Gherkin & BDD

Gherkin Refresher

- What
- Why
- Syntax

How it fits into BDD

Practical Example

Gherkin Refresher

WHAT IS GHERKIN?

Officially …

Gherkin is the **language** that Cucumber understands. It is a **Business Readable, Domain Specific Language**, that lets you describe software's behaviour without detailing how that **behaviour** is implemented.

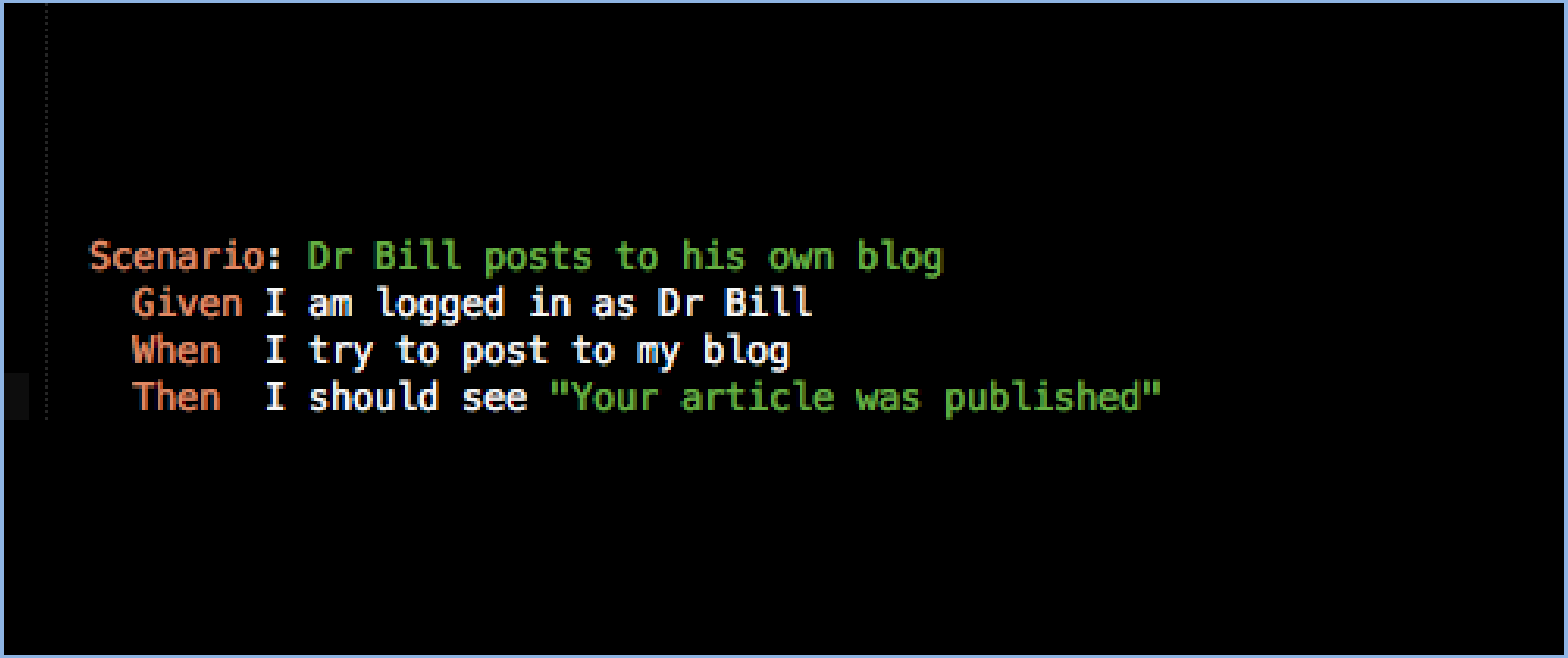
WHAT IS GHERKIN?

Unofficially it’s …

Gherkin is a **business readable language** used to express the **system’s behaviour**. The language can be understood by an **automation tool called Cucumber**

It consists of **10 key words**

WHAT IS GHERKIN?



```
Scenario: Dr Bill posts to his own blog
  Given I am logged in as Dr Bill
  When  I try to post to my blog
  Then  I should see "Your article was published"
```

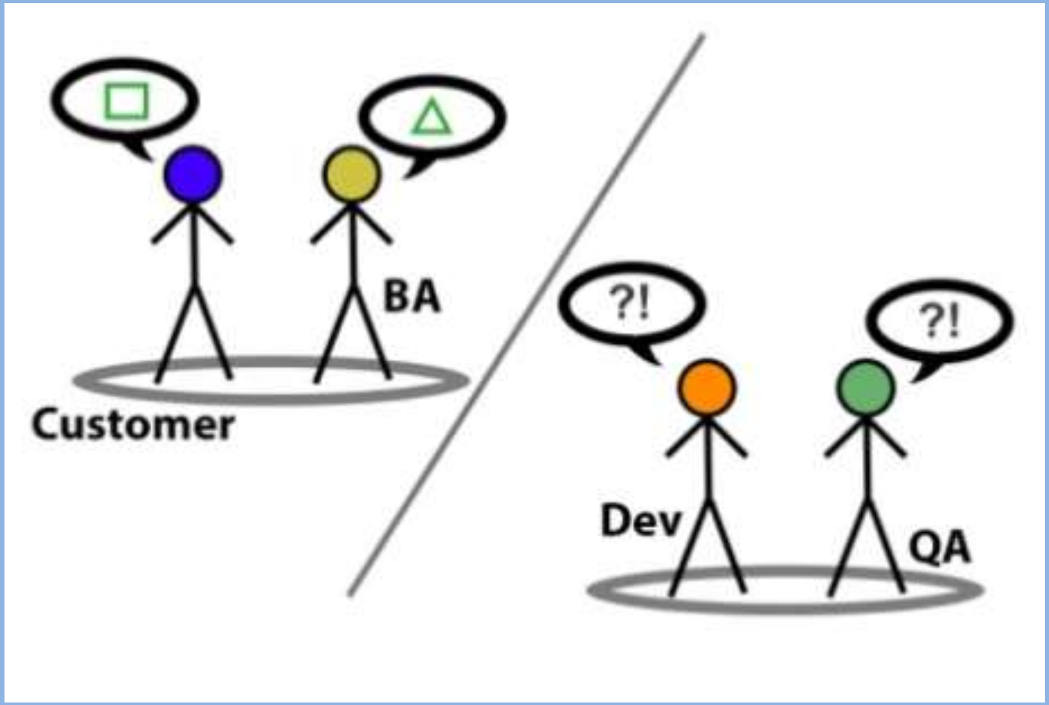
Acceptance test written in Gherkin

WHAT IS GHERKIN?

