

LAPORAN

“Post Test VII Logika Informatika”

Diajukan untuk memenuhi salah satu tugas Mata Kuliah Pratikum Logika Informatika



Disusun Oleh:

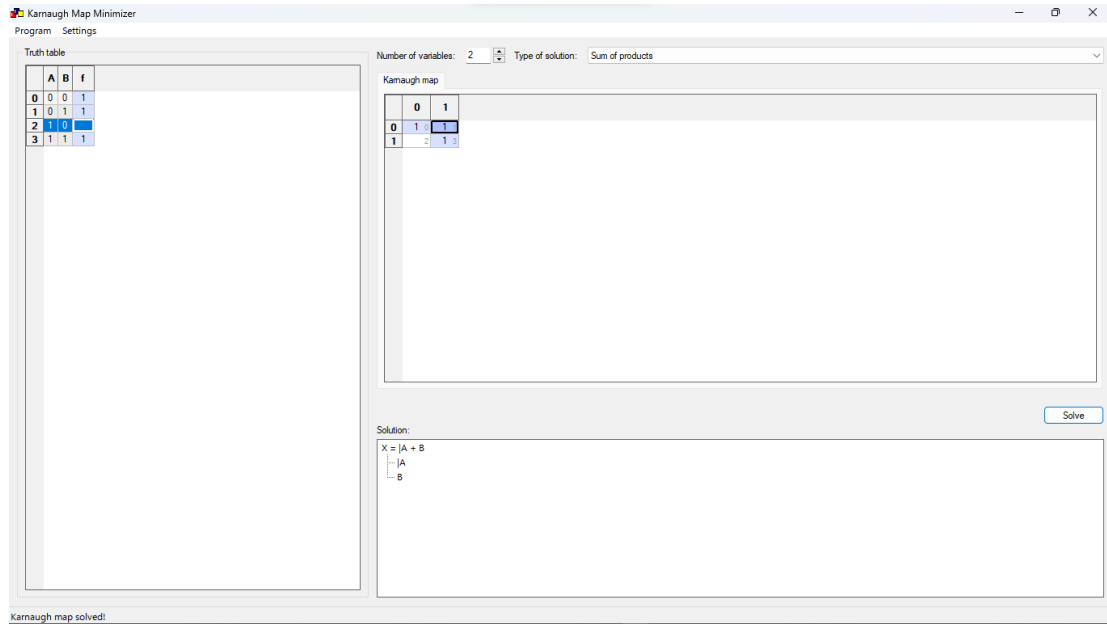
Mohammad Farid Hendianto 2200018401

UNIVERSITAS AHMAD DAHLAN
FAKULTAS TEKNOLOGI INDUSTRI
PROGRAM STUDI INFORMATIKA
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Sederhanakan fungsi F dibawah ini dengan menggunakan peta Karnaugh:

1. Fungsi $F(A, B) = A'B + AB + A'B'$

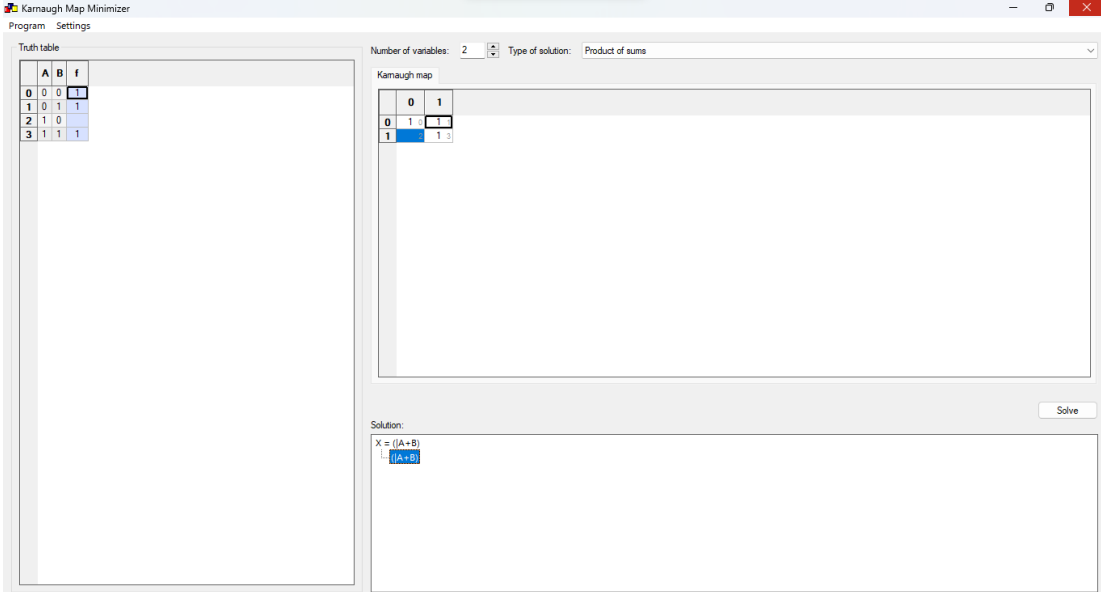
Dengan SOP (Sum of Product)



Gambar 1 SOP K-Map dari $f(A, B) = \sum m(0,1,3)$ (Sumber: Penulis)

Maka fungsi mintermnya: $f(A, B) = \sum m(0,1,3) = A' + B$

Dengan POS (Produt of Sum)



Karnaugh Map Minimizer

Program Settings

Truth table

	A	B	f
0	0	0	1
1	0	1	1
2	1	0	1
3	1	1	0

Number of variables: 2 Type of solution: Product of sums

Karnaugh map

	0	1
0	1	0
1	1	0

Solution:

