**Assignment 3**

**SOFTWARE TESTING**

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# **Case Study:**

Accept three integers which are supposed to be the three evaluation criteria and determine if the three values represent grade A,B,C,D,F Derive test cases for your program based on WORSTBVA approach, and strong robust equivalence class. execute the test cases and discuss the results.

# **Project Description:**

In this project we are calculating the GPA by giving 3 different evaluation criteria’s that are midterm marks, assignment marks and finals marks also we have assigned boundaries to marks. For assignments 1-20, for midterms 1-20 and for finals 1-60and assigning them grades. In our project we have 3 functions 1st function marks with 3 parameters. 2nd function grades with 1 parameter. 3rdGPAwith 1 parameter. In marks function 3 parameters midterm marks, assignment marks, and final marks is taking input from test cases and calculating sum of assignment marks, midterm marks and finals marks then saving the sum of three inputs in some variable and then we are passing value of sum in 2nd function which is grade now in our 2nd function with one parameter taking value of sum and assigning them grade by following conditions if sum grater or equals to 90 assign grade A, if sum grater or equals 80 assign grade B, if sum grater or equals to 70 assign grade C, if sum grater or equals to 50 assign grade D, if sum is below 50 then assign grade F. These grades are passing in our 3rd function that is GPA. In 3rd function we assign GPA according to grade.

If grade is equal to A assign GPA equals 4.01, If grade is equal to B assign GPA equals 3.33, If grade is equal to C assign GPA equals 2.33, If grade is equal to D assign GPA equals 1.2 ,grade equals F assign F.

With above description we have generated our test cases with worst BVA and strong robust equivalence class. Mentioned below

