

Introduction to the Gherkin Language: The Given-When-Then Notation



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Overview



Given-When-Then

Basic Gherkin scenarios

Scenarios and features

Feature files and directory conventions

Data tables

Backgrounds

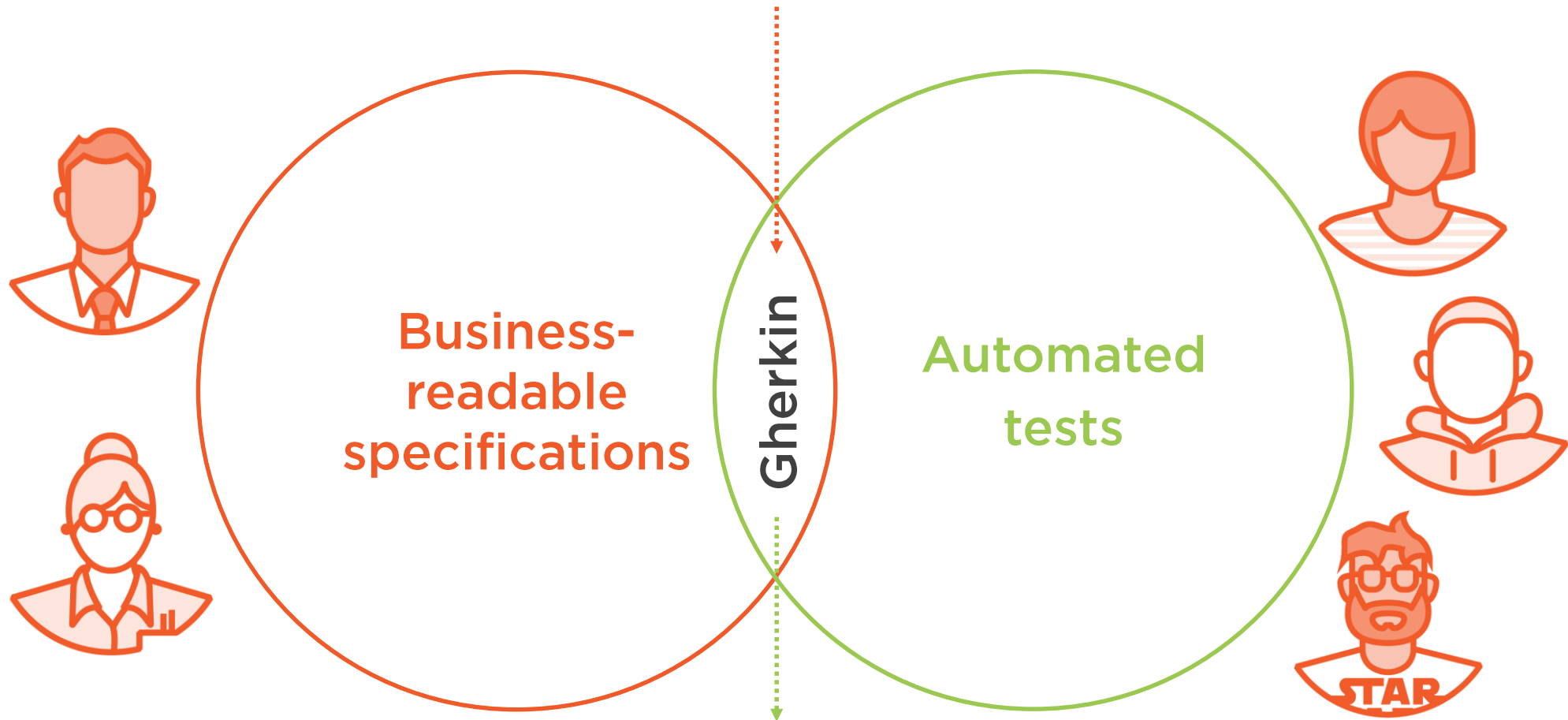
Scenario outlines



Gherkin is at the frontier
of specifications
and automation

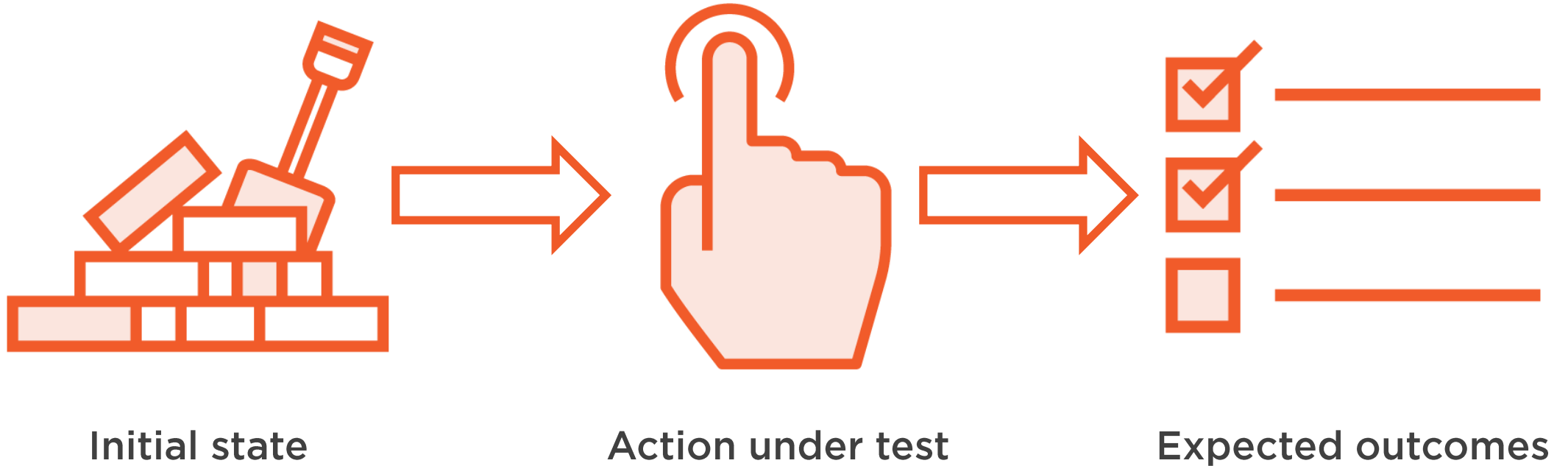


Given Michael is a Morning Freshness member
When he orders an "Apple and Kale Smoothie"
Then his order should be placed in the preparation queue



```
@Given("{string} is a Morning Freshness member")
public void a_morning_freshness_member(String memberName) {
    registerAMorningFreshnessMember.named(memberName);
}
```

Anatomy of a Gherkin Scenario



Scenario: Michael orders a smoothie

- **Given** Michael is a Morning Freshness member
- **When** he orders an "Apple and Kale Smoothie"
- **Then** his order should be placed in the preparation queue

Anatomy of a Gherkin Scenario

Given describes the preconditions

When describes the action under test

Then describes the expected outcomes



→ **Scenario:** Michael orders a smoothie
 Given Michael is a Morning Freshness member
 When he orders an "Apple and Kale Smoothie"
 Then his order should be placed in the preparation queue

The Scenario Title

Describes the business context or situation

What does the user want to do?

What business rule are you illustrating?



Scenario: Michael orders a smoothie

Given Michael is a Morning Freshness member

When he orders an "Apple and Kale Smoothie"

Then his order should be placed in the preparation queue

→ **Scenario:** Smoothies should respect health guidelines

The Scenario Title

Describes the business context or situation

What does the user want to do?

What business rule are you illustrating?



Scenario: Michael orders a smoothie

Given Michael is a Morning Freshness member

When he orders an "Apple and Kale Smoothie"

Then his order should be placed in the preparation queue

Scenario: Smoothies should respect health guidelines

→ **Scenario:** The shop runs out of apples

The Scenario Title

Describes the business context or situation

What does the user want to do?

What business rule are you illustrating?



