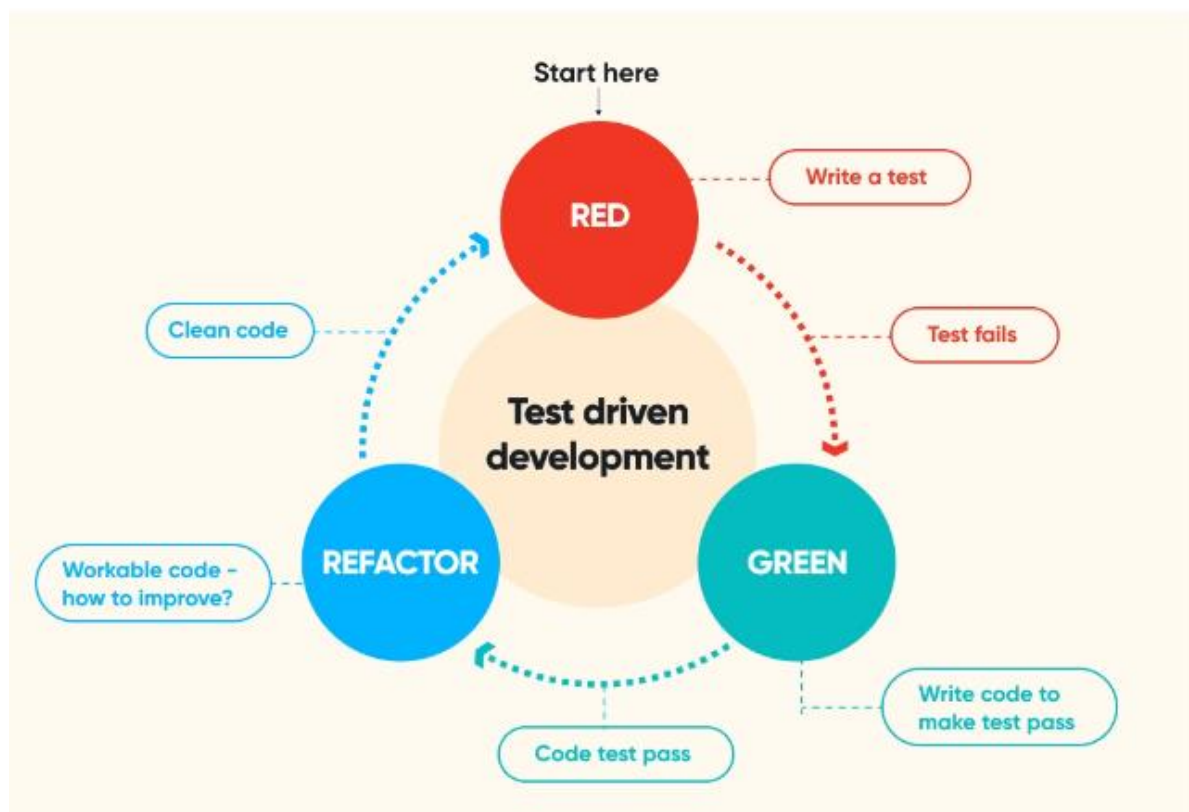**Assignment 2: Produce a comparative infographic of TDD, BDD, and FDD methodologies. Illustrate their unique approaches, benefits, and suitability for different software development contexts. Use visuals to enhance understanding.**

Here is a comparative infographic of TDD, BDD, and FDD methodologies:

TDD(Test Driven Development)

- Unique approach: Write tests before production code.
- Benefits:
  - Helps create lean, reusable, and automatable code.
  - Reduces costs and makes refactoring easier.
- Suitability: Small projects and conservative iteration.

