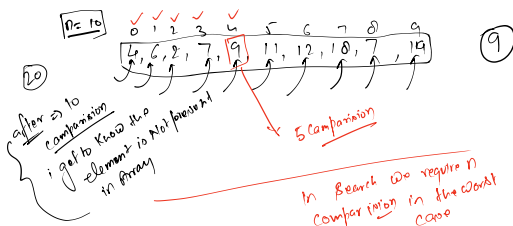


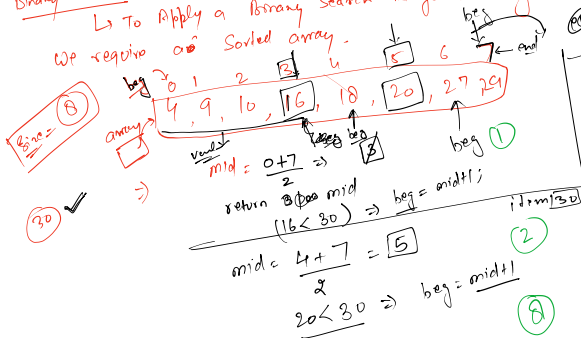
int arr [5] = {2, 4, 5, 8, 9};
Linear Search:

```
int main()
{
    int arr[10];
    inputArray(arr, 10);
    int pos = Search(arr, 10, 5);
    if (pos != -1)
        printf("Element found at %d", pos);
    else
        printf("Element is Not found");
}
```



Binary Search:-

↳ To Apply a Binary Search we require a Sorted array.



```

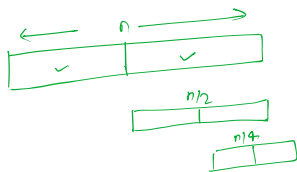
while (beg <= end)
{
    mid =  $\frac{beg + end}{2}$ 
    if (arr[mid] == item)
        return mid;
    if (arr[mid] < item)
        beg = mid + 1;
    if (arr[mid] > item)
        end = mid - 1;
}
return -1;

```

③

④

⑤



16 - 4
32 - 5

$n = \log_2 n$ → Complexity

8 = 3

16 = 4

32 = 5

64 = 6

128 = 7

256 = 8

512 = 9

1024 = 10

item 8

int

Search (int arr[], int size, int item)

```

{
    for (int i = 0; i < size; i++)
    {
        if (arr[i] == item)
            return i;
    }
    return -1;
}

```