Part I / Part II* grading table

Group	Grade	1st	2nd	justif	CM	F1s	ranks	corr	hist	split	total	vars	pf	partition	tree	code	chart	results	gener.	tree	desc.	total	others**
		1			2	3	4		5			1		2				3		4			
		2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1.0	1.0	1	1	1	1	1	1	9	
1	18.95	2	0.75	1.5	2.38	1.43	0.5	0.5	0.5	0.5	10.05	0.5	0.4	1	1	1	1	1	1	1	1	8.9	
2	16.2	2	0	0	2.38	1.43	0.5	0.5	0.5	0	7.3	0.5	0.4	1	1	1	1	1	1	1	1	8.9	
3	19.75	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	0.75	1	1	1	1	1	1	1	8.8	
4	19.5	2	1.5	1.5	2.5	1.5	0.5	0.5	0.2	0.5	10.7	0.5	0.5	1	1	0.9	1	1	1	1	0.9	8.8	
5	16.8	2	0	0	2.38	1.43	0.5	0.5	0.5	0.5	7.8	0.5	0.5	1	1	1	1	1	1	1	1	9	
6	19.8	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.3	10.8	0.5	0.5	1	1	1	1	1	1	1	1	9	
7	19.25	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0	10.5	0.5	0.5	0.75	1	1	1	1	1	1	1	8.8	
8	19.75	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.3	10.75	0.5	0.5	1	1	1	1	1	1	1	1	9	
9	17.35	0	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	8.9	0.5	0.5	0.75	1	1	1	0.9	1	1	0.8	8.5	
10	19.4	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.4	1	1	1	1	1	0.6	1	1	8.5	
11	19.9	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	0.95	1	1	9	-0.1
12	18.05	2	1.5	1.4	2.5	0.5	0.38	0.48	0.5	0.5	9.75	0.5	0.4	0.75	1	1	1	1	0.75	1	0.9	8.3	
13	18.7	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0	10.5	0.5	0.5	1	1	0.9	1	1	0.9	0.7	0.7	8.2	
14	15.95	2	0	0	2.38	1.43	0.5	0.5	0.5	0	7.3	0.5	0.5	0.75	1	0.9	1	1	1	1	1	8.7	
15	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
16	19.9	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	1	1	1	1	1	1	9	
17	19.8	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	
18	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	0.9	1	1	1	9	
19	19.8	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	0.9	1	1	1	8.9	-0.1
20	19.8	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	0.85	1	1	1	8.9	-0.1
21	15.4	2	0.75	1.4	2.5	1.5	0.5	0.25	0.25	0	9.15	0.5	0.5	0.75	1	1	1	0.5	0	0	0	6.3	
22	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
23	19.65	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.25	1	1	0.9	1	1	1	1	1	8.7	
24	19.7	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	
25	9.4	0	0	0	0	0	0	0	0.5	0	0.5	0.5	0.5	1	1	1	1	1	0.9	1	1	8.9	
26	19.8	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	
27	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
28	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
29	19.9	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.4	10.9	0.5	0.5	1	1	1	1	1	1	1	1	9	
30	17.55	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	0.75	1	0.8	1	1	0	1	0	6.6	
31	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
32	19.75	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	0.75	1	1	8.8	
33	19.65	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.3	10.65	0.5	0.5	1	1	1	1	1	1	1	1	9	
34	18.85	2	1.5	1.4	2.5	1.5	0.5	0.25	0.5	0	10.15	0.5	0.5	0.75	1	1	1	1	0.95	1	1	8.7	
