

SpecFlow: tests that unify a team

Dormenco Ion

Code for
Romania

Dormenco Ion

ABOUT ME

- .NET software developer
@E.ON
- Tech lead on several projects for Code4Romania
- Code geek



<https://github.com/idormenco>

Agenda:



Agenda:

- Descrierea problemei

Agenda:

- Descrierea problemei
- Solutii posibile

Agenda:

- Descrierea problemei
- Solutii posibile
- Demos



Agenda:

- Descrierea problemei
- Solutii posibile
- Demos
- Concluzii

Context: Sincronizarea



Context: Sincronizarea



- De Urgenta - un proiect util in primele 24h dupa un dezastru

Context: Sincronizarea



- De Urgenta - un proiect util in primele 24h dupa un dezastru
- Echipa formata din 5-6 oameni

Context: Sincronizarea



- De Urgenta - un proiect util in primele 24h dupa un dezastru
- Echipa formata din 5-6 oameni
- Sync meeting la 2 saptamani (1 -2 ore)

Context: Sincronizarea



- De Urgenta - un proiect util in primele 24h dupa un dezastru
- Echipa formata din 5-6 oameni
- Sync meeting la 2 saptamani (1 -2 ore)
- 5 vizuni asupra proiectului

Context: Solutii la 5 viziuni diferite



- Documentatie in GitHub, Slack, Confluence, Jira etc

Context: Solutii la 5 viziuni diferite



- Documentatie in GitHub, Slack, Confluence, Jira etc
 - nimeni nu citeste documentatia pana nu a stricat ceva

Context: Solutii la 5 viziuni diferite



- Documentatie in GitHub, Slack, Confluence, Jira etc
 - nimeni nu citeste documentatia pana nu a stricat ceva
 - documentatia lasa loc pentru interpretare

Context: Solutii la 5 viziuni diferite



- Documentatie in GitHub, Slack, Confluence, Jira etc
 - nimeni nu citeste documentatia pana nu a stricat ceva
 - documentatia lasa loc pentru interpretare
 - necesita manual testing

Context: Solutii la 5 viziuni diferite



- Documentatie in GitHub, Slack, Confluence, Jira etc
 - nimeni nu citeste documentatia pana nu a stricat ceva
 - documentatia lasa loc pentru interpretare
 - necesita manual testing
 - greu, anevoie si neplacut de intretinut

Context: Solutii la 5 viziuni diferite



- Test scenarios

Context: Solutii la 5 viziuni diferite



- Test scenarios
 - nu avem testeri in echipa

Context: Solutii la 5 viziuni diferite



- Test scenarios
 - nu avem testeri in echipa
 - cel mai aproape de natural language

Context: Solutii la 5 viziuni diferite



- Test scenarios
 - nu avem testeri in echipa
 - cel mai aproape de natural language
 - putem descrie scenarii complexe si corner cases

Context: Solutii la 5 viziuni diferite



- Integration tests (Test server ones)

Context: Solutii la 5 viziuni diferite



- Integration tests (Test server ones)
 - putini backend developers (1-2)

Context: Solutii la 5 viziuni diferite



- Integration tests (Test server ones)
 - putini backend developers (1-2)
 - testeaza aplicatia prin toate layers pana la DB

Context: Solutii la 5 viziuni diferite



- Integration tests (Test server ones)
 - putini backend developers (1-2)
 - testeaza aplicatia prin toate layers pana la DB
 - rapide, repetabile si rezultat predictibil

Context: Solutii la 5 viziuni diferite



- Integration tests (Test server ones)
 - putini backend developers (1-2)
 - testeaza aplicatia prin toate layers pana la DB
 - rapide, repetabile si rezultat predictibil
 - compatibile cu CI/CD pipelines

