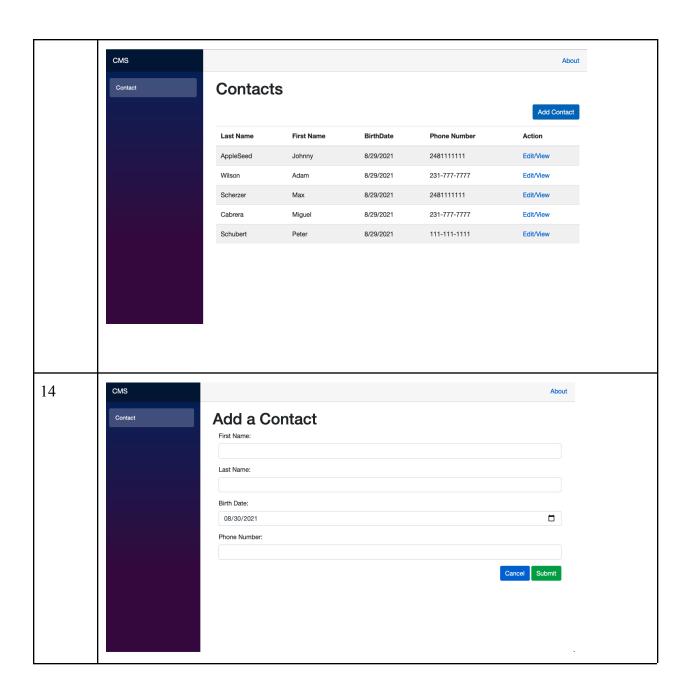


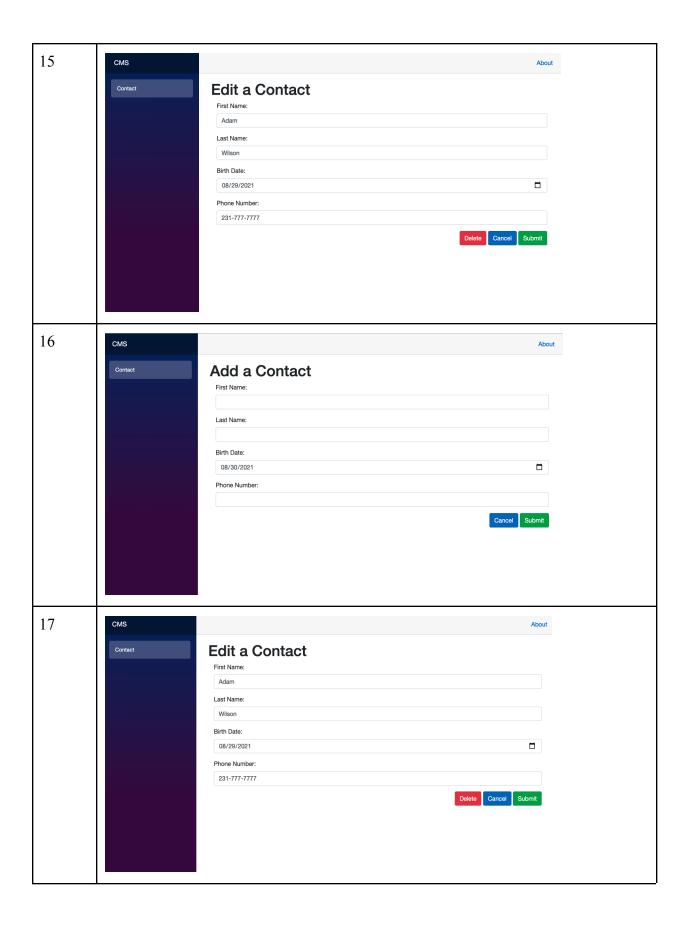












# 12. Error Log

Any issues you had while testing your code are recorded in the error log as you perform testing of the "completed" code – that is, when you run through all of the test cases in the test plan.

Error Type	Cause of Error	Solution to Error
Logic	creating a new object for update contact when the original object should have been modified	update existing object when the user is retrieve

### 13. Status

The application fully works with the assumptions in place