Scenario: Michael orders a smoothie
Given Michael is a Morning Freshness member
When he orders an "Apple and Kale Smoothie"
Then his order should be placed in the preparation queue

More Complex Scenarios



Scenario: Michael is on a diet

Given Michael is a Morning Freshness member

And Michael is on a low-sugar diet plan

When he orders an "Apple and Kale Smoothie"

Then his order should be placed in the preparation queue

More Complex Scenarios

Multiple Given steps



Scenario: Michael is on a diet

Given Michael is a Morning Freshness member

And Michael is on a low-sugar diet plan

When he orders an "Apple and Mango Smoothie"

Then he should be told that his order is high in sugar

And he should be able to modify his order before confirming

More Complex Scenarios

Multiple Given steps

Multiple Then steps



Scenario: Michael is on a diet

Given Michael is a Morning Freshness member

And Michael is on a low-sugar diet plan

When he orders an "Apple and Mango Smoothie"

Then he should be told that his order is high in sugar

But he should be able to confirm his order

More Complex Scenarios

Multiple Given steps

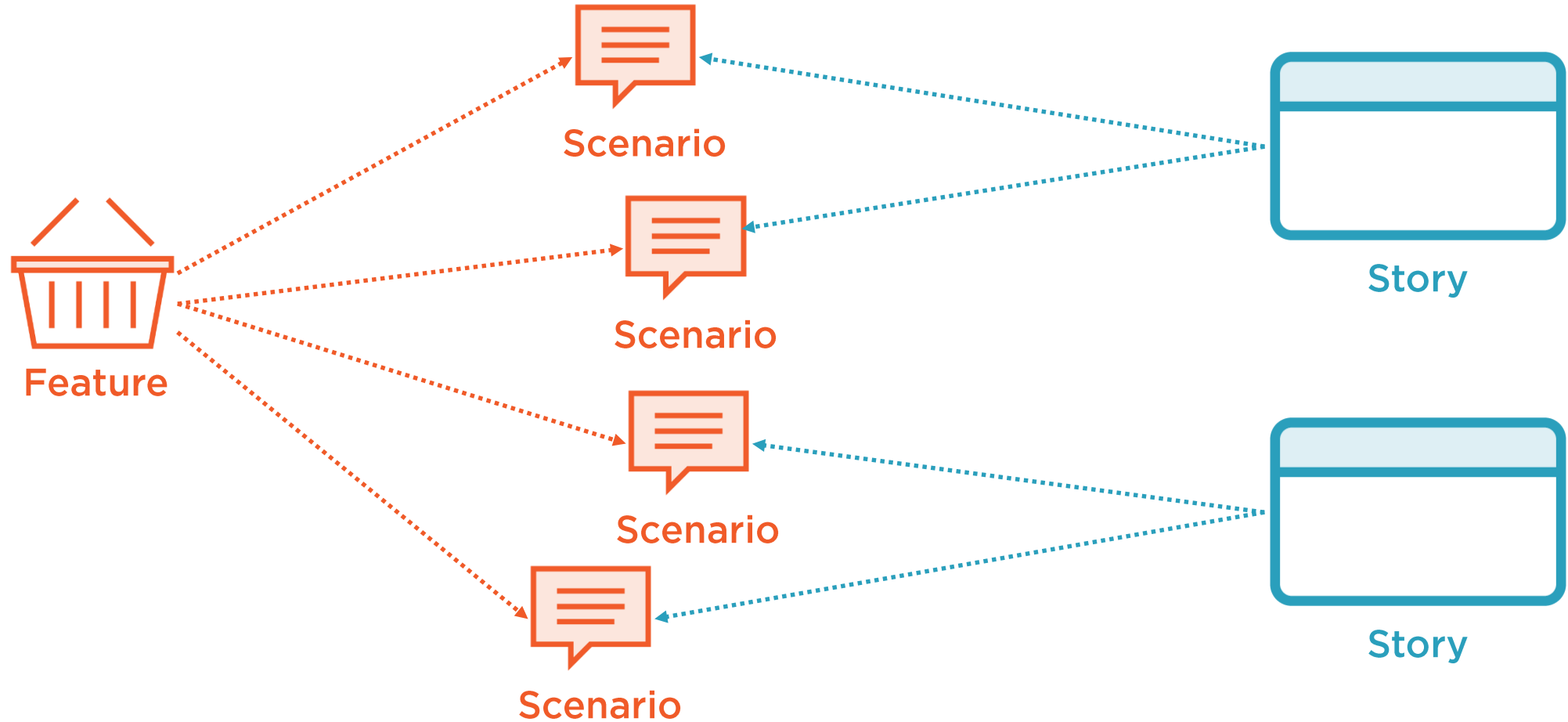
Multiple Then steps



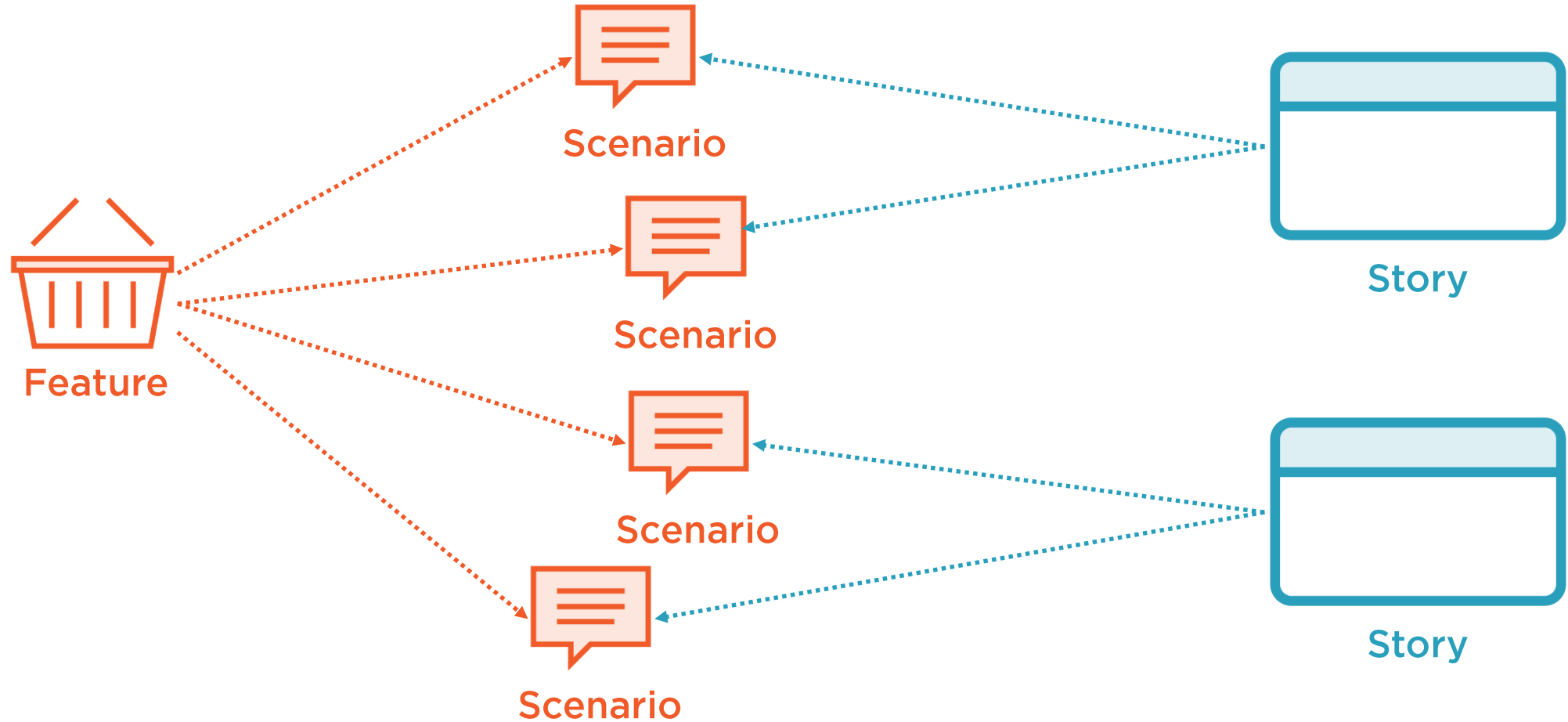
Organizing Features and Scenarios