- Given
- When
- Then
- And
- But
- Scenario
- Feature
- Background
- Scenario Outline
- Examples

WHY USE GHERKIN?

1) Gherkin allows us to document acceptance tests in a language devs, QA, BAs & the business can understand. It allows the 3 Amigos to **collaborate** **and** **understand tests in a common language**.

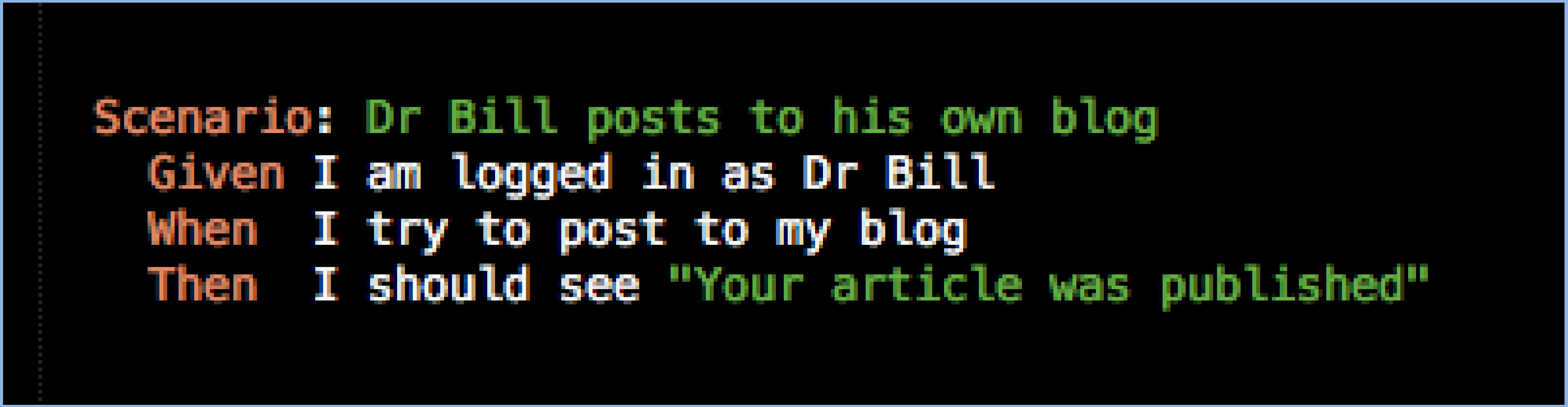


WHY USE GHERKIN?

2) Gherkin links our **acceptance tests** (GIVEN/WHEN/THEN) **directly to automated tests**. This means if we change an acceptance test – the developers underlying tests should fail. We can be **confident the system matches the specification**.

As part of BDD we want to write many automated tests to improve our confidence in the product. We want these tests to be understandable + valuable.

BASIC SYNTAX

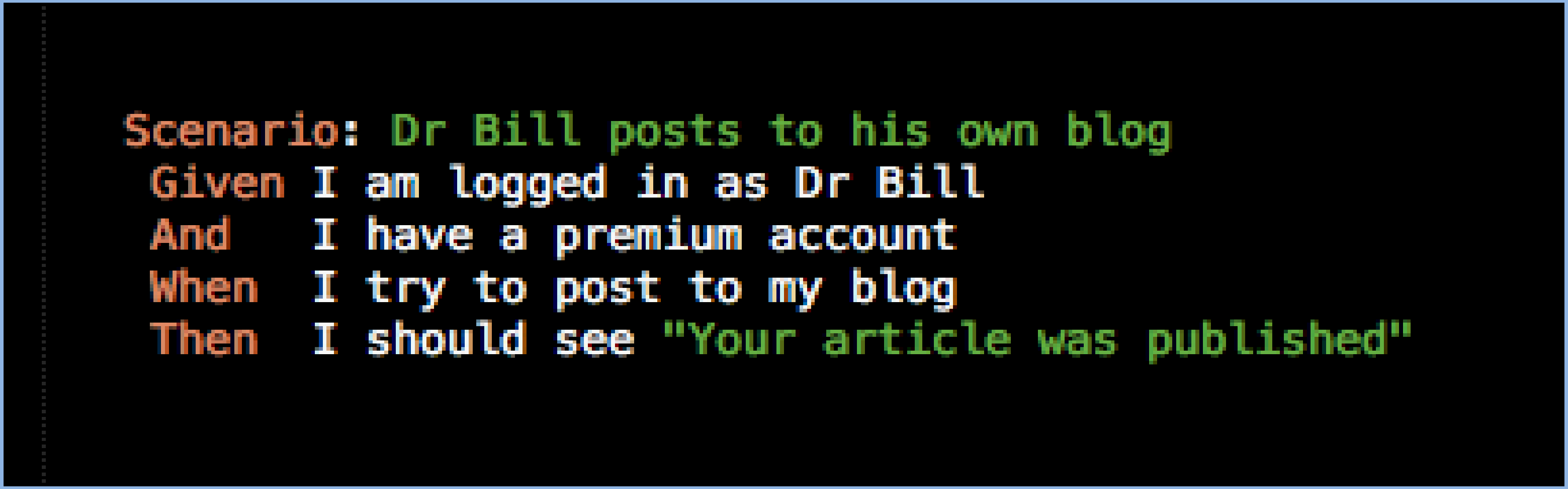


```
Scenario: Dr Bill posts to his own blog
  Given I am logged in as Dr Bill
  When  I try to post to my blog
  Then  I should see "Your article was published"
```

