Q1:

*** A = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}**

*** B = { 10, 9, 8, 7, 6, 5, 4, 3, 2, 1 }**

*** C = {5, 2, 13, 9, 1, 7, 6, 8, 1, 15, 4, 11}**

*** D = {'S', 'B', 'I', 'M', 'H', 'Q', 'C', 'L', 'R', 'E', 'P', 'K'}**

A) = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

Quick Sort

Before Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

Initialize upIndex: 0 downIndex: 9

compare upIndex: 0 value: 1 with pivot value: 1 increment upIndex

compare downIndex: 9 value: 10 with pivot value: 1 decrement downIndex

compare downIndex: 8 value: 9 with pivot value: 1 decrement downIndex

compare downIndex: 7 value: 8 with pivot value: 1 decrement downIndex

compare downIndex: 6 value: 7 with pivot value: 1 decrement downIndex

compare downIndex: 5 value: 6 with pivot value: 1 decrement downIndex

compare downIndex: 4 value: 5 with pivot value: 1 decrement downIndex

compare downIndex: 3 value: 4 with pivot value: 1 decrement downIndex

compare downIndex: 2 value: 3 with pivot value: 1 decrement downIndex

compare downIndex: 1 value: 2 with pivot value: 1 decrement downIndex

After find a place for pivot, swap downIndex: 0 value: 1 with pivot index: 0 value: 1

Returned value: 0

After Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

leftTable will be sent to :

rightTable will be sent to : 2, 3, 4, 5, 6, 7, 8, 9,

Before Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

Initialize upIndex: 1 downIndex: 9

compare upIndex: 1 value: 2 with pivot value: 2 increment upIndex
compare downIndex: 9 value: 10 with pivot value: 2 decrement downIndex
compare downIndex: 8 value: 9 with pivot value: 2 decrement downIndex
compare downIndex: 7 value: 8 with pivot value: 2 decrement downIndex
compare downIndex: 6 value: 7 with pivot value: 2 decrement downIndex
compare downIndex: 5 value: 6 with pivot value: 2 decrement downIndex
compare downIndex: 4 value: 5 with pivot value: 2 decrement downIndex
compare downIndex: 3 value: 4 with pivot value: 2 decrement downIndex
compare downIndex: 2 value: 3 with pivot value: 2 decrement downIndex

After find a place for pivot, swap downIndex: 1 value: 2 with pivot index: 1 value: 2
Returned value: 1

After Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,
leftTable will be sent to : 1,
rightTable will be sent to : 3, 4, 5, 6, 7, 8, 9,

Before Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

Initialize upIndex: 2 downIndex: 9

compare upIndex: 2 value: 3 with pivot value: 3 increment upIndex

compare downIndex: 9 value: 10 with pivot value: 3 decrement downIndex

compare downIndex: 8 value: 9 with pivot value: 3 decrement downIndex

compare downIndex: 7 value: 8 with pivot value: 3 decrement downIndex

compare downIndex: 6 value: 7 with pivot value: 3 decrement downIndex

compare downIndex: 5 value: 6 with pivot value: 3 decrement downIndex

compare downIndex: 4 value: 5 with pivot value: 3 decrement downIndex

compare downIndex: 3 value: 4 with pivot value: 3 decrement downIndex

After find a place for pivot, swap downIndex: 2 value: 3 with pivot index: 2 value: 3

Returned value: 2

After Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

leftTable will be sent to : 1, 2,

rightTable will be sent to : 4, 5, 6, 7, 8, 9,

Before Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

Initialize upIndex: 3 downIndex: 9

compare upIndex: 3 value: 4 with pivot value: 4 increment upIndex

compare downIndex: 9 value: 10 with pivot value: 4 decrement downIndex

compare downIndex: 8 value: 9 with pivot value: 4 decrement downIndex

compare downIndex: 7 value: 8 with pivot value: 4 decrement downIndex

compare downIndex: 6 value: 7 with pivot value: 4 decrement downIndex

compare downIndex: 5 value: 6 with pivot value: 4 decrement downIndex

compare downIndex: 4 value: 5 with pivot value: 4 decrement downIndex

After find a place for pivot, swap downIndex: 3 value: 4 with pivot index: 3 value: 4

