

Tutorial 03

01. What is linear search explain?

Linear searching is designed as a sequential search algorithm that starts at one end and goes through each element of a list until the desired element is found, otherwise the search continues till the end of the data set.

02. What is binary search explain?

Binary searching is defined as a searching algorithm used in a sorted array by repeatedly dividing the search interval in half.

03. Compare & contrast linear search vs binary search.

Subject**Linear search**

- Less complex
- Sequential search
- Very slow process
- Multi dimensional array can be used.
- Elements are in random order.

Binary search

More complex

Half interval search

Very fast process

Only single dimensional array used.

Elements are sorted order.

04. Write the pseudo code of linear search?

Function linear search (items, target)

```
for i from 0 to length-1
```

```
if items[i] == target
```

```
return i
```

```
return not found
```

05. Write the pseudocode of binary search?

int binary search (int[] items, int target)

{

```
int beginningOfRange = 0;
```

```
int endOfRange = items.length; // end of the range
```

```
while (beginningOfRange <= endOfRange)
```

```
{
```

```
int midPoint = (beginningOfRange + endOfRange) / 2;
```

```
if (target < items[midPoint])
```

{

```
endOfRange = midPoint - 1;
```

}

```
else if (target > items[midPoint])
```

{

```
beginningOfRange = midPoint + 1;
```

}

```
else
```

{

```
return midPoint;
```

}

// element could not be found in the list

return -1;

]