Shaping a solution



Code for
Romania

Shaping a solution



1

Teste automate

Shaping a solution



1

Teste automate

2

0 code knowledge pentru a scrie scenarii

Shaping a solution



1

Teste automate

2

0 code knowledge pentru a scrie scenarii

3

Scenarii scrise in limbaj natural

Shaping a solution



1

Teste automate

2

0 code knowledge pentru a scrie scenarii

3

Scenarii scrise in limbaj natural

4

Teste rulate in CI/CD pipelines

Shaping a solution



1

Teste automate

2

0 code knowledge pentru a scrie scenarii

3

Scenarii scrise in limbaj natural

4

Teste rulate in CI/CD pipelines

5

Inlocuirea documentatiei cu teste

Test scenarios





Test scenarios

↓
Teste automate

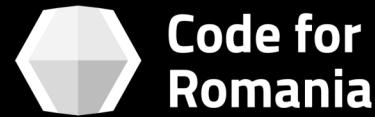


Test scenarios

Teste automate



specflow
cucumber for .net



**READY TO SHAPE THIS
SOLUTION ?
PRESS START**

0

BDD

- BDD is a way for software teams to work that closes the gap between business people and technical people by:

0

BDD

- BDD is a way for software teams to work that closes the gap between business people and technical people by:
 - Encouraging collaboration across roles to build shared understanding of the problem to be solved

0

BDD

- BDD is a way for software teams to work that closes the gap between business people and technical people by:
 - Encouraging collaboration across roles to build shared understanding of the problem to be solved
 - Producing system documentation that is automatically checked against the system's behaviour

0

Cucumber

0

Cucumber

- Cucumber is an open-source software testing tool that supports BDD.
(Behavior-Driven Development).

0

Cucumber

- Cucumber is an open-source software testing tool that supports BDD. (Behavior-Driven Development).
- Works with Gherkin because the Gherkin syntax structures plain text so that it can be read by the tool.

0

Gerkin

0

Gerkin

- Gherkin is a language that developers use to define tests in Cucumber.

0

Gerkin

- Gherkin is a language that developers use to define tests in Cucumber.
- Gherkin helps teams achieve a shared understanding with easy-to-understand rules and examples.

0

SpecFlow

0

SpecFlow

- Semi-official implementation for .NET which uses components from cucumber.

0

SpecFlow

- Semi-official implementation for .NET which uses components from cucumber.
- Specflow is a testing framework supporting BDD practices in .NET framework.

0

SpecFlow

- Semi-official implementation for .NET which uses components from cucumber.
- Specflow is a testing framework supporting BDD practices in .NET framework.
- It's an open source framework hosted on GitHub.

0

Benefits of SpecFlow

0

Benefits of SpecFlow

- SpecFlow allows you to separate test automation from specifications and provides additional tools to structure your code.

0

Benefits of SpecFlow

- SpecFlow allows you to separate test automation from specifications and provides additional tools to structure your code.
- SpecFlow uses human-readable descriptions of software requirements as the basis for software tests to form a shared understanding.

0

Benefits of SpecFlow

- By practicing BDD to get to your acceptance criteria, you will quickly find the hidden pieces and ensure everyone interprets them in the same way.

1

Integration tests in ASP.NET Core

1

Integration tests in ASP.NET Core

- Relativ usor de scris si mentinut

1

Integration tests in ASP.NET Core

- Relativ usor de scris si mentinut
- Permite debug concomitent in 1 Visual Studio la teste si cod

1

Integration tests in ASP.NET Core

- Relativ usor de scris si mentinut
- Permite debug concomitent in 1 Visual Studio la teste si cod
- Se pot face mock/swap la dependinte

1

Integration tests in ASP.NET Core

- Relativ usor de scris si mentinut
- Permite debug concomitent in 1 Visual Studio la teste si cod
- Se pot face mock/swap la dependinte
- Setup real al testelor fara manipulare directa a datelor in DB

1

Integration tests in ASP.NET Core

- Relativ usor de scris si mentinut
- Permite debug concomitent in 1 Visual Studio la teste si cod
- Se pot face mock/swap la dependinte
- Setup real al testelor fara manipulare directa a datelor in DB
- Foarte aproape de a simula consumarea API de client

