System Requirements Specification Index

For

Political Party System

Version 4.0

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Political Parties APPLICATION
System Requirements Specification

1.Business-Requirement:

1.1 Problem Statement:

Political Parties Application is .Net Core web API 3.1 application integrated with MS SQL Server , where it allows the management of political parties, political leaders and developments done by political leaders in the states.

1.2 Following is the requirement specification:

	Political Parties Application
Modules	
1	Political Party
2	Political Leader
3	Development
Political Party Module Functionalities	
1	Register a Political Party
2	Update the existing Political Party
3	Get a Political Party by Id
4	Fetch all registered Political Parties
5	Delete an existing Political Party
Political Leader Module Functionalities	
1	Register a Political Leader
2	Update the existing Political Leader
3	Get a Political Leader by Id
4	Fetch all registered Political Leaders
5	Delete an existing Political Leader
6	Fetch all Political Leaders registered with a Party

Development Module Functionalities	
1	Create a Development Plan
2	Update the existing Development
3	Get a Development by Id
4	Fetch all created developments
5	Delete an existing Development
6	Fetch all Developments created for a Political Leader

2. Assumptions, Dependencies, Risks / Constraints

2.1 Political Party Constraints:

- While deleting the Political Party, if politicalPartyId does not exist then the operation should throw a custom exception.
- While fetching the political party details by id, if politicalPartyId does not exist then the operation should throw a custom exception.

2.2 Political Leader Constraints

- While deleting the political leader, if politicalLeaderId does not exist then the operation should throw a custom exception.
- While fetching the political leader details by id, if politicalLeaderId does not exist then the operation should throw a custom exception.
- While fetching all the political leader details by political party id, if politicalPartyId does not exist then the operation should throw a custom exception.

2.3 Developments Constraints

- While deleting the development, if developmentId does not exist then the operation should throw a custom exception.
- While fetching the development details by id, if developmentId does not exist then the operation should throw a custom exception.
- While fetching all the developments created for a political leader, if politicalLeaderId does not exist then the operation should throw a custom exception.

2.4 Common Constraints

- For all rest endpoints receiving @RequestBody, validation check must be done and must throw custom exception if data is invalid
- All the business validations must be implemented in model classes only.

- All the database operations must be implemented on entity object only
- Do not change, add, remove any existing methods in service layer
- In Repository interfaces, custom methods can be added as per requirements.
- All RestEndpoint methods and Exception Handlers must return data wrapped in **ResponseEntity**

3. Business Validations

3.1 Political Party Class Entities

- Political Party Id (long)is not null,Key attribute.
- Political Party name (string) is not null,min 3 and max 100 characters.
- Political party founder name (string) is not null, min 3 and max 100 characters.

3.2 Political Leader Class Entities

- Political Leader Id (long) is not null,Key attribute.
- Political Leader candidate name (string) is not null, min 3 and max 100 characters.
- Political Leader state name (string) is not null, min 3 and max 100 characters.

3.3 Development Entities

- Development Id (long) is not null,min 3 and max 100 characters.
- Development title(string) is not null, min 3 and max 100 characters.
- Development activity (string)is not null, min 3 and max 100 characters.
- Development budget(decimal) is not null, min 3 and max 100 characters.
- Development state is (string)not null, min 3 and max 100 characters.
- Development activity month(int) is not null, the range is from 1 to 12
- Development activity year(int) is not null, the range is from 2021 to 2040.

4. Considerations

- There is no roles in this application
- You can perform the following 3 possible actions

PoliticalParty
PoliticalLeader
Development

5. Rest Endpoints

Rest End-points to be exposed in the controller along with method details for the same to be created

