Searching

Linear Search

10	15	45	20	25	6	1	100	65	99
0	1	2	3	4	5	6	7	8	9

item	25

position	-1

Input (*Declarations and Initializations***):** int arr[10], int item, int position = -1.

Process:

1. Compare the value of ***item*** with the ***element*** in the ***index-value*** 0 of the array.
2. If, they are equal, the value of ***position*** will be the value of the ***index*** and exit. Else, go to next index.
3. Repeat (1) and (2) for all the indexes.

Output:

1. Check the value of position.
   If, it is -1, Print ***item*** not found in the array.
   Else, Print ***item*** found at ***position***.

Binary Search

1	6	10	15	20	25	45	65	99	100
0	1	2	3	4	5	6	7	8	9

item	25

position	-1

Input (*Declarations and Initializations***):** int arr[10], int item, int position = -1.

Process:

1. Start with ***f_index = 0*** and ***l_index = size-1***
2. The value of ***m_index*** will be ***(f_index+l_index)/2***.
3. Compare the value of ***item*** with ***arr[m_index]***.
   (a) If item < arr[m_index], ***l_index*** will be ***m_index-1***.
   (b) Else if item > arr[m_index], ***f_index*** will be ***m_index+1***.
   (c) Else, ***position*** will be ***m_index***. Exit.
4. Repeat (2), (3) till ***f_index<= l_index***.

Output:

1. Check the value of position.
   If, it is -1, Print ***item*** not found in the array.
   Else, Print ***item*** found at ***position***.