35	16	2	0	0	2.38	1.43	0.5	0.5	0.5	0	7.3	0.5	0.5	0.75	1	1	1	1	0.95	1	1	8.7	
36	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
37	16.075	2	0	0	2.5	1.5	0.25	0.48	0.5	0.5	7.725	0.5	0.5	0.75	1	1	0.8	1	0.9	1	0.9	8.4	
38	19.7	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	-0.1
39	18.6	2	1.5	1.5	2.5	0.5	0.5	0.4	0.5	0.5	9.9	0.5	0.4	1	1	0.8	1	1	1	1	1	8.7	
40	19.775	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.4	10.88	0.5	0.5	1	1	0.9	1	1	1	1	1	8.9	
41	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
42	19.65	2	1.5	1.4	2.5	1.3	0.5	0.5	0.5	0.5	10.7	0.5	0.5	1	1	1	1	1	0.95	1	1	9	
43	19.7	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	
44	19.45	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.3	10.65	0.5	0.5	1	1	1	1	1	1	1	0.8	8.8	
45	19.45	2	1.5	1.4	2.5	1.5	0.5	0.25	0.5	0.5	10.65	0.5	0.5	1	1	1	1	1	1	1	0.8	8.8	
46	19.075	2	1.5	1.4	1.95	1.43	0.5	0.5	0.5	0.5	10.28	0.5	0.5	1	1	1	1	1	1	1	0.8	8.8	
47	19.8	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	0.9	1	1	1	1	1	8.9	
48	19.4	2	1.5	1.5	2.5	1.2	0.5	0.5	0.5	0.5	10.7	0.5	0.5	1	1	0.9	1	1	1	1	0.8	8.7	
49	18.65	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0	10.4	0.5	0.4	0.75	1	1	1	1	0.8	1	0.8	8.3	
50	15.15	2	0	0	2.38	1.43	0.5	0	0.5	0	6.8	0.5	0.35	1	1	0.8	1	1	0.9	1	0.8	8.4	
51	19.5	2	1.5	1.4	2.5	1.2	0.5	0.5	0.5	0.5	10.6	0.5	0.5	1	1	1	1	1	1	1	1	9	-0.1
52	17.65	2	1.5	1.4	2.5	1.5	0.5	0.25	0.5	0	10.15	0.5	0.5	0.75	1	1	1	1	0.75	1	1	7.5	
53	17	2	1.5	1.4	2.5	1.5	0	0	0.5	0	9.4	0.5	0.35	0.75	1	0.9	1	0.7	0.4	1	1	7.6	
54	16.25	2	0	0	2.38	1.43	0.5	0.5	0.5	0.5	7.8	0.5	0.5	0.75	1	1	1	1	1	0.7	1	8.5	
55	19.8	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	0.9	1	1	1	1	1	8.9	
56	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
57	18.55	2	1.5	1.5	2.5	0.5	0.5	0.5	0.5	0.5	9.9	0.5	0.4	0.75	1	1	1	1	1	1	1	8.7	
58	19.3	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0	10.5	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	
59	19.6	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.4	1	1	0.8	1	1	1	1	1	8.7	
60	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
61	19.9	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	1	1	1	1	1	1	9	
62	18.05	2	1.5	1.5	2.5	1.5	0	0	0.5	0	9.4	0.5	0.35	1	1	0.8	1	1	1	1	1	8.7	
63	19.5	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0	10.5	0.5	0.5	1	1	1	1	1	1	1	1	9	
64	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
65	19.9	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	1	1	1	1	1	1	9	
66	19.8	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	
67	19.8	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	0.8	1	1	8.8	
68	16.4	2	0	0	2.38	1.43	0.5	0.5	0.5	0.5	7.8	0.5	0.5	1	1	0.8	1	1	1	1	0.8	8.6	
69	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
70	19.75	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	0.75	1	1	1	1	1	1	1	8.8	
71	19.1	2	1.5	1.4	2.5	1.3	0.5	0.5	0.5	0	10.2	0.5	0.4	1	1	1	1	1	1	1	1	8.9	
72	18.6	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	0.8	1	1	0.9	1	0	7.7	
73	19.5	2	1.5	1.5	2.5	1	0.5	0.5	0.5	0.5	10.5	0.5	0.5	1	1	1	1	1	1	1	1	9	