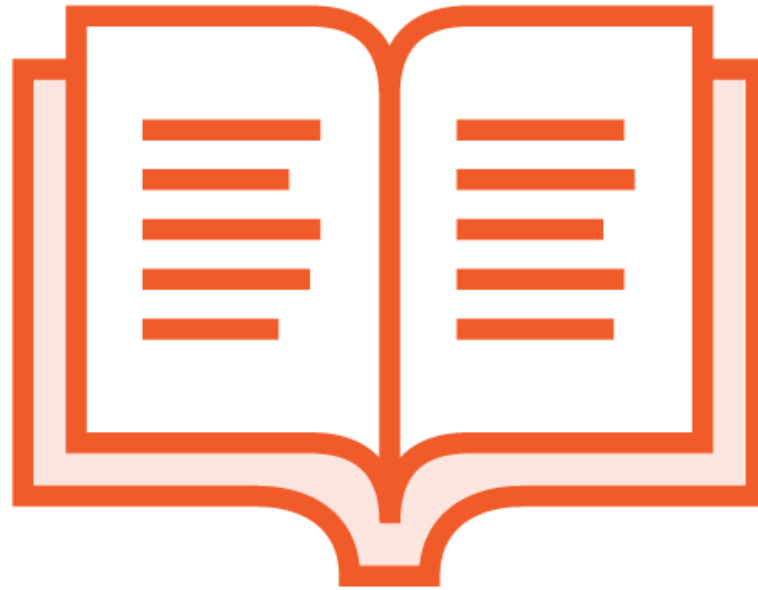
Features and Scenarios



Features and Scenarios



Features and Scenarios



Living documentation



Features and Scenarios



ordering_smoothies.feature



Features and Scenarios



delivering_orders.feature

scheduling_orders.feature



ordering_smoothies.feature



Features and Scenarios

Feature: Ordering smoothies

Feature title

Scenario: Michael orders a smoothie

Given Michael is a Morning Freshness member

When he orders an "Apple and Kale Smoothie"

Then his order should go to the preparation queue

Scenario: Michael is on a diet

Given Michael is a Morning Freshness member

And Michael is on a low-sugar diet plan

Whenhe orders an "Apple and Mango Smoothie"

Then he should be told that his order is high in sugar



Features and Scenarios

Feature: Ordering smoothies

In order to maintain a healthy lifestyle

As a busy professional

I want to be able to order fresh smoothies to my home each morning

Feature description

Scenario: Michael orders a smoothie

Given Michael is a Morning Freshness member

When he orders an "Apple and Kale Smoothie"

Then his order should go to the preparation queue

Scenario: Michael is on a diet

Given Michael is a Morning Freshness member

And Michael is on a low-sugar diet plan

When he orders an "Apple and Mango Smoothie"

Then he should be told that his order is high in sugar



Background Sections

Feature: Ordering smoothies

In order to maintain a healthy lifestyle
As a busy professional
I want to be able to order fresh smoothies to my home each morning

Scenario: Michael orders a smoothie

→ **Given** Michael is a Morning Freshness member
When he orders an "Apple and Kale Smoothie"
Then his order should go to the preparation queue

Scenario: Michael is on a diet

→ **Given** Michael is a Morning Freshness member
And Michael is on a low-sugar diet plan
When he orders an "Apple and Mango Smoothie"
Then he should be told that his order is high in sugar



Background Sections

Feature: Ordering smoothies

In order to maintain a healthy lifestyle
As a busy professional
I want to be able to order fresh smoothies to my home each morning

Background:

Given **Michael** is a Morning Freshness member

Background section

Scenario: Michael orders a smoothie

When he orders an "**Apple and Kale Smoothie**"

Then his order should go to the preparation queue

Scenario: Michael is on a diet

When **Michael** is on a low-sugar diet plan

When he orders an "**Apple and Mango Smoothie**"

Then he should be told that his order is high in sugar



Summary



What have you learned?