1

Integration tests in ASP.NET Core

- Relativ usor de scris si mentinut
- Permite debug concomitent in 1 Visual Studio la teste si cod
- Se pot face mock/swap la dependinte
- Setup real al testelor fara manipulare directa a datelor in DB
- Foarte aproape de a simula consumarea API de client
- CI/CD friendly

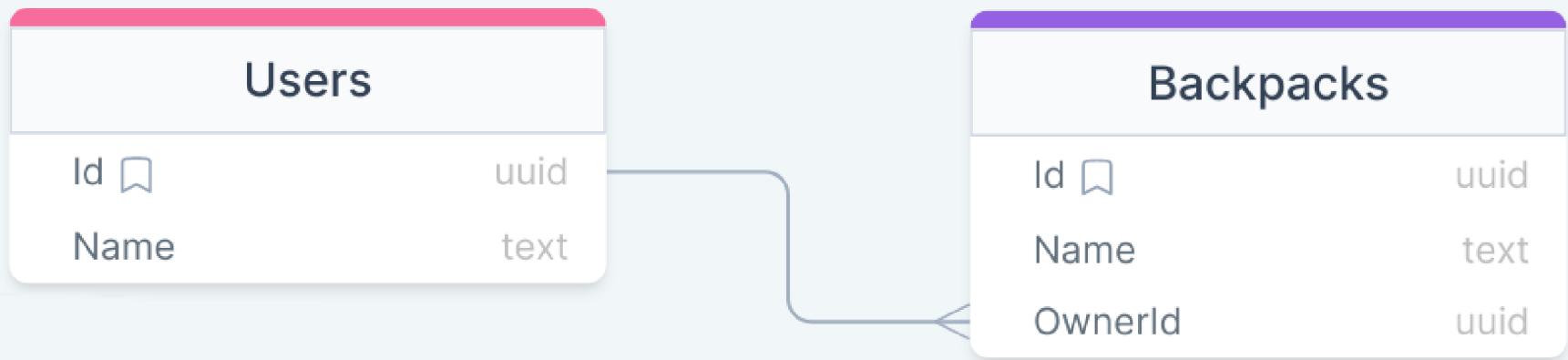
DEMO!

