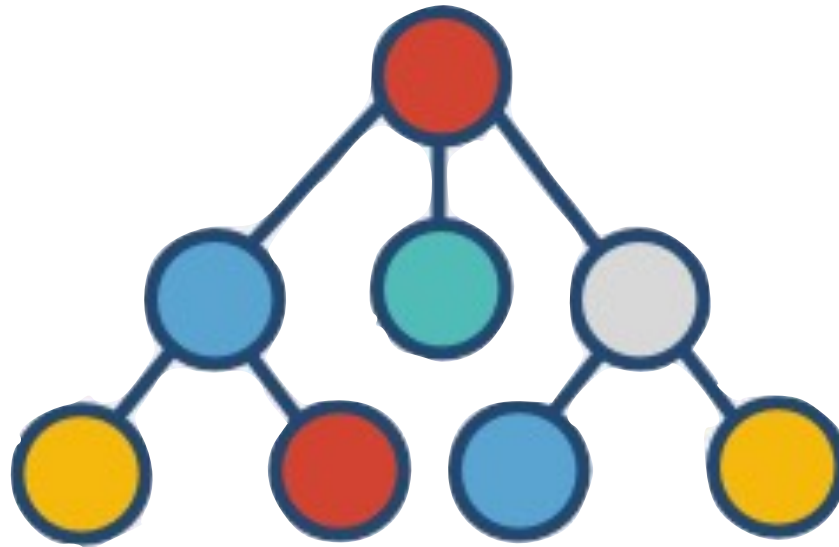


# DATA STRUCTURE & ALGORITHMS



**(By Prince Agarwal)**  
**( “HELLO WORLD” )**

## LEETCODE

### ■ Rearrange Array Alternately

Given: Array is Sorted

1	2	3	4	5	6
---	---	---	---	---	---

N = 6

6	1	5	2	4	3
---	---	---	---	---	---

One Simple Approach:

```
Vector< int> v ;
```

Alternate : **push\_back** ( max )

Then, **push\_back** ( min )

But Space Complexity :  $O(N)$

Hello world

## LEETCODE

### ■ Rearrange Array Alternately

Best approach :-

0	1	2	3	4	5
1	2	3	4	5	6

N = 6

Ans:

0	1	2	3	4	5
6	1	5	2	4	3

—

—

—

MAX value element → Even Index

MIN value element → odd Index

0	1	2	3	4	5
1	2	3	4	5	6

Hello world

## LEETCODE

### ■ Rearrange Array Alternately

We want 2 Values at single Place

$$\text{Dividend} = \text{Quotient} * \text{Divisor} + \text{Remainder}$$

CASE 1:

$$\begin{aligned} \text{Dividend} / \text{Divisor} &= \text{Quotient} \\ \text{Dividend} \% \text{Divisor} &= \text{Remainder} \end{aligned}$$

$$\text{Dividend} = \text{Quotient} * \text{Divisor} + \text{Remainder}$$

↓  
New Values

↓  
Old Values

0	1	2	3	4	5
1	2	3	4	5	6
6	1	5	2	4	3
—		—		—	

Hello world

# LEETCODE

## ■ Rearrange Array Alternately

We want 2 Values at single Place

$$\text{Dividend} = \text{Quotient} * \text{Divisor} + \text{Remainder}$$

CASE 1:  $\text{Dividend} / \text{Divisor} = \text{Quotient}$

$$\text{Dividend} \% \text{Divisor} = \text{Remainder}$$

0	1	2	3	4	5
1	2	3	4	5	6
6	1	5	2	4	3

$$\text{Dividend} = \text{Quotient} * \text{Divisor} + \text{Remainder}$$

New Values

Max value in array  
(say, Max)

Old Values

Index % 2 == 0      $\text{Arr}[i] = (\text{Arr}[\text{index}] \% \text{Max}) * \text{Max} + \text{Arr}[i]$