Given = system in known state
When = key action
Then = observable outcome

Scenario = Title of the acceptance test (e.g. “the one where”)

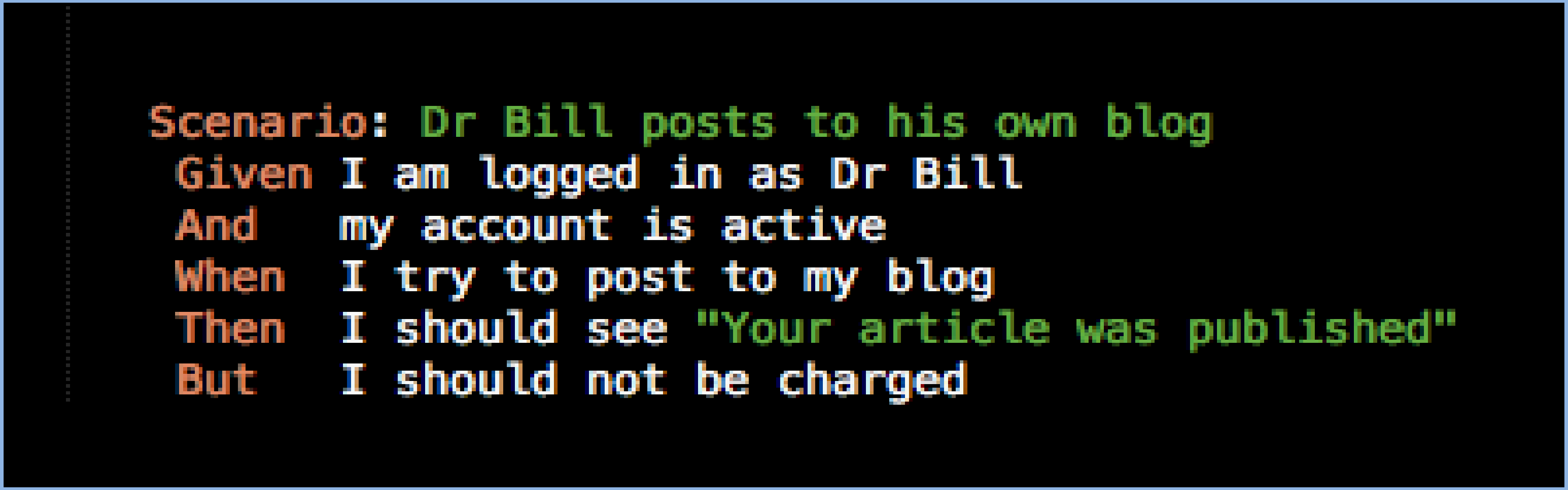
BASIC SYNTAX



```
Scenario: Dr Bill posts to his own blog
 Given I am logged in as Dr Bill
 And   I have a premium account
 When  I try to post to my blog
 Then  I should see "Your article was published"
```

And = used instead of multiple Givens / for complicated scenarios

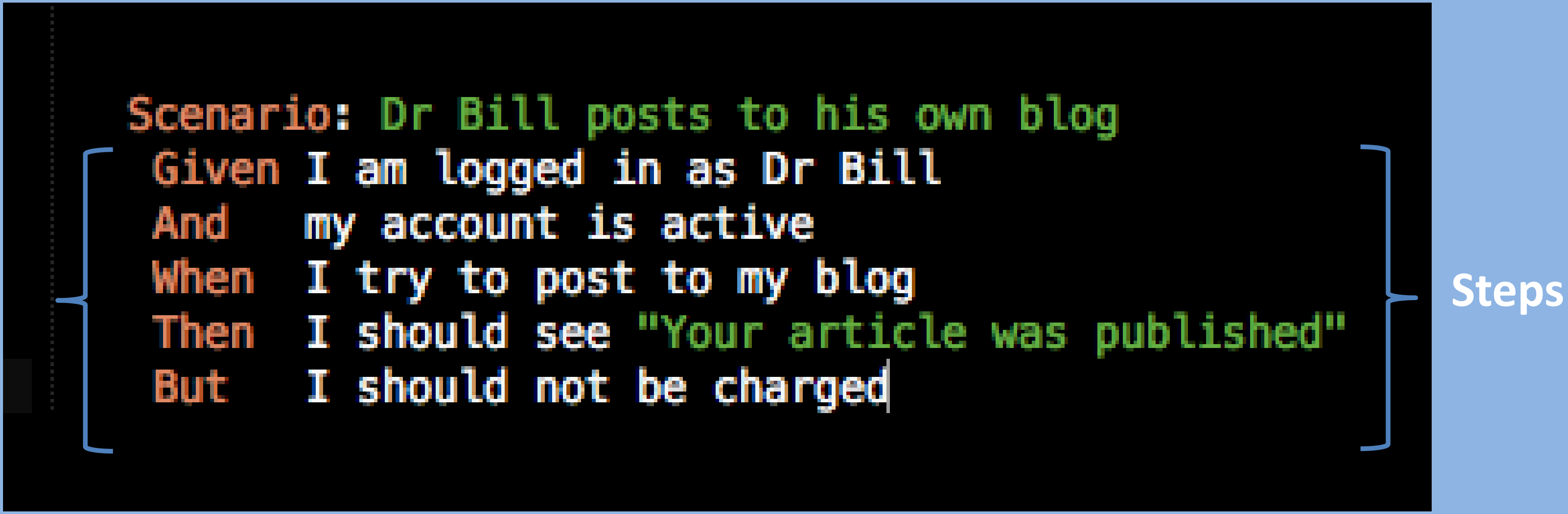
BASIC SYNTAX



```
Scenario: Dr Bill posts to his own blog
 Given I am logged in as Dr Bill
 And   my account is active
 When  I try to post to my blog
 Then  I should see "Your article was published"
 But   I should not be charged
```

