Logic System Assignment 2

A simple CAD tool based on Petrick's Method

1. Description

   This assignment is based on the previous assignment.

   In this homework, you will use Petrick's method to improve your first homework.

2. Requirement

   I. Read the input file

      Your program will read the input file for the minterm information, not including don't care terms.

      The format of the input information will be shown in the rest of this document.

   II. Compare the adjacent groups and combine them just like the previous homework.

   III. Use Petricks's method to find all possible results of the minimum SOP.

   IV. Write the output file

The output file should contain these information:

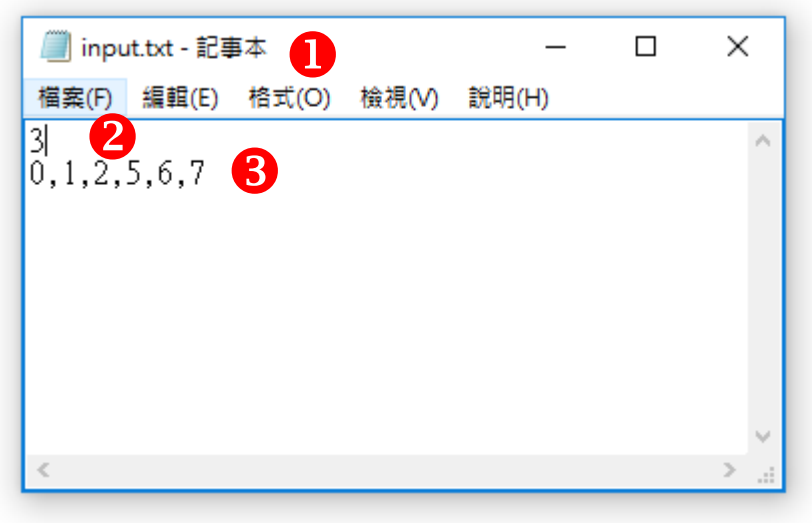
- Minterm function after combing adjacent groups
- The process of Petrick's method
- The final result of Petrick's method

The format of the output information will be shown in the rest of this document.

3. Input/Output Specification

I. You can finish your program in C, C++ or Java.

II. The following is the input format:



❶ File name

Name: input.txt (Your program should be able to read this file with this name.)

❷ Variable number

Range: 2~4 (NOT THE NUMBER OF MINTERMS)

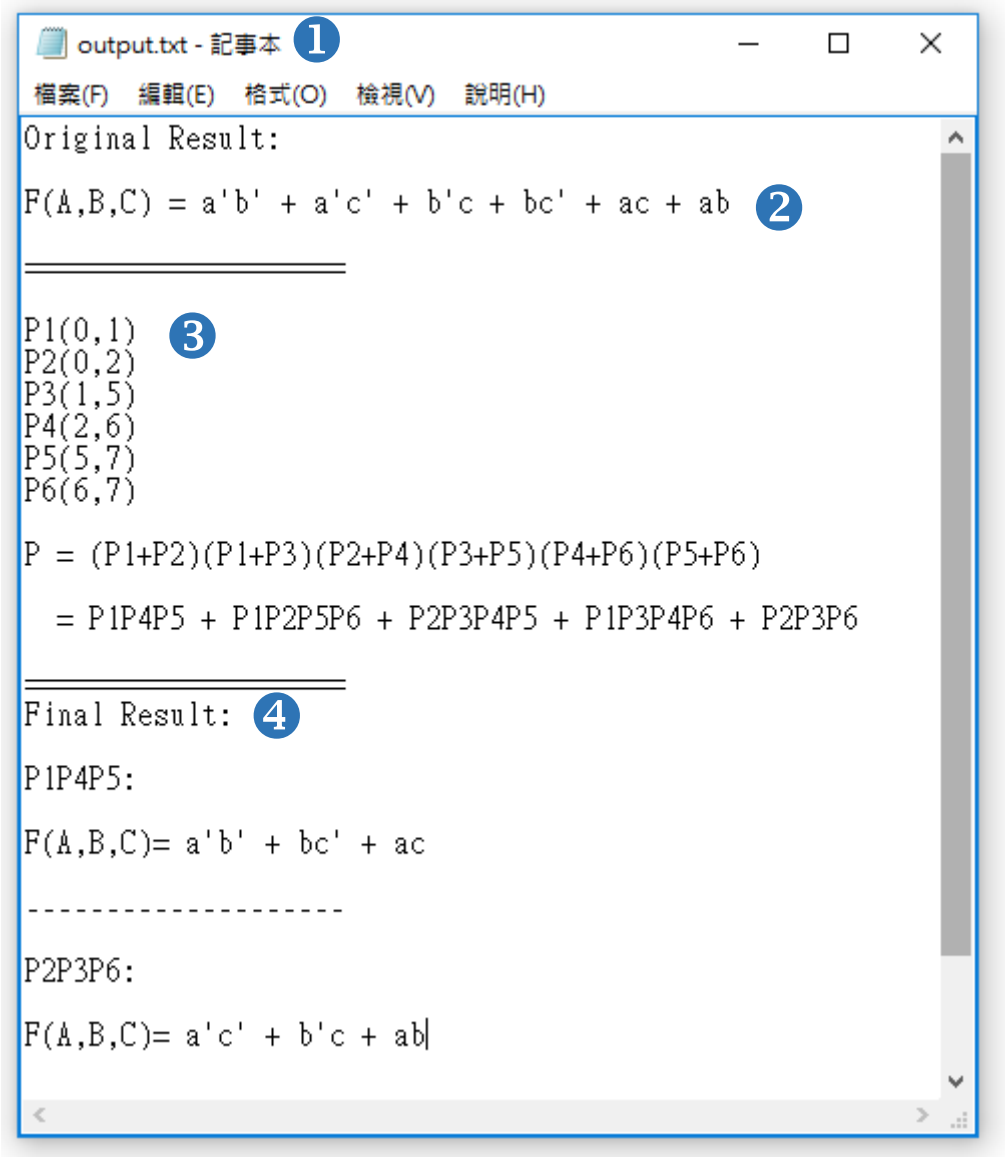
For example: ab → 2 ; abc → 3 ; abcd → 4

❸ Minterm Value

If ❶ equals 2, minterm value ranges from 0 to 3

If ❶ equals 4, minterm value ranges from 0 to 15

III. The following is the output format:



❶ File name

Name: output.txt (DO NOT change the file name.)

❷ Minterm function after combing adjacent groups

0	000
1	001
2	010
5	101
6	110
7	111

0,1	00-
0,2	0-0
1,5	-01
2,6	-10
5,7	1-1
6,7	11-

❸ The process of Petrick's method

You can show the detail of simplification for bonus.

For example:

= (P1+P2)(P1+P3)(P2+P4)(P3+P5)(P4+P6)(P5+P6)

= (P1+P2P3) (P2+P4)(P3+P5)(P4+P6)(P5+P6)

❹ The final result of Petrick's method

Please show all possible results which are minimum Sum of Product.