5.1 PoliticalPartyController

<table>
<tr><th>URL Exposed</th><th>Purpose</th></tr>
<tr><td>/parties
<table><tr><td>Http Method</td><td>POST</td></tr><tr><td>Parameter 1</td><td>RegisterPoliticalParty ViewModel model</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Register a political party</td></tr>
<tr><td>/parties
<table><tr><td>Http Method</td><td>PUT</td></tr><tr><td>Parameter 1</td><td>RegisterPoliticalParty ViewModel model</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Update a political party</td></tr>
<tr><td>/parties
<table><tr><td>Http Method</td><td>GET</td></tr><tr><td>Parameter 1</td><td>-</td></tr><tr><td>Return</td><td><IEnumerable<Political Party>></td></tr></table></td><td>Fetches the list of all registered Political Parties</td></tr>
<tr><td>/parties/{politicalPartyId}
<table><tr><td>Http Method</td><td>GET</td></tr><tr><td>Parameter 1</td><td>Long (politicalPartyId)</td></tr><tr><td>Return</td><td><PoliticalParty></td></tr></table></td><td>Fetches the details of a political party</td></tr>
<tr><td>/parties /{politicalPartyId}
<table><tr><td>Http Method</td><td>DELETE</td></tr><tr><td>Parameter 1</td><td>Long (politicalPartyId)</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Delete a political party</td></tr>
</table>

5.2 PoliticalLeaderController

<table>
<tr><th>URL Exposed</th><th>Purpose</th></tr>
<tr><td>/leaders
<table><tr><td>Http Method</td><td>POST</td></tr><tr><td>Parameter 1</td><td>RegisterPoliticalLeaderViewModel model</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Register a political leader</td></tr>
<tr><td>/leaders
<table><tr><td>Http Method</td><td>PUT</td></tr><tr><td>Parameter 1</td><td>RegisterPoliticalLeaderViewModel model</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Update a political leader</td></tr>
<tr><td>/leaders
<table><tr><td>Http Method</td><td>GET</td></tr><tr><td>Parameter 1</td><td>-</td></tr><tr><td>Return</td><td><IEnumerable<PoliticalLeader>></td></tr></table></td><td>Fetches all registered political leaders</td></tr>
<tr><td>/leaders/{politicalLeaderId}
<table><tr><td>Http Method</td><td>GET</td></tr><tr><td>Parameter 1</td><td>Long (politicalLeaderId)</td></tr><tr><td>Return</td><td><PoliticalLeader></td></tr></table></td><td>Fetch the details of a political leader</td></tr>
<tr><td>/leaders/by-party-id/{politicalPartyId}
<table><tr><td>Http Method</td><td>GET</td></tr><tr><td>Parameter 1</td><td>Long (politicalPartyId)</td></tr><tr><td>Return</td><td><PoliticalLeader></td></tr></table></td><td>Fetches the details of all the political leaders belongs to a party</td></tr>
<tr><td>/leaders/{politicalPartyId}
<table><tr><td>Http Method</td><td>DELETE</td></tr><tr><td>Parameter 1</td><td>Long (politicalPartyId)</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Delete a political leader from the existing leaders</td></tr>
</table>

5.3 DevelopmentController

<table>
<tr><th>URL Exposed</th><th>Purpose</th></tr>
<tr><td>/developments<table><tr><td>Http Method</td><td>POST</td></tr><tr><td>Parameter 1</td><td>RegisterDevelopmentViewModel model</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Register a development plan</td></tr>
<tr><td>/developments<table><tr><td>Http Method</td><td>PUT</td></tr><tr><td>Parameter 1</td><td>RegisterDevelopmentViewModel model</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Update an existing development plan</td></tr>
<tr><td>/developments<table><tr><td>Http Method</td><td>GET</td></tr><tr><td>Parameter 1</td><td>-</td></tr><tr><td>Return</td><td><IEnumerable<Development>></td></tr></table></td><td>Fetches all the registered developments</td></tr>
<tr><td>/developments/{developmentId}<table><tr><td>Http Method</td><td>GET</td></tr><tr><td>Parameter 1</td><td>Long(developmentId)</td></tr><tr><td>Return</td><td><Development></td></tr></table></td><td>Fetch the details of a development plan</td></tr>
<tr><td>/developments/by-leader-id/{politicalLeaderId}<table><tr><td>Http Method</td><td>GET</td></tr><tr><td>Parameter 1</td><td>Long(politicalLeaderId)</td></tr><tr><td>Return</td><td><Development></td></tr></table></td><td>Fetches all the development plans created for a political leader</td></tr>
<tr><td>/developments/{developmentId}<table><tr><td>Http Method</td><td>DELETE</td></tr><tr><td>Parameter 1</td><td>Long(developmentId)</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Deletes an existing development plan</td></tr>
</table>

