Q2 Define Binary Search in detail & with example.

Ans Binary search is a fast search algorithm with run-time complexity $O(\log n)$. This search algorithm works on the principle of divide and conquer.

How Binary Search works?

mid = low + (high - low)/2.

Let see an example.

```
def binarySearch (arr, l, r, x);
    while l <= r;
    mid = l + (r-1)//2;

        if arr[mid] == x;
        return mid
        else if
        elseif arr[mid] < x;
            l = mid + 1
        else
            r = mid - 1
```

```
result = binarySearch (arr, 0, len(arr)-1,
        x)

if result != -1:
    print (x, " is present at index
            %d " %d result)
else
    print ("Element is not present
        in array");
```