- Scenarios use the Given-When-Then notation
- Scenarios belong to features
- Features go in feature files
- Feature files are generally placed in the `src/test/resources/features` directory
- Background sections

Data Tables



Embedded Tables

Scenario: Michael gets daily health news updates

Given Michael is a Morning Freshness member

And he is interested in Running

And he is interested in Gym

And he is interested in Dieting

When he receives his morning health news updates

Then the articles should only include things about
Running, Gym and Dieting



Embedded Tables

Scenario: Michael gets daily health news updates

Given Michael is a Morning Freshness member

And he is interested in the following areas:

	Running	
	Gym	
	Dieting	

A table representing an input list

And he is interested in Dieting

When he receives his morning health news updates

Then the articles should only include things about:

	Running	
	Gym	
	Dieting	



Embedded Tables

Scenario: Michael orders a smoothie

Given **Michael** is a Morning Freshness member

When he orders an "**Apple and Kale Smoothie**"

Then his order should go to the preparation queue



Embedded Tables

Scenario: Michael orders many things ←
Given Michael is a Morning Freshness member
When he orders an "Apple and Kale Smoothie"
Then his order should go to the preparation queue



Embedded Tables

Scenario: Michael orders many things

Given Michael is a Morning Freshness member

When he orders an "Apple and Mango Smoothie"

And he orders a cappuccino

And he orders 2 croissants

Then his order should go to the preparation queue



Embedded Tables

Scenario: Michael orders many things

Given **Michael** is a Morning Freshness member

When he orders an "**Apple and Mango Smoothie**" and a cappuccino and 2 croissants

Then his order should go to the preparation queue



Embedded Tables

Scenario: Michael orders many things

Given Michael is a Morning Freshness member

When he places the following order:

Product	Quantity
Apple and Mango Smoothie	1
Cappuccino	1
Croissants	2

Data table

Then his order should go to the preparation queue



Embedded Tables

Scenario: Michael checks how many calories are in his order

Given Michael is a Morning Freshness member

And he has selected the following products:

Product	Quantity
Apple and Mango Smoothie	1
Cappuccino	1
Croissants	2

Classic table

When he views the calorie overview



Embedded Tables

Scenario: Michael checks how many calories are in his order

Given Michael is a Morning Freshness member

And he has selected the following products:

Product	Quantity
Apple and Mango Smoothie	1
Cappuccino	1
Croissants	2

Classic table

When he views the calorie overview

Then he should see the following calorie counts:

Apple and Mango Smoothie	180 kcal
Cappuccino	43 kcal
Croissants	450 kcal
Total	673 kcal

Map



Embedded Tables

Scenario: Michael checks how many calories are in his order

Given **Michael** is a Morning Freshness member

And he has selected the following products:

Product	Quantity
Apple and Mango Smoothie	1
Croissants	2

When he views the calorie overview

Then he should see the following calorie counts:

	Quantity	kcal	total
Apple and Mango Smoothie	1	180	180
Croissants	2	225	450
Total	3		630



Summary



What have you learned?

- Embedded tables in steps
- Embedded table formats

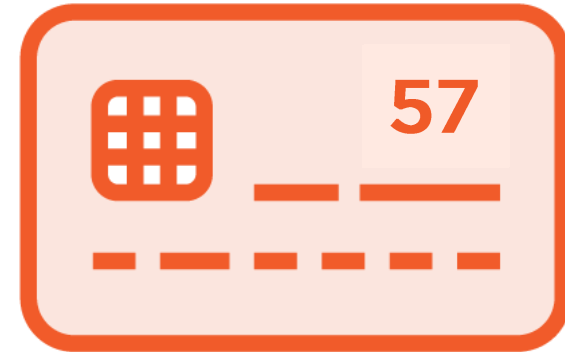


Scenario Outlines





Super Smoothie Loyalty Card Program





Super Smoothie Loyalty Card Program

Drink Category	Points Earned
Regular smoothie	15
Fancy smoothie	20
Tea	10
Coffee	12





Super Smoothie Loyalty Card Program

Drink Category	Sample Drink	Points Earned	
Regular smoothie	Banana smoothie	15	✓
Fancy smoothie	Triple-berry-blend smoothie	20	✓
Tea	Earl grey	10	✓
Coffee	Cappuccino	12	✓