Returned value: 3

After Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

leftTable will be sent to : 1, 2, 3,

rightTable will be sent to : 5, 6, 7, 8, 9,

Before Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

Initialize upIndex: 4 downIndex: 9

compare upIndex: 4 value: 5 with pivot value: 5 increment upIndex

compare downIndex: 9 value: 10 with pivot value: 5 decrement downIndex

compare downIndex: 8 value: 9 with pivot value: 5 decrement downIndex

compare downIndex: 7 value: 8 with pivot value: 5 decrement downIndex

compare downIndex: 6 value: 7 with pivot value: 5 decrement downIndex

compare downIndex: 5 value: 6 with pivot value: 5 decrement downIndex

After find a place for pivot, swap downIndex: 4 value: 5 with pivot index: 4 value: 5

Returned value: 4

After Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

leftTable will be sent to : 1, 2, 3, 4,

rightTable will be sent to : 6, 7, 8, 9,

Before Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

Initialize upIndex: 5 downIndex: 9

compare upIndex: 5 value: 6 with pivot value: 6 increment upIndex

compare downIndex: 9 value: 10 with pivot value: 6 decrement downIndex

compare downIndex: 8 value: 9 with pivot value: 6 decrement downIndex

compare downIndex: 7 value: 8 with pivot value: 6 decrement downIndex

compare downIndex: 6 value: 7 with pivot value: 6 decrement downIndex

After find a place for pivot, swap downIndex: 5 value: 6 with pivot index: 5 value: 6

Returned value: 5

After Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

leftTable will be sent to : 1, 2, 3, 4, 5,

rightTable will be sent to : 7, 8, 9,

Before Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

Initialize upIndex: 6 downIndex: 9

compare upIndex: 6 value: 7 with pivot value: 7 increment upIndex

compare downIndex: 9 value: 10 with pivot value: 7 decrement downIndex

compare downIndex: 8 value: 9 with pivot value: 7 decrement downIndex

compare downIndex: 7 value: 8 with pivot value: 7 decrement downIndex

After find a place for pivot, swap downIndex: 6 value: 7 with pivot index: 6 value: 7

Returned value: 6

After Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

leftTable will be sent to : 1, 2, 3, 4, 5, 6,

rightTable will be sent to : 8, 9,

Before Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

Initialize upIndex: 7 downIndex: 9

compare upIndex: 7 value: 8 with pivot value: 8 increment upIndex

compare downIndex: 9 value: 10 with pivot value: 8 decrement downIndex

compare downIndex: 8 value: 9 with pivot value: 8 decrement downIndex

After find a place for pivot, swap downIndex: 7 value: 8 with pivot index: 7 value: 8

Returned value: 7

After Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

leftTable will be sent to : 1, 2, 3, 4, 5, 6, 7,

rightTable will be sent to : 9,

Before Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

Initialize upIndex: 8 downIndex: 9

compare upIndex: 8 value: 9 with pivot value: 9 increment upIndex

compare downIndex: 9 value: 10 with pivot value: 9 decrement downIndex

After find a place for pivot, swap downIndex: 8 value: 9 with pivot index: 8 value: 9

Returned value: 8

After Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

leftTable will be sent to : 1, 2, 3, 4, 5, 6, 7, 8,

rightTable will be sent to :

After quickSort them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

B) = { 10, 9, 8, 7, 6, 5, 4, 3, 2, 1 }

Quick Sort

Before Partition them, table : 10, 9, 8, 7, 6, 5, 4, 3, 2, 1,

Initialize upIndex: 0 downIndex: 9

compare upIndex: 0 value: 10 with pivot value: 10 increment upIndex

compare upIndex: 1 value: 9 with pivot value: 10 increment upIndex

compare upIndex: 2 value: 8 with pivot value: 10 increment upIndex

compare upIndex: 3 value: 7 with pivot value: 10 increment upIndex

compare upIndex: 4 value: 6 with pivot value: 10 increment upIndex

compare upIndex: 5 value: 5 with pivot value: 10 increment upIndex

compare upIndex: 6 value: 4 with pivot value: 10 increment upIndex

compare upIndex: 7 value: 3 with pivot value: 10 increment upIndex

compare upIndex: 8 value: 2 with pivot value: 10 increment upIndex

After find a place for pivot, swap downIndex: 9 value: 1 with pivot index: 0 value: 10

