SOFTWARE TESTING

Assignment # 02

GROUP MEMBERS

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Convocation Management System

On successful completion of a degree program, University issues a “Degree” and honors in a university convocation ceremony. This ceremony held annually for fresh graduates. Different distinguished guests address the students and advise them about their practical professional life. To invite students for convocation, University had set some criteria based on which students get to know 6 months before the convocation that if they had qualified for the convocation ceremony or not. There are three categories in which students lie; Qualified, Disqualified, and Not Applicable. Students lie in these categories concerning their departments criteria. There are three departments; Computer Science (CS), Mechanical Engineering (ME), Electrical Engineering (EE). For CS the criteria are set that student must be having CGPA of greater than 2.0, minimum credit hours should be equal to 152 and maximum semesters equals to 14. For ME the criteria are set that student must be having CGPA of greater than 2.0, minimum credit hours should be equal to 156 and a maximum semester spent equals 14. For EE the criteria are set that student must be having CGPA of greater than 2.0, minimum credit hours should be equal to 160 and a maximum semester spent equals 14. Moreover, the concerned department of scholarship reports the scholarships provided to the student. Students will be rewarded scholarships on three bases; if they achieve the 1st position then they will be granted with 75% scholarship, if they achieve 2nd position then they will be granted with 50% scholarship, and if they achieve 3rd position then they will be granted with 25% scholarship. Students registered with PGC scholarship will be given 25% scholarship by default, in any case of achieving the first 3 position the student will either be given position scholarship or the PGC scholarship.

Identification of Functions

1) **Convocation Management**
2) **Scholarships**
3) **Fee Taxes**

Blackbox Testing

Worst Case BVA

ConvocationManagement(int credithours**,float** gpa**,int** semester**)**

Total Test case=5^3=125

Case no	credithours	gpa	semester	Expected Result
1	152	1.0	1	disqualified
2	152	1.0	2	disqualified
3	152	1.0	8	disqualified
4	152	1.0	13	disqualified
5	152	1.0	14	Not applicable
6	152	1.1	1	disqualified
7	152	1.1	2	disqualified
8	152	1.1	8	disqualified
9	152	1.1	13	disqualified
10	152	1.1	14	Not applicable
11	152	2.0	1	disqualified
12	152	2.0	2	disqualified
13	152	2.0	8	qualified
14	152	2.0	13	qualified
15	152	2.0	14	Not applicable
16	152	3.9	1	disqualified
17	152	3.9	2	disqualified
18	152	3.9	8	qualified

19	152	3.9	13	qualified
20	152	3.9	14	Not applicable
21	152	4.0	1	disqualified
22	152	4.0	2	disqualified
23	152	4.0	8	qualified
24	152	4.0	13	qualified
25	152	4.0	14	Not applicable
26	153	1.0	1	disqualified
27	153	1.0	2	disqualified
28	153	1.0	8	disqualified
29	153	1.0	13	disqualified
30	153	1.0	14	Not applicable
31	153	1.1	1	disqualified
32	153	1.1	2	disqualified
33	153	1.1	8	disqualified
34	153	1.1	13	disqualified
35	153	1.1	14	Not applicable
36	153	2.0	1	disqualified
37	153	2.0	2	disqualified
38	153	2.0	8	qualified
39	153	2.0	13	qualified
40	153	2.0	14	Not applicable
41	153	3.9	1	disqualified
42	153	3.9	2	disqualified

43	153	3.9	8	qualified
44	153	3.9	13	qualified
45	153	3.9	14	Not applicable
46	153	4.0	1	disqualified
47	153	4.0	2	disqualified
48	153	4.0	8	qualified
49	153	4.0	13	qualified
50	153	4.0	14	Not applicable
51	170	1.0	1	disqualified
52	170	1.0	2	disqualified
53	170	1.0	8	disqualified
54	170	1.0	13	disqualified
55	170	1.0	14	Not applicable
56	170	1.1	1	disqualified
57	170	1.1	2	disqualified
58	170	1.1	8	disqualified
59	170	1.1	13	disqualified
60	170	1.1	14	Not applicable
61	170	2.0	1	disqualified
62	170	2.0	2	disqualified
63	170	2.0	8	qualified