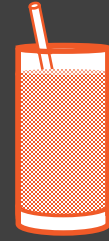
Super Smoothie Loyalty Card Program

Scenario: Regular smoothies

Given Michael is a Morning Freshness member

When Michael purchases 1 Banana smoothie

Then he should earn 15 points



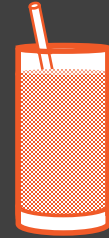
Super Smoothie Loyalty Card Program

Scenario: Regular smoothies

Given Michael is a Morning Freshness member

When Michael purchases 1 Banana smoothie

Then he should earn 15 points



Scenario: Fancy smoothies

Given Michael is a Morning Freshness member

When Michael purchases 1 Three-Berry-Blend smoothie

Then he should earn 20 points



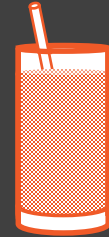
Super Smoothie Loyalty Card Program

Scenario: Regular smoothies

Given Michael is a Morning Freshness member

When Michael purchases 1 Banana smoothie

Then he should earn 15 points



Scenario: Fancy smoothies

Given Michael is a Morning Freshness member

When Michael purchases 1 Three-Berry-Blend smoothie

Then he should earn 20 points



Scenario: Tea

Given Michael is a Morning Freshness member

When Michael purchases 1 Earl Grey tea

Then he should earn 10 points



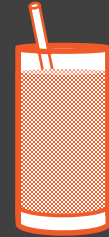
Super Smoothie Loyalty Card Program

Scenario: Regular smoothies

Given Michael is a Morning Freshness member

When Michael purchases 1 Banana smoothie

Then he should earn 15 points



Scenario: Fancy smoothies

Given Michael is a Morning Freshness member

When Michael purchases 1 Three-Berry-Blend smoothie

Then he should earn 20 points



Scenario: Tea

Given Michael is a Morning Freshness member

When Michael purchases 1 Earl Grey tea

Then he should earn 10 points



Scenario: Coffee

Given Michael is a Morning Freshness member

When Michael purchases 1 Cappuccino

Then he should earn 12 points



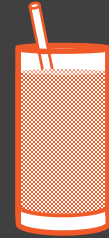
Super Smoothie Loyalty Card Program

Scenario: Regular smoothies

Given Michael is a Morning Freshness member

When Michael purchases 1 Banana smoothie

Then he should earn 15 points



Scenario: Fancy smoothies

Given Michael is a Morning Freshness member

When Michael purchases 1 Three-Berry-Blend smoothie

Then he should earn 20 points



Scenario: Tea

Given Michael is a Morning Freshness member

When Michael purchases 1 Earl Grey tea

Then he should earn 10 points



Scenario: Coffee

Given Michael is a Morning Freshness member

When Michael purchases 1 Cappuccino

Then he should earn 12 points



Super Smoothie Loyalty Card Program

Scenario Outline: Regular smoothies
Given Michael is a Morning Freshness member
When Michael purchases 1 Banana smoothie
Then he should earn 15 points

Scenario outline



Super Smoothie Loyalty Card Program

Scenario Outline: Earning loyalty card points
Given Michael is a Morning Freshness member
When Michael purchases 1 <Sample Drink>
Then he should earn <Points Earned> points

Examples:

Drink Category	Sample Drink	Points Earned
Regular smoothies	Banana smoothie	15



Super Smoothie Loyalty Card Program

Scenario Outline: Earning loyalty card points
Given Michael is a Morning Freshness member
When Michael purchases 1 <Sample Drink>
Then he should earn <Points Earned> points

Examples:

Drink Category	Sample Drink	Points Earned	
Regular smoothies	Banana smoothie	15	✓
Fancy smoothies	Three-Berry-Blend smoothie	20	✓
Tea	Earl Grey	10	✓
Coffee	Cappuccino	12	✓



Summary



What have you learned?

- Scenario outlines group similar scenarios together
- One test is executed for each row in the examples table



Demo



Working with feature files



Summary



Executable specifications and the Gherkin language

The basic Given-When-Then structure

Representing tabular data

Backgrounds

Grouping scenarios into scenario outlines