**(A )Using worst case BVA, identify test cases of the program**

# **Worst Boundary Value Analysis:**

|  |  |
| --- | --- |
|  |  |
| 5n =53 =125 test cases |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test case | Input 1 | Input 2 | Input 3 | | Output |
| 1 | 1 | 1 | | 1 | F |
| 2 | 1 | 1 | | 2 | F |
| 3 | 1 | 1 | | 35 | F |
| 4 | 1 | 1 | | 59 | 1.2 |
| 5 | 1 | 1 | | 60 | 1.2 |
| 6 | 1 | 2 | | 1 | F |
| 7 | 1 | 2 | | 2 | F |
| 8 | 1 | 2 | | 35 | F |
| 9 | 1 | 2 | | 59 | 1.2 |
| 10 | 1 | 2 | | 60 | 1.2 |
| 11 | 1 | 13 | | 1 | F |
| 12 | 1 | 13 | | 2 | F |
| 13 | 1 | 13 | | 35 | F |
| 14 | 1 | 13 | | 59 | 2.33 |
| 15 | 1 | 13 | | 60 | 2.33 |
| 16 | 1 | 19 | | 1 | F |
| 17 | 1 | 19 | | 2 | F |
| 18 | 1 | 19 | | 35 | 1.2 |
| 19 | 1 | 19 | | 59 | 2.33 |
| 20 | 1 | 19 | | 60 | 3.33 |
| 21 | 1 | 20 | | 1 | F |
| 22 | 1 | 20 | | 2 | F |
| 23 | 1 | 20 | | 35 | 1.2 |
| 24 | 1 | 20 | | 59 | 3.33 |
| 25 | 1 | 20 | | 60 | 3.33 |
| 26 | 2 | 1 | | 1 | F |
| 27 | 2 | 1 | | 2 | F |
| 28 | 2 | 1 | | 35 | F |
| 29 | 2 | 1 | | 59 | 1.2 |
| 30 | 2 | 1 | | 60 | 1.2 |
| 31 | 2 | 2 | | 1 | F |
| 32 | 2 | 2 | | 2 | F |
| 33 | 2 | 2 | | 35 | F |
| 34 | 2 | 2 | | 59 | 1.2 |
| 35 | 2 | 2 | | 60 | 1.2 |
| 36 | 2 | 13 | | 1 | F |
| 37 | 2 | 13 | | 2 | F |
| 38 | 2 | 13 | | 35 | 1.2 |
| 39 | 2 | 13 | | 59 | 2.33 |
| 40 | 2 | 13 | | 60 | 2.33 |
| 41 | 2 | 19 | | 1 | F |
| 42 | 2 | 19 | | 2 | F |
| 43 | 2 | 19 | | 35 | 1.2 |
| 44 | 2 | 19 | | 59 | 3.33 |
| 45 | 2 | 19 | | 60 | 3.33 |
| 46 | 2 | 20 | | 1 | F |
| 47 | 2 | 20 | | 2 | F |
| 48 | 2 | 20 | | 35 | 1.2 |
| 49 | 2 | 20 | | 59 | 3.33 |
| 50 | 2 | 20 | | 60 | 3.33 |
| 51 | 13 | 1 | | 1 | F |
| 52 | 13 | 1 | | 2 | F |
| 53 | 13 | 1 | | 35 | F |
| 54 | 13 | 1 | | 59 | 2.33 |
| 55 | 13 | 1 | | 60 | 2.33 |
| 56 | 13 | 2 | | 1 | F |
| 57 | 13 | 2 | | 2 | F |
| 58 | 13 | 2 | | 35 | 1.2 |
| 59 | 13 | 2 | | 59 | 2.33 |
| 60 | 13 | 2 | | 60 | 2.33 |
| 61 | 13 | 13 | | 1 | F |
| 62 | 13 | 13 | | 2 | F |
| 63 | 13 | 13 | | 35 | 1.2 |
| 64 | 13 | 13 | | 59 | 3.33 |
| 65 | 13 | 13 | | 60 | 3.33 |
| 66 | 13 | 19 | | 1 | F |
| 67 | 13 | 19 | | 2 | F |
| 68 | 13 | 19 | | 35 | 1.2 |
| 69 | 13 | 19 | | 59 | 4.01 |
| 70 | 13 | 19 | | 60 | 4.01 |
| 71 | 13 | 20 | | 1 | F |
| 72 | 13 | 20 | | 2 | F |
| 73 | 13 | 20 | | 35 | 1.2 |
| 74 | 13 | 20 | | 59 | 4.01 |
| 75 | 13 | 20 | | 60 | 4.01 |
| 76 | 19 | 1 | | 1 | F |
| 77 | 19 | 1 | | 2 | F |
| 78 | 19 | 1 | | 35 | 1.2 |
| 79 | 19 | 1 | | 59 | 2.33 |
| 80 | 19 | 1 | | 60 | 3.33 |
| 81 | 19 | 2 | | 1 | F |
| 82 | 19 | 2 | | 2 | F |
| 83 | 19 | 2 | | 35 | 1.2 |
| 84 | 19 | 2 | | 59 | 3.33 |
| 85 | 19 | 2 | | 60 | 3.33 |
| 86 | 19 | 13 | | 1 | F |
| 87 | 19 | 13 | | 2 | F |
| 88 | 19 | 13 | | 35 | 1.2 |
| 89 | 19 | 13 | | 59 | 4.01 |
| 90 | 19 | 13 | | 60 | 4.01 |
| 91 | 19 | 19 | | 1 | F |
| 92 | 19 | 19 | | 2 | F |
| 93 | 19 | 19 | | 35 | 2.33 |
| 94 | 19 | 19 | | 59 | 4.01 |
| 95 | 19 | 19 | | 60 | 4.01 |
| 96 | 19 | 20 | | 1 | F |
| 97 | 19 | 20 | | 2 | F |
| 98 | 19 | 20 | | 35 | 2.33 |
| 99 | 19 | 20 | | 59 | 4.01 |
| 100 | 19 | 20 | | 60 | 4.01 |
| 101 | 20 | 1 | | 1 | F |
| 102 | 20 | 1 | | 2 | F |
| 103 | 20 | 1 | | 35 | 1.2 |
| 104 | 20 | 1 | | 59 | 3.33 |
| 105 | 20 | 1 | | 60 | 3.33 |
| 106 | 20 | 2 | | 1 | F |
| 107 | 20 | 2 | | 2 | F |
| 108 | 20 | 2 | | 35 | 1.2 |
| 109 | 20 | 2 | | 59 | 3.33 |
| 110 | 20 | 2 | | 60 | 3.33 |
| 111 | 20 | 13 | | 1 | F |
| 112 | 20 | 13 | | 2 | F |
| 113 | 20 | 13 | | 35 | 1.2 |
| 114 | 20 | 13 | | 59 | 4.01 |
| 115 | 20 | 13 | | 60 | 4.01 |
| 116 | 20 | 19 | | 1 | F |
| 117 | 20 | 19 | | 2 | F |
| 118 | 20 | 19 | | 35 | 2.33 |
| 119 | 20 | 19 | | 59 | 4.01 |
| 120 | 20 | 19 | | 60 | 4.01 |
| 121 | 20 | 20 | | 1 | F |
| 122 | 20 | 20 | | 2 | F |
| 123 | 20 | 20 | | 35 | 2.3 |
| 124 | 20 | 20 | | 59 | 4.01 |
| 125 | 20 | 20 | | 60 | 4.01 |

# **Strong robust equivalence classes AND Robust worst case**

Robust worst case=7n =**343**

Strong robust equivalence classes=