2

Simple scenarios

2

Simple scenarios



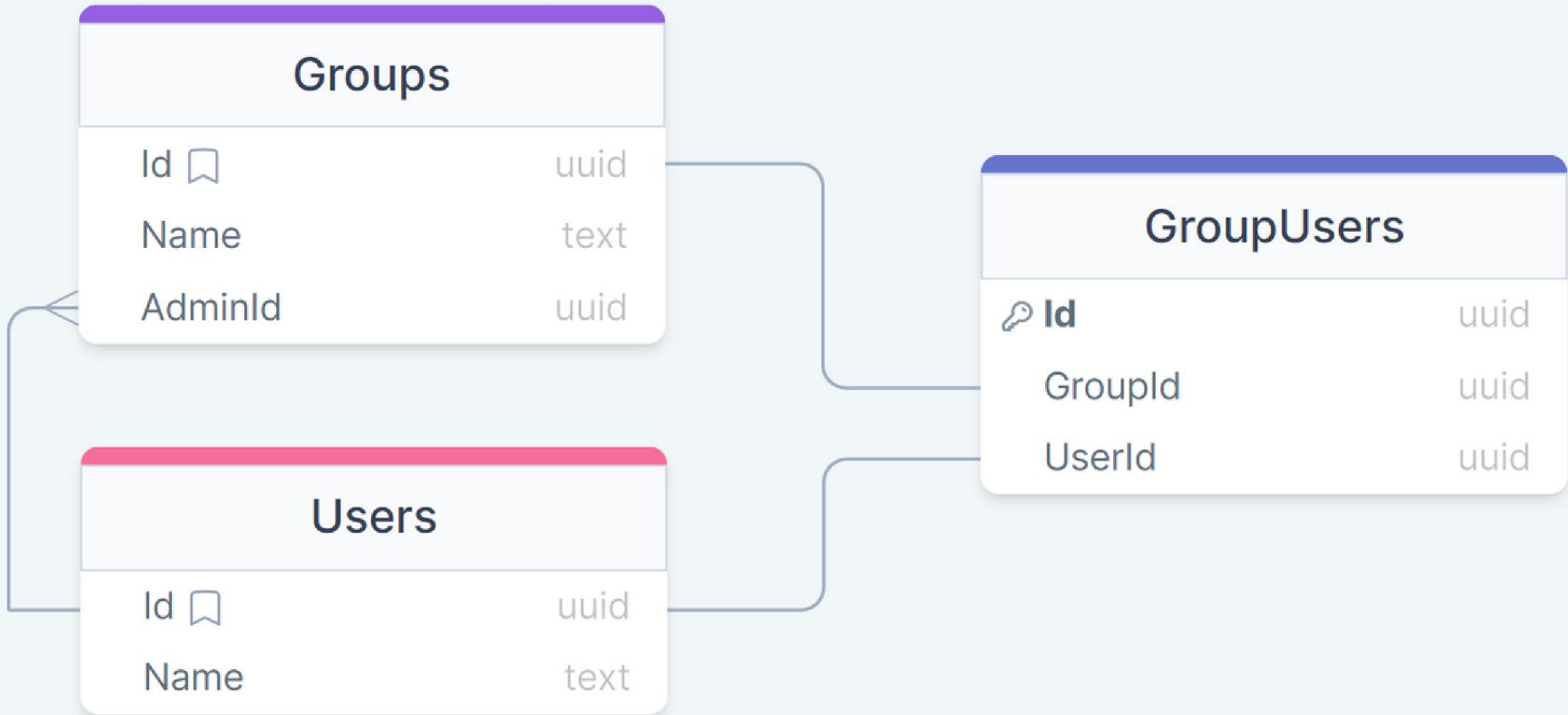
LEVEL 2

2

No more simple scenarios for you!