Returned value: 9

After Partition them, table : 1, 9, 8, 7, 6, 5, 4, 3, 2, 10,

leftTable will be sent to : 1, 9, 8, 7, 6, 5, 4, 3, 2,

rightTable will be sent to :

Before Partition them, table : 1, 9, 8, 7, 6, 5, 4, 3, 2, 10,

Initialize upIndex: 0 downIndex: 8

compare upIndex: 0 value: 1 with pivot value: 1 increment upIndex
compare downIndex: 8 value: 2 with pivot value: 1 decrement downIndex
compare downIndex: 7 value: 3 with pivot value: 1 decrement downIndex
compare downIndex: 6 value: 4 with pivot value: 1 decrement downIndex
compare downIndex: 5 value: 5 with pivot value: 1 decrement downIndex
compare downIndex: 4 value: 6 with pivot value: 1 decrement downIndex
compare downIndex: 3 value: 7 with pivot value: 1 decrement downIndex
compare downIndex: 2 value: 8 with pivot value: 1 decrement downIndex
compare downIndex: 1 value: 9 with pivot value: 1 decrement downIndex

After find a place for pivot, swap downIndex: 0 value: 1 with pivot index: 0 value: 1
Returned value: 0

After Partition them, table : 1, 9, 8, 7, 6, 5, 4, 3, 2, 10,
leftTable will be sent to :
rightTable will be sent to : 9, 8, 7, 6, 5, 4, 3,

Before Partition them, table : 1, 9, 8, 7, 6, 5, 4, 3, 2, 10,

Initialize upIndex: 1 downIndex: 8

compare upIndex: 1 value: 9 with pivot value: 9 increment upIndex
compare upIndex: 2 value: 8 with pivot value: 9 increment upIndex
compare upIndex: 3 value: 7 with pivot value: 9 increment upIndex

compare upIndex: 4 value: 6 with pivot value: 9 increment upIndex

compare upIndex: 5 value: 5 with pivot value: 9 increment upIndex

compare upIndex: 6 value: 4 with pivot value: 9 increment upIndex

compare upIndex: 7 value: 3 with pivot value: 9 increment upIndex

After find a place for pivot, swap downIndex: 8 value: 2 with pivot index: 1 value: 9

Returned value: 8

After Partition them, table : 1, 2, 8, 7, 6, 5, 4, 3, 9, 10,

leftTable will be sent to : 1, 2, 8, 7, 6, 5, 4, 3,

rightTable will be sent to :

Before Partition them, table : 1, 2, 8, 7, 6, 5, 4, 3, 9, 10,

Initialize upIndex: 1 downIndex: 7

compare upIndex: 1 value: 2 with pivot value: 2 increment upIndex

compare downIndex: 7 value: 3 with pivot value: 2 decrement downIndex

compare downIndex: 6 value: 4 with pivot value: 2 decrement downIndex

compare downIndex: 5 value: 5 with pivot value: 2 decrement downIndex

compare downIndex: 4 value: 6 with pivot value: 2 decrement downIndex

compare downIndex: 3 value: 7 with pivot value: 2 decrement downIndex

compare downIndex: 2 value: 8 with pivot value: 2 decrement downIndex

After find a place for pivot, swap downIndex: 1 value: 2 with pivot index: 1 value: 2

Returned value: 1

After Partition them, table : 1, 2, 8, 7, 6, 5, 4, 3, 9, 10,

leftTable will be sent to : 1,

rightTable will be sent to : 8, 7, 6, 5, 4,

Before Partition them, table : 1, 2, 8, 7, 6, 5, 4, 3, 9, 10,

Initialize upIndex: 2 downIndex: 7

compare upIndex: 2 value: 8 with pivot value: 8 increment upIndex

compare upIndex: 3 value: 7 with pivot value: 8 increment upIndex

compare upIndex: 4 value: 6 with pivot value: 8 increment upIndex

compare upIndex: 5 value: 5 with pivot value: 8 increment upIndex

compare upIndex: 6 value: 4 with pivot value: 8 increment upIndex

After find a place for pivot, swap downIndex: 7 value: 3 with pivot index: 2 value: 8

