System Requirements Specification Index

For

Donation Management System

Version 4.0

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Donation Management APPLICATION

System Requirements Specification

1.Business-Requirement:

1.1 Problem Statement:

Donation Management Application is .Net Core 3.1 RESTful Web API with Ms SQL Server, where NGOs can raise the funds by inviting the donors online and sending the notification about the events and donations.

1.2 Following is the requirement specification:

	Donation Management System Application
Modules	
1	NGO
2	Donor
3	Donation
4	Donation Request
NGO Module Functionalities	
1	Register a NGO
2	Update the existing NGO details
3	Get the NGO by Id
4	Fetch all registered NGOs
5	Delete an existing NGO
Donor Module Functionalities	
1	Register a Donor
2	Update the existing Donor
3	Get a Donor by Id
4	Fetch all registered Donors
5	Delete an existing Donor
6	Fetch all the Donors registered with a NGO

Donation Module Functionalities	
1	Create a Donation
2	Update the existing Donation details
3	Get the Donation by Id
4	Fetch all Donations
5	Delete an existing Donation
6	Fetch all Donations done by a Donor
7	Fetch all Donations done for a NGO
Donation Request Module Functionalities	
1	Create a Donation Request
2	Get the Donation Notification by the NGO
3	Get all the Donation request sent to a Donor

2. Assumptions, Dependencies, Risks / Constraints

2.1 NGO Constraints:

- While deleting an NGO, if ngoId does not exist then the operation should throw a custom exception.
- While fetching the NGO details by id, if ngoId does not exist then the operation should throw a custom exception.

2.2 Donor Constraints

- While deleting the Donor, if donorId does not exist then the operation should throw a custom exception.
- While fetching the Donor details by id, if donorId does not exist then operation should throw a custom exception.
- While fetching all the Donor details by NGO id, if ngoId does not exist then the operation should throw a custom exception.

2.3 Donations Constraints

- While deleting the Donation, if donationId does not exist then the operation should throw a custom exception.
- While fetching the Donation details by id, if donationId does not exist then operation should throw a custom exception.
- While fetching all the Donations done by a donor id, if donorId does not exist then the operation should throw a custom exception.
- While fetching all the Donation details by NGO id, if ngoId does not exist then operation should throw custom exception.

2.4 Donation Request Constraints

- While fetching the all the Donation request done by NGO, if ngoId does not exist then operation should throw custom exception.
- While fetching all the Donation requests sent to a donor, if donorId does not exist then the operation should throw a custom exception.

2.5 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 NGO Entity:

- NGO name(string) is not null, min 3 and max 100 characters.
- NGO username(string) is not null, min 3 and max 50 characters.
- NGO password(string) is not null, min 3 and max 50 characters.
- NGO address(string) is not null, min 3 and max 100 characters.
- NGO phone number(string) is not null and have min 10 and max 10 digits
- NGO started In(datetime) is not null, have 'yyyy-mm-dd' format and should be past date
- NGO documents(string) are not null, min 3 and max 100 characters.

3.2 Donor Entity:

- Donor name(string) is not null, min 3 and max 100 characters.
- Donor username(string) is not null, min 3 and max 50 characters.
- Donor password(string) is not null, min 3 and max 50 characters.
- Donor email(string) is not null, min 3 and max 100 characters and should be in email format
- Donor phone number(string) is not null and have min 10 and max 10 digits
- Donor address(string) is not null, min 3 and max 100 characters.

3.3 Donation Entity:

- Donation type(string) is not null, min 3 and max 100 characters.
- Donation amount(decimal) is not null
- Donation date(datetime) is not null, has 'yyyy-mm-dd' format and should be a future date.

3.4 Donation Request Entity:

- Donation Request amount(decimal) is not null
- Donation Request status(string) is not null, min 3 and max 100 characters
- Donation request end date(datetime) is not null, have 'yyyy-mm-dd' format and should be future date

4. Rest Endpoints

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

4.1 NgoController

URL Exposed	Purpose
/ngos/register-ngo Http Method: POST Parameters: NgoDetails ngoDetails,string password Return: HTTP Response StatusCode	Register a NGO
/ngos/update-ngo Http Method: PUT Parameter 1: RegisterNgoViewModel model Return: HTTP Response StatusCode	Update the NGO
/ngos/get/{NgoId} Http Method: GET Parameter 1: Long(NgoId) Return: <NgoDetails>	Fetches the details of NGO by Id
/ngos/delete-ngo/{NgoId} Http Method: DELETE Parameter 1: Long (NgoId) Return: HTTP Response StatusCode	Delete the Ngo detail
/ngos/all Http Method: GET Parameter 1: - Return: <IEnumerable<NgoDetails>>	Fetch all registered NGOs
/ngos/create-donation-request Http Method: POST	Create a Donation request

