**Data-Driven Testing in Cucumber**

* **Testing** which allows to automatically run a test case multiple times with different input and validation values called Data Driven Testing.

**Ways -**

* Hardcode user input
* Parameterization through feature file (Direct Approach)
* Parameterization with Scenario Outline and Example Keyword
* Parameterization using Data Tables
* Parameterization using Excel Files

1. Hardcode user input
   1. Now the task is to **Parameterizing the UserName and Password**. Which is quite logical, why would anybody want to hardcode the UserName & Password of the application. As there is a high probability of changing both.
   2. So we are not going to hardcore anything in step definition file.
2. Parameterization through feature file (Direct Approch)
   1. Go to the **Feature File** and change the statement where passing Username & Password as per below:

| **Scenario:**  Given user navigates to Facebook  When I enter correct username and password  Then login should be successful |
| --- |

@When("provide valid username as \"(.\*)\" and password as \"(.\*)\"")

public void provide\_valid\_username\_as\_and\_password\_as(String user, String pass) {

driver.findElement(By.xpath("//input[@id='user-name']")).sendKeys(user);

driver.findElement(By.xpath("//input[@id='password']")).sendKeys(pass);

}

**Parameterization with Scenario Outline and Example Keyword**

* **Scenario Outline** - This is used to run the same scenario for 2 or more different sets of test data.
  + E.g. In our scenario, if you want to register another user you can data drive the same scenario twice or more.
* **Examples**– All scenario outlines have to be followed with the Examples section. This contains the data that has to be passed on to the scenario.

| ***Examples:***  | ***username*** | ***password*** |  | ***testuser\_1*** | ***Test@153*** |  | ***testuser\_2*** | ***Test@153*** | |
| --- |

***Note****: The table must have a header row corresponding to the variables in the Scenario Outline steps.*

Each line below the header represents an individual run of the test case with the respective data. As a result, if there are 3 lines below the header in the Examples table, the script will run 3 times with its respective data.

| **Feature** − Login functionality  **Scenario Outline** − Login site.  Given user navigates to Facebook  When I enter Username as **"<username>"** and Password as **"<password>"**  Then login should be unsuccessful  **Examples**:  | username | password |  | username1 | password1 |  | username2 | password2 | |
| --- |
| **@When("I enter Username as \"([^\"]\*)\" and Password as \"([^\"]\*)\"$")**  **Or @When("I enter Username as {String} and Password as {String}")**  **public void I\_enter\_Username\_as\_and\_Password\_as(String arg1, String arg2) {**  **driver.findElement(By.id("email")).sendKeys(arg1);**  **driver.findElement(By.id("pass")).sendKeys(arg2);**  **driver.findElement(By.id("u\_0\_v")).click();**  **}** |

* *Parameterization using Tables*

## **Difference between Scenario Outline & Data Table**

***Scenario Outline:***

* *This uses Example keyword to define the test data for the Scenario*
* *This works for the whole test*
* *Cucumber automatically run the complete test the number of times equal to the number of data in the Test Set*

***Test Data Tables:***

* *No keyword is used to define the test data*
* *This works only for the single step, below which it is defined*
* *A separate code needs to understand the test data and then it can be run single or multiple times but again just for the single step, not for the complete test*

we will pass the test data using the *data table* and handle it using asList***()*** method. (***Raw() in*** *previous version*)

| When provide valid username1 and password1  |standard\_user|secret\_sauce|  |performance\_glitch\_user|secret\_sauce| |
| --- |
| @When("provide valid username1 and password1")  public void provide\_valid\_username1\_and\_password1(DataTable dataTable) {    **//Write the code to handle Data Table**  **List<List<String>> data = dataTable.asLists();**  driver.findElement(By.xpath("//input[@id='user-name']")).sendKeys(data.get(0).get(0));  driver.findElement(By.xpath("//input[@id='password']")).sendKeys(data.get(0).get(1));    } |

We are not using Examples test data. We declared the data under the step only. So we are using Tables as arguments to Steps.

## **Maps in Data Tables**

A same step can be executed multiple times with different set of test data using ***Maps***.

### ***Maps in Data Tables with Header***

***Headers*** can also be defined for the *data tables*

we passed *Username* & *Password* without Header, due to which the test was not much readable. What if there will be many columns. The basic funda of BDD test is to make the Test in Business readable format, so that business users can understand it easily. Setting Header in Test data is not a difficult task in Cucumber.

| When User Navigate to LogIn Page  And User enters Credentials to LogIn  | Username | Password | |
| --- |