**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.**

**TDD BDD FDD**

1. **It is focused It is focused on It is focused on**

**Small individual Behaviour of Feature by Feature**

**Units. System. Incremental built.**

1. **Only Developer It require Team It also required**

**Team is required Product Analyst, Large team of Dev.**

**Tester and Dev.**

1. **Test case is done Testing done after Test case is done**

**Before code is Defining after the Feature**

**written Requirement Built.**

1. **It is written It is written in It is written in**

**In programming Gherkin Programming lang,**

**language**

1. **Process is - Process is - Process is -**

**1 Write test Describe Behaviour Describe overall Model**

**2 Test the code Define Requirement Built the feature list**

**If it fails**

**3 Modify the code Run and fail the test plan the feature**

**Design the Fature**

**4 REPEAT UNTIL Modify the Code Built the feature**

**TEST CASES IS PASS Run and pass the test Test the feature -> review**

**TDD: TDD is Test Driven Development which follow the agile software development approach. Unlike Traditional way of developing the software i.e., Writing the code then the Testing is done, in TDD Test cases are written first then the coding part is done. This is Modern way of software Development.**

**TDD start with writing the test for each function or feature.**

**Initially test cases are failed because the test cases are written even before the code is written.**

**Advantage:**

* **It meets the customer requirement**
* **Less Debugging is required**
* **Quality software is built**
* **Less error**
* **Unit test provide the continuous feedback**

**Disadvantage:**

* **Increase Code Volume: Writing the test Cases for every Feature increase the code**
* **Maintainability: Managing different test case is difficult to manage**
* **Time consuming: Writing and maintain the code is time consuming.**

**Framework used:**

**Junit: In java testing this framework is used.**

**TestNG: Another testing framework used in java.**

**BDD:** BDD is Behavioural Driven Development which is used to maintain or check the behaviour of the system like Login page behaviour or any other component behaviour.

It is mainly focuses on the Development of software as per the requirement of the client needs**.**

**The team involve the members:**

* Product Analyst/ Business Analyst
* Developer
* Tester

**Collaboration of the team is very important in BDD.**

Therefore Common language is used for the communication among the team member for better understanding of the requirement.

The language which is used is called “Gherkin”.

Which uses simple term – WHEN , AND ,THEN

**Advantage:**

* **Early defect detection**
* **Better understanding of the requirement**
* **Better team collaboration**

**Disadvantage:**

* BDD relies on continuous communication between developers and users
* BDD doesn’t align well with the traditional waterfall development model.
* Testers need sufficient technical and programming skills to effectively implement BDD practices.

**BDD TOOLS:**

1. **CUCUMBER**
2. **SPECFLOW**

**FDD:** FDD IS Featured Driven Development Approach of software development .It is Iterative Incremental approach.

In FDD software is built ,feature by feature in an incremental way. In the end ,after finishing the one feature that feature is reviewed by the customer and if all goes right then team work on another feature**.**

**Flow of FDD:**

**BUILT OVERALL MODEL**

**BUILT THE FEATURE LIST**

**PLAN THE PARTICULAR FEATURE**

**DESIGN THE PARTICULAR FEATURE**

**BUILT THE PARTICULAR FEATURE**

**TEST THE FEATURE**

**REVIEW THE FEATURE**

**Advantage:**

* Rapid Development as there is only 5 simple step to follow.
* Quality is improved as each feature is reviewed.
* It work well for Larger Scale project
* Progress Tracking.

**DISADVANTAGE**:

* Not Good for smaller project**.**
* FDD may be complex and time-consuming**.**
* Dependency on incremental approach