**The linearSearch method**

How big do you want the array is?

10

Pls enter the start...

0

Pls enter the end...

10

What is the target??

5

[ 17.0, 3.0, 11.0, 16.0, 6.0, 18.0, 0.0, 2.0, 6.0, 17.0,]

The size of the array is: 10

The index of 5 is: -1

[ 15.0, 9.0, 8.0, 0.0, 14.0, 11.0, 15.0, 3.0, 8.0, 12.0,]

The size of the array is: 10

The index of 9 is: 1

The number of comparisons is: 2

[ 10.0, 10.0, 14.0, 6.0, 20.0, 1.0, 12.0, 12.0, 8.0, 19.0, 2.0, 11.0, 19.0, 15.0, 16.0, 13.0, 4.0, 20.0, 5.0, 6.0, 6.0, 10.0, 17.0, 17.0, 20.0, 12.0, 19.0, 12.0, 19.0, 8.0, 13.0, 4.0, 19.0, 14.0, 17.0, 17.0, 7.0, 11.0, 14.0, 16.0, 6.0, 1.0, 18.0, 5.0, 9.0, 1.0, 0.0, 0.0, 18.0, 8.0, 14.0, 1.0, 1.0, 18.0, 10.0, 16.0, 6.0, 16.0, 18.0, 15.0, 17.0, 8.0, 6.0, 5.0, 5.0, 13.0, 16.0, 18.0, 9.0, 2.0, 13.0, 14.0, 17.0, 13.0, 11.0, 12.0, 17.0, 14.0, 7.0, 7.0, 8.0, 15.0, 5.0, 14.0, 3.0, 0.0, 7.0, 11.0, 9.0, 7.0, 13.0, 18.0, 16.0, 19.0, 20.0, 17.0, 15.0, 14.0, 11.0, 2.0,]

The size of the array is: 100

The index of 8 is: 8

The number of comparisons is: 9

The size of the array is: 1000

The index of 24 is: 41

The number of comparisons is: 42

**The binarySearch method**

How big do you want the array is?

10

Pls enter the start...

0

Pls enter the end...

10

What is the target??

6

[ 5.0, 19.0, 3.0, 10.0, 7.0, 16.0, 4.0, 8.0, 13.0, 7.0,]

[3.0, 4.0, 5.0, 7.0, 7.0, 8.0, 10.0, 13.0, 16.0, 19.0]

The size of the array is: 10

The index of 6 is: -4

The number of comparisons is: 4

[1.0, 2.0, 3.0, 5.0, 9.0, 12.0, 16.0, 17.0, 17.0, 18.0]

The size of the array is: 10

The index of 5 is: 3

The number of comparisons is: 4

[ 6.0, 12.0, 10.0, 19.0, 15.0, 10.0, 12.0, 0.0, 15.0, 2.0, 11.0, 8.0, 8.0, 16.0, 5.0, 17.0, 19.0, 17.0, 7.0, 16.0, 5.0, 4.0, 18.0, 13.0, 7.0, 10.0, 7.0, 20.0, 16.0, 2.0, 10.0, 17.0, 2.0, 15.0, 3.0, 6.0, 11.0, 10.0, 19.0, 19.0, 7.0, 8.0, 13.0, 14.0, 13.0, 2.0, 7.0, 8.0, 13.0, 8.0, 18.0, 7.0, 9.0, 17.0, 10.0, 14.0, 13.0, 8.0, 0.0, 9.0, 7.0, 5.0, 10.0, 3.0, 15.0, 7.0, 5.0, 12.0, 2.0, 14.0, 12.0, 11.0, 7.0, 5.0, 8.0, 17.0, 11.0, 1.0, 0.0, 1.0, 2.0, 8.0, 7.0, 1.0, 18.0, 8.0, 13.0, 3.0, 11.0, 3.0, 3.0, 2.0, 7.0, 8.0, 4.0, 10.0, 5.0, 16.0, 17.0, 6.0,]

