ATDD & BDD

Develop The Right Things

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ATDD

Acceptance Test
Driven
Development

Development technique where Acceptance Tests are the foundation of development

Involves team members with different perspectives

Closly related to Test Driven Development

TDD:
“Are we building the thing right?”

ATDD:
“Are we building the right thing?”

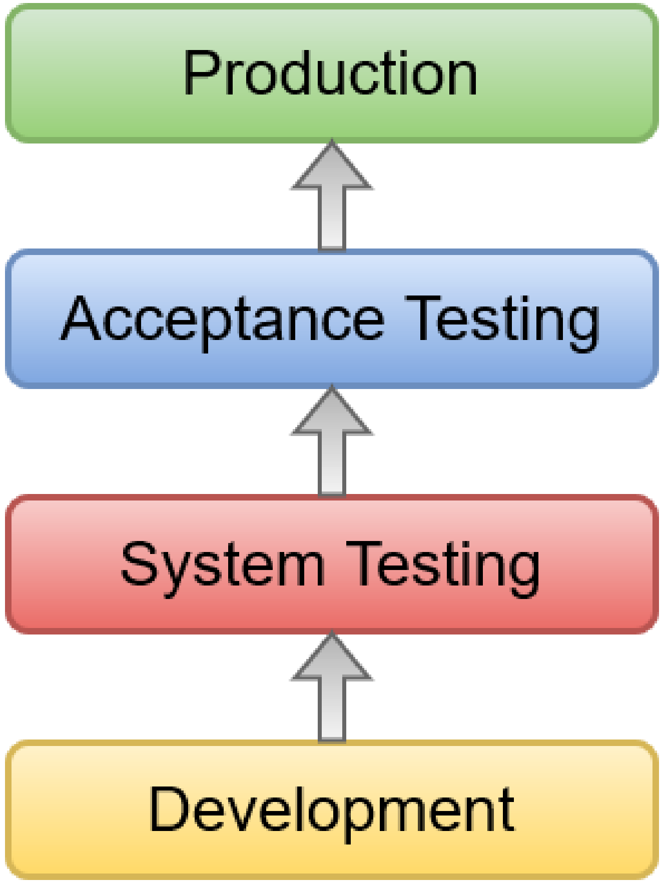
Acceptance Criteria

A set of predifined reqirements that must be met

“Definition of Done”

Traits of effective acceptance criteria:

- ✓ Clear and concise
- ✓ Testable
- ✓ Everyone must understand
- ✓ Provide user perspective



Types of Acceptance Tests:

Tests can be internal or external

- ✓ Alpha Testing:

  Development testing environment

- ✓ Beta Testing

  Performed by people who are not part of the development team

✓ User Acceptance Testing (UAT)

User acceptability - only functional

✓ Business Acceptance Testing (BAT)

Business goals and purposes

✓ Contract Acceptance Testing

Service Level Agreement (SLA) - payment will be made only if the Product services are in-line with all the requirements

