"Print all subsets of an array having size 'r' "

By Prince Agarwal [" Hello World "]

For Example,

Now, your task is:-

Print all subsets of this array

Total number of subset of an array of size 'n' = 2ⁿ

$$2^{n} = 2^{4} = 16$$

Let's prove above statement :-

Subset having size '0' =
$$\{\}$$

Subset having size '1' = $\{3\}$ {2} $\{5\}$ {1}
Subset having size '2' = $\{3,2\}$ {3,5} {3,1} {2,1} {2,5} {5,1}
Subset having size '3' = $\{3,2,5\}$ {3,2,1} {5,2,1} {5,3,1}
Subset having size '4' = $\{3,2,5,1\}$

In this case

Total = 16

For Example,

Now, your task is :-

Print all subsets having size '3' of this array

Solution:-

We assume if there is a bit = '1' then we accept the elements We assume if there is a bit = '0' then we decline the elements

Size of array = 4

For Example,

Int a[4] =

 0
 1
 2
 3

 3
 2
 5
 1

All combinations of '0' and '1'

Now, Write $2^4 = 16$ In the binary format

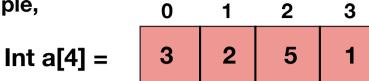
For Example, Int a[4] =

All combinations of '0' and '1'

Now, Write 2⁴ In the binary format = 16

> We Need {2,5,1} {3,5,1} {3,2,1} {3,2,5}

For Example,



All combinations of '0' and '1'

Now, Write $2^4 = 16$ In the binary format

Procedure: We have to construct a loop from 1 to pow (2, n)

Here, 1 to 16

Now, convert each 'i' into binary :-

Let, suppose we convert a number 'i' = 1 to binary :-

1

Push into vector

$$v.size() = 1$$

We want size of '4' I.e. 'n'

Now we check int p = n - v.size() = 4-1 = 3

Push '0' in vector

Is it binary representation of '1'. → NO

 0
 1
 2
 3

 1
 0
 0
 0

Reverse the vector

0 0 0 1

2

If number of 1's = 3 Then, takes the value from array from respective index

Subscribe, Like & Share

Hello World

" If you feel any problem then comments in my video I will reply as soon as possible "

- Prince Agarwal