6. Template Code Structure

6.1 Package: PoliticalParties

Resources

Names	Resource	Remarks	Status
Package Structure			
controller	PoliticalPartyController PoliticalLeaderController DevelopmentController	Controller class to expose all rest-endpoints for auction related activities.	Partially implemented
Startup.cs	Startup CS file	Contain all Services settings and SQL server Configuration.	Already Implemented
Properties	launchSettings.json file	All URL Setting for API	Already Implemented
	appsettings.json	Contain connection string for database	Already Implemented

6.2 Package: PoliticalParties.BusinessLayer

Resources

Names	Resource	Remarks	Status
Package Structure			
Interface	IPoliticalPartyServices interface IPoliticalLeaderServices interface IDevelopmentServices interface	Inside all these interface files contains all business validation logic functions.	Already implemented

Service	PoliticalParty Services CS file PoliticalLeader Services CS file Development Services CS file	Using this all class we are calling the Repository method and use it in the program and on the controller.	Partially implemented
Repository	IPoliticalPartyRepository PoliticalParty Repository IPoliticalLeaderRepository PoliticalLeader Repository IDevelopmentRepository Development Repository (CS files and interfaces)	All these interfaces and class files contain all CRUD operation code for the database. Need to provide implementation for service related functionalities	Partially implemented
ViewModels	RegisterPoliticalLeaderViewModel RegisterPoliticalPartyViewModel RegisterDevelopmentViewModel	Contain all view Domain entities for show and bind data. All the business validations must be implemented.	Partially implemented

6.3 Package: PoliticalParties.DataLayer

Resources

Names	Resource	Remarks	Status
Package Structure			
DataLayer	PoliticalPartiesDBContext cs file	All database Connection,collection setting class	Already Implemented

6.4 Package: PoliticalParties.Entities

Resources

Names	Resource	Remarks	Status
Package Structure			
Entities	PoliticalParty PoliticalLeader Development Status (CS files)	All Entities/Domain attribute are used for pass the data in controller and status entity to return response Annotate this class with proper annotation to declare it as an entity class with **Id** as primary key. Generate the **Id** using the **IDENTITY** strategy	Partially implemented

7. Execution Steps to Follow

1. **All actions like build, compile, running application, running test cases will be through Command Terminal.**

2. **To open the command terminal the test takers need to go to the Application menu (Three horizontal lines at left top) Terminal → New Terminal.**

3. **On command prompt, cd into your project folder (cd <Your-Project-folder>).**

4. **To connect SQL server from terminal:**
   (PoliticalParties /sqlcmd -S localhost -U sa -P pass@word1)
   - **To create database from terminal -**
     1> Create Database PoliticalPartyDb
     2> Go

5. **Steps to Apply Migration(Code first approach):**
   - **Press Ctrl+C to get back to command prompt**
   - **Run following command to apply migration-**
     (PoliticalParties /dotnet-ef database update)

6. **To check whether migrations are applied from terminal:**
   (PoliticalParties /sqlcmd -S localhost -U sa -P pass@word1)

```
1> Use PoliticalPartyDb
2> Go
1> Select * From __EFMigrationsHistory
2> Go
```

7. **To build your project use command:**
   (PoliticalParties /dotnet build)

8. **To launch your application, Run the following command to run the application:**
   (PoliticalParties /dotnet run)

9. **This editor Auto Saves the code.**

10. **To test any Restful application, the last option on the left panel of IDE, you can find ThunderClient, which is the lightweight equivalent of POSTMAN.**

11. **To test web-based applications on a browser, use the internal browser in the workspace. Click on the second last option on the left panel of IDE, you can find Browser Preview, where you can launch the application.**

    Note: The application will not run in the local browser

12. **To run the test cases in CMD, Run the following command to test the application:**
    (PoliticalParties /dotnet test --logger "console;verbosity=detailed")
    (You can run this command multiple times to identify the test case status,and refactor code to make maximum test cases passed before final submission)

13. **If you want to exit(logout) and continue the coding later anytime (using Save & Exit option on Assessment Landing Page) then you need to use CTRL+Shift+B - command compulsorily on code IDE. This will push or save the updated contents in the internal git/repository. Else the code will not be available in the next login.**

14. **These are time bound assessments the timer would stop if you logout and while logging in back using the same credentials the timer would resume from the same time it was stopped from the previous logout.**

15. **You need to use CTRL+Shift+B - command compulsorily on code IDE, before final submission as well. This will push or save the updated contents in the internal git/repository, and will be used to evaluate the code quality.**