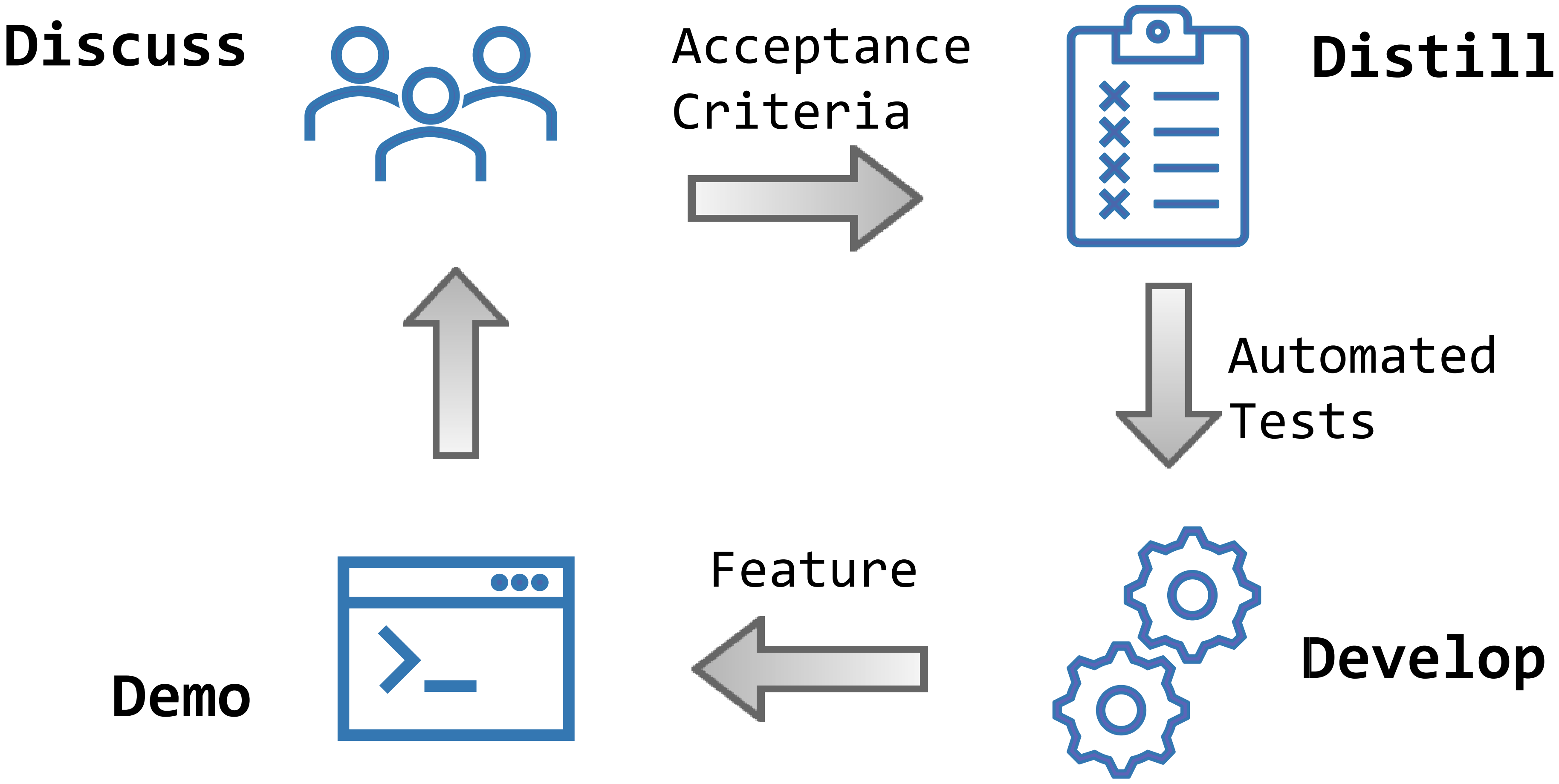
✓ Regulations Acceptance Testing (RAT)

Rules and regulations defined by the government of a country

✓ Operational Acceptance Testing (OAT)

Stability, recovery, compatibility, maintainability, technical support availability, reliability, fail-over, localization

How is ATDD done?



3 Amigos

Development

How might we build a solution to solve that problem?

Testing

What about this, what could possibly happen

Business

What problem are we trying to solve?

XUnit Test

FIT
Framework for Integrated Testing
(Table = Test)

```
Class TestCase {
   testDiscountPercentageForCustomer() {
     SomeClass o = new SomeClass();
     assertEquals(0, o.computeDiscount(10.0, Good));
     assertEquals(0, o.computeDiscount(10.01, Good));
     assertEquals(0, o.computeDiscount(50.01, Good));
     assertEquals(0, o.computeDiscount(.01, Excellent));
     assertEquals(0, o.computeDiscount(50.0, Excellent));
     assertEquals(0, o.computeDiscount(50.01, Excellent));
     ...
```

Order total	Customer rating	Discount Percentage
10.00	Good	0
10.01	Good	1
50.01	Good	1
.01	Excellent	1
50.00	Excellent	1
50.01	Excellent	5