[0.0, 0.0, 0.0, 1.0, 1.0, 1.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 3.0, 3.0, 3.0, 3.0, 3.0, 4.0, 4.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 6.0, 6.0, 6.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 9.0, 9.0, 10.0, 10.0, 10.0, 10.0, 10.0, 10.0, 10.0, 10.0, 11.0, 11.0, 11.0, 11.0, 11.0, 12.0, 12.0, 12.0, 12.0, 13.0, 13.0, 13.0, 13.0, 13.0, 13.0, 14.0, 14.0, 14.0, 15.0, 15.0, 15.0, 15.0, 16.0, 16.0, 16.0, 16.0, 17.0, 17.0, 17.0, 17.0, 17.0, 17.0, 18.0, 18.0, 18.0, 19.0, 19.0, 19.0, 19.0, 20.0]

The size of the array is: 100

The index of 13 is: 69

The size of the array is: 1000

The index of 29 is: 719

The number of comparisons is: 5

The number of comparisons is: 4

**The selectionSort method**

The array before sorting:

[28.0, 22.0, 6.0, 36.0, 21.0, 17.0]

The array after sorting:

[6.0, 17.0, 21.0, 22.0, 28.0, 36.0]

The number of comparisons is: 15

How big do you want the array is?

10

Pls enter the start...

0

Pls enter the end...

10

[ 20.0, 2.0, 11.0, 33.0, 21.0, 5.0, 23.0, 37.0, 28.0, 3.0,]

The array before sorting:

[20.0, 2.0, 11.0, 33.0, 21.0, 5.0, 23.0, 37.0, 28.0, 3.0]

The array after sorting:

[2.0, 3.0, 5.0, 11.0, 20.0, 21.0, 23.0, 28.0, 33.0, 37.0]

The number of comparisons is: 45

How big do you want the array is?

100

Pls enter the start...

0

Pls enter the end...

100

[ 23.0, 16.0, 22.0, 34.0, 8.0, 20.0, 28.0, 6.0, 18.0, 10.0, 12.0, 3.0, 8.0, 7.0, 40.0, 2.0, 33.0, 18.0, 30.0, 6.0, 8.0, 10.0, 14.0, 36.0, 1.0, 29.0, 14.0, 27.0, 24.0, 24.0, 30.0, 1.0, 30.0, 11.0, 3.0, 7.0, 31.0, 21.0, 2.0, 20.0, 34.0, 28.0, 15.0, 19.0, 21.0, 33.0, 19.0, 35.0, 16.0, 37.0, 10.0, 21.0, 37.0, 3.0, 16.0, 24.0, 24.0, 3.0, 31.0, 27.0, 24.0, 21.0, 16.0, 8.0, 13.0, 3.0, 27.0, 21.0, 2.0, 34.0, 6.0, 27.0, 6.0, 27.0, 30.0, 20.0, 23.0, 34.0, 34.0, 4.0, 16.0, 24.0, 3.0, 34.0, 12.0, 10.0, 27.0, 30.0, 11.0, 38.0, 33.0, 8.0, 13.0, 21.0, 26.0, 4.0, 14.0, 5.0, 9.0, 3.0,]

The array before sorting:

[23.0, 16.0, 22.0, 34.0, 8.0, 20.0, 28.0, 6.0, 18.0, 10.0, 12.0, 3.0, 8.0, 7.0, 40.0, 2.0, 33.0, 18.0, 30.0, 6.0, 8.0, 10.0, 14.0, 36.0, 1.0, 29.0, 14.0, 27.0, 24.0, 24.0, 30.0, 1.0, 30.0, 11.0, 3.0, 7.0, 31.0, 21.0, 2.0, 20.0, 34.0, 28.0, 15.0, 19.0, 21.0, 33.0, 19.0, 35.0, 16.0, 37.0, 10.0, 21.0, 37.0, 3.0, 16.0, 24.0, 24.0, 3.0, 31.0, 27.0, 24.0, 21.0, 16.0, 8.0, 13.0, 3.0, 27.0, 21.0, 2.0, 34.0, 6.0, 27.0, 6.0, 27.0, 30.0, 20.0, 23.0, 34.0, 34.0, 4.0, 16.0, 24.0, 3.0, 34.0, 12.0, 10.0, 27.0, 30.0, 11.0, 38.0, 33.0, 8.0, 13.0, 21.0, 26.0, 4.0, 14.0, 5.0, 9.0, 3.0]

The array after sorting:

