

Algorithm

Binary Search
Time Complexity





Binary Search

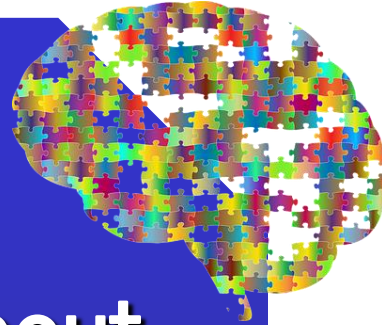
**Binary
Search**

Best Case

Average Case

Worst Case

Let's think about...
Best Case





Binary Search

**Best
Case**

[3, 5, 6, 10, 15, 20]



Binary Search

How many comparisons?

```
[3, 5, 6, 10, 15, 20]
```



Binary Search

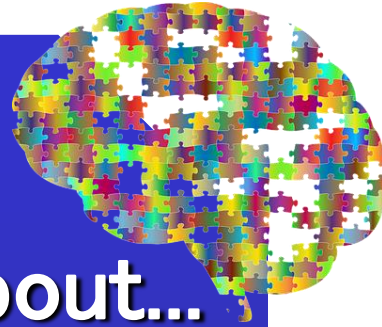
Best-Case Time Complexity

$O(1)$



Let's think about...

Average & Worst Cases





Binary Search

**Average
Case**

**Worst
Case**

[3, 5, 6, 10, 15, 20]



Binary Search

[3, 5, 6, 10, 12, 14, 15, 18, 19, 20]



[3, 5, 6, 10,



[3, 5,

Index 0

**Break
in half**



Binary Search

Average-Case & Worst-Case Time Complexities

$O(\log(n))$





Time to Practice!

