**Tags in BDD (Behavior-Driven Development)**

**Tags** in BDD are used to **organize, filter, and control the execution** of your tests. They are labels added to **features, scenarios, or scenario outlines** to provide metadata and manage test execution efficiently.

**Purpose of Tags in BDD (Behave, Cucumber, etc.):**

1. **Selective Test Execution**:
   * Run specific tests by including or excluding tags.
   * Example:

*behave --tags=@smoke*

This runs only the scenarios tagged with @smoke.

1. **Categorize Tests**:
   * Group related tests, such as:
     + **@smoke** for smoke tests,
     + **@regression** for regression tests,
     + **@wip** for work-in-progress tests.
   * Example:

*@regression @payment*

*Scenario: Verify payment processing*

1. **Skip Tests**:
   * Ignore certain tests using tags.
   * Example:

*behave --tags=****~****@wip*

This **excludes** all scenarios tagged with @wip.

1. **Environment-Specific Tests**:
   * Run tests in different environments like **@dev**, **@staging**, **@prod**.
   * Example:

*@staging*

*Scenario: User login in staging environment*

1. **Apply Hooks to Specific Tests**:
   * Use **before\_tag** and **after\_tag** hooks in environment.py to apply **custom logic** for scenarios with specific tags.
   * Example:

*def before\_tag(context, tag):*

*if tag == "database":*

*print("Setting up database connection")*

**Tag Usage in a Feature File (Behave Example):**

*@smoke @login*

*Feature: User Authentication*

*@positive*

*Scenario: Successful login*

*Given I am on the login page*

*When I enter valid credentials*

*Then I should be redirected to the dashboard*

*@negative*

*Scenario: Invalid login*

*Given I am on the login page*

*When I enter invalid credentials*

*Then I should see an error message*

**Common Tag Examples:**

| **Tag** | **Purpose** |
| --- | --- |
| @smoke | Smoke tests |
| @regression | Regression tests |
| @database | Tests requiring database setup |
| @api | API-related tests |
| @wip | Work in progress, skip for now |
| @slow | Tests that take longer to execute |

**Key Benefits of Using Tags:**

* ✅ **Run only what you need** (faster test cycles).
* ✅ **Categorize and document** your tests.
* ✅ **Conditional setup** using ***before\_tag*** and ***after\_tag***.
* ✅ **Easily exclude unstable or WIP tests**.

**Common Logical Operators in Behave Tags:**

| **Operator** | **Meaning** |
| --- | --- |
| and | Scenario must have **all tags** |
| or | Scenario must have **at least one tag** |
| not | Exclude scenarios with a specific tag |
| () | Group conditions for clarity |

*behave --tags="(@aa and @bb) and not @cc"*

*@aa @bb*

*Scenario: Test A*

*Given something*

*@aa*

*Scenario: Test B*

*Given something else*

*@aa @bb @cc*

*Scenario: Test C*

*Given another thing*

**What will run?**

* ✅ Scenario: **Test A** (has @aa and @bb, no @cc).
* ❌ Scenario: Test B (missing @bb).
* ❌ Scenario: Test C (has @cc, so excluded).