Parameter 1	DonationRequest donationRequest
Return	HTTP Response StatusCode

/ngos/donation-request-by-ngo/{NgoId}		Get all the donation request by the NGO
Http Method	GET	
Parameter 1	Long(NgoId)	
Return	<IEnumerable<DonationRequest>>	

/ngos/ donation-request-by-donor/{donarId}		Get all the donation requests for a donor
Http Method	GET	
Parameter 1	Long(donarId)	
Return	<IEnumerable<DonationRequest>>	

4.2 DonorController

URL Exposed		Purpose
/donors/register-donors		Register a Donor
Http Method	POST	
Parameters	Donor donor, string password	
Return	HTTP Response StatusCode	
/donors/update-donor		Update the existing donor
Http Method	PUT	
Parameter 1	RegisterDonorViewModel model	
Return	HTTP Response StatusCode	
/donors/get/{DonarId}		Fetches the donor details by id
Http Method	GET	
Parameter 1	Long(DonarId)	
Return	<Donor>	
/donors/all		Fetch the details of all the registered donors
Http Method	GET	
Parameter 1	-	

<table>
<tr><td><table><tr><td>Return</td><td>List<DonarDto></td></tr></table></td><td></td></tr>
<tr><td>/donors/delete-donor/{DonarId}<table><tr><td>Http Method</td><td>DELETE</td></tr><tr><td>Parameter 1</td><td>Long (DonarId)</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Delete the existing Donor</td></tr>
<tr><td>/donors/get-by-ngo/{ngoId}<table><tr><td>Http Method</td><td>GET</td></tr><tr><td>Parameter 1</td><td>Long (ngoId)</td></tr><tr><td>Return</td><td>List<DonarDto></td></tr></table></td><td>Fetch all the donors registered with the NGO</td></tr>
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<tr><td>/donation/update-donation<table><tr><td>Http Method</td><td>PUT</td></tr><tr><td>Parameter 1</td><td>RegisterDonationView Model model</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Update the existing Donation details</td></tr>
<tr><td>/donation/delete-donation/{DonationId}<table><tr><td>Http Method</td><td>DELETE</td></tr><tr><td>Parameter 1</td><td>Long (donationId)</td></tr><tr><td>Return</td><td>HTTP Response StatusCode</td></tr></table></td><td>Delete an existing Donation</td></tr>
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</table>

5. Template Code Structure

5.1 Package: DonationManagement

Resources

Names	Resource	Remarks	Status
Package Structure			
controller	Ngo Controller Donor Controller	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

5.2 Package: DonationManagement.BusinessLayer

Resources

Names	Resource	Remarks	Status
Package Structure			
Interface	INgoServices interface IDonorServices interface IDonationServices interface IDonationRequestServices interface	Inside all these interface files contains all business validation logic functions.	Already Implemented
Service	Ngo Services CS file Donor Services CS file Donation Services CS file DonationRequest 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	INgoRepository Ngo Repository IDonorRepository DonorRepository IDonationRepository Donation Repository IDonationRequestRepository DonationRequestRepository CS file and interface.	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	RegisterNgoViewModel, RegisterDonorViewModel, RegisterDonationViewModel, RegisterDonationRequestViewModel,	Contain all view Domain entities for show and bind data. All the business validations must be implemented.	Partially Implemented

5.3 Package: DonationManagement.DataLayer

Resources

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

5.4 Package: DonationManagement.Entities

Resources

Names	Resource	Remarks	Status
Package Structure			
Entities	NgoDetails,Donor,Donation , DonationRequest CS file	All Entities/Domain attribute are used for pass the data in controller 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

5.5 Package: DonationManagement.Tests

Resources

The DonationManagement.Tests project contains all test case classes and functions for code evaluation. Don't edit or change anything inside this project.

6. 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:
   (DonationManagement/sqlcmd -S localhost -U sa -P pass@word1)
   - To create database from terminal -
     1> Create Database DonationManagement_Db
     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-
     (DonationManagement/dotnet-ef database update)

6. To check whether migrations are applied from terminal:
   (DonationManagement/sqlcmd -S localhost -U sa -P pass@word1)
   1> Use DonationManagement_Db
   2> Go
   1> Select * From __EFMigrationsHistory
   2> Go

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

8. To launch your application, Run the following command to run the application:
   (DonationManagement/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: (DonationManagement.Tests/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.**