Cucumber Notes

Cucumber uses Gherkin to define test cases. Gherkin is a language. Meant to be easily human readable

Key words in Gherkin

* Given (precondition)
* And (precondition)
* When (action)
* And (action)
* Then (results)
* But

And is a connector and takes the trait of the word before it.

Each test should always end on a Then because Then is the end result of the test

1. What is Cucumber

Cucumber is meant to create BDD – Behaviour Driven Development

Cucumber is meant for test automation

Uses Regex to match Gherkin to Cucumber Step. So tests are defined in Gherkin and then they are linked to actual unit tests that must be ran

Cucumber step is what wraps the automation code.

1. Structure of Cucumber Development

Tests in Cucumber are written in Cucumber. They have a .feature extension so easy to find. Each feature file contains multiple scenarios and each contain multiple steps. With multiple features they are meant to be executed independently. Multiple scenarios also must be executed independently

1. Structure of Feature File

Feature keyword – Meant to show detailed description of entire feature. Exists only per file

Scenario keyword – meant to show one of many scenarios that affect the feature. May scenarios per feature

Give/And/When/Then – Steps should be below scenario to show STEP BY STEP what to be expected

1. Scenario Outline

This is under a feature. This is useful for executing mini tests. Run as a unique scenario for each line in the examples table

What is an examples table? Found in feature file under the keyword Example. Each line under it is a unique example. Each unique example has a header and those header must be located in the step defined above in the feature file. IN the step, the header would be surrounded by this bracket <> which basically means that it would replace the header in the step with the header in the example table.

Example tables are a layer of abstraction that is meant to make creating multiple similar scenarios easily. This is because you can insert a header into the step under the scenario and under the example table you can have multiple examples under the table.

Parameters within steps in the feature file should be given in quotes to tell the developer that these are quotes.

1. Step Tables

Also known as data tables. These data tables contain information that would be used within the steps in the feature file. All data is used at once.

1. Background

Used when all scenarios have the same first few steps

Backgrounds declared with background keyword. They would have steps below it. Those steps would be executed at the start of every scenario

1. What is a Step Definition?

Give/When/Then/And are ignored during pattern matching.

Step definition must only match 1 thing

Tutorial on Work Flow

1. Introduction

Cucumber meant to implement Behaviour Driven Development (‘BDD’). Technique where test cases which represents specifications are written in Gherkin – English like syntax. This allows non-technical people to better participate in the SDLC.

Cucumber is often implemented with Selenium.

1. **What is Selenium?**

Selenium is meant to write test scripts that allow them to be written in various platform and browsers. Selenium creates browser based regression and automation test.

Selenium can simulate a user is using that website with something called a web driver. This means you can use code to simulate user interaction. A web driver is Python code that controls the browser.

1. **CI/CD**

CI – Continuous integration. Refers to frequent merges to main branch and automated unit testing

CD – Short release schedule. CD is often done automatically. Every time unit tests are successful with CI, it is automatically released.

1. **Dockers**

Developers have their own unique development environment and it is crucial to ensure that code written in a local environment works on other machines. Extremely pertinent as most web servers in the cloud run on Unix or Linux which has a better environment for protecting client data while most developers use either Mac or Windows.

Docker is a containerization software. It means applications are ran in a container as well as your local machine during development. A container is a self-contained computer system with its own version of packages. This means that as long as multiple developers are using the same container with docker, they can ensure that their changes will work on the same machine even if they are using different machines.

Docker containers are different from VMs. VMs run their own OS and an entire virtual computer within the same hardware. Dockers use the Host OS but has a docker layer which is more lightweight than a VM. Therefore, less memory and RAM requirements but still keep a separate container environment.

1. Pre-requisite for using Cucumber

* Selenium Jar files and server
* Jar files for cucumber
* Java + Eclipse
* Add Cucumber Plugin
* Code Program

1. How to Write Feature Files

* Feature files are written from the perspective of the user.
* Each feature file should only encapsulate 1 feature
* Only the lines below Scenario would be the example of the test case

1. Write runner class + write code
2. What is in a step file

* Generally entire step file should be in an object called Steps.
* Each keyword in the feature file should have a decorator attached to it for example you will have @Given if your feature file under Scenario has a Given keyword.

Notes:

* There are multiple feature files in BofA project but they all refer to 1 single step-definition file
* How does the program know how to link step def and feature file?
  + With the runner class

1. Runners

* They are the executable that runs the program
* Runner files would have @RunWith(Cucumber.class) and the decorator @CucumberOptions(features = “nameOfFeatureFile”, glue = {nameOfPackageWithStepDefinitionAndRunnerFile}
* Then have a class called Runner which is then responsible for running the class

1. Selenium Configurations