**What is Cucumber?**

* Cucumber is framework for writing behaviour driven development tests. BDD similar to TDD where we start with writing tests where as in BDD we start off with writing behaviours.
* Cucumber is software tool that supports Behaviour-Driven-Development.
* It runs automated acceptance tests written in a behaviour-driven development (BDD) style.
* Cucumber reads executable specifications written in plain text and validate that the software does what those specifications say. The specifications consist of multiple example or scenarios.
* Each scenario is a list of steps for cucumber to work through. Cucumber verifies that the software conforms with the specification and generate a report indicating ✅ success or ❌ failure for each scenario.
* In order for cucumber to understand the scenarios, they must follow some basic syntax rules called Gherkin. Gherkin documents are stored in .feature text files.

**What is Gherkin ?**

The Gherkin language is simple. It uses about 10 keywords (**Given, When, Then, And, But, Scenario, Feature, Background, Scenario Outline, Examples**) which allow the language to be read and parsed by an automation tool called Cucumber.

Gherkin is a structured natural language that is used by business analyst to specify how they want the system to behave for given scenarios.

**3 popular BDD testing tools**

* Cucumber - Cucumber is a Ruby based framework
* JBehave - JBehave is a JAVA based framework
* Specflow ­- Specflow is a .NET based framework

**Advantages of Cucumber:**

* Cucumber acceptance tests are written from user’s perspective
* Team Collaboration (Product owners, business analysts, developers, testers are all involved in writing scenarios)
* Code reusability
* Tests are written in plain-text English so people with less technical skills can also write scenarios
* Cucumber can be integrated with Selenium and other testing frameworks like JUnit & TestNG

**The two files required to run a cucumber test.**

* Feature file
* Step Definition file

**What is a feature file?**

* Feature file is an entry point of Cucumber execution.
* Cucumber scenarios are written inside the feature file using a plain-text language called Gherkin. It can contain a scenario or multiple scenarios.
* All the acceptance tests are written in feature file using Given-When-Then statements.

**What is the two main purpose of using Gherkin?**

* Documentation
* Automated tests

**What are the keywords used in Feature file?**

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

**Is it mandatory to use Given, When, Then keywords while writing scenario?**

No.  \*  can also be used to write steps in the feature file.

**What is the difference between Given, When, Then steps in feature file?**

* Given defines the context of the scenario
* When defines the actions of the scenario
* Then defines the outcome of the scenario

**Explain Scenario Outline in feature file.**

Scenario Outline keyword in feature file is used to execute scenarios multiple times using a different set of test data. Multiple sets of test data are provided by using ‘Examples’ in a tabular structure separated by pipes (| |)

**Explain background in feature file.**

Steps written under the Background keyword are executed before every scenario.

**How to comment a line in Feature file?**

# is used to comment a line in feature file

**What is a Step definition file?**

Step definitions file has the actual code implementation of the scenario step.

**Explain Cucumber Tags**

* Cucumber tags are used to organize scenarios in your feature file.
* You can have as many tags as you like before a scenario or feature. @ is used to represent tags.

Example: @regression, @sprint5, @endtoend

**Tags are used to:**

* Group scenarios
* Ignore scenarios from execution
* Logically group (OR & AND)

Cucumber Tags are case sensitive. True or False?  True

**Name any two testing framework that can be integrated with Cucumber?**

* JUnit
* TestNG

**Name any two build management tools that can be integrated with Cucumber?**

* Gradle
* Maven

**What software do you need to run cucumber in JAVA?**

Eclipse or IntelliJ IDE, Gradle or Maven build tool, Junit or TestNG testing framework, Cucumber, Selenium (To automate browser).

**Name any advanced framework design that can be used with Cucumber?**

* Page Object Model.
* Log4j.
* Extent Reporting.
* Dependency Injection (Example: Pico Container).
* Object Repository.

**Selenium can be integrated with Cucumber. True or False?**True

**Explain Cucumber Hooks?**

* Cucumber Hooks are blocks of code that can run at various points in the cucumber execution cycle. Typically used to run before and after the scenarios using @before and @after annotations.
* Also supports @BeforeStep and @AfterStep.
* Conditional hooks(@After(“@browser”) conditionally selected for execution based on tags of the scenario. ( associate hook with tag expression
* It helps us eliminates the redundant code steps that we write for every scenario and also manages our code workflow.

**Note:**

@After will be executed even though the scenario is failed.

@Before will be executed before ‘Background’ steps in the feature file.

**Tagged Hooks:**

If we want to execute a particular scenario and want to perform some pre action/condition before, we can use tagged. Ordering can also be used Tags. eg: @Before(Order=2)

**Step Definitions**

* In addition to feature files, Cucumber needs a set of Step definitions.
* Step definitions map each Gherkins step into runnable programming code to carry out what action should be performed by the step.
* Step definitions can be written in many programming languages.

**How does a JUnit Test Runner class look like?**

@RunWith (Cucumber.class)  
@CucumberOptions(features = {"src/test"}, // set: the path of the feature files -- { }

tags={"@sort"}, /// to instruct what tags in the feature files should be executed -- { }  
 dryRun = false, /// true: checks if all the steps have step definition -- default false  
 strict = true, /// true : will fail execution if there are undefined or pending steps -- default false  
 plugin = "json: cath.json",  
 monochrome = true, format = {"html:src/test/java/cucReports" ,"json:src/test/java/cucReports/cath1.json","pretty"})  
 //format = {"pretty"})  
 /// glue -- set: the path of the step definition files --- {}  
 /// monochrome -- true : display the console output in much readable way -- default false  
 /// format -- set: what all report formaters to use -- default false  
public class CucumberTestRunner {  
}

**What is @CucumberOptions in test runner? List the properties of @CucumberOptions**

@CucumberOptions are used to **set specific properties** for your cucumber test.

* Feature – path to feature files
* Glue – path to step definitions
* dryRun – boolean value – check for missing step definition
* tags – used to group cucumber scenarios in the feature file
* strict – boolean value – fail the execution if there is a missing step
* monochrome – boolean value – display console output in a readable way
* plugins

**Dependency Injection using Cucumber pico container:**

* Share common steps between feature files.
* Inheritance in Cucumber.
* Work with step dependency.

@smoke @regression

Feature: Login functionality

Background:

Scenario Outline: Valid username and password

Given As a end user I am on login page

When user enter <username> and “<password>”

Then user should land on homepage

Examples:

| username | password !

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[ Cucumber was originally written in the Ruby programming language].