Day 03

Assignment 1: Create an infographic illustrating the Test-Driven Development (TDD) process. Highlight steps like writing tests before code, benefits such as bug reduction, and how it fosters software reliability.

Solution :- Test-Driven Development (TDD) is a software development approach where tests are written before the code itself. This iterative process ensures high-quality, well-tested software.

The TDD Cycle:

1. **Red:** Write a failing test that defines the desired functionality. This test initially fails because the code to fulfil that functionality hasn't been written yet.
2. **Green:** Write the minimum amount of code to make the failing test pass. This ensures the code directly addresses the functionality you're testing.
3. **Refactor:** Without changing functionality, improve the code's readability, maintainability, and efficiency. This keeps your code clean and easy to understand in the long run.

Benefits of TDD:

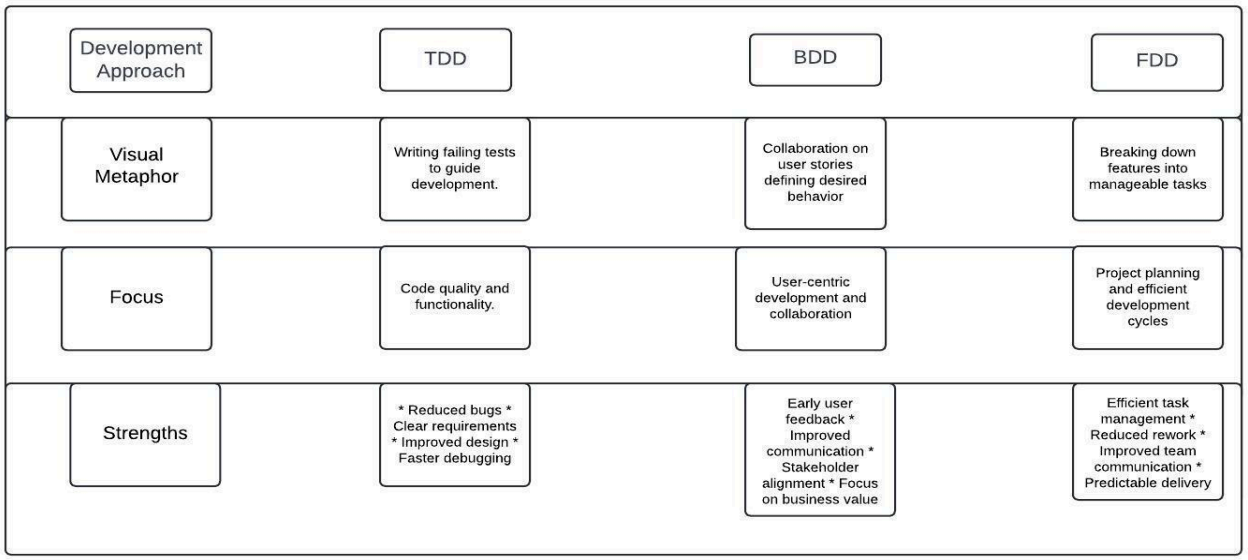
- **Reduced Bugs:** Writing tests upfront helps identify and fix potential issues early in the development process, leading to more robust software.
- **Clear Requirements:** The act of writing tests clarifies the desired behaviour of the code, promoting better understanding of requirements.
- **Confidence in Changes:** Existing tests act as a safety net, giving you confidence to refactor code or add new features without introducing regressions (introducing bugs in existing functionality).
- **Improved Design:** TDD encourages writing smaller, more focused code units, leading to a well-designed and maintainable codebase.
- **Faster Debugging:** Failing tests pinpoint exactly where the issue lies in your code, saving time and frustration during debugging.

Building Reliability:

By continuously writing failing tests and then making them pass with clean code, TDD fosters a software development process that emphasises quality from the very beginning. This iterative cycle helps create a foundation of reliable and well-tested software, ready for future enhancements and user needs.

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.

Solution :-



Difference between TDD, BDD and FDD