### ****Test-Driven Development (TDD) Process****

**Definition:** Test-Driven Development (TDD) is a software development approach where tests are written before the code. It involves writing tests to define desired functionality, then coding to pass those tests.

**Icon/Visual:** A cycle with "Test" leading to "Code" and then "Refactor."

#### ****TDD Process****

**1. Write a Test:**

* **Description:** Start by writing a test that defines a new feature or functionality.
* **Visual:** A checklist or a test case with a red "X" indicating it will fail.

**2. Run the Test:**

* **Description:** Execute the test to ensure it fails, confirming that the functionality is not yet implemented.
* **Visual:** A test execution screen with a red cross.

**3. Write Code:**

* **Description:** Write just enough code to make the test pass.
* **Visual:** A developer writing code with a green check mark.

**4. Run All Tests:**

* **Description:** Run all tests to ensure the new code doesn't break existing functionality.
* **Visual:** A series of green checks indicating all tests passed.

**5. Refactor Code:**

* **Description:** Clean up the code to improve its structure without changing its behavior.
* **Visual:** A wrench or gear symbol representing code improvement.

**6. Repeat:**

* **Description:** Continue the cycle for each new feature or improvement.
* **Visual:** A looping arrow or cycle symbol.

#### ****Benefits of TDD****

**1. Bug Reduction:**

* **Description:** Early detection of bugs due to frequent testing.
* **Visual:** A bug with a red "X" or a bug trap.

**2. Improved Reliability:**

* **Description:** Ensures each part of the code works correctly, leading to more reliable software.
* **Visual:** A shield or lock symbol indicating security and reliability.

**3. Better Design:**

* **Description:** Encourages writing modular and maintainable code.
* **Visual:** A clean, organized code structure or blueprint.

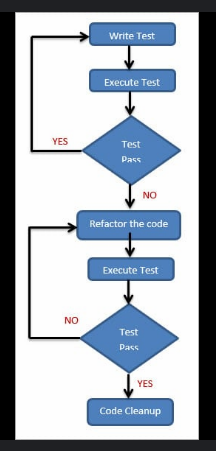
**4. Documentation:**

* **Description:** Tests serve as a form of documentation for the codebase.
* **Visual:** A document or a book with a checkmark.

#### ****TDD in Action****

**Visual Flowchart:**

* **Description:** Circular flowchart demonstrating the TDD cycle

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