



The American University In
Cairo
School of Science &
Engineering

CSCE2301/230
Digital Design 1

Project 1

Three-Variable K-Map Logic Minimization

Spring 2021

Objective:

This project is intended to make you more familiar with the process of K-Map Logic Minimization.

Project Description:

A computer program in **C/C++** will be developed to accomplish the following tasks:

1. [20 Points] Read in (and validate) a Boolean function using its minterms as decimal numbers.
2. [20 Points] Generate and print the corresponding K-map.
3. [60 Points] Generate and print the simplified Boolean expression.

Example:

The user should give your program the minterms as an input like: 0, 1, 2, 3, 5.

The output from your program should look like:

kmap =	1	1	1	1
	0	1	0	0
F =	"A' + B' C"			

A'
A'C' , A'B' , A'C , A'B
B'C
A'B'C' , A'B'C , A'BC' , A'BC , AB'C ,

Notes:

- Boolean functions of 3 variables must be supported.
- Error checking is required to be implemented into your program.
- You can work individually or in a group of 2 students. Cross section groups are allowed

Deliverables

- Your working program source code.
- Report of at most three pages (other than the cover) to discuss the program design, to report the problems in your program (if any) and to give instructions for how to build and use the program.