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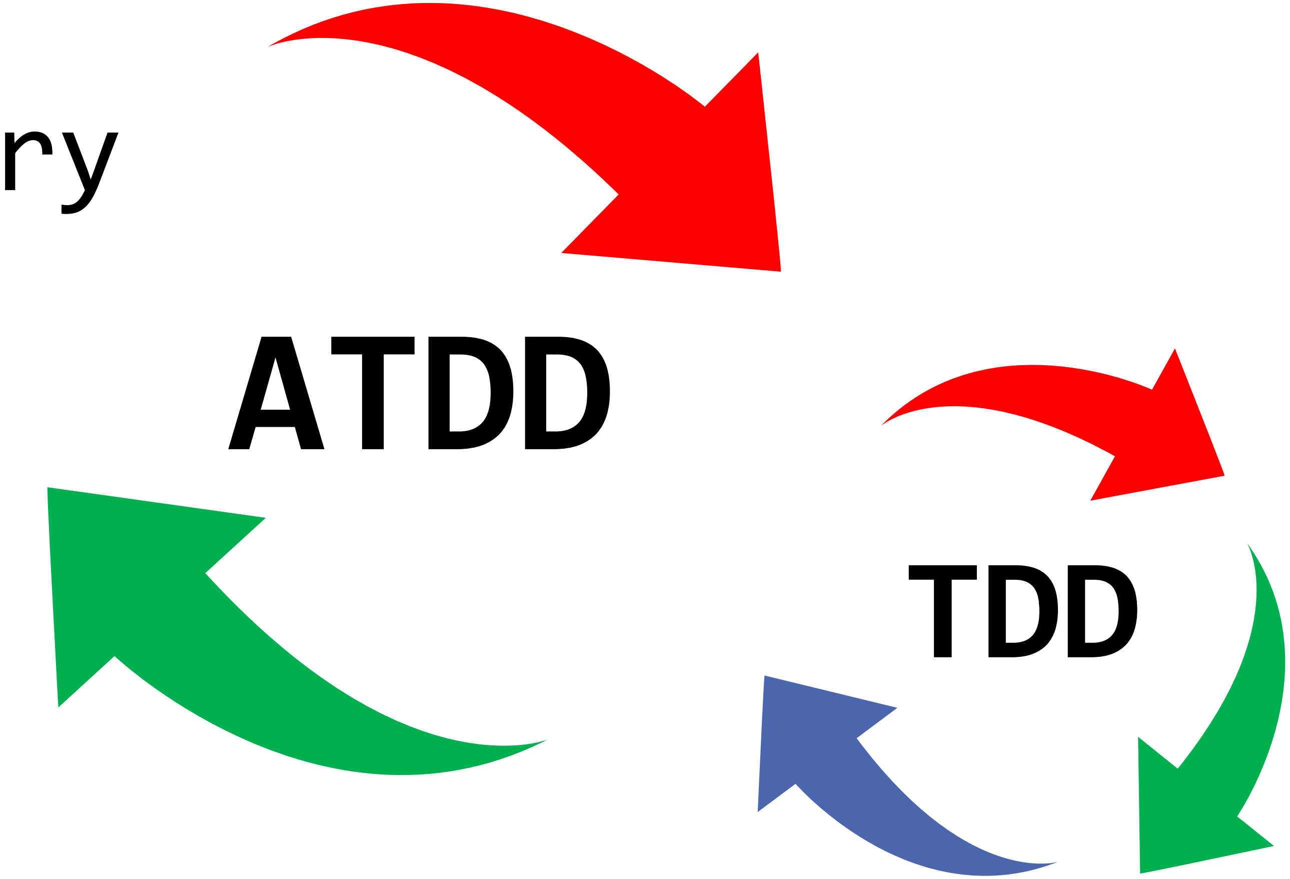
User Story



ATDD

TDD

What are the benefits of ATDD?