[1.0, 1.0, 2.0, 2.0, 2.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 4.0, 4.0, 5.0, 6.0, 6.0, 6.0, 6.0, 7.0, 7.0, 8.0, 8.0, 8.0, 8.0, 8.0, 9.0, 10.0, 10.0, 10.0, 10.0, 11.0, 11.0, 12.0, 12.0, 13.0, 13.0, 14.0, 14.0, 14.0, 15.0, 16.0, 16.0, 16.0, 16.0, 16.0, 18.0, 18.0, 19.0, 19.0, 20.0, 20.0, 20.0, 21.0, 21.0, 21.0, 21.0, 21.0, 21.0, 22.0, 23.0, 23.0, 24.0, 24.0, 24.0, 24.0, 24.0, 24.0, 26.0, 27.0, 27.0, 27.0, 27.0, 27.0, 27.0, 28.0, 28.0, 29.0, 30.0, 30.0, 30.0, 30.0, 30.0, 31.0, 31.0, 33.0, 33.0, 33.0, 34.0, 34.0, 34.0, 34.0, 34.0, 34.0, 35.0, 36.0, 37.0, 37.0, 38.0, 40.0]

The number of comparisons is: 4950

How big do you want the array is?

1000

Pls enter the start...

0

Pls enter the end...

1000

[ 11.0, 31.0, 18.0, 38.0, 25.0, 22.0, 37.0, 35.0, 21.0, 17.0, 11.0, 5.0, 1.0, 11.0, 7.0, 8.0, 20.0, 20.0, 19.0, 27.0, 28.0, 15.0, 27.0, 22.0, 13.0, 8.0, 34.0, 2.0, 16.0, 29.0, 32.0, 26.0, 20.0, 14.0, 22.0, 27.0, 21.0, 23.0, 23.0, 5.0, 7.0, 23.0, 36.0, 13.0, 7.0, 34.0, 14.0, 28.0, 1.0, 33.0, 23.0, 30.0, 8.0, 22.0, 6.0, 37.0, 33.0, 35.0, 0.0, 39.0, 25.0, 40.0, 25.0, 33.0, 36.0, 7.0, 38.0, 37.0, 35.0, 36.0, 22.0, 27.0, 39.0, 23.0, 21.0, 38.0, 13.0, 40.0, 25.0, 39.0, 3.0, 26.0, 12.0, 25.0, 35.0, 10.0, 34.0, 28.0, 22.0, 29.0, 15.0, 36.0, 7.0, 25.0, 31.0, 30.0, 20.0, 33.0, 5.0, 23.0, 7.0, 37.0, 27.0, 22.0, 34.0, 2.0, 16.0, 12.0, 7.0, 9.0, 36.0, 22.0, 10.0, 3.0, 12.0, 32.0, 38.0, 1.0, 15.0, 6.0, 8.0, 4.0, 21.0, 17.0, 8.0, 39.0, 38.0, 5.0, 16.0, 3.0, 20.0, 14.0, 18.0, 27.0, 32.0, 26.0, 34.0, 2.0, 6.0, 34.0, 24.0, 18.0, 22.0, 16.0, 16.0, 13.0, 14.0, 39.0, 35.0, 18.0, 11.0, 21.0, 5.0, 15.0, 21.0, 30.0, 37.0, 34.0, 2.0, 18.0, 39.0, 37.0, 24.0, 32.0, 22.0, 39.0, 16.0, 18.0, 2.0, 17.0, 22.0, 25.0, 16.0, 18.0, 29.0, 35.0, 23.0, 9.0, 2.0, 24.0, 7.0, 36.0, 2.0, 17.0, 1.0, 31.0, 10.0, 32.0, 16.0, 28.0, 6.0, 19.0, 16.0, 32.0, 16.0, 18.0, 16.0, 32.0, 5.0, 31.0, 1.0, 15.0, 33.0, 25.0, 30.0, 24.0, 38.0, 36.0, 39.0, 8.0, 34.0, 28.0, 15.0, 24.0, 23.0, 8.0, 36.0, 25.0, 13.0, 8.0, 7.0, 34.0, 27.0, 3.0, 13.0, 5.0, 33.0, 14.0, 28.0, 37.0, 40.0, 37.0, 10.0, 9.0, 38.0, 28.0, 16.0, 36.0, 36.0, 13.0, 20.0, 15.0, 6.0, 39.0, 14.0, 37.0, 28.0, 30.0, 9.0, 