**Spec Solutions Kft.**
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# BDD with SpecFlow Course

Official course with the creator of SpecFlow on implementing Behavior Driven Development on the .NET platform

## Course Description

The three-day SpecFlow course shows how to write and maintain executable specification using the Gherkin feature file format, how to drive the implementation of the application and how to design and implement a test automation layer that is easy to maintain even for larger number of tests. The attendees shall rely on a lot of exercises and discussions, through which they can learn about all important features of SpecFlow.

## Learning Objectives

Learn how to:

- work with Behavior Driven Development using SpecFlow
- understand requirements more easily through rules and examples
- write and maintain executable specification using the Gherkin feature file format
- drive the implementation of the application by Gherkin scenarios
- design and implement a test automation layer that is easy to maintain even for larger number of tests
- automate application through the domain layer
- automate web applications or applications with external dependencies
- become a strong member of a BDD team
- use all important features of SpecFlow
- integrate these into the existing development process

## Target Audience & Structure

The course is for Product Owners, developers and testers, with individual target audiences for each Module. Module 1 does not involve any coding exercises, while Module 2 and 3 will have exercises that include reading and writing C# code and working with Visual Studio (2013 or higher, Visual Studio 2015 is recommended).
Each course module is planned for a full training day normally. A custom training agenda can also be provided on request.

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## MODULE 1: CAPTURING REQUIREMENTS WITH GIVEN/WHEN/THEN

- *Quick intro/refresh on Behavior Driven Development*
- *Specification by Example – The role of examples in specification:* Discovering rules and examples using structured conversations and Example Mapping
- *Given/When/Then through examples – Good and bad scenario writing patterns:* Checklist for good scenarios; The Gherkin syntax
- *Essential data – Including data in the scenarios:* Tracing details; Background and baseline data; Data personas
- *Ubiquitous Language – A language that everyone understands:* Focusing on the domain language; Separation of problem domain and solution domain; Domain model vs. scenarios
- *Scenarios vs. Tests – The difference between illustration and coverage:* Data-driven scenarios (Scenario Outline); Separation of illustrative and test examples; Mapping scenarios to the testing pyramid
- *Structuring Scenarios – Finding the right structure for our living documentation:* Story vs. Feature; Structuring goals and options; Traceability

*Target audience:* Product Owners, Business Analysts, Testers, Developers … – anyone involved in specification/requirement workshops that yield formalized Gherkin specifications. No development knowledge or laptops required.

## MODULE 2: SPECFLOW SCENARIO AUTOMATION CORE CONCEPTS AND PATTERNS

- *Introduction to SpecFlow:* Setting up SpecFlow; SpecFlow automation concept; Naming conventions
- Introduction to the scenario automation workflow: Test-first thinking; Outside-in development
- *Working with DataTables:* Working with the Table object; Table assertions; Table assertion helpers (SpecFlow Assist)
- *Sharing state (data) between steps:* Different state sharing options; Global nature of step definitions; SpecFlow activation model; Context Injection
- *Organizing step definitions:* Finding the right structure for the binding code;
- *Automating external interfaces – Introducing UI automation:* Domain layer vs UI automation; Building up automation infrastructure with SpecFlow; UI automation with Selenium WebDriver
- *Accessing state through external interface:* Challenges of assertions through UI automation

*Note: The modules include UI automation exercises with Web UI automation using Selenium WebDriver. This is used to demonstrate general UI automation challenges and solutions with SpecFlow. The UI automation topics can be excluded or replaced by other UI automation technology (e.g. Windows desktop UI automation with White) on request.*

*Target audience:* Developers, Testers who are involved in automating Gherkin scenarios. Attendees should feel comfortable in using Visual Studio and reading code. Testers will pair with Developers to learn work on basic automation of scenarios.

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### MODULE 3: ADVANCED SPECFLOW TECHNIQUES

- *Managing data in the scenarios:* Pushing down data to the automation layer; Tracing data during execution; Composite Given steps; Field and workflow-level defaults
- *Managing baseline data:* Using the Background section; Hooks; Scoping hooks with tags; Working with database-dependent scenarios
- *Extract data representation:* Default Data Conversions; Custom Conversions; Step parameter practices; Scenario Outlines
- *Improve feedback from scenario execution:* Executing scenarios on CI builds; Improving assertion messages; Assertions in Given steps; Collect diagnostic data (e.g. screenshots) during execution; Accessing the file system from the scenarios
- *Structuring the automation layer:* Separation of automation and testing concerns; Layering the automation infrastructure; The Driver pattern; The Page Object Pattern; Nested page objects; Automating UI concepts; Assertions in the automation layer
- *Testing asynchronous behavior:* Flickering scenarios; Implicit and explicit waits; Active/busy waiting
- *Multiple automation layers:* Testing the same scenario on different layers; Sharing common steps across projects; Injecting testing and production dependencies to the step definition classes

*Target audience:* Developers, Testers with a strong development background. Attendees should feel comfortable writing code in Visual Studio and have a basic understanding of UI technologies.

## PREREQUISITES

For Module 2 and 3: A training workstation is required with Visual Studio 2013, or 2015 (recommended) installed (Community Edition is also sufficient). The SpecFlow extension (downloadable from Visual Studio Gallery) should also be installed for Visual Studio.

## CERTIFICATION

Participants of the course get a certification issued by Spec Solutions and signed by Gaspar Nagy.

## WHAT OTHERS SAID ABOUT THE COURSE

*Good examples presented and explained by a competent practitioner.*

*Definitely attend.*

*Useful for people who have used SpecFlow and have questions.*

*Go there, do all three days it's worth it.*

*Very useful.*

*Highly recommend attending.*

*Overall a good course which covers a good material.*

*Very interesting, great overview & intro to SpecFlow.*

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## TESTIMONIALS

*Specflow course was really useful to us. It is serving as a foundation to our BDD framework. We have started implementing BDD in Vanquis and it wouldn't have been possible without this course.*

Henna Ashraf, Software Test and Release Manager, Vanquis Bank (UK)

## ABOUT THE TRAINER

Gáspár Nagy is the creator and main contributor of SpecFlow, the most widely used ATDD/BDD framework for .NET.

Gáspár is an independent coach, trainer and test automation expert focusing on BDD and SpecFlow. He has more than 15 years of experience in enterprise software development as he worked as an architect and agile developer coach.

He is an approved trainer in the Certified Scrum Developer program of Scrum Alliance and Microsoft Certified Professional for Visual Studio Team Foundation Server.