- ✓ Tighter cross functional team integration
- ✓ Visible story completion criteria
- ✓ Getting Business Rules right
- ✓ Fast Feedback is better than slow feedback
- ✓ Rework down from 60% to 20%

BDD

Behavior
Driven
Development

BDD is all about collaboration between teams

To build a common understanding on the behavior of the application

To generate a common documentation that can be understood by all teams & stakeholders

The benefits of BDD

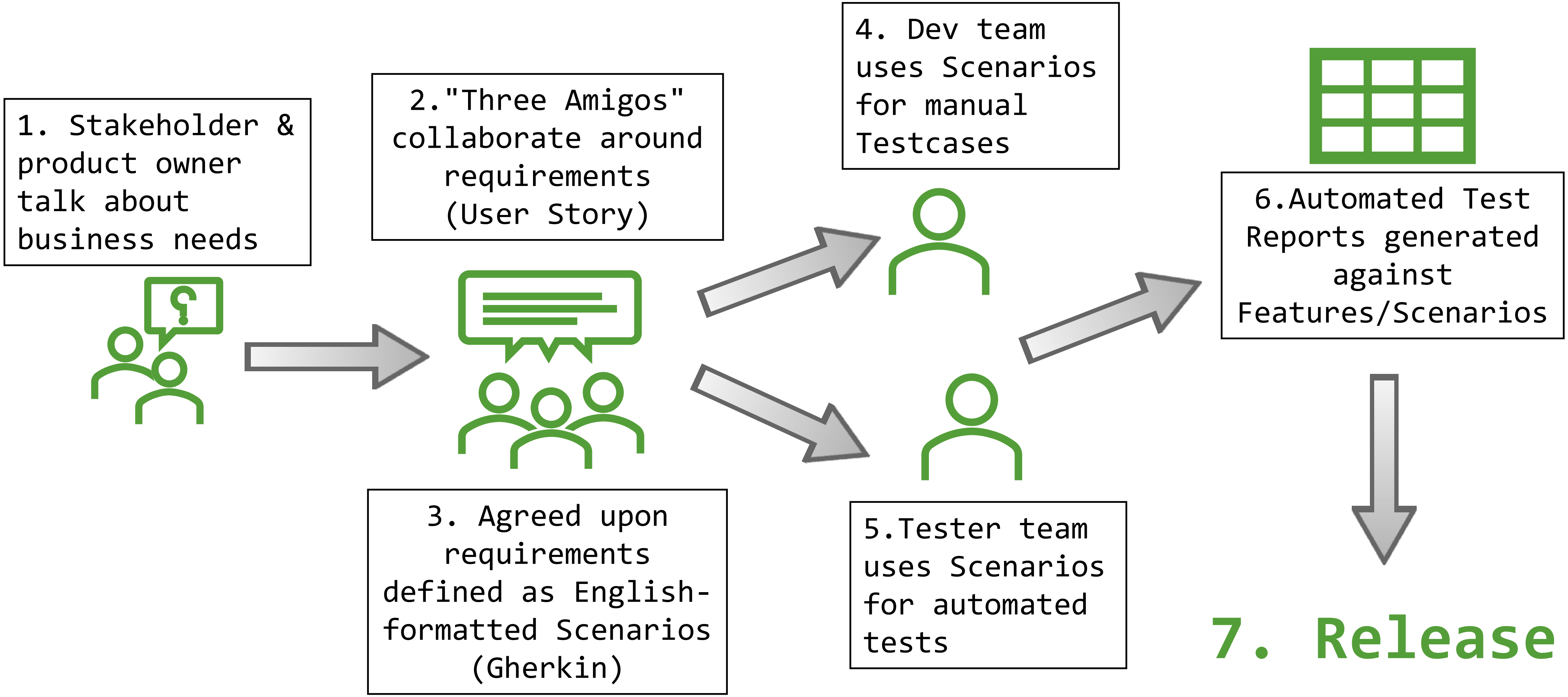
- ✓ BDD is an extension of Test Driven Development
- ✓ Like in TDD, in BDD we write tests first and then add application code
- ✓ BDD uses human-readable descriptions of user requirements
- ✓ Written in a shared language called 'Gherkin

The User Story

Created for any new enhancement, feature, change

- ✓ It is an informal, general explanation of software feature
- ✓ It is discussed among teams
- ✓ Conversation & discussion on how the system should behave
- ✓ Examples are created, discussed, agreed and approved
- ✓ Examples are documented in a way that can be developed & tested with automation
- ✓ Coding phase - implement behavior