But = used in association with Then

BASIC SYNTAX



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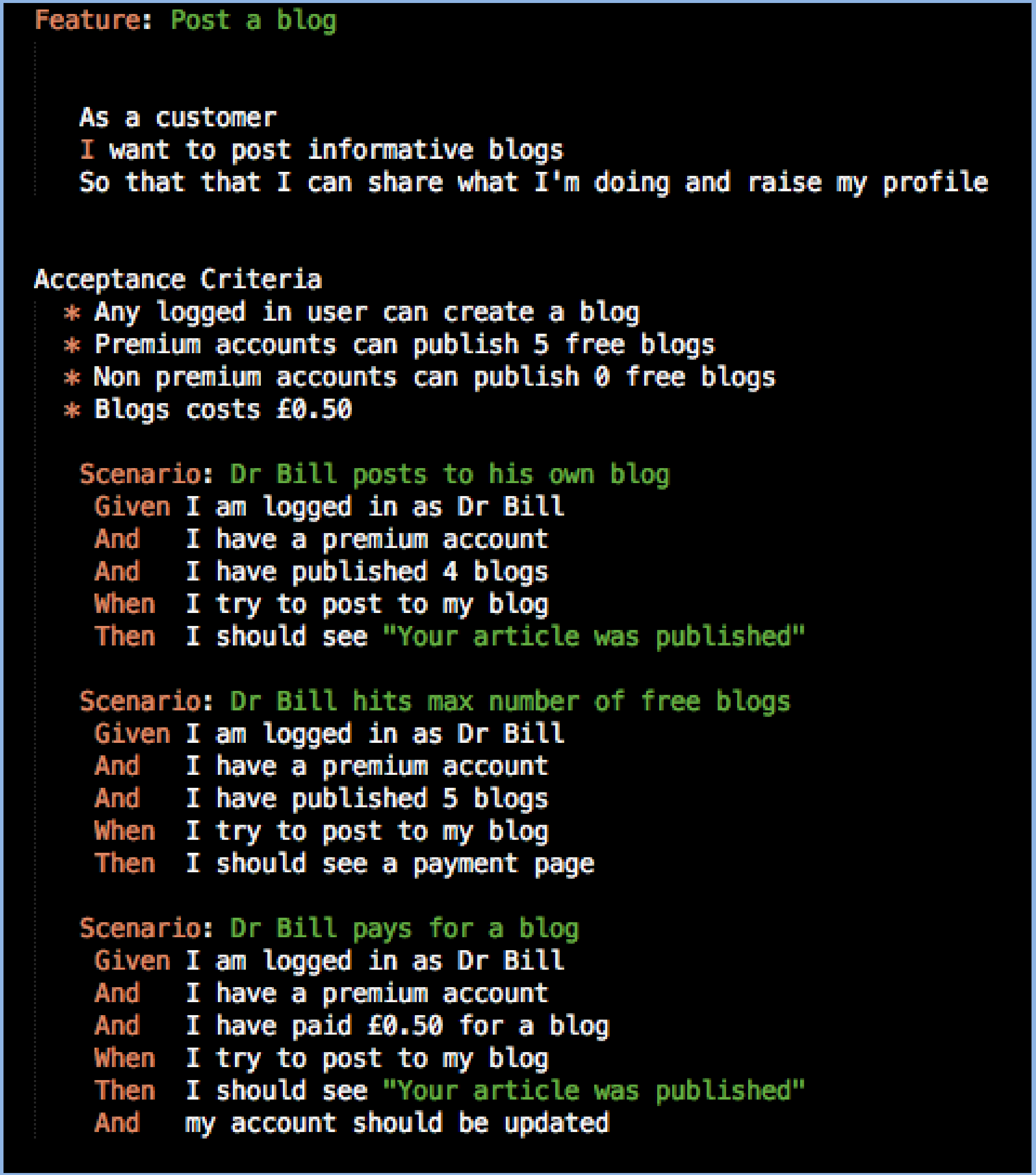
ADVANCED SYNTAX