2

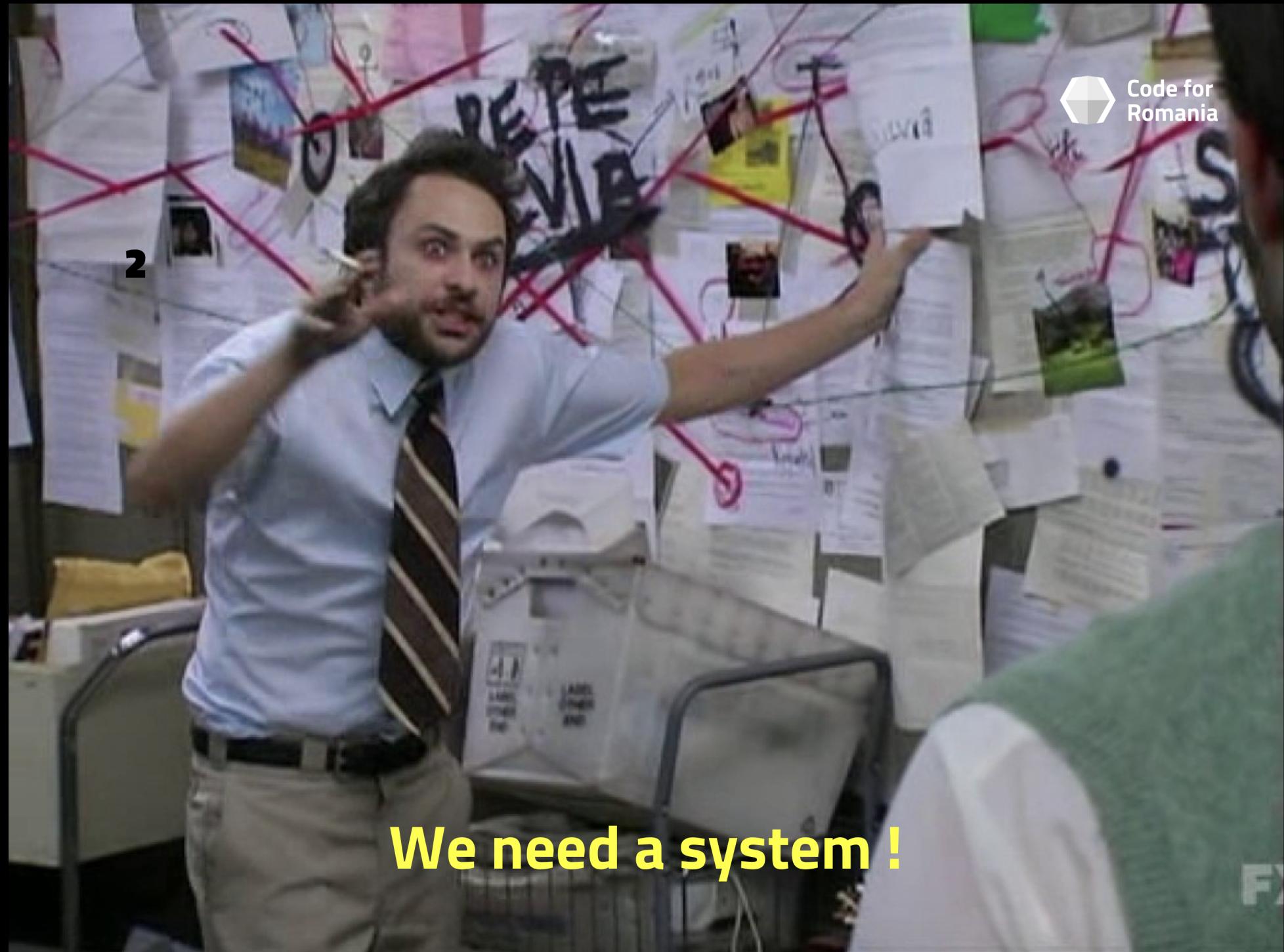
No more simple scenarios for you!



We need a system !



Code for
Romania



We need a system !

SCENARIOS

Access matrix

User type

SCENARIOS

Access matrix

User type

Group owner

SCENARIOS

Access matrix

User type
Group owner
Group member

SCENARIOS

Access matrix

User type
Group owner
Group member
Authenticated user
non group member

SCENARIOS

Access matrix

User type
Group owner
Group member
Authenticated user non group member
Non-Authenticated user

SCENARIOS

Access matrix

User type	ADD MEMBER
Group owner	
Group member	
Authenticated user non group member	
Non-Authenticated user	

SCENARIOS

Access matrix

User type	ADD MEMBER
Group owner	✓
Group member	
Authenticated user non group member	
Non-Authenticated user	

SCENARIOS

Access matrix

User type	ADD MEMBER
Group owner	✓
Group member	✓
Authenticated user non group member	
Non-Authenticated user	

SCENARIOS

Access matrix

User type	ADD MEMBER
Group owner	✓
Group member	✓
Authenticated user non group member	✗
Non-Authenticated user	

SCENARIOS

Access matrix

User type	ADD MEMBER
Group owner	✓
Group member	✓
Authenticated user non group member	✗
Non-Authenticated user	✗

SCENARIOS

Access matrix

User type	ADD MEMBER	REMOVE MEMBER
Group owner	✓	
Group member	✓	
Authenticated user non group member	✗	
Non-Authenticated user	✗	

SCENARIOS

Access matrix

User type	ADD MEMBER	REMOVE MEMBER
Group owner	✓	✓
Group member	✓	
Authenticated user non group member	✗	
Non-Authenticated user	✗	

SCENARIOS

Access matrix

User type	ADD MEMBER	REMOVE MEMBER
Group owner	✓	✓
Group member	✓	✗
Authenticated user non group member	✗	
Non-Authenticated user	✗	