Advantages & disadvantages of Test Driven Development

Advantages

- Faster development
- Clean code
- Clear documentation
- Fewer bugs
- Tighter code

Disadvantages

- Development teams may lose the sense of a broader picture
- TDD can be a challenge for developers who're used to writing code first
- Slow development time
- Developers may have a false sense of security
- Maintenance becomes difficult as the project grows

Best TDD frameworks

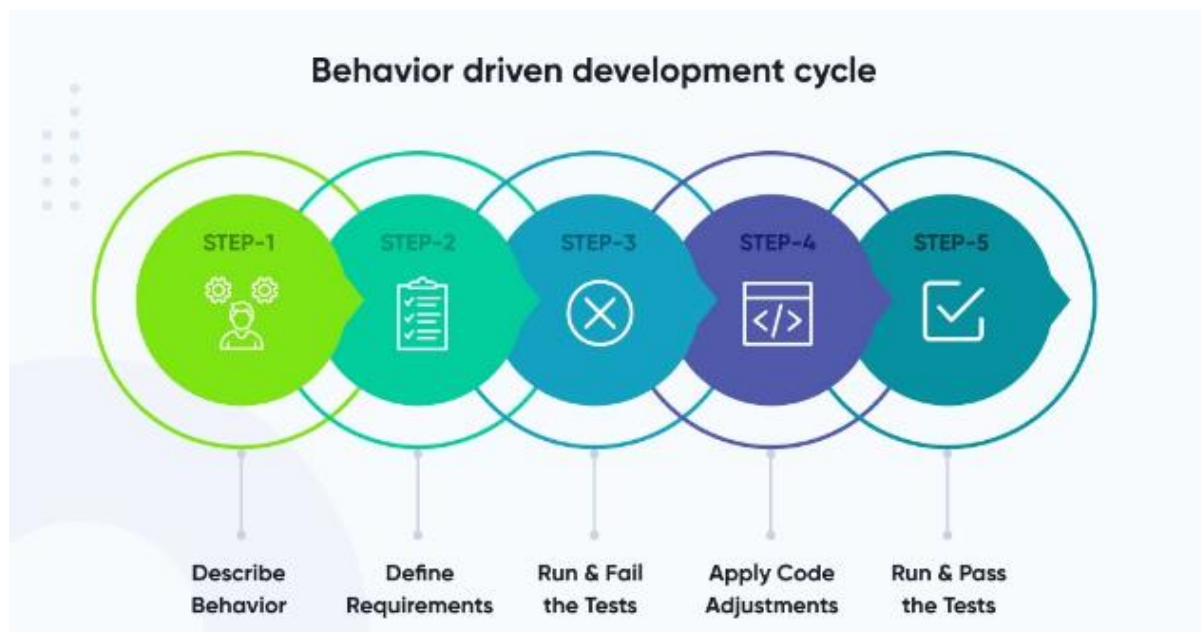- JUnit
- MOCHA
- nunit
- Rspec
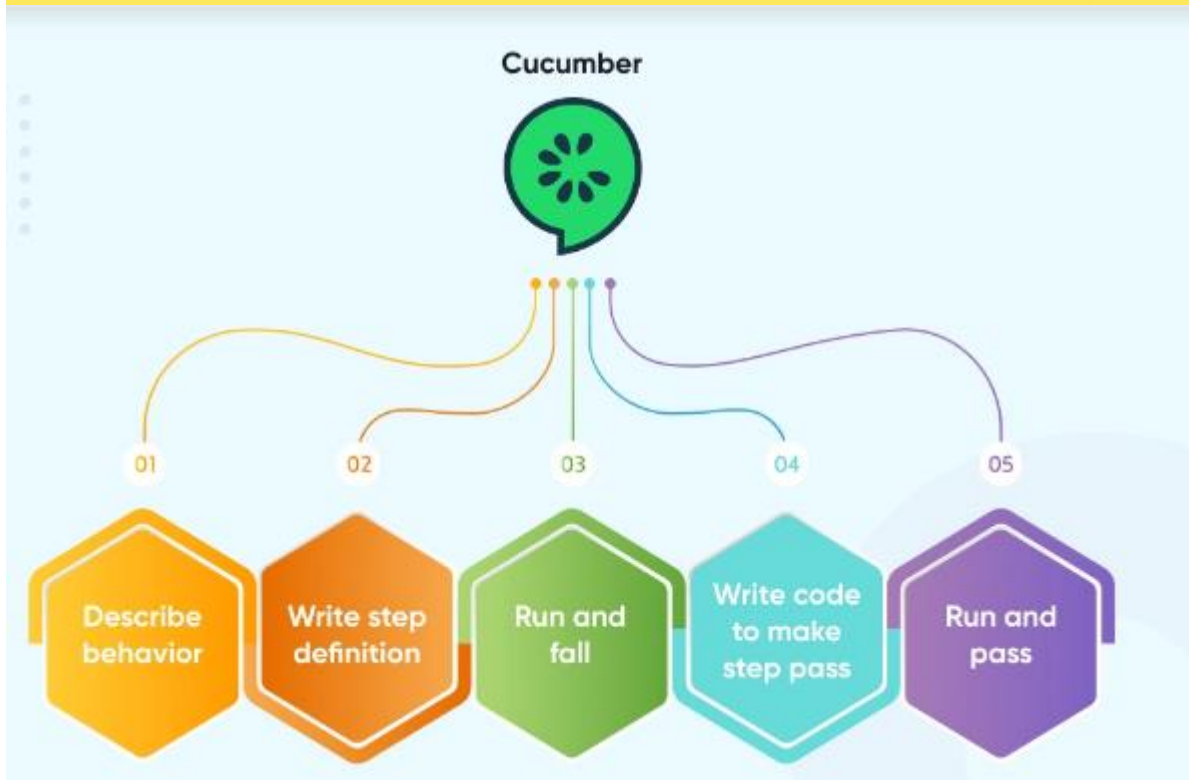- PyUnit