BDD Development Process



1. Stakeholder & product owner talk about business needs

2."Three Amigos" collaborate around requirements (User Story)

3. Agreed upon requirements defined as English-formatted Scenarios (Gherkin)

4. Dev team uses Scenarios for manual Testcases

5.Tester team uses Scenarios for automated tests

6.Automated Test Reports generated against Features/Scenarios

7. Release

Gherkin

- ✓ Uses a simple line-oriented design Syntax
- ✓ Uses a set of special keywords to give structure
- ✓ Most lines in a Gherkin document start with one of the keywords
- ✓ Either spaces or tabs may be used for indentation

Gherkin primary keywords

Feature

Scenario

Scenario Outline

Background

Given

When

Then

And, But

Gherkin example

```
Feature: withdraw money

Scenario: user withdraws money from an ATM

Given user has a valid card

And their balance is 56$

When user inserts card

And withdraw 20$

Then the ATM returns 20$

And their account balance is 36$
```

Tools / Frameworks for BDD

cucumber

Selenium

appium

jbehave

✓ Cucumber lets you write test scenarios using plain language

✓ Cucumber is a behavior-driven development tool that can be used with Selenium (or Appium)

✓ Cucumber is used for acceptance testing

✓ Cucumber is typically preferred by non-technical teams (business stakeholders and testers)

✓ Cucumber depends on Selenium or Appium for step-definition implementation.

Cucumber primary keywords

Feature

Scenario

Scenario Outline

Background

Examples

Given, When, Then, And, But (steps)

```
 Feature: Login Action

Scenario: Successful Login with Valid Credentials
    Given User is on Home Page
    When  User Navigate to LogIn Page
    And   User enters UserName and Password
    Then  Message displayed Login Successfully

Scenario: Successful LogOut
    When  User LogOut from the Application
    Then  Message displayed LogOut Successfully
```

Cucumber Step Definition

```
begin require 'rspec/expectations'; rescue LoadError; require 'spec/expectations';
end require
$:.unshift(File.dirname(__FILE__) + '/../../lib')
Given("User is on Home Page", function() {
    // navigate to the homepage });
When("User Navigate to LogIn Page", function() {
    // navigate to the login page });
And("User enters {string} and {string}", function(string, string2) {
    // enter the username and password });
Then("Message displayed Login Successfully", function() {
    // verify that the "login successful" message is displayed});
When("User LogOut from the Application", function() {
    // perform the logout function });
Then("Message displayed LogOut Successfully", function() {
    // verify that the "logout successful" message is displayed });
```

- ✓ Selenium is a web browser automation tool
- ✓ Selenium is preferred by technical teams (SDETs/programmers)
- ✓ Selenium is used for automated UI testing
- ✓ Selenium can work independently of Cucumber
- ✓ Selenium script creation is complex

Selenium Step Definition

```
@Given("User is on Home Page")

public void navigateToHomePage() {

    // navigate to the homepage using Selenium WebDriver

    driver.get("https://study.find-santa.eu");

}

@When("User Navigate to LogIn Page")

public void navigateToLoginPage() {

    // navigate to the login page using Selenium WebDriver

    driver.findElement(By.linkText("Log In")).click();

}

@And("User enters {string} and {string}")

public void enterCredentials(String username, String password) {

    // enter the username and password using Selenium WebDriver

    driver.findElement(By.id("username")).sendKeys(username);

    driver.findElement(By.id("password")).sendKeys(password);

    driver.findElement(By.id("loginBtn")).click();

} ..................
```

The key to building a great product is building a great team first. To me, great teams aren’t bound by roles, but they’re driven by moving forward.

– Alan Page, software tester andDirector of Quality for Services at Unity Technologies

Quellen:

https://www.coscreen.co/blog/acceptance-test-driven-development/
https://www.informatik-aktuell.de/entwicklung/methoden/einfuehrung-in-acceptance-test-driven-development-atdd.html
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