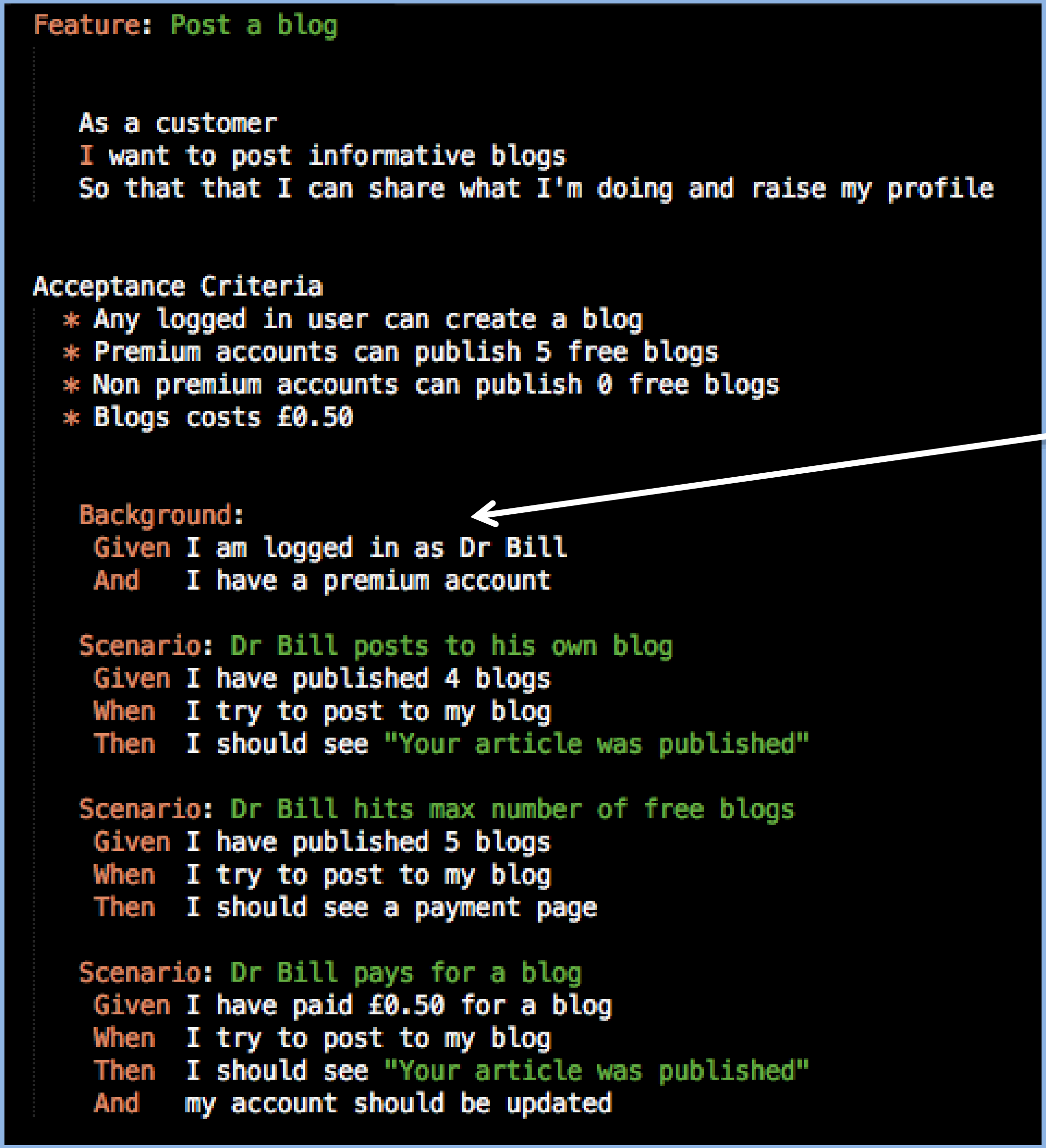


```
Feature: Post a blog


   As a customer
   I want to post informative blogs
   So that that I can share what I'm doing and raise my profile


Acceptance Criteria
  * Any logged in user can create a blog
  * Premium accounts can publish 5 free blogs
  * Non premium accounts can publish 0 free blogs
  * Blogs costs £0.50

   Scenario: Dr Bill posts to his own blog
    Given I am logged in as Dr Bill
    And   I have a premium account
    And   I have published 4 blogs
    When  I try to post to my blog
    Then  I should see "Your article was published"

   Scenario: Dr Bill hits max number of free blogs
    Given I am logged in as Dr Bill
    And   I have a premium account
    And   I have published 5 blogs
    When  I try to post to my blog
    Then  I should see a payment page

   Scenario: Dr Bill pays for a blog
    Given I am logged in as Dr Bill
    And   I have a premium account
    And   I have paid £0.50 for a blog
    When  I try to post to my blog
    Then  I should see "Your article was published"
    And   my account should be updated
```

Feature = title for the feature

Feature file = a file that contains AC’s and Scenarios usually stored in GitHub

ADVANCED SYNTAX



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   I want to post informative blogs
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Acceptance Criteria
  * Any logged in user can create a blog
  * Premium accounts can publish 5 free blogs
  * Non premium accounts can publish 0 free blogs
  * Blogs costs £0.50


   Background:
    Given I am logged in as Dr Bill
    And   I have a premium account