34.0, 40.0, 27.0, 19.0, 7.0, 31.0, 12.0, 40.0, 3.0, 25.0, 30.0, 35.0, 39.0, 17.0, 6.0, 0.0, 25.0, 11.0, 18.0, 25.0, 4.0, 16.0, 27.0, 11.0, 37.0, 33.0, 7.0, 33.0, 38.0, 5.0, 19.0, 15.0, 23.0, 18.0, 32.0, 21.0, 39.0, 1.0, 25.0, 16.0, 21.0, 18.0, 0.0, 9.0, 16.0, 34.0, 3.0, 19.0, 28.0, 20.0, 24.0, 1.0, 8.0, 31.0, 2.0, 22.0, 30.0, 35.0, 25.0, 9.0, 6.0, 18.0, 22.0, 11.0, 3.0, 15.0, 32.0, 7.0, 38.0, 14.0, 22.0, 31.0, 12.0, 7.0, 34.0, 8.0, 39.0, 15.0, 31.0, 36.0, 28.0, 29.0, 18.0, 35.0, 11.0, 13.0, 12.0, 30.0, 11.0, 16.0, 3.0, 23.0, 23.0, 21.0, 14.0, 20.0, 3.0, 26.0, 31.0, 28.0, 28.0, 8.0, 17.0, 17.0, 32.0, 16.0, 33.0, 11.0, 22.0, 34.0, 27.0, 12.0, 33.0, 32.0, 27.0, 18.0, 12.0, 9.0, 20.0, 40.0, 30.0, 33.0, 31.0, 36.0, 39.0, 8.0, 12.0, 7.0, 0.0, 14.0, 1.0, 34.0, 8.0, 36.0, 17.0, 26.0, 24.0, 18.0, 40.0, 25.0, 30.0, 39.0, 5.0, 8.0, 11.0, 6.0, 15.0, 35.0, 19.0, 17.0, 20.0, 24.0, 15.0, 10.0, 33.0, 27.0, 19.0, 39.0, 30.0, 29.0, 36.0, 3.0, 27.0, 12.0, 28.0, 19.0, 34.0, 39.0, 22.0, 10.0, 36.0, 19.0, 13.0, 36.0, 32.0, 27.0, 23.0, 18.0, 10.0, 39.0, 27.0, 5.0, 40.0, 38.0, 6.0, 12.0, 31.0, 25.0, 12.0, 10.0, 11.0, 11.0, 8.0, 19.0, 28.0, 7.0, 35.0, 13.0, 32.0, 29.0, 39.0, 30.0, 30.0, 13.0, 20.0, 34.0, 32.0, 31.0, 7.0, 36.0, 10.0, 25.0, 5.0, 6.0, 26.0, 30.0, 28.0, 38.0, 15.0, 30.0, 33.0, 25.0, 6.0, 33.0, 39.0, 34.0, 37.0, 35.0, 2.0, 26.0, 34.0, 30.0, 11.0, 22.0, 38.0, 31.0, 24.0, 8.0, 21.0, 36.0, 6.0, 23.0, 9.0, 3.0, 19.0, 32.0, 18.0, 8.0, 12.0, 32.0, 32.0, 26.0, 32.0, 22.0, 4.0, 9.0, 16.0, 16.0, 21.0, 7.0, 36.0, 28.0, 6.0, 14.0, 22.0, 24.0, 28.0, 10.0, 0.0, 26.0, 10.0, 31.0, 16.0, 39.0, 2.0, 29.0, 36.0, 39.0, 22.0, 32.0, 16.0, 19.0, 33.0, 0.0, 0.0, 4.0, 10.0, 31.0, 17.0, 12.0, 25.0, 26.0, 12.0, 21.0, 29.0, 25.0, 27.0, 15.0, 1.0, 15.0, 11.0, 29.0, 22.0, 16.0, 36.0, 4.0, 33.0, 4.0, 27.0, 14.0, 40.0, 3.0, 7.0, 15.0, 22.0, 13.0, 37.0, 7.0, 17.0, 34.0, 28.0, 11.0, 6.0, 5.0, 15.0, 33.0, 0.0, 35.0, 24.0, 7.0, 1.0, 4.0, 25.0, 20.0, 14.0, 20.0, 12.0, 17.0, 16.0, 5.0, 35.0, 39.0, 2.0, 34.0, 15.0, 22.0, 4.0, 2.0, 35.0, 31.0, 25.0, 31.0, 32.0, 17.0, 3.0, 24.0, 33.0, 9.0, 28.0, 17.0, 30.0, 26.0, 7.0, 26.0, 19.0, 24.0, 35.0, 34.0, 29.0, 13.0, 6.0, 17.0, 11.0, 4.0, 23.0, 