**5. Design, develop, code and run the program in any suitable language to solve the commission problem. Analyze it from the perspective of equivalence class testing, derive different test cases, execute these test cases and discuss the test results.**

**Refer Program 2**

**Test Case Name : Equivalence Class for Commission Problem**

**Test data:**

**price:**  Rs for: lock - 45.0 , stock - 30.0 and barrel - 25.0

**sales =** totallocks \* lock price + totalstocks \* stock price + totalbarrels \* barrel price

**commission :** 10% up to sales Rs 1000 , 15 % of the next Rs 800 and 20 % on any sales in excess of 1800

**Pre-condition :** lock = -1 to exit and 1< =lock < = 70 , 1<=stock <=80 and 1<=barrel<=90

**Based on the input domain the equivalence classes are as follows**

**The valid classes of the input variables are:**

L1 = {locks: 1≤locks≤70}

L2 = {locks = -1} (occurs if locks = -1 is used to control input iteration)

S1 = {stocks:1≤stocks≤80}

B1 = {barrels: 1≤barrels≤90}

**The invalid classes of the input variables are:**

L3 = {locks: locks = 0 OR locks < -1}

L4 = {locks: locks > 70}

S2 = {stocks: stocks<1}

S3 = { stocks: stocks>80}

B2 ={barrels: barrels<1}

B3 ={ barrels: barrels>90}

**Weak & Strong Normal Equivalence Class Test Cases**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TC Id** | **Test Case Description** | **Input Data** | | | **Sales** | **Expected Output (Commission in $)** | **Actual Output** | **Status** |
| **Locks** | **Stocks** | **Barrels** |
| 1 | WN1,SN1 | 35 | 40 | 45 | $3,900.00 | 640 | 640 | Test Pass |

**Weak Robust Equivalence Class Test Cases**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TC Id** | **Test Case Description** | **Input Data** | | | **Sales** | **Expected Output (Commission in $)** | **Actual Output** | **Status** |
| **Locks** | **Stocks** | **Barrels** |
| 1 | WR1 | 35 | 40 | 45 | $3,900.00 | 640 | 640 | Test Pass |
| 2 | WR3 | -1 | 40 | 45 | - | Program terminates | Program terminates | Test Pass |
| 3 | WR4 | -2 | 40 | 45 | - | Values of locks not in the range 1...70 | Values of locks not in the range 1...70 | Test Pass |
| 4 | WR5 | 71 | 40 | 45 | - | Values of locks not in the range 1...70 | Values of locks not in the range 1...70 | Test Pass |
| 5 | WR6 | 35 | -1 | 45 | - | Values of stocks not in the range 1...80 | Values of stocks not in the range 1...80 | Test Pass |
| 6 | WR7 | 35 | 81 | 45 | - | Values of stocks not in the range 1...80 | Values of stocks not in the range 1...80 | Test Pass |
| 7 | WR8 | 10 | 9 | -1 | - | Values of barrels not in the range 1...90 | Values of barrels not in the range 1...90 | Test Pass |
| 8 | WR9 | 9 | 10 | 91 | - | Values of barrels not in the range 1...90 | Values of barrels not in the range 1...90 | Test Pass |

**Strong Robust Equivalence Class Test Cases**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TC Id** | **Test Case Description** | **Input Data** | | | **Sales** | **Expected Output (Commission in $)** | **Actual Output** | **Status** |
| **Locks** | **Stocks** | **Barrels** |
| 1 | SR1 | 35 | 40 | 45 | $3,900.00 | 640 | 640 | Test Pass |
| 2 | SR2 | -2 | 40 | 45 | - | Values of locks not in the range 1...70 | Values of locks not in the range 1...70 | Test Pass |
| 3 | SR3 | 35 | -1 | 45 | - | Values of stocks not in the range 1...80 | Values of stocks not in the range 1...80 | Test Pass |
| 4 | SR4 | 35 | 40 | -2 | - | Values of barrels not in the range 1...90 | Values of barrels not in the range 1...90 | Test Pass |
| 5 | SR5 | -2 | -1 | 45 | - | Values of locks not in the range 1...70  Values of stocks not in the range 1...80 | Values of locks not in the range 1...70  Values of stocks not in the range 1...80 | Test Pass |
| 6 | SR6 | -2 | 40 | -1 | - | Values of locks not in the range 1...70  Values of barrels not in the range 1...90 | Values of locks not in the range 1...70  Values of barrels not in the range 1...90 | Test Pass |
| 7 | SR7 | 35 | -1 | -1 | - | Values of stocks not in the range 1...80  Values of barrels not in the range 1...90 | Values of stocks not in the range 1...80  Values of barrels not in the range 1...90 | Test Pass |
| 8 | SR8 | -2 | -1 | -1 | - | Values of locks not in the range 1...70  Values of stocks not in the range 1...80  Values of barrels not in the range 1...90 | Values of locks not in the range 1...70  Values of stocks not in the range 1...80  Values of barrels not in the range 1...90 | Test Pass |
| 9 | SR9 | 71 | 40 | 45 | - | Values of locks not in the range 1...70 | Values of locks not in the range 1...70 | Test Pass |
| 10 | SR10 | 35 | 81 | 45 | - | Values of stocks not in the range 1...80 | Values of stocks not in the range 1...80 | Test Pass |
| 11 | SR11 | 35 | 40 | 91 | - | Values of barrels not in the range 1...90 | Values of barrels not in the range 1...90 | Test Pass |
| 12 | SR12 | 71 | 81 | 45 | - | Values of locks not in the range 1...70  Values of stocks not in the range 1...80 | Values of locks not in the range 1...70  Values of stocks not in the range 1...80 | Test Pass |
| 13 | SR13 | 35 | 81 | 91 | - | Values of stock not in the range 1...80  Values of barrels not in the range 1...90 | Values of stocks not in the range 1...80  Values of barrels not in the range 1...90 | Test Pass |
| 14 | SR14 | 71 | 40 | 91 | - | Values of locks not in the range 1...70  Values of barrels not in the range 1...90 | Values of locks not in the range 1...70  Values of barrels not in the range 1...90 | Test Pass |
| 15 | SR15 | 71 | 81 | 91 | - | Values of locks not in the range 1...70  Values of stocks not in the range 1...80  Values of barrels not in the range 1...90 | Values of locks not in the range 1...70  Values of stocks not in the range 1...80  Values of barrels not in the range 1...90 | Test Pass |