→ Subset Generation using Bitmasking

→ Approach :

Suppose we have an array [2, 4, 5] and we have to find its subset using Bitmasking.

No. of subsets ⇒ 2^n $n = 3$ here :

$\therefore 2^3 \Rightarrow 8$

∴ We will write the Binary of $0 \rightarrow 2^n - 1$ numbers.

0 → 000
1 → 001
2 → 010
3 → 011
4 → 100
5 → 101
6 → 110
7 → 111

Here, Each Set Bit represents the index of array, which we will include in subset.

eg: 0 → [ ]
1 → [2]
2 → [4]
3 → [2, 4]
4 → [5]
5 → [2, 5]
6 → [4, 5]
7 → [2, 4, 5]

NOTE: The Time complexity of this approach is greater than of Recursion.

It's T.C ⇒ $O(n \times 2^n)$

Recursive T.C ⇒ $O(2^n)$