18.0, 24.0, 0.0, 32.0, 31.0, 7.0, 28.0, 27.0, 4.0, 26.0, 5.0, 29.0, 14.0, 24.0, 22.0, 29.0, 24.0, 33.0, 28.0, 9.0, 7.0, 20.0, 16.0, 5.0, 14.0, 32.0, 32.0, 3.0, 8.0, 27.0, 5.0, 29.0, 18.0, 18.0, 2.0, 21.0, 33.0, 33.0, 12.0, 15.0, 39.0, 9.0, 15.0, 21.0, 9.0, 29.0, 26.0, 25.0, 38.0, 36.0, 20.0, 0.0, 1.0, 27.0, 23.0, 17.0, 35.0, 2.0, 9.0, 37.0, 5.0, 14.0, 40.0, 31.0, 20.0, 16.0, 3.0, 7.0, 0.0, 8.0, 26.0, 24.0, 36.0, 19.0, 11.0, 30.0, 11.0, 14.0, 8.0, 3.0, 29.0, 20.0, 36.0, 30.0, 9.0, 31.0, 27.0, 13.0, 27.0, 18.0, 23.0, 34.0, 23.0, 27.0, 27.0, 17.0, 19.0, 20.0, 17.0, 24.0, 24.0, 2.0, 37.0, 33.0, 23.0, 20.0, 31.0, 33.0, 21.0, 6.0, 36.0, 26.0, 30.0, 9.0, 33.0, 19.0, 38.0, 37.0, 12.0, 30.0, 1.0, 5.0, 33.0, 3.0, 2.0, 12.0, 40.0, 9.0, 32.0, 23.0, 29.0, 27.0, 27.0, 37.0, 35.0, 38.0, 6.0, 5.0, 29.0, 23.0, 8.0, 38.0, 38.0, 37.0, 9.0, 19.0, 13.0, 28.0, 22.0, 26.0, 9.0, 9.0, 31.0, 26.0, 20.0, 1.0, 39.0, 5.0, 26.0, 5.0, 4.0, 25.0, 5.0, 23.0, 27.0, 23.0, 36.0, 5.0, 25.0, 14.0, 4.0, 40.0, 37.0, 19.0, 25.0, 32.0, 6.0, 20.0, 21.0, 17.0, 27.0, 37.0, 35.0, 26.0, 29.0, 4.0, 27.0, 18.0, 25.0, 0.0, 22.0, 21.0, 3.0, 16.0, 10.0, 18.0, 2.0, 33.0, 39.0, 6.0, 20.0, 23.0, 23.0, 4.0, 14.0, 21.0, 12.0, 39.0, 29.0, 23.0, 36.0, 14.0, 28.0, 25.0, 5.0, 3.0, 27.0, 32.0, 1.0, 5.0, 12.0, 12.0, 10.0, 16.0, 25.0, 13.0, 38.0, 6.0, 19.0, 21.0, 1.0, 36.0, 35.0, 20.0, 9.0, 0.0, 4.0, 13.0, 21.0, 31.0, 5.0, 21.0, 40.0, 12.0, 12.0, 8.0, 8.0, 34.0, 7.0, 5.0, 10.0, 18.0, 34.0, 38.0, 35.0, 29.0, 7.0, 26.0, 23.0, 16.0, 38.0, 37.0, 25.0, 0.0, 15.0, 34.0, 20.0, 18.0, 26.0, 3.0, 19.0, 9.0, 20.0, 21.0, 5.0, 39.0, 19.0, 24.0, 37.0, 39.0, 6.0, 18.0, 29.0, 23.0, 15.0, 25.0, 4.0, 6.0, 16.0, 27.0, 19.0, 3.0, 17.0, 8.0, 32.0, 39.0, 33.0, 35.0, 26.0, 13.0, 37.0, 33.0, 25.0, 16.0, 7.0, 3.0, 22.0, 33.0, 23.0, 14.0, 11.0, 27.0, 7.0, 26.0, 13.0, 26.0, 5.0, 13.0, 19.0, 40.0, 39.0, 26.0, 25.0, 33.0, 22.0, 5.0, 5.0, 11.0, 32.0, 13.0, 2.0, 26.0, 27.0, 24.0, 28.0, 33.0, 10.0, 11.0, 28.0, 16.0, 33.0, 2.0, 2.0, 13.0, 22.0, 19.0, 27.0, 13.0, 35.0, 38.0, 37.0, 12.0, 31.0, 16.0, 22.0, 35.0, 30.0, 11.0, 3.0, 38.0, 22.0, 29.0, 2.0, 25.0, 18.0, 28.0, 32.0, 19.0, 9.0, 11.0, 32.0, 25.0, 35.0, 1.0, 32.0, 24.0,]