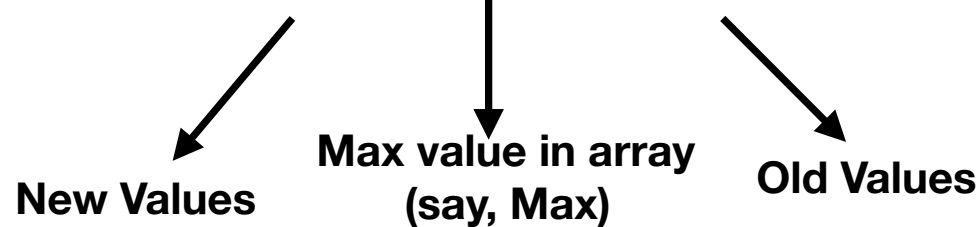
Hello world

# LEETCODE

## ■ Rearrange Array Alternately

We want 2 Values at single Place

$$\text{Dividend} = \text{Quotient} * \text{Divisor} + \text{Remainder}$$



$$\text{Max} = \text{arr}[n-1] + 1;$$

$$\text{Max} = 7;$$

$$\text{max\_index} = n-1; \quad \text{min\_index} = 0;$$

$$\text{Index \% 2} == 0 \quad \text{Arr}[i] = \left( \text{Arr}[\text{max\_index}] \% \text{Max} \right) * \text{Max} + \text{Arr}[i]$$

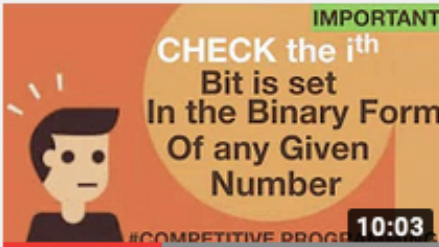




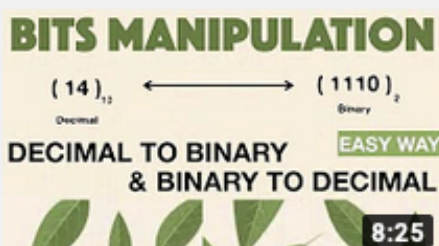
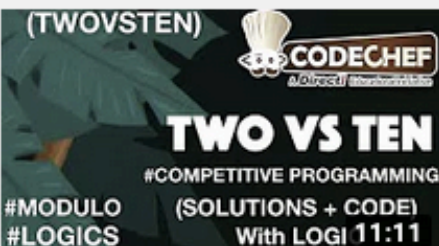








$$\text{Index \% 2} != 0 \quad \text{Arr}[i] = \left( \text{Arr}[\text{min\_index}] \% \text{Max} \right) * \text{Max} + \text{Arr}[i]$$

