BDD and Cucumber

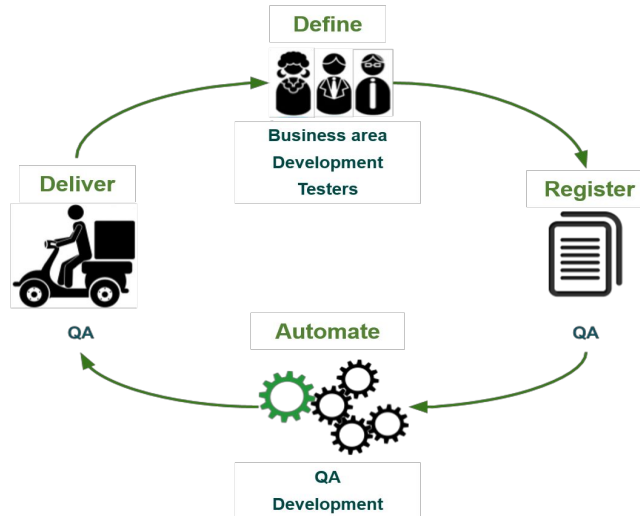## With Interview Questions

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What is BDD?

BDD (Behavior Driven Development) is a software development methodology that emphasizes defining the expected behavior of the software using human-readable language, facilitating collaboration between technical & non-technical stakeholders.

Primary focus of BDD is collaboration between stakeholders like - Product Owner, Business Analyst, QA and Developers.

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What is Feature file?

Features file contain high level description of the Test Scenario in simple language. It is known as Gherkin. Gherkin is a plain English text language.

Example - **Feature:** Visit **career guide** page in career.guru99.com

Scenario: Visit career.guru99.com

Given: I am on career.guru99.com

When: I click on career guide menu

Then: I should see career guide page

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Keywords used in Feature file?

Cucumber Feature File consist of following components –

- **Feature**: A feature would describe the current test script which has to be executed.
- **Scenario**: Scenario describes the steps and expected outcome for a particular test case.
- **Scenario Outline**: Same scenario can be executed for multiple sets of data using scenario outline. The data is provided by a tabular structure separated by (I I).
- **Given**: It specifies the context of the text to be executed. By using datatables "Given", step can also be parameterized.
- **When**: "When" specifies the test action that has to performed
- **Then**: The expected outcome of the test can be represented by "Then"

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What is Step Definition file?

Step definition maps the Test Case Steps in the feature files(introduced by Given/When/Then) to code. For a step definition to be executed, it must match the given component in a feature. *Cucumber* finds the *Step Definition* file with the help of the Glue code in *Cucumber Options*.

Example -
```
@Given("User is on Home Page")
    public void user_is_on_Home_Page() throws Throwable {
        driver = new ChromeDriver();
        driver.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);
        driver.get("https://google.com");
        }
```

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What is Test Runner file?

Test runner is used to run your code. This file is executed which helps to execute your step definition code defined by feature file.

So basic understanding is - Create Feature file -> Create step definition for feature file -> Run your code using Test Runner

Basic Example - `@RunWith(Cucumber.class)`

```
@CucumberOptions(
    format = {"pretty", "html:target/Destination"},
    features={"src/test/resources/UndoFeature.feature"}
    )
public class UndoFeatureTest {
}
```

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How different files are created?

Feature files are usually created by business owners - by Business analysts or Product Owner

Step Definitions and Test Runners are created by - QA Automation Engineers/SDET

If in your organization - Feature files are created by QA then its not correct way of collaboration and instead a different approach like TDD should be used.

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Interview Questions

Q1) Can you explain the difference between a feature & a scenario in BDD?

A feature is a high-level description of a functionality or behavior of the software being developed. It describes the business value & purpose of the functionality. A scenario, on the other hand, is a specific example that demonstrates the behavior of a feature in a particular situation or context.

Q2) Can you describe the three core elements of BDD: Given, When, & Then?

Given represents the initial state of the system or application, including any preconditions or setup required for the scenario.
When represents the action or event that triggers the behavior being tested.
Then represents the expected outcome or result of the behavior being tested.

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Interview Questions

Q3) How do you handle data-driven testing in BDD scenarios?

To handle data-driven testing in BDD scenarios, you can use Scenario Outlines and Examples tables to create reusable, parameterized tests that cover multiple input combinations without duplicating code.

In a Scenario Outline, you define placeholders using angle brackets (<>) within the Given-When-Then steps, which represent the variable data points.

Then, provide an Examples table beneath the Scenario Outline, listing the different sets of values for the placeholders.

Q4) What is a hook in Cucumber?

A hook in Cucumber is a mechanism that allows developers to execute specific code snippets at different points during the test execution lifecycle.

Hooks can be used for tasks such as setting up test data, managing browser sessions, or cleaning up resources after tests.

Common hooks include Before, After, BeforeStep, and AfterStep, which are executed before or after a scenario or individual steps, respectively.

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Interview Questions

Q5) What is the purpose of the Behaviour Driven Development (BDD) methodology in the real world?
Answer: BDD is a methodology to understand the functionality of an application in the simple plain text representation.

The main aim of the Behavior Driven Development framework is to make various project roles such as Business Analysts, Quality Assurance, Developers, Support Teams understand the application without diving deep into the technical aspects.

Q6) What is the use of Background keyword in Cucumber?

Answer: Background keyword is used to group multiple given statements into a single group. This is generally used when the same set of given statements are repeated in each scenario of the feature file.

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