The array before sorting:

[11.0, 31.0, 18.0, 38.0, 25.0, 22.0, 37.0, 35.0, 21.0, 17.0, 11.0, 5.0, 1.0, 11.0, 7.0, 8.0, 20.0, 20.0, 19.0, 27.0, 28.0, 15.0, 27.0, 22.0, 13.0, 8.0, 34.0, 2.0, 16.0, 29.0, 32.0, 26.0, 20.0, 14.0, 22.0, 27.0, 21.0, 23.0, 23.0, 5.0, 7.0, 23.0, 36.0, 13.0, 7.0, 34.0, 14.0, 28.0, 1.0, 33.0, 23.0, 30.0, 8.0, 22.0, 6.0, 37.0, 33.0, 35.0, 0.0, 39.0, 25.0, 40.0, 25.0, 33.0, 36.0, 7.0, 38.0, 37.0, 35.0, 36.0, 22.0, 27.0, 39.0, 23.0, 21.0, 38.0, 13.0, 40.0, 25.0, 39.0, 3.0, 26.0, 12.0, 25.0, 35.0, 10.0, 34.0, 28.0, 22.0, 29.0, 15.0, 36.0, 7.0, 25.0, 31.0, 30.0, 20.0, 33.0, 5.0, 23.0, 7.0, 37.0, 27.0, 22.0, 34.0, 2.0, 16.0, 12.0, 7.0, 9.0, 36.0, 22.0, 10.0, 3.0, 12.0, 32.0, 38.0, 1.0, 15.0, 6.0, 8.0, 4.0, 21.0, 17.0, 8.0, 39.0, 38.0, 5.0, 16.0, 3.0, 20.0, 14.0, 18.0, 27.0, 32.0, 26.0, 34.0, 2.0, 6.0, 34.0, 24.0, 18.0, 22.0, 16.0, 16.0, 13.0, 14.0, 39.0, 35.0, 18.0, 11.0, 21.0, 5.0, 15.0, 21.0, 30.0, 37.0, 34.0, 2.0, 18.0, 39.0, 37.0, 24.0, 32.0, 22.0, 39.0, 16.0, 18.0, 2.0, 17.0, 22.0, 25.0, 16.0, 18.0, 29.0, 35.0, 23.0, 9.0, 2.0, 24.0, 7.0, 36.0, 2.0, 17.0, 1.0, 31.0, 10.0, 32.0, 16.0, 28.0, 6.0, 19.0, 16.0, 32.0, 16.0, 18.0, 16.0, 32.0, 5.0, 31.0, 1.0, 15.0, 33.0, 25.0, 30.0, 24.0, 38.0, 36.0, 39.0, 8.0, 34.0, 28.0, 15.0, 24.0, 23.0, 8.0, 36.0, 25.0, 13.0, 8.0, 7.0, 34.0, 27.0, 3.0, 13.0, 5.0, 33.0, 14.0, 28.0, 37.0, 40.0, 37.0, 10.0, 9.0, 38.0, 28.0, 16.0, 36.0, 36.0, 13.0, 20.0, 15.0, 6.0, 39.0, 14.0, 37.0, 28.0, 30.0, 9.0, 34.0, 40.0, 27.0, 19.0, 7.0, 31.0, 12.0, 40.0, 3.0, 25.0, 30.0, 35.0, 39.0, 17.0, 6.0, 0.0, 25.0, 11.0, 18.0, 25.0, 4.0, 16.0, 27.0, 11.0, 37.0, 33.0, 7.0, 33.0, 38.0, 5.0, 19.0, 15.0, 23.0, 18.0, 32.0, 21.0, 39.0, 1.0, 25.0, 16.0, 21.0, 18.0, 0.0, 9.0, 16.0, 34.0, 3.0, 19.0, 28.0, 20.0, 24.0, 1.0, 8.0, 31.0, 2.0, 22.0, 30.0, 35.0, 25.0, 9.0, 6.0, 18.0, 22.0, 11.0, 3.0, 15.0, 32.0, 7.0, 38.0, 14.0, 22.0, 31.0, 12.0, 7.0, 34.0, 8.0, 39.0, 15.0, 31.0, 36.0, 28.0, 29.0, 18.0, 35.0, 11.0, 13.0, 12.0, 30.0, 11.0, 16.0, 3.0, 23.0, 23.0, 21.0, 14.0, 20.0, 3.0, 26.0, 31.0, 28.0, 28.0, 8.0, 17.0, 17.0, 32.0, 16.0, 33.0, 11.0, 22.0, 34.0, 27.0, 12.0, 33.0, 32.0, 27.0, 18.0, 12.0, 9.0, 20.0, 40.0, 30.0, 33.0, 31.0, 36.0, 39.0, 8.0, 