

2. Binary Search:—

Binary Search is a very fast method of searching but it works only on one sorted list in array. It always searches for the required number at the middle of the list. If the number is found at the middle location then searching stops and if the number found at the middle location is greater than the search number then searching is done at the middle location of the left subarray, which is from 0th (zero) location to the location left of the middle location. Similarly, when a number is found

at the location is less than the search number then searching is done at the middle location to the last location.

This way the process of searching of the middle location and then sub dividing the array into two parts continue until the number is found or array can not be further of sub-division.

Que. Search 16 in given array.

0	1	2	3	4	5	6	7
7	8	11	12	14	15	16	17

$$mid = \frac{0+7}{2} = \frac{7}{2} = 3.5 = 3 \text{ (12)}$$

0	1	2	3	4	5	6	7
7	8	11	12	14	15	16	17

x

$$mid = \frac{4+7}{2} = \frac{11}{2} = 5.5 = 5 \text{ (15)}$$

0	1	2	3	4	5	6	7
7	8	11	12	14	15	16	17

x x

$$mid = \frac{6+7}{2} = \frac{13}{2} = 6.5 = 6 \text{ (16)} \quad \underline{\underline{\text{Ans}}}$$