0	1	2	3	4	5
43	2	3	4	5	6
6	1	5	2	4	3
—		—		—	
43	9	3	4	5	6

$$10 \ 20 \ 30 \ 40 \ 50 \ 60 \ 70 \ 80 \ 90 \ 100 \ 110$$

$$\text{Max} = 111;$$

Hello world

 <p><b>CHECK the <math>i^{\text{th}}</math> Bit is set In the Binary Form Of any Given Number</b></p> <p>IMPORTANT</p> <p>#COMPETITIVE PROGRAMMING 10:03</p>	 <p><b>COUNT THE NUMBER OF ONE'S PRESENT IN BINARY NUMBER</b></p> <p>VERY EASY</p> <p>#COMPETITIVE PROGRAMMING 13:44</p>	 <p><b>CHECK GIVEN NUMBER IS POWER OF 2 ?</b></p> <p>EASY WAY</p> <p>(FULL EXPLANATION WITH CODE)</p> <p>#BITWISE #BINARY</p> <p>HW Hello World</p> <p>#COMPETITIVE PROGRAMMING 15:28</p>	 <p><b>LEFT SHIFT RIGHT SHIFT BITWISE OPERATOR</b></p> <p>EASY WAY</p> <p>(PART - 02)</p> <p>#COMPETITIVE PROGRAMMING 15:24</p>	 <p><b>AND NOT XOR OR BITWISE OPERATOR</b></p> <p>EASY WAY</p> <p>(PART - 01)</p> <p>#COMPETITIVE PROGRAMMING 13:06</p>
<p>Check the <math>i^{\text{th}}</math> bit is set, in the binary form of given numbe...</p> <p>1.1K views • 1 year ago</p>	<p>Count the number of one's in binary representation of...</p> <p>1.6K views • 1 year ago</p>	<p>Check a given number is power of 2   Bitwise operato...</p> <p>3.2K views • 1 year ago</p>	<p>Left shift and right shift bitwise operator   ...</p> <p>1.4K views • 1 year ago</p>	<p>Bitwise Operators   AND   NOT   OR   XOR    Competitiv...</p> <p>1.8K views • 1 year ago</p>
 <p><b>BITS MANIPULATION</b></p> <p>(14)<sub>10</sub> ↔ (1110)<sub>2</sub></p> <p>Decimal Binary</p> <p><b>DECIMAL TO BINARY &amp; BINARY TO DECIMAL</b></p> <p>EASY WAY</p> <p>#8:25</p>	 <p>(TWOVSTEN)</p> <p><b>TWO VS TEN</b></p> <p>#COMPETITIVE PROGRAMMING</p> <p>#MODULO #LOGICS</p> <p>(SOLUTIONS + CODE) With LOGI 11:11</p>	 <p>(CHEFROUT)</p> <p><b>CHEF AND HIS DAILY ROUTINE</b></p> <p>#COMPETITIVE PROGRAMMING</p> <p>(SOLUTIONS + CODE) With LOGI 12:56</p>	 <p><b>EUCLIDEAN ALGORITHM</b></p> <p>FINDING GCD OF TWO NUMBERS</p> <p>#COMPETITIVE PROGRAMMING</p> <p>12:31</p>	 <p><b>SEIVE OF ERATOSTHENES</b></p> <p>PART - 02 (CODE)</p> <p>#COMPETITIVE PROGRAMMING 12:01</p>
<p>Bits Manipulation   Decimal to Binary   Binary to Decimal...</p> <p>1.5K views • 1 year ago</p>	<p>Program of Two vs Ten Codechef - TWOVSTEN   ...</p> <p>1.3K views • 1 year ago</p>	<p>Program of chef and his daily routine - CHEFROUT   ...</p> <p>1.7K views • 1 year ago</p>	<p>Euclidean algorithm for finding GCD of 2 numbers   ...</p> <p>2K views • 1 year ago</p>	<p>Sieve of Eratosthenes -part 2    Competitive programming...</p> <p>2.2K views • 1 year ago</p>
 <p><b>SEIVE OF ERATOSTHENES</b></p> <p>PART - 01 (LOGIC)</p> <p>#COMPETITIVE PROGRAMMING 8:38</p>	 <p>#Concept / Program of #Prime Numbers</p> <p><b>CONCEPT OF PRIME NUMBERS</b></p> <p>#COMPETITIVE PROGRAMMING 13:38</p>	 <p>VERY IMPORTANT CONCEPTS</p> <p>#memset() function #In C/C++</p> <p><b>USE OF MEMSET()</b></p> <p>#COMPETITIVE PROGRAMMING 12:00</p>	 <p>(FANCY)</p> <p><b>FANCY QUOTES</b></p> <p>#COMPETITIVE PROGRAMMING (SOLUTIONS + CODE) With LOGI 15:46</p> <p>#Strings #getline()</p>	 <p>(ALPHABET)</p> <p>#Clears String Concept #String</p> <p><b>STUDYING ALPHABET</b></p> <p>#COMPETITIVE PROGRAMMING (SOLUTIONS + CODE) With LOGIC 24:28</p>
<p>Sieve of Eratosthenes -part 1    Competitive programming...</p> <p>3.4K views • 1 year ago</p>	<p>Program and concept of prime numbers.   ...</p> <p>2.1K views • 1 year ago</p>	<p>memset() function in C/C++ and its syntax.    Competitiv...</p> <p>4.3K views • 1 year ago</p>	<p>problem of Fancy Quotes    getline() in strings --FANCY...</p> <p>2.1K views • 1 year ago</p>	<p>Concept of Handling the String related problems -...</p> <p>3.4K views • 1 year ago</p>

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