12.0, 7.0, 0.0, 14.0, 1.0, 34.0, 8.0, 36.0, 17.0, 26.0, 24.0, 18.0, 40.0, 25.0, 30.0, 39.0, 5.0, 8.0, 11.0, 6.0, 15.0, 35.0, 19.0, 17.0, 20.0, 24.0, 15.0, 10.0, 33.0, 27.0, 19.0, 39.0, 30.0, 29.0, 36.0, 3.0, 27.0, 12.0, 28.0, 19.0, 34.0, 39.0, 22.0, 10.0, 36.0, 19.0, 13.0, 36.0, 32.0, 27.0, 23.0, 18.0, 10.0, 39.0, 27.0, 5.0, 40.0, 38.0, 6.0, 12.0, 31.0, 25.0, 12.0, 10.0, 11.0, 11.0, 8.0, 19.0, 28.0, 7.0, 35.0, 13.0, 32.0, 29.0, 39.0, 30.0, 30.0, 13.0, 20.0, 34.0, 32.0, 31.0, 7.0, 36.0, 10.0, 25.0, 5.0, 6.0, 26.0, 30.0, 28.0, 38.0, 15.0, 30.0, 33.0, 25.0, 6.0, 33.0, 39.0, 34.0, 37.0, 35.0, 2.0, 26.0, 34.0, 30.0, 11.0, 22.0, 38.0, 31.0, 24.0, 8.0, 21.0, 36.0, 6.0, 23.0, 9.0, 3.0, 19.0, 32.0, 18.0, 8.0, 12.0, 32.0, 32.0, 26.0, 32.0, 22.0, 4.0, 9.0, 16.0, 16.0, 21.0, 7.0, 36.0, 28.0, 6.0, 14.0, 22.0, 24.0, 28.0, 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3.0, 7.0, 0.0, 8.0, 26.0, 24.0, 36.0, 19.0, 11.0, 30.0, 11.0, 14.0, 8.0, 3.0, 29.0, 20.0, 36.0, 30.0, 9.0, 31.0, 27.0, 13.0, 27.0, 18.0, 23.0, 34.0, 23.0, 27.0, 27.0, 17.0, 19.0, 20.0, 17.0, 24.0, 24.0, 2.0, 37.0, 33.0, 23.0, 20.0, 31.0, 33.0, 21.0, 6.0, 36.0, 26.0, 30.0, 9.0, 33.0, 19.0, 38.0, 37.0, 12.0, 30.0, 1.0, 5.0, 33.0, 3.0, 2.0, 12.0, 40.0, 9.0, 32.0, 23.0, 29.0, 27.0, 27.0, 37.0, 35.0, 38.0, 6.0, 5.0, 29.0, 23.0, 8.0, 38.0, 38.0, 37.0, 9.0, 19.0, 13.0, 28.0, 22.0, 26.0, 9.0, 9.0, 31.0, 26.0, 20.0, 1.0, 39.0, 5.0, 26.0, 5.0, 4.0, 25.0, 5.0, 23.0, 27.0, 23.0, 36.0, 5.0, 25.0, 14.0, 4.0, 40.0, 37.0, 19.0, 25.0, 32.0, 6.0, 20.0, 21.0, 17.0, 27.0, 37.0, 35.0, 26.0, 29.0, 4.0, 27.0, 18.0, 25.0, 0.0, 22.0, 21.0, 3.0, 16.0, 10.0, 18.0, 2.0, 33.0, 39.0, 6.0, 20.0, 23.0, 23.0, 4.0, 14.0, 21.0, 12.0, 39.0, 29.0, 23.0, 36.0, 14.0, 28.0, 25.0, 5.0, 3.0, 27.0, 32.0, 1.0, 5.0, 12.0, 12.0, 10.0, 16.0, 25.0, 13.0, 38.0, 6.0, 19.0, 21.0, 1.0, 36.0, 35.0, 20.0, 9.0, 0.0, 4.0, 13.0, 21.0, 31.0, 5.0, 21.0, 40.0, 12.0, 12.0, 8.0, 8.0, 34.0, 7.0, 5.0, 10.0, 18.0, 34.0, 38.0, 35.0, 29.0, 7.0, 26.0, 23.0, 16.0, 38.0, 37.0, 25.0, 0.0, 15.0, 34.0, 20.0, 18.0, 26.0, 3.0, 19.0, 9.0, 20.0, 21.0, 5.0, 39.0, 19.0, 24.0, 37.0, 39.0, 6.0, 18.0, 29.0, 23.0, 15.0, 25.0, 4.0, 6.0, 16.0, 27.0, 19.0, 3.0, 17.0, 8.0, 32.0, 39.0, 33.0, 