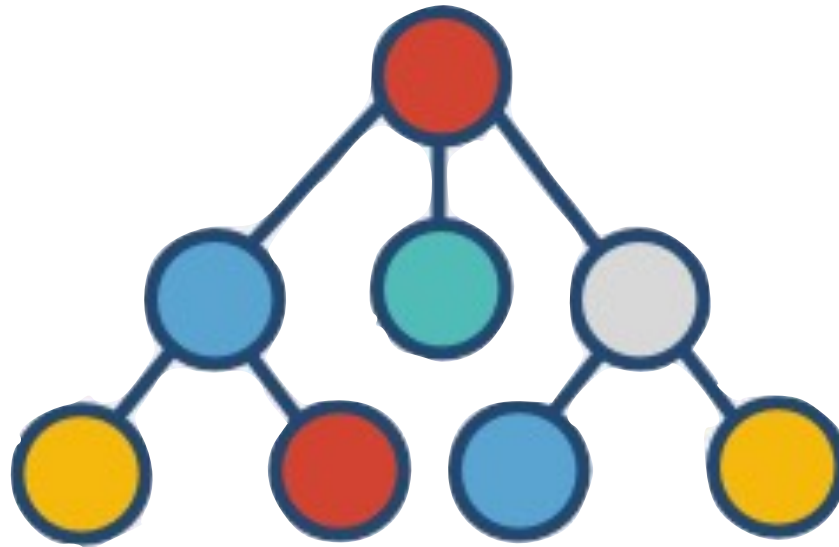


DATA STRUCTURE & ALGORITHMS



(By Prince Agarwal)
(“HELLO WORLD”)

INTERVIEW PREPARATION

N = 8



BINARY SEARCH ALGORITHM

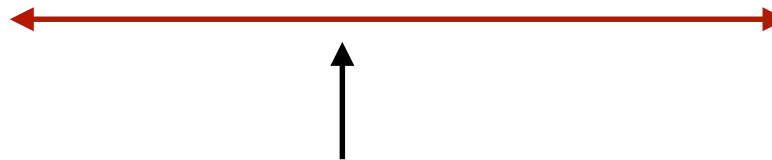
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|---|---|---|---|---|----|----|
| -1 | 0 | 3 | 5 | 7 | 9 | 10 | 12 |

Time Complexity: $O(\log N)$

Array is SORTED

Find '9' is Present or not ?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|---|---|---|---|---|----|----|
| -1 | 0 | 3 | 5 | 7 | 9 | 10 | 12 |



Low = 0

high = 7

Mid = 3

$mid = (low + high) / 2$

Hello world

INTERVIEW PREPARATION

N = 8



BINARY SEARCH ALGORITHM

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|---|---|---|---|---|----|----|
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| -1 | 0 | 3 | 5 | 7 | 9 | 10 | 12 |



Low = 0

high = 7

Mid = 3

$\text{mid} = (\text{low} + \text{high}) / 2$

Hello world

INTERVIEW PREPARATION

N = 8



BINARY SEARCH ALGORITHM

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|---|---|---|---|---|----|----|
| -1 | 0 | 3 | 5 | 7 | 9 | 10 | 12 |

Time Complexity: $O(\log N)$

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Find '9' is Present or not ?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|---|---|---|---|---|----|----|
| -1 | 0 | 3 | 5 | 7 | 9 | 10 | 12 |



Low = 4 // mid + 1

high = 7

Mid = 3

mid = (low + high) / 2

Hello world

INTERVIEW PREPARATION

N = 8



BINARY SEARCH ALGORITHM

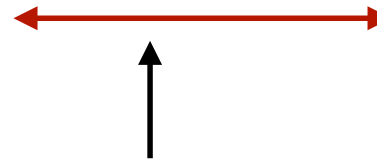
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|---|---|---|---|---|----|----|
| -1 | 0 | 3 | 5 | 7 | 9 | 10 | 12 |

Time Complexity: $O(\log N)$

Array is SORTED

Find '9' is Present or not ?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|---|---|---|---|---|----|----|
| -1 | 0 | 3 | 5 | 7 | 9 | 10 | 12 |



Low = 4 // mid + 1

high = 7

Mid = 5

mid = (low + high) / 2

Hello world

INTERVIEW PREPARATION

N = 6



BINARY SEARCH ALGORITHM

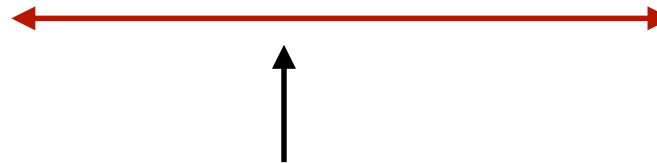
| 0 | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|----|----|
| -1 | 5 | 7 | 9 | 10 | 12 |

Time Complexity: $O(\log N)$

Array is SORTED

Find '2' is Present or not ?

| 0 | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|----|----|
| -1 | 5 | 7 | 9 | 10 | 12 |



Low = 0

high = 5

Mid = 2

$\text{mid} = (\text{low} + \text{high}) / 2$

Hello world

INTERVIEW PREPARATION

N = 6



BINARY SEARCH ALGORITHM

| 0 | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|----|----|
| -1 | 5 | 7 | 9 | 10 | 12 |

Time Complexity: $O(\log N)$

Array is SORTED

Find '2' is Present or not ?

| 0 | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|----|----|
| -1 | 5 | 7 | 9 | 10 | 12 |