74	19.25	2	1.5	1.4	2.5	1.5	0.38	0.48	0.5	0	10.25	0.5	0.5	1	1	1	1	1	1	1	1	9	
75	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
76	19.5	1.5	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	10.5	0.5	0.5	1	1	1	1	1	1	1	1	9	
77	17.85	1.9	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0	10.4	0.5	0.4	0.75	1	0.8	1	0.5	0.5	1	1	7.5	
78	19.9	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	1	1	1	1	1	1	9	
79	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
80	19.15	2	1.5	1.4	2.5	1.5	0.5	0	0.5	0.5	10.4	0.5	0.5	0.75	1	1	1	1	1	1	1	8.8	
81	16.1	1.7	1.2	1.4	2.5	0.3	0.5	0.5	0	0.5	8.2	0.5	0.3	0.75	1	0.8	1	0.75	0.9	1	1	8	-0.1
82	8.75	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.75	1	1	1	1	1	1	1	8.8	
83	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
84	18.9	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0	10.4	0.5	0.45	0.75	1	0.9	1	1	0.9	1	1	8.5	
85	19.9	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	1	1	1	1	1	1	9	
86	18.2	1	1	1.4	2.5	1.5	0.5	0.5	0.5	0.5	9.4	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	
87	17.825	2	1.5	1.4	1.9	1.43	0.5	0.25	0.5	0	9.475	0.5	0.35	1	1	0.8	1	1	1	0.7	1	8.4	
88	18.7	2	1.5	1.5	2.5	1.5	0.5	0	0.5	0	10	0.5	0.4	1	1	0.85	1	1	1	1	1	8.8	-0.1
89	16.6	2	1.5	1.4	2.5	1.5	0	0	0	0	8.9	0.5	0.3	1	1	1	1	1	0	1	1	7.8	-0.1
90	19.95	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	0.95	1	1	9	
91	19.9	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	1	1	1	1	1	1	9	
92	15.85	1.5	0	0	2.5	1.5	0.5	0.5	0.5	0.5	7.5	0.5	0.5	0.75	1	0.9	1	1	1	1	0.8	8.4	
93	19.7	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.4	1	1	1	1	1	1	1	1	8.9	-0.1
94	19.45	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	0.75	1	1	1	0.8	1	1	1	8.5	
95	19.6	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	-0.1
96	19.7	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	
97		-											-										0	
98	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
99	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
100	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
101	19.2	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0	10.4	0.5	0.5	1	1	0.8	1	1	1	1	1	8.8	
102	19.3	2	1.5	1.5	2.5	1.5	0.5	0.25	0.5	0.5	10.65	0.5	0.5	0.75	1	1	1	1	1	1	1	8.8	-0.1
103	19	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0	10.4	0.5	0.35	0.75	1	1	1	1	1	1	1	8.6	
104	19.05	2	1.5	1.5	2.5	1.5	0.5	0.4	0.5	0.5	10.4	0.5	0.5	1	1	0.9	1	1	0.75	1	1	8.7	
105	19.5	2	1.5	1.5	2.5	1.5	0.5	0.4	0.5	0.5	10.9	0.5	0.5	1	1	0.8	1	0.8	1	1	1	8.6	
106	19.65	2	1.5	1.4	2.5	1.5	0.5	0.25	0.5	0.5	10.65	0.5	0.5	1	1	1	1	1	1	1	1	9	
107	19.5	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	0.8	1	1	1	1	0.8	8.6	
108	19.7	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	0.7	1	8.7	
109	19.7	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	1	1	1	1	1	0.9	1	1	8.9	-0.1
110	17.0	2	1.5	1.4	1.4	0.2	0.5	0.5	0.5	0.5	8.5	0.5	0.35	1	1	1	1	1	1	1	0.7	8.6	-0.1
111	18.75	2	1	1.5	2.5	1.5	0.5	0	0.5	0.5	10	0.5	0.5	0.75	1	1	1	1	1	1	1	8.8	
