The comparison of the regression test results before and after the new implementation reveals significant changes in the behaviour of the system. Notably, there is an increase in the number of failed tests in the post-implementation phase. This shift suggests that the recent changes may have introduced new bugs or compatibility issues

### **Comparison Report**

#### **Test Suite Execution Summary**

| **Test Case** | **Execution Before New Implementation** | **Execution After New Implementation** |
| --- | --- | --- |
| test\_check\_cart\_print\_product\_details | PASSED | FAILED |
| test\_check\_cart\_empty\_cart | PASSED | PASSED |
| test\_check\_cart\_with\_checkout | FAILED | FAILED |
| test\_check\_cart\_invalid\_input | PASSED | PASSED |
| test\_check\_cart\_add\_out\_of\_stock\_product | PASSED | PASSED |
| test\_empty\_cart | PASSED | PASSED |
| test\_insufficient\_balance | PASSED | FAILED |
| test\_successful\_checkout | PASSED | FAILED |
| test\_checkout\_clears\_cart | PASSED | FAILED |
| test\_add\_multiple\_products\_and\_check\_total\_price | PASSED | FAILED |
| test\_load\_products\_from\_csv\_correct\_number\_of\_products | PASSED | PASSED |
| test\_load\_products\_from\_csv\_correct\_product\_attributes | PASSED | PASSED |
| test\_load\_products\_from\_csv\_correct\_product\_values | PASSED | PASSED |
| test\_load\_products\_from\_csv\_non\_existing\_file | PASSED | PASSED |
| test\_load\_products\_from\_csv\_negative\_units | PASSED | PASSED |
| test\_query\_cart | FAILED | PASSED |
| test\_remove\_from\_cart | FAILED | PASSED |
| test\_put\_product\_back\_into\_inventory | FAILED | PASSED |

#### Observations and Analysis

* **Overall Result**: The number of failed tests increased after the new implementation, with a total of 6 failures compared to 4 previously.
* **New Failures**: The new implementation seems to have introduced issues with the handling of the products\_dict parameter in the ShoppingCart.add\_item method, as evidenced by the NameError and TypeError in several test cases. This indicates a possible oversight in the implementation or integration of this feature, possibly due to incorrect assumptions about the environment in which the add\_item method is used.

The failure of tests like test\_successful\_checkout and test\_checkout\_clears\_cart, which were previously passing, suggests that the new changes may have affected the checkout process's logic or its interaction with the shopping cart.

* **Persistent Failures**: Some tests (test\_check\_cart\_with\_checkout, test\_query\_cart, test\_remove\_from\_cart, test\_put\_product\_back\_into\_inventory) failed both before and after the new implementation, indicating ongoing issues that have not been addressed.
* **Possible Causes of New Failures**: The introduction of the products\_dict parameter in the add\_item method seems to be a common factor in many of the new failures. This suggests that the implementation or integration of this change may have issues.
* **Actionable Steps**:
  + Investigate the integration of products\_dict in ShoppingCart.add\_item to resolve the new failures.
  + Address the persistent failures that were not impacted by the new implementation.
  + Conduct a thorough review of the new implementation to ensure compatibility and correctness with existing functionalities.