Quine–McCluskey Method

Consider $f(a,b,c,d) = \Sigma m(0, 2, 3, 5, 10, 11, 12, 13, 15)$

① binary representation

0	0000
2	0010
3	0011
5	0101
10	1010
11	1011
12	1100
13	1101
15	1111

② group by # 1s

0	0000
2	0010
3	0011
5	0101
10	1010
12	1100
11	1011
13	1101
15	1111

③ look @ adjacent pairs for diff=1

0,2	00−0	
2,3	001−	✓
2,10	−010	✓
3,11	−011	✓
5,13	−101	
10,11	101−	✓
12,13	110−	
11,15	1−11	
13,15	11−1	

④ do it again, but dashes must match
↳ check the ones that work

2,3,10,11	−01−

⑤ Construct table w/ prime implicants

	0	2	3	5	10	11	12	13	15
$\bar{a}\bar{b}\bar{d}$	✓	✓							
$b\bar{c}d$				✓				✓	
$ab\bar{c}$							✓	✓	
acd						✓			✓
abd								✓	✓
$\bar{b}\bar{c}$		✓	✓		✓	✓			

- do sweep & try to gather up as much as possible.

⑥ $\bar{a}\bar{b}\bar{d} + b\bar{c}d + ab\bar{c} + acd + \bar{b}\bar{c}$