112	18.3	2	0.5	1.4	2.5	1.5	0.5	0	0.5	0.5	9.4	0.5	0.5	1	1	1	1	1	1	1	1	9	-0.1
113	18.4	1.5	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0	10	0.5	0.5	0.75	1	0.8	1	1	0.9	1	1	8.5	-0.1
114	16.15	1.5	0	0	2.5	1.5	0.5	0.4	0.5	0.5	7.4	0.5	0.5	0.75	1	1	1	1	1	1	1	8.8	
115	18.3	2	1	1.4	2.5	1.5	0.5	0.5	0.5	0	9.9	0.5	0.4	1	1	1	1	1	1	0.7	0.8	8.4	
116	17.65	1.5	1	1.4	2.5	1.5	0.5	0.5	0.5	0	9.4	0.5	0.5	0.75	1	1	1	1	1	0.6	1	8.3	
117	19.65	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.5	0.75	1	1	1	1	1	1	1	8.8	
118	19.65	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.5	10.9	0.5	0.35	1	1	0.9	1	1	1	1	1	8.8	-0.1
119	16.8	1.5	1.5	1.4	1.1	1.5	0.5	0.5	0	0	8	0.5	0.35	1	1	1	1	1	1	1	1	8.9	-0.1
120	12.3	1.5	0	0	2.38	1.43	0.5	0.5	0	0	6.8	0.5	0.45	1	1	1	1	0	0	0.6	0	5.6	-0.1
121	19.67	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.2	10.67	0.5	0.5	1	1	1	1	1	1	1	1	9	
122		-											-										0	
123													-										0	
124	19.2	2	1.5	1.4	2.5	1.5	0.5	0.4	0.5	0	10.3	0.5	0.4	1	1	1	1	1	1	1	1	8.9	
125	17.95	2	1.5	1.4	2.5	0.5	0.5	0.5	0.5	0	9.4	0.5	0.5	1	1	1	1	1	1	1	0.65	8.6	
126	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
127	18.9	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0.2	10.57	0.5	0.5	1	1	0.8	1	0.95	1	1	0.7	8.5	-0.1
128	19.15	2	1.5	1.4	2.5	1.5	0.5	0.4	0.5	0.5	10.8	0.5	0.5	0.75	1	1	1	0.6	1	1	1	8.4	
129	14.1	1.5	0.75	0	2.38	1.43	0.25	0	0.5	0	6.8	0.5	0.5	1	1	1	1	0.6	0.9	0.8	0	7.3	
130	18.8	2	1.5	1.4	2.5	1.2	0.25	0	0.5	0	9.35	0.5	0.5	1	1.45	1	1	1	1	1	1	9.5	
131	18.9	2	1.5	1.5	2.5	1.4	0.5	0	0.5	0	9.9	0.5	0.5	1	1	1	1	1	1	1	1	9	
132	18.1	2	1.5	1.4	2.5	1.5	0.5	0.5	0.5	0	10.4	0.5	0.5	1	1	0.8	1	1	1	1	0	7.8	-0.1
133	19.5	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.3	10.7	0.5	0.3	1	1	1	1	1	1	1	1	8.8	
134	20	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	1	9	
135	19.85	2	1.5	1.5	2.5	1.5	0.5	0.5	0.5	0.5	11	0.5	0.5	1	1	1	1	1	1	1	0.95	8.9	
136	16.05	1.5	0.75	0	2.38	1.43	0.5	0.5	0.5	0	7.55	0.5	0.5	1	1	1	1	1	1	1	0.5	8.5	
137	5.85	1.5	0	0	2.38	1.43	0.25	0	0	0	5.55	0.2		0.1								0.3	
138	0.7	0.5	0	0	0	0	0	0	0	0	0.5	0.2										0.2	

* common errors on Part II according to question:
  1) class-conditional distribution is not a probability function (cumulative pmf or pdf do not amount 1)
  2) non-stratified partitioning; symbolic discount for combined logical problems: multiple hold-out partitions + multiple runs with fixed seed
  3) incomplete discussion (e.g., single focus on high depth, ignoring best underfitting-overfitting trade-off)
  4) min_samples_split instead of min_samples_leaf; wrong class annotation in the three; feature importance instead of explicit description
** non-compliant report with instructions (ex. part II excluded)
*** note on plagiarism: many cases of likely plagiarism were detected (combined rare errors such as the ones signaled in (*); exact copies of reference code), clearance may be required and nullification applicable for cumulative cases across homeworks