X = (A+B)

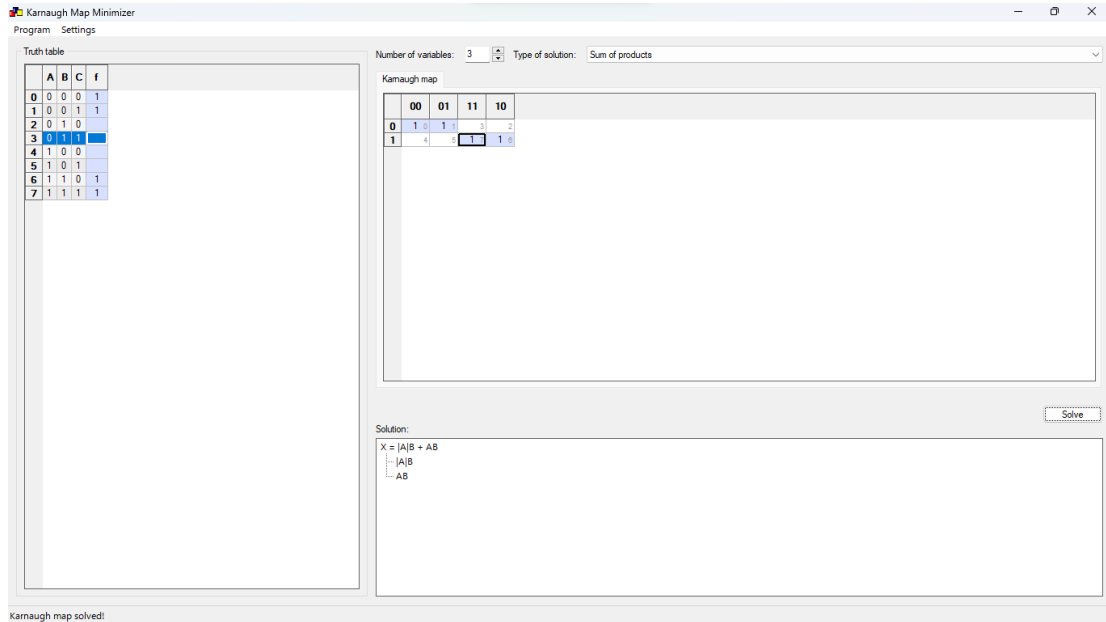
Karnaugh map solved!

Gambar 2 POS dari K-Map $f(A, B) = \prod M(2)$ (Sumber: Penulis)

Maka fungsi maxtermnya adalah $f(A, B) = \prod M(2) = (A' + B) = A' + B$

2. Fungsi $f(A, B, C) = A'B'C + A'B'C' + ABC + ABC'$

Dengan SOP (Sum of Product)



Gambar 3 SOP dari K-Map $f(A, B, C) = \sum M(0, 1, 6, 7)$ (Sumber: Penulis)

Maka fungsi mintermnya: $f(A, B, C) = \sum M(0, 1, 6, 7) = A'B' + AB$

Dengan POS (Product of Sum)

The screenshot shows the Karnaugh Map Minimizer software interface. The 'Truth table' section displays the following data:

	A	B	C	f
0	0	0	0	1
1	0	0	1	1
2	0	1	0	
3	0	1	1	
4	1	0	0	
5	1	0	1	
6	1	1	0	1
7	1	1	1	1

The 'Karnaugh map' section shows a 2x4 grid with the following values:

	00	01	11	10
0	1	1	1	1
1	1	1	1	1

The 'Solution' section displays the following expression:

$$X = (A+B)(A+B)$$

Below the expression, there are two lines of text: $(A+B)$ and $(A+B)$.

Gambar 4 POS dari K-Map $f(A, B, C) = \prod M(2-5)$ (Sumber: Penulis)

Maka fungsi maxtermnya: $f(A, B, C) = \prod M(2-5) = (A + B')(A' + B)$

3. Fungsi $f(A, B, C, D) = A'BC'D' + A'B'C'D' + AB'CD' + AB'CD$

Dengan SOP (Sum of Product)

Number of variables: 4 Type of solution: Sum of products

Karnaugh map

	00	01	11	10
00	1	0	1	0
01	1	0	1	0
11	1	1	1	1
10	1	1	1	1

Solution:

$X = A'CD + A'BC$

Gambar 5 SOP dari K-Map $(A, B, C, D) = \sum m(0,4,10,11)$ (Sumber: Penulis)

Maka fungsi mintermnya: $f(A, B, C, D) = \sum m(0,4,10,11) = A'C'D' + AB'C$

Dengan POS (Product of Sum)

The screenshot shows the Karnaugh Map Minimizer interface. On the left, the 'Truth table' is displayed with columns A, B, C, D, and f. The function f is 1 for minterms 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15. On the right, the 'Karnaugh map' is shown with a 4x4 grid. The map is filled with 1s for all cells except for the cells corresponding to minterms 1, 3, 5, 7, 9, 11, 13, and 15. The 'Solution' section shows the minimized expression: $X = (C+D)(A+C)(A+B)(A+C)$.

Gambar 6 POS dari K-Map $f(A, B, C, D) = \prod M(1 - 3, 5 - 9, 12 - 15)$ (Sumber: Penulis)

Maka fungsi maxtermnya:

$$f(A, B, C, D) = \prod M(1 - 3, 5 - 9, 12 - 15) = (C + D')(A + C')(A' + B')(A' + C)$$