**Assignment-4**  
**Infographic Summary: Test-Driven Development (TDD) Process**

**TDD Workflow – Step by Step:**

1. **Run Tests:**  
   Start by executing all existing test cases. The new test should fail, confirming that the feature is not yet implemented.
2. **Red Phase – Write a Failing Test:**  
   Create a new test that targets the desired functionality. It should fail initially, indicating that the feature doesn’t yet exist.
3. **Green Phase – Make the Test Pass:**  
   Write just enough code to make the failing test pass successfully.
4. **Refactor – Clean the Code:**  
   Refactor your code to remove duplication and improve structure, ensuring the logic remains intact and tests still pass.
5. **Repeat:**  
   Continue this cycle for every new feature or improvement, reinforcing a stable development rhythm.

**Major Benefits of Test-Driven Development:**

* **Early Bug Detection:**  
  TDD helps identify and fix bugs early by testing features before implementation.
* **Better Code Quality:**  
  Writing tests first promotes clean, modular, and decoupled code.
* **Safe Code Changes:**  
  Continuous testing allows for confident refactoring without the risk of breaking functionality.
* **Faster Issue Identification:**  
  Problems are caught as soon as they occur, speeding up the debugging process.
* **Enhanced Software Reliability:**  
  A comprehensive test suite builds up over time, acting as a safety net and improving system stability.