scholarships(int position**, boolean** PGC**, float** GPA**)**

Total Test case=5^3=125

Case no	**position**	**GPA**	**PGC**	**Expected Result**
1	1	1.0	1	75%
2	1	1.5	1	75%
3	2	1.0	1	50%
4	3	1.0	0	25%
5	4	1.0	1	0%
6	1	1.1	1	75%
7	1	1.1	1	75%
8	3	1.1	0	25%
9	2	1.1	1	50%
10	6	1.1	1	0%
11	4	2.0	1	0%
12	2	2.0	0	0%
13	1	2.0	0	75%
14	1	2.0	0	75%
15	2	2.0	0	50%
16	3	3.9	0	0%
17	4	3.9	1	25%
18	1	3.9	1	75%
19	1	3.9	1	75%

20	3	3.9	1	25%
21	2	4.0	1	50%
22	6	4.0	0	0%
23	4	4.0	1	25%
24	2	4.0	1	25%
25	1	4.0	1	75%
26	1	1.0	0	75%
27	2	1.0	1	50%
28	3	1.0	1	25%
29	4	1.0	1	25%
30	1	1.0	0	75%
31	1	1.1	0	75%
32	3	1.1	0	25%
33	2	1.1	0	50%
34	6	1.1	0	0%
35	4	1.1	1	25%
36	2	2.0	1	50%
37	1	2.0	1	75%
38	1	2.0	1	75%
39	2	2.0	1	50%
40	3	2.0	0	25%
41	4	3.9	1	25%
42	1	3.9	1	75%
43	1	3.9	1	75%

44	3	3.9	0	25%
45	2	3.9	1	50%
46	6	4.0	1	25%
47	4	4.0	1	25%
48	2	4.0	0	50%
49	1	4.0	0	75%
50	1	4.0	0	75%
51	2	1.0	0	50%
52	3	1.0	0	25%
53	4	1.0	1	0%
54	1	1.0	1	75%
55	1	1.0	1	75%
56	3	1.1	1	25%
57	2	1.1	1	50%
58	6	1.1	0	0%
59	4	1.1	1	0%
60	2	1.1	1	50%
61	1	2.0	1	75%
62	1	2.0	0	75%
63	2	2.0	1	50%

int feetax(int feeCharges**, int** busCharges**)**

Total Test case=5^2=25

Case no	**busCharges**	**feeCharges**	**Expected Result**
1	1	1	0
2	1	2	0
3	1	100000	10000
4	1	299999	30000
5	1	300000	30000
6	2	1	0
7	2	2	0
8	2	100000	10000
9	2	299999	30000
10	2	300000	30000
11	10000	1	0
12	10000	2	0
13	10000	100000	10000

Strong robust equivalence classes

Function 1

ConvocationManagement(int credithours,float gpa,int semester)

Case no	**credithours**	**gpa**	**semester**	**Expected Result**
1	151	-1	15	Not applicable
2	152	5	14	Not applicable
3	153	0	-1	disqualified
4	200	1.0	13	disqualified
5	199	4	14	qualified
6	160	3	10	qualified
7	201	1.1	2	disqualified

Function 2

public int scholarships(int position, boolean PGC,float GPA)

Case no	position	PGC	GPA	**Expected Result**
1	-1	-1	5	0
2	0	0	4	0
3	1	1	3	75
4	3	2	1	25
5	4	0	-1	0
6	5	3	0	0
7	2	2	2	50

Function 3

int feetax(int feeCharges, int busCharges)

Case no	**busCharges**	**feeCharges**	**Expected Result**
1	-1	300001	30000

2	0	300000	30000
3	1	100000	10000
4	2	299999	30000
5	10000	0	0
6	20000	-1	0
7	20001	1	0

Comparison between strong robust equivalence class and robust worst case BVA

ConvocationManagement(int credithours,float gpa,int semester)

In function 1 the strong robust equivalence class has 7 test cases of the program while robust worst case BVA has 343 (7^3) test cases of the program.

public int scholarships(int position, boolean PGC,float GPA)

In function 2 the strong robust equivalence class has 7 test cases of the program while robust worst case BVA has 343 (7^3) test cases of the program.

int feetax(int feeCharges, int busCharges)

In function 3 the strong robust equivalence class has 7 test cases of the program while robust worst case BVA has 49 (7^2) test cases of the program.