Returned value: 7

After Partition them, table : 1, 2, 3, 7, 6, 5, 4, 8, 9, 10,

leftTable will be sent to : 1, 2, 3, 7, 6, 5, 4,

rightTable will be sent to :

Before Partition them, table : 1, 2, 3, 7, 6, 5, 4, 8, 9, 10,

Initialize upIndex: 2 downIndex: 6

compare upIndex: 2 value: 3 with pivot value: 3 increment upIndex

compare downIndex: 6 value: 4 with pivot value: 3 decrement downIndex

compare downIndex: 5 value: 5 with pivot value: 3 decrement downIndex

compare downIndex: 4 value: 6 with pivot value: 3 decrement downIndex

compare downIndex: 3 value: 7 with pivot value: 3 decrement downIndex

After find a place for pivot, swap downIndex: 2 value: 3 with pivot index: 2 value: 3

Returned value: 2

After Partition them, table : 1, 2, 3, 7, 6, 5, 4, 8, 9, 10,

leftTable will be sent to : 1, 2,

rightTable will be sent to : 7, 6, 5,

Before Partition them, table : 1, 2, 3, 7, 6, 5, 4, 8, 9, 10,

Initialize upIndex: 3 downIndex: 6

compare upIndex: 3 value: 7 with pivot value: 7 increment upIndex

compare upIndex: 4 value: 6 with pivot value: 7 increment upIndex

compare upIndex: 5 value: 5 with pivot value: 7 increment upIndex

After find a place for pivot, swap downIndex: 6 value: 4 with pivot index: 3 value: 7

Returned value: 6

After Partition them, table : 1, 2, 3, 4, 6, 5, 7, 8, 9, 10,

leftTable will be sent to : 1, 2, 3, 4, 6, 5,

rightTable will be sent to :

Before Partition them, table : 1, 2, 3, 4, 6, 5, 7, 8, 9, 10,

Initialize upIndex: 3 downIndex: 5

compare upIndex: 3 value: 4 with pivot value: 4 increment upIndex

compare downIndex: 5 value: 5 with pivot value: 4 decrement downIndex

compare downIndex: 4 value: 6 with pivot value: 4 decrement downIndex

After find a place for pivot, swap downIndex: 3 value: 4 with pivot index: 3 value: 4

Returned value: 3

After Partition them, table : 1, 2, 3, 4, 6, 5, 7, 8, 9, 10,

leftTable will be sent to : 1, 2, 3,

rightTable will be sent to : 6,

Before Partition them, table : 1, 2, 3, 4, 6, 5, 7, 8, 9, 10,

Initialize upIndex: 4 downIndex: 5

compare upIndex: 4 value: 6 with pivot value: 6 increment upIndex

After find a place for pivot, swap downIndex: 5 value: 5 with pivot index: 4 value: 6

Returned value: 5

After Partition them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

leftTable will be sent to : 1, 2, 3, 4, 5,

rightTable will be sent to :

After quickSort them, table : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

C) = {5, 2, 13, 9, 1, 7, 6, 8, 1, 15, 4, 11}

Quick Sort

Before Partition them, table : 5, 2, 13, 9, 1, 7, 6, 8, 1, 15, 4, 11,

Initialize upIndex: 0 downIndex: 11

compare upIndex: 0 value: 5 with pivot value: 5 increment upIndex

compare upIndex: 1 value: 2 with pivot value: 5 increment upIndex

compare downIndex: 11 value: 11 with pivot value: 5 decrement downIndex

compare upIndex: 2 < downIndex: 10 swap value: 13 with value: 4 indexed by upIndex and downIndex

compare upIndex: 2 value: 4 with pivot value: 5 increment upIndex

compare downIndex: 10 value: 13 with pivot value: 5 decrement downIndex

compare downIndex: 9 value: 15 with pivot value: 5 decrement downIndex

compare upIndex: 3 < downIndex: 8 swap value: 9 with value: 1 indexed by upIndex and downIndex

compare upIndex: 3 value: 1 with pivot value: 5 increment upIndex

compare upIndex: 4 value: 1 with pivot value: 5 increment upIndex

compare downIndex: 8 value: 9 with pivot value: 5 decrement downIndex

compare downIndex: 7 value: 8 with pivot value: 5 decrement downIndex

compare downIndex: 6 value: 6 with pivot value: 5 decrement downIndex

compare downIndex: 5 value: 7 with pivot value: 5 decrement downIndex

After find a place for pivot, swap downIndex: 4 value: 1 with pivot index: 0 value: 5