35.0, 26.0, 13.0, 37.0, 33.0, 25.0, 16.0, 7.0, 3.0, 22.0, 33.0, 23.0, 14.0, 11.0, 27.0, 7.0, 26.0, 13.0, 26.0, 5.0, 13.0, 19.0, 40.0, 39.0, 26.0, 25.0, 33.0, 22.0, 5.0, 5.0, 11.0, 32.0, 13.0, 2.0, 26.0, 27.0, 24.0, 28.0, 33.0, 10.0, 11.0, 28.0, 16.0, 33.0, 2.0, 2.0, 13.0, 22.0, 19.0, 27.0, 13.0, 35.0, 38.0, 37.0, 12.0, 31.0, 16.0, 22.0, 35.0, 30.0, 11.0, 3.0, 38.0, 22.0, 29.0, 2.0, 25.0, 18.0, 28.0, 32.0, 19.0, 9.0, 11.0, 32.0, 25.0, 35.0, 1.0, 32.0, 24.0]

The array after sorting:

[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 2.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 3.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 5.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 6.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 7.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 8.0, 9.0, 9.0, 9.0, 9.0, 9.0, 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The number of comparisons is: 499500

1)The relationship between the size of the array and the number of comparisons:

Let the size of the array is n

- The linear search method:

+ Best case: the number of comparisons: 1

+ Worst case: the number of comparisons: n

+ Average case: the number of comparisons: n/2

-The binary search method

+ Best case: the number of comparisons: 1

+Worst case: the number of comparisons: log2n

+ Average case: the number of comparison: log2n/2

2)In this lap, I have learned how to use the linearSearch or binarySearch method to find a particular index of a number in the array. Furthermore, I have learned how to use the selection sort method to rearrange the array from unsorted arrays to sorted arrays.

Which searching algorithm is best? In my opinion, it depends on the size of the array. If the size of the array is 5, both algorithms work pretty the same. However, if the size of the array is 100 or 1000, the binary search algorithm does way much better than the linear search algorithm.

Do you get the same results each time you run the program? I do not get the same results because the binary search method has to rearrange the array from unsorted arrays to sorted arrays. That is why the linear and binary method do not have the same results.