

TABLE OF CONTENTS

1. PROJECT CONFIGURATION	1
1.1 Creating a New Project.....	1
1.2 launchSettings.json File Configuration	3
1.3 Program.cs and Startup.cs Explanations	4
1.4 Extension Methods and CORS Configuration.....	6
1.5 IIS Configuration	7
1.6 Additional Code in the Startup Class	9
1.7 Environment-Based Settings	10
2. CONFIGURING A LOGGING SERVICE.....	13
2.1 Creating the Required Projects	13
2.2 Creating the ILoggerManager Interface and Installing NLog	14
2.3 Implementing the Interface and Nlog.Config File.....	16
2.4 Configuring Logger Service for Logging Messages	17
2.5 DI, IoC, and Logger Service Testing	19
3. DATABASE MODEL AND REPOSITORY PATTERN	21
3.1 Creating Models	21
3.2 Context Class and the Database Connection.....	23
3.3 Migration and Initial Data Seed.....	25
3.4 Repository Pattern Logic	28
3.5 Repository User Interfaces and Classes	30

3.6	Creating a Repository Manager	32
4.	HANDLING GET REQUESTS.....	36
4.1	Controllers and Routing in WEB API.....	36
4.2	Naming Our Resources.....	38
4.3	Getting All Companies From the Database	39
4.4	Testing the Result with Postman.....	42
4.5	DTO Classes vs. Entity Model Classes	44
4.6	Using AutoMapper in ASP.NET Core.....	47
5.	GLOBAL ERROR HANDLING	50
5.1	Handling Errors Globally with the Built-In Middleware.....	50
5.2	Startup Class Modification.....	51
5.3	Testing the Result	52
6.	GETTING ADDITIONAL RESOURCES	54
6.1	Getting a Single Resource From the Database.....	54
6.2	Parent/Child Relationships in Web API.....	56
6.3	Getting a Single Employee for Company.....	59
7.	CONTENT NEGOTIATION.....	62
7.1	What Do We Get Out of the Box?.....	62
7.2	Changing the Default Configuration of Our Project	63
7.3	Testing Content Negotiation.....	64
7.4	Restricting Media Types	64

7.5	More About Formatters	65
7.6	Implementing a Custom Formatter	66
8.	METHOD SAFETY AND METHOD IDEMPOTENCY	69
9.	CREATING RESOURCES	71
9.1	Handling POST Requests	71
9.2	Code Explanation	73
9.3	Creating a Child Resource	75
9.4	Creating Children Resources Together with a Parent	78
9.5	Creating a Collection of Resources	80
9.6	Model Binding in API.....	83
10.	WORKING WITH DELETE REQUESTS	87
10.1	Deleting a Parent Resource with its Children	88
11.	WORKING WITH PUT REQUESTS.....	91
11.1	Updating Employee	91
11.1.1	About the Update Method from the RepositoryBase Class	94
11.2	Inserting Resources while Updating One	95
12.	WORKING WITH PATCH REQUESTS	97
12.1	Applying PATCH to the Employee Entity	98
13.	VALIDATION.....	104
13.1	Validation while Creating Resource.....	105
13.1.1	Validating Int Type	109

13.2	Validation for PUT Requests	111
13.3	Validation for PATCH Requests.....	113
14.	ASYNCHRONOUS CODE	117
14.1	What is Asynchronous Programming?	117
14.2	Async, Await Keywords, and Return Types.....	118
14.2.1	The IRepositoryBase Interface and the RepositoryBase Class Explanation .	120
14.3	Modifying the ICompanyRepository Interface and the CompanyRepository Class	120
14.4	IRepositoryManager and RepositoryManager Changes.....	121
14.5	Controller Modification.....	122
15.	ACTION FILTERS.....	126
15.1	Action Filters Implementation.....	126
15.2	The Scope of Action Filters	127
15.3	Order of Invocation.....	128
15.4	Improving the Code with Action Filters	130
15.5	Validation with Action Filters	130
15.6	Dependency Injection in Action Filters.....	134
16.	PAGING	140
16.1	What is Paging?	140
16.2	Paging Implementation.....	141
16.3	Concrete Query	143
16.4	Improving the Solution	146

17. FILTERING	150
17.1 What is Filtering?	150
17.2 How is Filtering Different from Searching?.....	151
17.3 How to Implement Filtering in ASP.NET Core Web API	152
17.4 Sending and Testing a Query.....	154
18. SEARCHING	157
18.1 What is Searching?.....	157
18.2 Implementing Searching in Our Application	157
18.3 Testing Our Implementation	159
19. SORTING	162
19.1 What is Sorting?.....	162
19.2 How to Implement Sorting in ASP.NET Core Web API	164
19.3 Implementation – Step by Step.....	166
19.4 Testing Our Implementation	168
19.5 Improving the Sorting Functionality.....	169
20. DATA SHAPING	172
20.1 What is Data Shaping?	172
20.2 How to Implement Data Shaping	173
20.3 Step-by-Step Implementation	175
20.4 Resolving XML Serialization Problems.....	179
21. SUPPORTING HATEOAS	182

21.1	What is HATEOAS and Why is it so Important?	182
21.1.1	Typical Response with HATEOAS Implemented	183
21.1.2	What is a Link?.....	183
21.1.3	Pros/Cons of Implementing HATEOAS	184
21.2	Adding Links in the Project	184
21.3	Additional Project Changes	187
21.4	Adding Custom Media Types	188
21.4.1	Registering Custom Media Types	189
21.4.2	Implementing a Media Type Validation Filter	190
21.5	Implementing HATEOAS	191
22.	WORKING WITH OPTIONS AND HEAD REQUESTS	197
22.1	OPTIONS HTTP Request	197
22.2	OPTIONS Implementation	197
22.3	Head HTTP Request	199
22.4	HEAD Implementation	199
23.	ROOT DOCUMENT	201
23.1	Root Document Implementation	201
24.	VERSIONING APIS	206
24.1	Required Package Installation and Configuration	206
24.2	Versioning Examples	208
24.2.1	Using Query String	209
24.2.2	Using URL Versioning	210
24.2.3	HTTP Header Versioning	211
24.2.4	Deprecating Versions	212
24.2.5	Using Conventions	213

25. CACHING	214
25.1 About Caching	214
25.1.1 Cache Types	214
25.1.2 Response Cache Attribute	215
25.2 Adding Cache Headers.....	215
25.3 Adding Cache-Store.....	217
25.4 Expiration Model	219
25.5 Validation Model.....	221
25.6 Supporting Validation.....	223
25.6.1 Configuration	224
25.7 Using ETag and Validation.....	226
26. RATE LIMITING AND THROTTLING	230
26.1 Implementing Rate Limiting.....	230
27. JWT AND IDENTITY	234
27.1 Implementing Identity in ASP.NET Core Project.....	234
27.2 Creating Tables and Inserting Roles.....	236
27.3 User Creation	238
27.4 Big Picture	241
27.5 About JWT.....	242
27.6 JWT Configuration.....	244
27.7 Protecting Endpoints.....	246
27.8 Implementing Authentication	247
27.9 Role-Based Authorization.....	253

28. DOCUMENTING API WITH SWAGGER.....	256
28.1 About Swagger.....	256
28.2 Swagger Integration Into Our Project.....	257
28.3 Adding Authorization Support	261
28.4 Extending Swagger Configuration	264
29. DEPLOYMENT TO IIS.....	268
29.1 Creating Publish Files.....	268
29.2 Windows Server Hosting Bundle	270
29.3 Installing IIS.....	270
29.4 Configuring Environment File	273
29.5 Testing Deployed Application	275