SCENARIOS

Access matrix

User type	ADD MEMBER	REMOVE MEMBER
Group owner	✓	✓
Group member	✓	✗
Authenticated user non group member	✗	✗
Non-Authenticated user	✗	

SCENARIOS

Access matrix

User type	ADD MEMBER	REMOVE MEMBER
Group owner	✓	✓
Group member	✓	✗
Authenticated user non group member	✗	✗
Non-Authenticated user	✗	✗

SCENARIOS

Access matrix

User type	ADD MEMBER	REMOVE MEMBER	REMOVE THEMSELF
Group owner	✓	✓	
Group member	✓	✗	
Authenticated user non group member	✗	✗	
Non-Authenticated user	✗	✗	

SCENARIOS

Access matrix

User type	ADD MEMBER	REMOVE MEMBER	REMOVE THEMSELF
Group owner	✓	✓	✗
Group member	✓	✗	
Authenticated user non group member	✗	✗	
Non-Authenticated user	✗	✗	

SCENARIOS

Access matrix

User type	ADD MEMBER	REMOVE MEMBER	REMOVE THEMSELF
Group owner	✓	✓	✗
Group member	✓	✗	✓
Authenticated user non group member	✗	✗	
Non-Authenticated user	✗	✗	

SCENARIOS

Access matrix

User type	ADD MEMBER	REMOVE MEMBER	REMOVE THEMSELF
Group owner	✓	✓	✗
Group member	✓	✗	✓
Authenticated user non group member	✗	✗	✗
Non-Authenticated user	✗	✗	

SCENARIOS

Access matrix

User type	ADD MEMBER	REMOVE MEMBER	REMOVE THEMSELF
Group owner	✓	✓	✗
Group member	✓	✗	✓
Authenticated user non group member	✗	✗	✗
Non-Authenticated user	✗	✗	✗

Exemplu scenariu



Exemplu scenariu



Scenario: Remove member can be done only by group admin

Given an authenticated user

And authenticated user creates a group

And another authenticated user

And second autheticated user is a member group

When admin removes second user from group

Then the returned group members list does not contain second user

Exemplu scenariu



Scenario: Remove member can be done only by group admin

Given an authenticated user

And authenticated user creates a group

And another authenticated user

And second autheticated user is a member group

When admin removes second user from group

Then the returned group members list does not contain second user

Meet the actors!



Code for
Romania



Alex



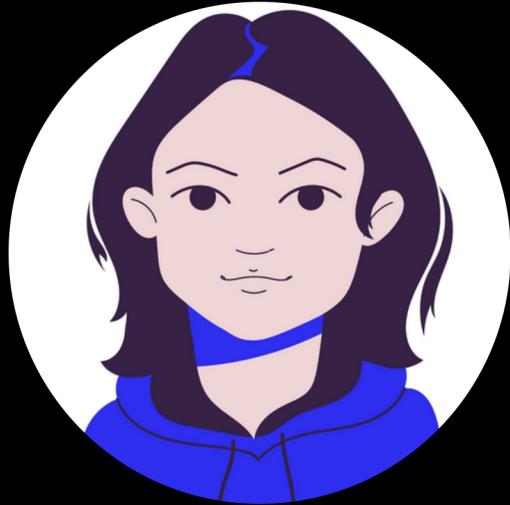
Alex

- Utilizator autentificat



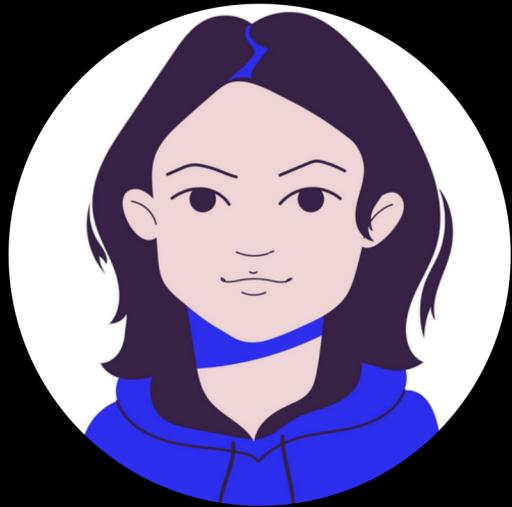
Alex

- Utilizator autentificat
- Utilizator autorizat sa execute majoritatea actiunilor