BDD(Behaviour-Driven Development)

- Unique approach:

  Focus on the behavioral aspects of a system, rather than the implementation aspects.

- Benefits:

- Helps developers and customers understand what the system should do.

- Reduces confusion about acceptance criteria.

- Identifies potential problems with user stories early.

- Suitability:

  Any project where it is important to understand and validate the behavior of the system from the user's perspective.

Behavior driven development cycle

STEP-1	STEP-2	STEP-3	STEP-4	STEP-5
Describe Behavior	Define Requirements	Run & Fail the Tests	Apply Code Adjustments	Run & Pass the Tests

Initial state — GIVEN

Action takes place — WHEN

THEN — Expected Outcome

Cucumber

01 Describe behavior

02 Write step definition

03 Run and fall

04 Write code to make step pass

05 Run and pass

KEY ADVANTAGES OF BDD

Customer-driven product development

Proper prioritization of features

Greater transparency

Reduced maintenance and project risk

Better alignment with overall business goals

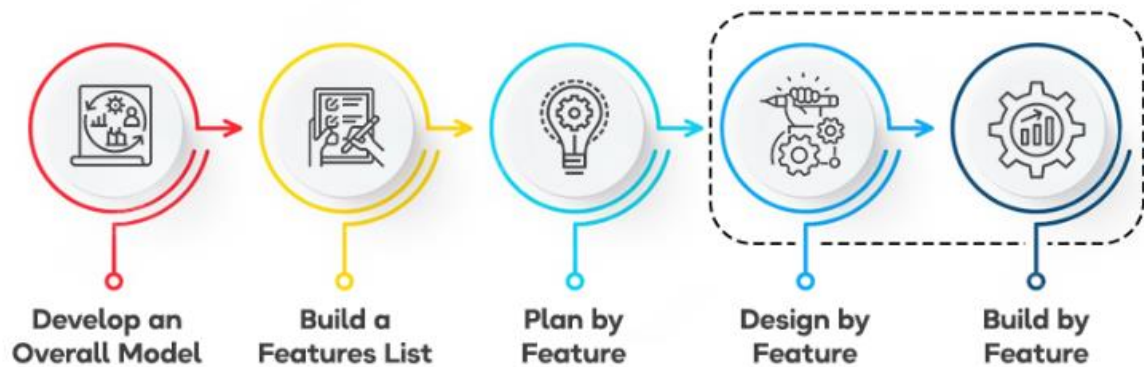## **FDD(Feature Driven Development)**

- Unique approach: Focus on feature-based development, with sprints, teams, and delivery based on features.

- Benefits:

  o Promotes close collaboration between product owners and stakeholders.

  o Approaches development goals from the top down.

- Suitability: Large and complex projects.

FEATURE DRIVEN DEVELOPMENT (FDD) PROCESS

Develop an Overall Model	Build a Features List	Plan by Feature	Design by Feature	Build by Feature

Feature-driven development (FDD)

Advantages

- Clear picture of project scope
- User-cetric approach
- Works good with long projects and large teams
- Decreased need for meetings

Disadvantages

- Doesn't work good with small projects
- Dependence on lead developers
- No written documentation to the client