Returned value: 4

After Partition them, table : 1, 2, 4, 1, 5, 7, 6, 8, 9, 15, 13, 11,

leftTable will be sent to : 1, 2, 4, 1,

rightTable will be sent to : 7, 6, 8, 9, 15, 13,

Before Partition them, table : 1, 2, 4, 1, 5, 7, 6, 8, 9, 15, 13, 11,

Initialize upIndex: 0 downIndex: 3

compare upIndex: 0 value: 1 with pivot value: 1 increment upIndex

compare upIndex: 1 < downIndex: 3 swap value: 2 with value: 1 indexed by upIndex and downIndex

compare upIndex: 1 value: 1 with pivot value: 1 increment upIndex

compare downIndex: 3 value: 2 with pivot value: 1 decrement downIndex

compare downIndex: 2 value: 4 with pivot value: 1 decrement downIndex

After find a place for pivot, swap downIndex: 1 value: 1 with pivot index: 0 value: 1

Returned value: 1

After Partition them, table : 1, 1, 4, 2, 5, 7, 6, 8, 9, 15, 13, 11,

leftTable will be sent to : 1,

rightTable will be sent to : 4,

Before Partition them, table : 1, 1, 4, 2, 5, 7, 6, 8, 9, 15, 13, 11,

Initialize upIndex: 2 downIndex: 3

compare upIndex: 2 value: 4 with pivot value: 4 increment upIndex

After find a place for pivot, swap downIndex: 3 value: 2 with pivot index: 2 value: 4

Returned value: 3

After Partition them, table : 1, 1, 2, 4, 5, 7, 6, 8, 9, 15, 13, 11,

leftTable will be sent to : 1, 1, 2,

rightTable will be sent to :

Before Partition them, table : 1, 1, 2, 4, 5, 7, 6, 8, 9, 15, 13, 11,

Initialize upIndex: 5 downIndex: 11

compare upIndex: 5 value: 7 with pivot value: 7 increment upIndex

compare upIndex: 6 value: 6 with pivot value: 7 increment upIndex

compare downIndex: 11 value: 11 with pivot value: 7 decrement downIndex

compare downIndex: 10 value: 13 with pivot value: 7 decrement downIndex

compare downIndex: 9 value: 15 with pivot value: 7 decrement downIndex

compare downIndex: 8 value: 9 with pivot value: 7 decrement downIndex

compare downIndex: 7 value: 8 with pivot value: 7 decrement downIndex

After find a place for pivot, swap downIndex: 6 value: 6 with pivot index: 5 value: 7

Returned value: 6

After Partition them, table : 1, 1, 2, 4, 5, 6, 7, 8, 9, 15, 13, 11,

leftTable will be sent to : 1, 1, 2, 4, 5, 6,

rightTable will be sent to : 8, 9, 15, 13,

Before Partition them, table : 1, 1, 2, 4, 5, 6, 7, 8, 9, 15, 13, 11,

Initialize upIndex: 7 downIndex: 11

compare upIndex: 7 value: 8 with pivot value: 8 increment upIndex

compare downIndex: 11 value: 11 with pivot value: 8 decrement downIndex

compare downIndex: 10 value: 13 with pivot value: 8 decrement downIndex

compare downIndex: 9 value: 15 with pivot value: 8 decrement downIndex

compare downIndex: 8 value: 9 with pivot value: 8 decrement downIndex

After find a place for pivot, swap downIndex: 7 value: 8 with pivot index: 7 value: 8

