Median of 3

0	1	2	3	4	5	6	7	8
44	75	23	43	55	12	64	77	33

left = 0, right = 8 middle = (left+right)/2 = 4
now sort the values 44,55,33 to get 33,75,23,43,44,12,64,77,55
and return the middle index 4

0	1	2	3	4	5	6	7	8
44	75	23	43	33	12	64	77	55

If(array[left] > array[middle])
    exchange array[left] and array[middle]
If(array[middle] > array[right])
    exchange array[middle] and array[right]

0	1	2	3	4	5	6	7	8
33	75	23	43	44	12	64	77	55

If(array[left] > array[middle])
    exchange array[left] and array[middle]

Partition

select the value starting with array[left+1] and increasing that is greater than the pivot (75) and exchange it with a value starting with array[right] and decreasing that is less than the pivot (12) and exchange the items in the array.
33,12,23,43,44,75,64,77,55

0	1	2	3	4	5	6	7	8
33	75	23	43	44	12	64	77	55

pivot = medianOfThree(0,8); // Returns 4
Partition(left,right,pivot)= partition(0,8,4)
Exchange pivot and 0 (array[4], array[0])

0	1	2	3	4	5	6	7	8
44	75	23	43	33	12	64	77	55

0	1	2	3	4	5	6	7	8
44	75	23	43	33	12	64	77	55

up = left+1, array[up] > pivot, up=1
Down = right (55 !< 44), (77 !< 44),(64!< 44), 12 < 44, down=5
Exchange up and down, 75 and 12

0	1	2	3	4	5	6	7	8
44	12	23	43	33	75	64	77	55

Restore Pivot

0	1	2	3	4	5	6	7	8
44	12	23	43	33	75	64	77	55

up=1, down=5
Increment up until array[up] > 44, up=5
Decrement down until array[down] < 55, down=4
But up > down, so don't exchange and break out of loop
Exchange down with left

0	1	2	3	4	5	6	7	8
33	12	23	43	44	75	64	77	55

0	1	2	3	4	5	6	7	8
33	12	23	43	44	75	64	77	55

Everything to the left of 44 is less than 44 and everything to the right of 44 is greater than 44, so recursively call medianOfThree and Partition on the two halves

Pivotleft = medianOfThree(0, 3) = 1

0	1	2	3
33	12	23	43

left = 0, right = 3 middle = (left+right)/2 = 1
now sort the values 33,12,43 and return the middle index 1

0	1	2	3
12	33	23	43

Exchange left and middle and partition around middle

0	1	2	3
33	12	23	43

up = 3, down=2, since up !< down stop

0	1	2	3
23	12	33	43

Exchange 0 and down

We will then recursively call sort on items to the left of pivot

0	1
23	12

left=0, middle=0, right=1
Sort results in

0	1
12	23

So the resulting array with the left side resolved is

0	1	2	3	4	5	6	7	8
12	23	33	43	44	75	64	77	55