Binary Search

index:	0	1	2	3	4	5	6	7	8	9
values:	1	2	3	4	5	6	7	8	9	10

↑ left (index 0)

↓ mid

↑ right (index 9)

$$mid = \frac{left + right}{2}$$

search for 6 (index: 5)

$5 < 6$

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

↑ left (5)

6

↑ mid $\left(\frac{4+9}{2}\right)$

↑ right (10)

$6 < 7$

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

↑ left (5)

↑ mid $\left(\frac{4+6}{2}\right)$

↑ right (7)

$6 = 6$

↓

return index: 5