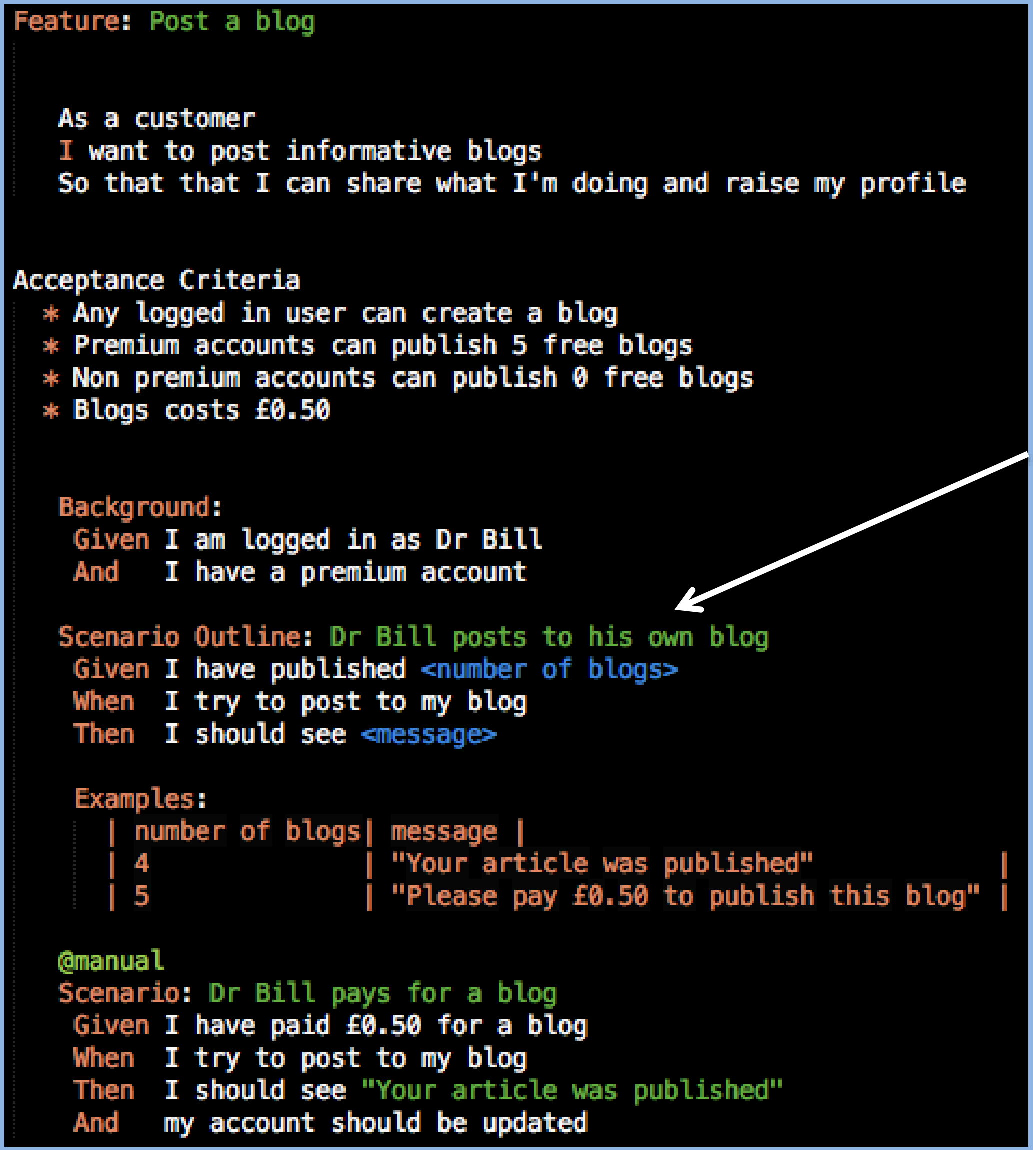
   Scenario: Dr Bill posts to his own blog
    Given I have published 4 blogs
    When  I try to post to my blog
    Then  I should see "Your article was published"

   Scenario: Dr Bill hits max number of free blogs
    Given I have published 5 blogs
    When  I try to post to my blog
    Then  I should see a payment page

   Scenario: Dr Bill pays for a blog
    Given I have paid £0.50 for a blog
    When  I try to post to my blog
    Then  I should see "Your article was published"
    And   my account should be updated
```

Background = set the context for all scenarios

ADVANCED SYNTAX



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Acceptance Criteria
  * Any logged in user can create a blog
  * Premium accounts can publish 5 free blogs
  * Non premium accounts can publish 0 free blogs
  * Blogs costs £0.50


   Background:
    Given I am logged in as Dr Bill
    And   I have a premium account

   Scenario Outline: Dr Bill posts to his own blog
    Given I have published <number of blogs>
    When  I try to post to my blog
    Then  I should see <message>

    Examples:
      | number of blogs| message |
      | 4              | "Your article was published"              |
      | 5              | "Please pay £0.50 to publish this blog" |

   @manual
   Scenario: Dr Bill pays for a blog
    Given I have paid £0.50 for a blog
    When  I try to post to my blog
    Then  I should see "Your article was published"
    And   my account should be updated
```

