Andrew Duong
1000867697

CSE 4321: Software Testing and Maintenance

HW 3 (30 points)

Consider a system that consists of 4 parameters, P1, P2, P3, and P4. Each parameter has two values 0 and 1. Apply algorithm IPO to create a pairwise test set for this system. Use "-" to represent *don't care* values, i.e., values that do not affect coverage. Clearly indicate your tie-breaking rules that may be needed in the test generation process. You must show intermediate steps to obtain full credits.

Step 1: Horizontal Extension for parameter P3

P1	P2	P3
0	0	0
0	1	1
1	0	1
1	1	0

P1	P3
~~0~~	~~0~~
~~0~~	~~1~~
~~1~~	~~0~~
~~1~~	~~1~~

P2	P3
~~0~~	~~0~~
~~0~~	~~1~~
~~1~~	~~0~~
~~1~~	~~1~~

0:1   1:2

Step 2: Horizontal Extension and Vertical Extension for parameter P4

P1	P2	P3	P4
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	1
-	0	-	1
-	1	-	0

P1	P4
~~0~~	~~0~~
~~0~~	~~1~~
~~1~~	~~0~~
~~1~~	~~1~~

P2	P4
~~0~~	~~0~~
0	1
1	0
~~1~~	~~1~~

P3	P4
~~0~~	~~0~~
~~0~~	~~1~~
~~1~~	~~0~~
~~1~~	~~1~~

0:2   1:2
0:2   1:2

final step on next page →

Step 3: Final Table

P1	P2	P3	P4
O	O	O	O
O	1	1	1
1	O	1	O
1	1	O	1
–	O	–	1
–	1	–	O

P1	P2
~~0~~	~~0~~
~~0~~	~~1~~
~~1~~	~~0~~
~~1~~	~~1~~

P1	P3
~~0~~	~~0~~
~~0~~	~~1~~
~~1~~	~~0~~
~~1~~	~~1~~

P1	P4
~~0~~	~~0~~
~~0~~	~~1~~
~~1~~	~~0~~
~~1~~	~~1~~

P2	P4
~~0~~	~~0~~
~~0~~	~~1~~
~~1~~	~~0~~
~~1~~	~~1~~

P3	P4
~~0~~	~~0~~
~~0~~	~~1~~
~~1~~	~~0~~
~~1~~	~~1~~