Low = 0

high = 1 // mid-1

Mid = 2

mid = (low + high) / 2

Hello world

INTERVIEW PREPARATION

N = 6



BINARY SEARCH ALGORITHM

| 0 | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|----|----|
| -1 | 5 | 7 | 9 | 10 | 12 |

Time Complexity: $O(\log N)$

Array is SORTED

Find '2' is Present or not ?

| 0 | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|----|----|
| -1 | 5 | 7 | 9 | 10 | 12 |



Low = 0

high = 1 // mid-1

Mid = 0

mid = (low + high) / 2

Hello world

INTERVIEW PREPARATION

N = 6



BINARY SEARCH ALGORITHM

| 0 | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|----|----|
| -1 | 5 | 7 | 9 | 10 | 12 |

Time Complexity: $O(\log N)$

Array is SORTED

Find '2' is Present or not ?

| 0 | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|----|----|
| -1 | 5 | 7 | 9 | 10 | 12 |



Low = 1

high = 1 // mid-1

Mid = 1

mid = (low + high) / 2

Hello world

INTERVIEW PREPARATION

N = 6



BINARY SEARCH ALGORITHM

| 0 | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|----|----|
| -1 | 5 | 7 | 9 | 10 | 12 |

Time Complexity: $O(\log N)$

Array is SORTED

Find '2' is Present or not ?

| 0 | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|----|----|
| -1 | 5 | 7 | 9 | 10 | 12 |



Low = 1

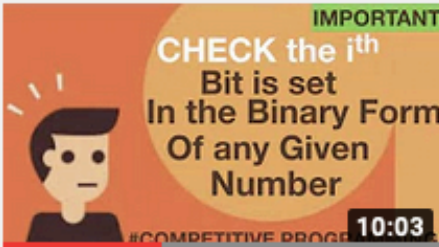




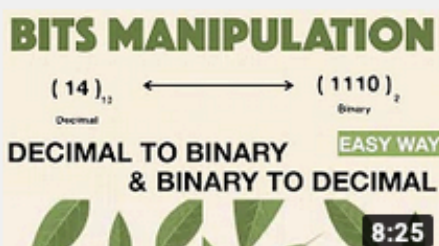
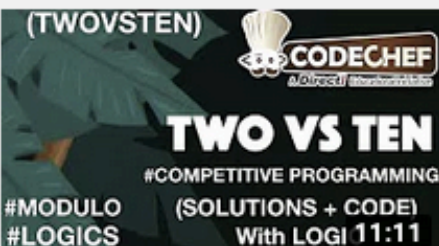








high = 0 // mid-1

Mid = 1

mid = (low + high) / 2

Low > high

Hello world

| | | | | |
|--|---|---|---|---|
|  <p>CHECK the i^{th} Bit is set In the Binary Form Of any Given Number</p> <p>IMPORTANT</p> <p>#COMPETITIVE PROGRAMMING 10:03</p> |  <p>COUNT THE NUMBER OF ONE'S PRESENT IN BINARY NUMBER</p> <p>VERY EASY</p> <p>#COMPETITIVE PROGRAMMING 13:44</p> |  <p>CHECK GIVEN NUMBER IS POWER OF 2 ?</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>LEFT SHIFT RIGHT SHIFT BITWISE OPERATOR</p> <p>EASY WAY</p> <p>(PART - 02)</p> <p>#COMPETITIVE PROGRAMMING 15:24</p> |  <p>AND NOT XOR OR BITWISE OPERATOR</p> <p>EASY WAY</p> <p>(PART - 01)</p> <p>#COMPETITIVE PROGRAMMING 13:06</p> |
| <p>Check the i^{th} bit is set, in the binary form of given number...</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 operator...</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 Competitive...</p> <p>1.8K views • 1 year ago</p> |
|  <p>BITS MANIPULATION</p> <p>(14)₁₀ ↔ (1110)₂</p> <p>Decimal Binary</p> <p>DECIMAL TO BINARY & BINARY TO DECIMAL</p> <p>EASY WAY</p> <p>#8:25</p> |  <p>(TWOVSTEN)</p> <p>TWO VS TEN</p> <p>#COMPETITIVE PROGRAMMING</p> <p>#MODULO #LOGICS</p> <p>(SOLUTIONS + CODE) With LOGI 11:11</p> |  <p>(CHEFROUT)</p> <p>CHEF AND HIS DAILY ROUTINE</p> <p>#COMPETITIVE PROGRAMMING</p> <p>(SOLUTIONS + CODE) With LOGI 12:56</p> |  <p>EUCLIDEAN ALGORITHM</p> <p>FINDING GCD OF TWO NUMBERS</p> <p>#COMPETITIVE PROGRAMMING</p> <p>12:31</p> |  <p>SEIVE OF ERATOSTHENES</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>SEIVE OF ERATOSTHENES</p> <p>PART - 01 (LOGIC)</p> <p>#COMPETITIVE PROGRAMMING 8:38</p> |  <p>#Concept / Program of #Prime Numbers</p> <p>CONCEPT OF PRIME NUMBERS</p> <p>#COMPETITIVE PROGRAMMING 13:38</p> |  <p>VERY IMPORTANT CONCEPTS</p> <p>#memset() function #In C/C++</p> <p>USE OF MEMSET()</p> <p>#COMPETITIVE PROGRAMMING 12:00</p> |  <p>(FANCY)</p> <p>FANCY QUOTES</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>STUDYING ALPHABET</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. Competitive...</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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