Scenario Outline / Examples = used to combine a set of similar scenarios

Use tags to identify test suites/group scenarios

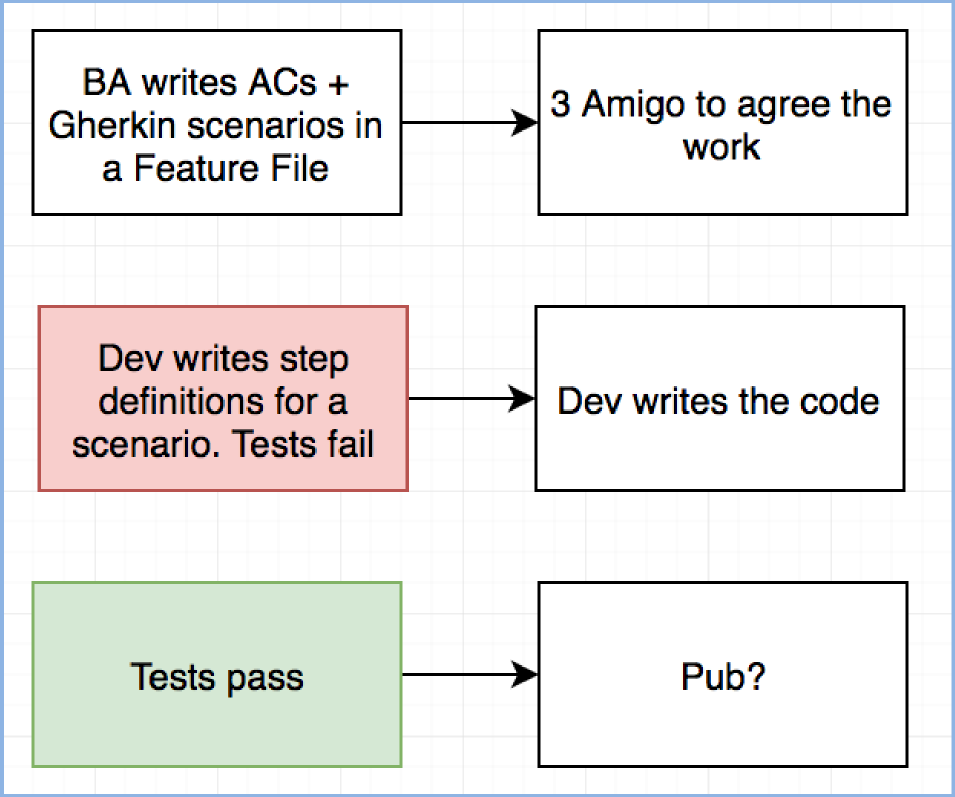
BDD IN A NUTSHELL

BASIC PRINCIPLES

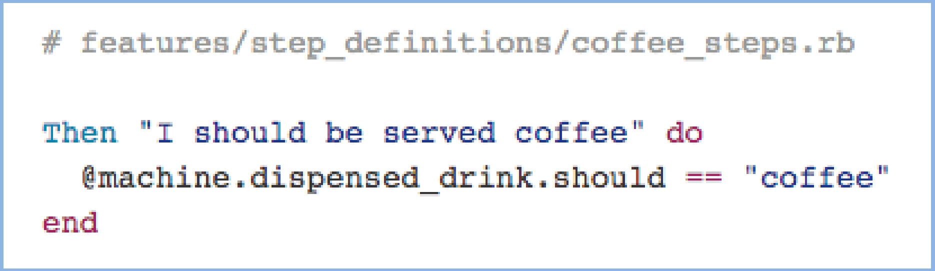
1) Developer writes the test before the code

2) It’s behavioural/high level tests (e.g. not unit tests)

BDD PROCESS


BA writes ACs + Gherkin scenarios in a Feature File
3 Amigo to agree the work
Dev writes step definitions for a scenario. Tests fail
Dev writes the code
Tests pass
Pub?

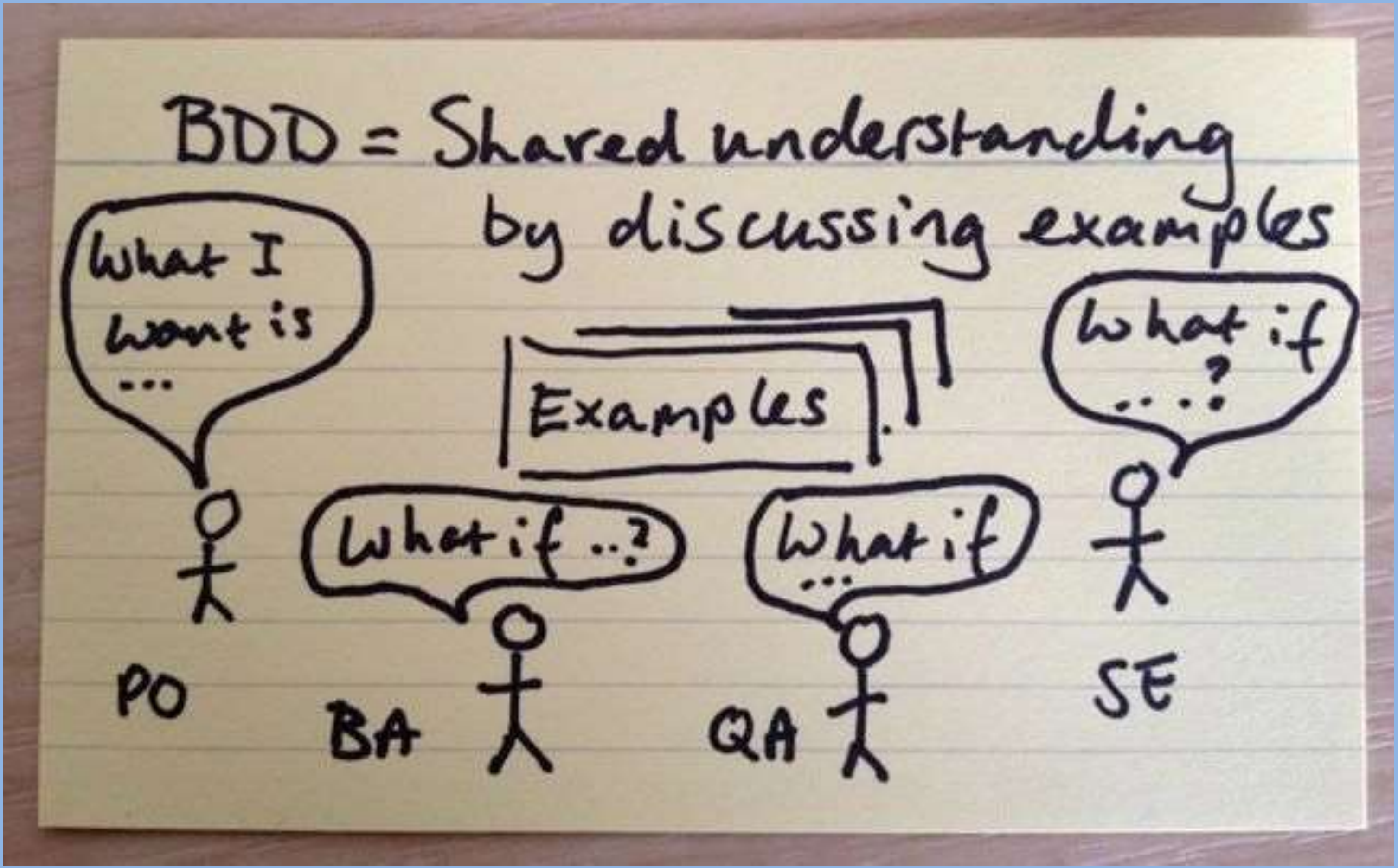
Step definition = written by the devs for each step