Returned value: 7

After Partition them, table : 1, 1, 2, 4, 5, 6, 7, 8, 9, 15, 13, 11,

leftTable will be sent to : 1, 1, 2, 4, 5, 6, 7,

rightTable will be sent to : 9, 15, 13,

Before Partition them, table : 1, 1, 2, 4, 5, 6, 7, 8, 9, 15, 13, 11,

Initialize upIndex: 8 downIndex: 11

compare upIndex: 8 value: 9 with pivot value: 9 increment upIndex

compare downIndex: 11 value: 11 with pivot value: 9 decrement downIndex

compare downIndex: 10 value: 13 with pivot value: 9 decrement downIndex

compare downIndex: 9 value: 15 with pivot value: 9 decrement downIndex

After find a place for pivot, swap downIndex: 8 value: 9 with pivot index: 8 value: 9

Returned value: 8

After Partition them, table : 1, 1, 2, 4, 5, 6, 7, 8, 9, 15, 13, 11,

leftTable will be sent to : 1, 1, 2, 4, 5, 6, 7, 8,

rightTable will be sent to : 15, 13,

Before Partition them, table : 1, 1, 2, 4, 5, 6, 7, 8, 9, 15, 13, 11,

Initialize upIndex: 9 downIndex: 11

compare upIndex: 9 value: 15 with pivot value: 15 increment upIndex

compare upIndex: 10 value: 13 with pivot value: 15 increment upIndex

After find a place for pivot, swap downIndex: 11 value: 11 with pivot index: 9 value: 15

Returned value: 11

After Partition them, table : 1, 1, 2, 4, 5, 6, 7, 8, 9, 11, 13, 15,

leftTable will be sent to : 1, 1, 2, 4, 5, 6, 7, 8, 9, 11, 13,

rightTable will be sent to :

Before Partition them, table : 1, 1, 2, 4, 5, 6, 7, 8, 9, 11, 13, 15,

Initialize upIndex: 9 downIndex: 10

compare upIndex: 9 value: 11 with pivot value: 11 increment upIndex

compare downIndex: 10 value: 13 with pivot value: 11 decrement downIndex

After find a place for pivot, swap downIndex: 9 value: 11 with pivot index: 9 value: 11

Returned value: 9

After Partition them, table : 1, 1, 2, 4, 5, 6, 7, 8, 9, 11, 13, 15,

leftTable will be sent to : 1, 1, 2, 4, 5, 6, 7, 8, 9,

rightTable will be sent to :

After quickSort them, table : 1, 1, 2, 4, 5, 6, 7, 8, 9, 11, 13, 15,

D) = {‘S’, ‘B’, ‘I’, ‘M’, ‘H’, ‘Q’, ‘C’, ‘L’, ‘R’, ‘E’, ‘P’, ‘K’}

Quick Sort

Before Partition them, table : S, B, I, M, H, Q, C, L, R, E, P, K,

Initialize upIndex: 0 downIndex: 11

compare upIndex: 0 value: S with pivot value: S increment upIndex

compare upIndex: 1 value: B with pivot value: S increment upIndex

compare upIndex: 2 value: I with pivot value: S increment upIndex

compare upIndex: 3 value: M with pivot value: S increment upIndex

compare upIndex: 4 value: H with pivot value: S increment upIndex

compare upIndex: 5 value: Q with pivot value: S increment upIndex

compare upIndex: 6 value: C with pivot value: S increment upIndex

compare upIndex: 7 value: L with pivot value: S increment upIndex

compare upIndex: 8 value: R with pivot value: S increment upIndex

compare upIndex: 9 value: E with pivot value: S increment upIndex

compare upIndex: 10 value: P with pivot value: S increment upIndex

After find a place for pivot, swap downIndex: 11 value: K with pivot index: 0 value: S

Returned value: 11

After Partition them, table : K, B, I, M, H, Q, C, L, R, E, P, S,

leftTable will be sent to : K, B, I, M, H, Q, C, L, R, E, P,

rightTable will be sent to :

