ASP.NET II

Course code: ASPNET_ADV

In this course, we will build on ASPNET_INTRO and continue with a subtle introduction to the Entity Framework Core, and then take a look at Razor Pages, the MVVM framework that Microsoft offers as an alternative to the somewhat fundamentalist MVC.Applications require configuration, and .NET Core abandons previous solutions based on XML web.config files. It offers a new model of many configuration resources, an object superstructure and User Secrets for secure storage of sensitive configuration data during development.Almost every web application needs to send emails. We will show you what options you have in ASP.NET Core applications and imagine the Altairis.Services.Mailing library. You can use this to address your e-mail needs, but also as an example of how .NET Core universal libraries are generally written.Another large block is devoted to internationalization - preparation of the application for global deployment, translation into various languages, validation of user inputs, including client validation (and translation of its messages). The user interface can be - and appropriately - generated dynamically based on annotation attributes and we will show you how.The last part concerns security and the use of ASP.NET Identity. I will teach you how to deploy it properly, secure the application using roles, two-factor authentication, custom claims, login using external identity providers, and other useful things. I'll also show you how you can get users from older applications that aren't that beautiful (and most importantly so secure) into your new beautiful secure application.

Requirements per participant
- Knowledge of C # programming at the GOC2125 course level
- Knowledge at the ASPNET_INTRO course level
- Functional subscription to Microsoft Azure, just a trial.
- Digital Ocean subscription

Teaching methods
- Expert explanation with practical examples, exercises on computers.

Studying materials
- Online presentation of the subject matter and exercises.

Course syllabus
A gentle introduction to the Core Entity Framework
- Changes against EF 6
- Migration and its insidiousness
- Create DAL in EF Core

ASP.NET Core Razor Pages
- Razor Pages as an alternative to MVC Core
- Model-View-ViewModel (MVVM) versus Model-View-Controller (MVC) pattern
- Basic use of Razor Pages
- Methods for processing requests

Configuration
- Changes against
- ASP.NET
- 4 and destruction of the web.config file
- Configuration resources: files, environment variables, command line and more
- Object superstructure over key-value configuration
- Validation of configuration values
- Track changes to configuration files
- User Secrets - storage of sensitive configuration data during development

Email in ASP.NET Core
- Possibilities of sending e-mails (own server, external service)
- Altairis.Services.Mailing library as a ready-made solution and at the same time a demonstration of typical practice in .NET Core.

View Components
- View Components as a replacement for child actions
- Differences against Server Controls in
- ASP.NET
- Web Forms
- Registration and creation of your own view components

Input validation and binding model
- Standard validation attributes
- Custom validation attributes for properties and entire entities
- IValidatableObject interface
- Client validation using JavaScript and CSS

Dynamic user interface generation
- Why create UI dynamically based on metadata
- Field level UI generation
- Generate UI at the model or part level
- Create your own templates

Internationalization
- Globalization and localization
- CultureInfo class, Neutral and Specific Cultures, Invariant Culture and why avoid it
- Culture settings, request localization middleware
- User interface localization using resources
- Localization of data annotations attributes
- Conventional Metadata Providers

Web application security
- Basic concepts and notions
- Authentication factors
- Cookie Authentication Middleware
- Claims-based Identity

ASP.NET Identity
- Basic use, user creation, login, logout
- Reset passwords as a weakness of application security and how to do it properly
- Work with roles and role-based authorization
- Two-factor authentication, use of one-time passwords

Customizing ASP.NET Identity
- Extension of user data
- Identity Stores
- Password storage and why not dig into it
- Migration of legacy users, or unfortunately you have to dig into it
- SignInManager class, logging and login restrictions
- SecurityStamp and its use, logging out of all sessions
- Login using external identity providers and other Facebook
- Phone number verification via SMS
- Login Approvals: login without passwords
- Use of custom claims in
- ASP.NET
- Identity

ASP.NET Data Protection

- Use within .NET Core and custom use
- Default configuration and its changes
- Saving keys to the file system
- Storing keys in a database