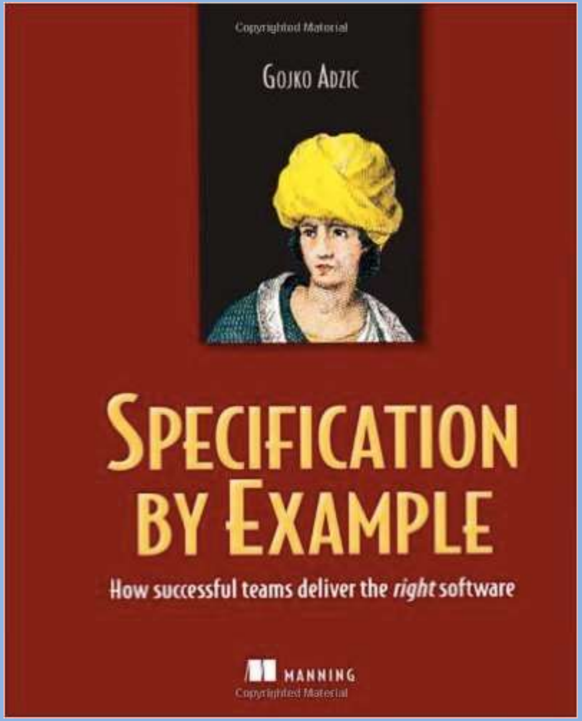
```
# features/step_definitions/coffee_steps.rb

Then "I should be served coffee" do
  @machine.dispensed_drink.should == "coffee"
end
```

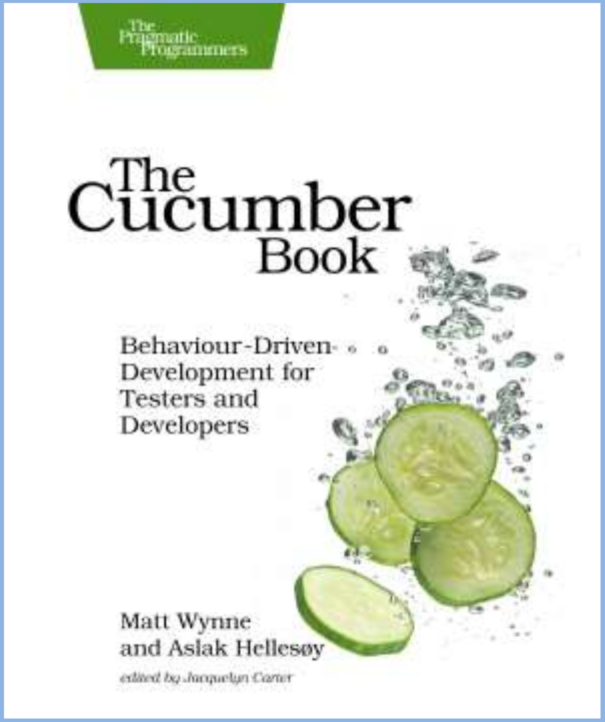
WHY USE BDD?

1. Ensures **automated code coverage**
2. **Valuable** tests



FURTHER READING




The Pragmatic Programmers
The Cucumber Book
Behaviour-Driven Development for Testers and Developers
Matt Wynne and Aslak Hellesøy
edited by Jacquelyn Carter

Cucumber Notes

Cucumber is designed to build bridges between the technical and non-technical members of a software team by the use of automated acceptance testing. They are sometimes called ***executable specifications***. It's vitally important that feature tests can be easily read and understood by any member of the team.

Developers and stakeholders (POs / BAs / etc) work together with QAs and developers to create automated tests that reflect the outcomes the stakeholders want.

During this process the team will develop a *ubiquitous language* to describe things and actions referenced in the service such as "customers", "service agents", "payments out" or "account balance".

Feature tests are different to *unit tests* which are written by developers to ensure that each component they build functions as expected from a basic functionality point of view. Feature tests can do this from a business point of view but they can also span multiple components.

Tests are written *first* before any code so will they fail when originally written as there is no code to test at that point! This is called *Test Driven Development* or *Outside-In Development*.

Tests are written as *scenarios* which are examples of how we want to use the system (n.b. this includes showing us appropriate errors if we or the system do something wrong).

Cucumber can produce an HTML file describing all the tests that can be executed for a system. This can be used to automatically created *living documentation* of how the system will function.

Cucumber tests are written in a language called *Gherkin*. They consist of:

- *Features*: Groups of tests
- *Tags*: Another way to group tests
- *Scenarios*: Individual tests
- *Steps*: The component parts of each test

Comments in Gherkin must take up a whole line of text and must start with a # (hash).

Developers will create *step definition code* that will map from the humanly readable steps to the code that can interface with the system.

Cucumber can be run by the developers on the command line before they submit their code to git and also as part of a continuous integration test service such as *Jenkins*. The output from Jenkins can be an HTML page that can be read by anyone in the team.

FURTHER READING

https://github.com/SkillsFundingAgency/das-paymentsacceptancetesting/tree/master/features

https://watirmelon.blog/2015/11/20/the-10-dos-and-500-donts-of-automated-acceptance-testing/

https://johnfergusonsmart.com/feature-mapping-a-simpler-path-from-stories-to-executable-acceptance-criteria/

KEYWORDS QUIZ – PART 1

1. Gherkin	A) These put the system in a state, specify the action & the outcome. GIVEN/WHEN/THEN/AND/BUT
2. Steps	B) A tool used for testing software
3. Cucumber	C) A language used to write acceptance tests. It consists of **<u>10 key words</u>**
4. Scenarios	D) Bullet pointed list of rules. These can be tested using scenarios
5. Acceptance criteria	E) Consist of steps + the scenario title. These are your **<u>acceptance tests</u>**

KEYWORDS QUIZ – PART 2

6. Feature file	F) Written by the developer. Every step has one of these
7. BDD	G) A repository used to store code + feature files. Think of it like a shared drive
8. Step definition	H) Allow us to write acceptance tests in a common language & for these tests to be automated with Cucumber
9. Github	I) A document/file that contains the user story, acceptance criteria & scenarios. It's saved as *.feature*
10. Reasons to use Gherkin	J) Behaviour driven development. Write the expected behaviour & tests first – test fails – then write the code

Given you follow me to the dark side
When you have to maintain scenarios
Then humm……

STARTER FOR 10

1) How many people **know what Gherkin is**?

2) How many people **use Gherkin on their project**?

3) How comfortable are people with terms like **Gherkin/Cucumber/BDD/Scenario Outline/Step Definitions/Github/Feature Files?**