Alex

- Utilizator autentificat
- Utilizator autorizat sa execute majoritatea actiunilor
- Creaza, modifica, sterge grupuri



Alex

- Utilizator autentificat
- Utilizator autorizat sa execute majoritatea actiunilor
- Creaza, modifica, sterge grupuri
- Creaza, modifica, sterge ruxacuri



Alex

- Utilizator autentificat
- Utilizator autorizat sa execute majoritatea actiunilor
- Creaza, modifica, sterge grupuri
- Creaza, modifica, sterge ruxacuri
- Adauga sau sterge membri in grupurile ei



Code for
Romania



Cristi

Proudly volunteering at
Code for Romania



Cristi

- Utilizator autentificat



Cristi

- Utilizator autentificat
- Membru al grupurilor create de Alex



Cristi

- Utilizator autentificat
- Membru al grupurilor create de Alex
- Încearcă să modifice/stearga grupuri create de Alex



Cristi

- Utilizator autentificat
- Membru al grupurilor create de Alex
- Încearcă să modifice/stearga grupuri create de Alex
- Încearcă să modifice/stearga ruxacuri create de Alex



Code for
Romania



Irina



Irina

- Utilizator autentificat



Irina

- Utilizator autentificat
- Nu face parte din grupurile create de Alex



Irina

- Utilizator autentificat
- Nu face parte din grupurile create de Alex
- Încearcă să adauge membri în grupurile din care nu face parte



Irina

- Utilizator autentificat
- Nu face parte din grupurile create de Alex
- Încearcă să adauge membri în grupurile din care nu face parte
- Încearcă să stearga membri din grupurile din care nu face parte



Code for
Romania



Ion



Code for
Romania



Ion

- Utilizator ne-autentificat



Ion

- Utilizator ne-autentificat
- Încearcă să execute toate acțiunile din API



Ion

- Utilizator ne-autentificat
- Încearcă să execute toate acțiunile din API
- 401 all day everyday

Lets rewrite it!

Exemplu scenariu



Scenario: Remove member can be done only by group admin

Given Alex is an authenticated user

And Alex creates a group

And Cristi is an authenticated user

And Cristi is a member of Alex's group

When Alex removes Cristi from group

Then the returned group members list does not contain Cristi

DEMO!

Concluzii



- SpecFlow va poate ajuta sa livrati un produs bine testat

Concluzii



- SpecFlow va poate ajuta sa livrati un produs bine testat
- BDD poate imbunatati procesele curente

Concluzii



- SpecFlow va poate ajuta sa livrati un produs bine testat
- BDD poate imbunatati procesele curente
- Necesa implicarea tuturor membrilor

Concluzii



- SpecFlow va poate ajuta sa livrati un produs bine testat
- BDD poate imbunatati procesele curente
- Necesa implicarea tuturor membrilor
- Sper ca v-am trezit interesul in acest tool

Useful links



- <https://www.fearofoblivion.com/asp-net-core-integration-testing>
- <https://specflow.org/getting-started/>
- <https://code-maze.com/aspnet-core-integration-testing/>
- <https://learn.microsoft.com/en-us/aspnet/core/test/integration-tests?view=aspnetcore-6.0>
- <https://cucumber.io/>
- <https://github.com/idormenco/SpecFlow.Demo>
- <https://github.com/code4romania/de-urgenta-backend>

Feedback form



bit.ly/dotnetspecflow

THAT'S ALL
FOLKS!