Before Partition them, table : K, B, I, M, H, Q, C, L, R, E, P, S,

Initialize upIndex: 0 downIndex: 10

compare upIndex: 0 value: K with pivot value: K increment upIndex

compare upIndex: 1 value: B with pivot value: K increment upIndex

compare upIndex: 2 value: I with pivot value: K increment upIndex

compare downIndex: 10 value: P with pivot value: K decrement downIndex

compare upIndex: 3 < downIndex: 9 swap value: M with value: E indexed by upIndex and downIndex

compare upIndex: 3 value: E with pivot value: K increment upIndex

compare upIndex: 4 value: H with pivot value: K increment upIndex

compare downIndex: 9 value: M with pivot value: K decrement downIndex

compare downIndex: 8 value: R with pivot value: K decrement downIndex

compare downIndex: 7 value: L with pivot value: K decrement downIndex

compare upIndex: 5 < downIndex: 6 swap value: Q with value: C indexed by upIndex and downIndex

compare upIndex: 5 value: C with pivot value: K increment upIndex

compare downIndex: 6 value: Q with pivot value: K decrement downIndex

After find a place for pivot, swap downIndex: 5 value: C with pivot index: 0 value: K

Returned value: 5

After Partition them, table : C, B, I, E, H, K, Q, L, R, M, P, S,

leftTable will be sent to : C, B, I, E, H,

rightTable will be sent to : Q, L, R, M,

Before Partition them, table : C, B, I, E, H, K, Q, L, R, M, P, S,

Initialize upIndex: 0 downIndex: 4

compare upIndex: 0 value: C with pivot value: C increment upIndex

compare upIndex: 1 value: B with pivot value: C increment upIndex

compare downIndex: 4 value: H with pivot value: C decrement downIndex

compare downIndex: 3 value: E with pivot value: C decrement downIndex

compare downIndex: 2 value: I with pivot value: C decrement downIndex

After find a place for pivot, swap downIndex: 1 value: B with pivot index: 0 value: C

Returned value: 1

After Partition them, table : B, C, I, E, H, K, Q, L, R, M, P, S,

leftTable will be sent to : B,

rightTable will be sent to : I, E,

Before Partition them, table : B, C, I, E, H, K, Q, L, R, M, P, S,

Initialize upIndex: 2 downIndex: 4

compare upIndex: 2 value: I with pivot value: I increment upIndex

compare upIndex: 3 value: E with pivot value: I increment upIndex

After find a place for pivot, swap downIndex: 4 value: H with pivot index: 2 value: I

Returned value: 4

After Partition them, table : B, C, H, E, I, K, Q, L, R, M, P, S,

leftTable will be sent to : B, C, H, E,

rightTable will be sent to :

Before Partition them, table : B, C, H, E, I, K, Q, L, R, M, P, S,

Initialize upIndex: 2 downIndex: 3

compare upIndex: 2 value: H with pivot value: H increment upIndex

After find a place for pivot, swap downIndex: 3 value: E with pivot index: 2 value: H

Returned value: 3

After Partition them, table : B, C, E, H, I, K, Q, L, R, M, P, S,

leftTable will be sent to : B, C, E,

rightTable will be sent to :

Before Partition them, table : B, C, E, H, I, K, Q, L, R, M, P, S,

Initialize upIndex: 6 downIndex: 10

compare upIndex: 6 value: Q with pivot value: Q increment upIndex

compare upIndex: 7 value: L with pivot value: Q increment upIndex

compare upIndex: 8 < downIndex: 10 swap value: R with value: P indexed by upIndex and downIndex

compare upIndex: 8 value: P with pivot value: Q increment upIndex

compare upIndex: 9 value: M with pivot value: Q increment upIndex

compare downIndex: 10 value: R with pivot value: Q decrement downIndex

After find a place for pivot, swap downIndex: 9 value: M with pivot index: 6 value: Q

Returned value: 9

After Partition them, table : B, C, E, H, I, K, M, L, P, Q, R, S,

leftTable will be sent to : B, C, E, H, I, K, M, L, P,

rightTable will be sent to :

Before Partition them, table : B, C, E, H, I, K, M, L, P, Q, R, S,

Initialize upIndex: 6 downIndex: 8

compare upIndex: 6 value: M with pivot value: M increment upIndex

compare upIndex: 7 value: L with pivot value: M increment upIndex

compare downIndex: 8 value: P with pivot value: M decrement downIndex

After find a place for pivot, swap downIndex: 7 value: L with pivot index: 6 value: M

Returned value: 7

After Partition them, table : B, C, E, H, I, K, L, M, P, Q, R, S,

leftTable will be sent to : B, C, E, H, I, K, L,

rightTable will be sent to :

After quickSort them, table : B, C, E, H, I, K, L, M, P, Q, R, S,