EE5803 FPGA Lab Assignment 1

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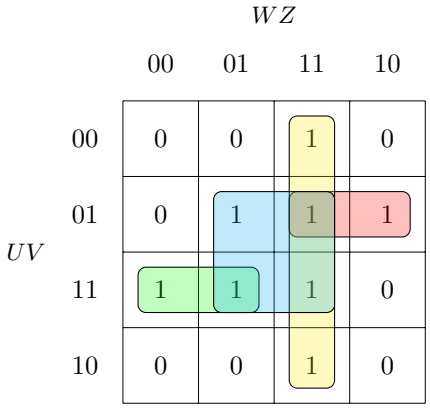
1 Question

[CBSE 2018 Q6 (d)] : Reduce the following Boolean Expression to its simplest form using K-map

$$G(U,V,W,Z) = \sum(3,5,6,7,11,12,13,15)$$

2 Solution

Simplification using K-map:



Simplified expression from above map can be written as

$$G = WZ + VZ + UVW' + U'VW$$

NAND realization : To realize the above equation using NAND logic, the following steps are followed

$$(G')' = ((WZ + VZ + UVW' + U'VW)')'$$

$$G = ((WZ)'(VZ)'(UVW')'(U'VW)')'$$