

insert :

elem

list

3

[1, 2, 4, 5]

$3 < 1$? false \rightarrow 1: [2, 4, 5]

\downarrow

$3 < 2$? false \rightarrow 1: 2: [4, 5]

$3 < 4$? true \rightarrow 1: 2: 3: [4, 5]

= [1, 2, 3, 4, 5]

insertion sort :

sort [3, 1, 5, 4, 2]

insert 3 [1, 5, 4, 2]

insert 3 (insert 1 ([5, 4, 2]))

insert 3 (insert 1 (insert 5 ([4, 2])))

insert 3 (insert 1 (insert 5 (insert 4 ([2])))

insert 3 (insert 1 (insert 5 (insert 4 (insert 2 ([])))))

insert 3 (insert 1 (insert 5 (insert 4 ([2])))

insert 3 (insert 1 (insert 5 ([2, 4])))

insert 3 (insert 1 ([2, 4, 5]))

insert 3 ([1, 2, 4, 5])

[1, 2, 3, 4, 5]

sort [3, 1, 5, 4, 2] # drawing representation

remaining elements:

[]

← resulting list

[3, 1, 5, 4]

[3, 1, 5]

[2]

[2, 4]

[3, 1]

[2, 4, 5]

[3]

[1, 2, 4, 5]

[1, 2, 3, 4, 5]

merge:

list 1:

[1, 2, 5]

↓

[2, 5]

[5]

[5]

results:

↓

1 > 3 ?

false

[1]

2 > 3 ?

false

[1, 2]

5 > 3 ?

true

[1, 2, 3]

list 2:

[3, 4, 6]

↓

[3, 4, 6]

[3, 4, 6]

[4, 6]

$5 > 4 ?$

true

[5]

[1, 2, 3, 4]

[6]

$5 > 6 ?$

false

[]

[1, 2, 3, 4, 5]

[6]

append remaining

[1, 2, 3, 4, 5, 6]

list 1:

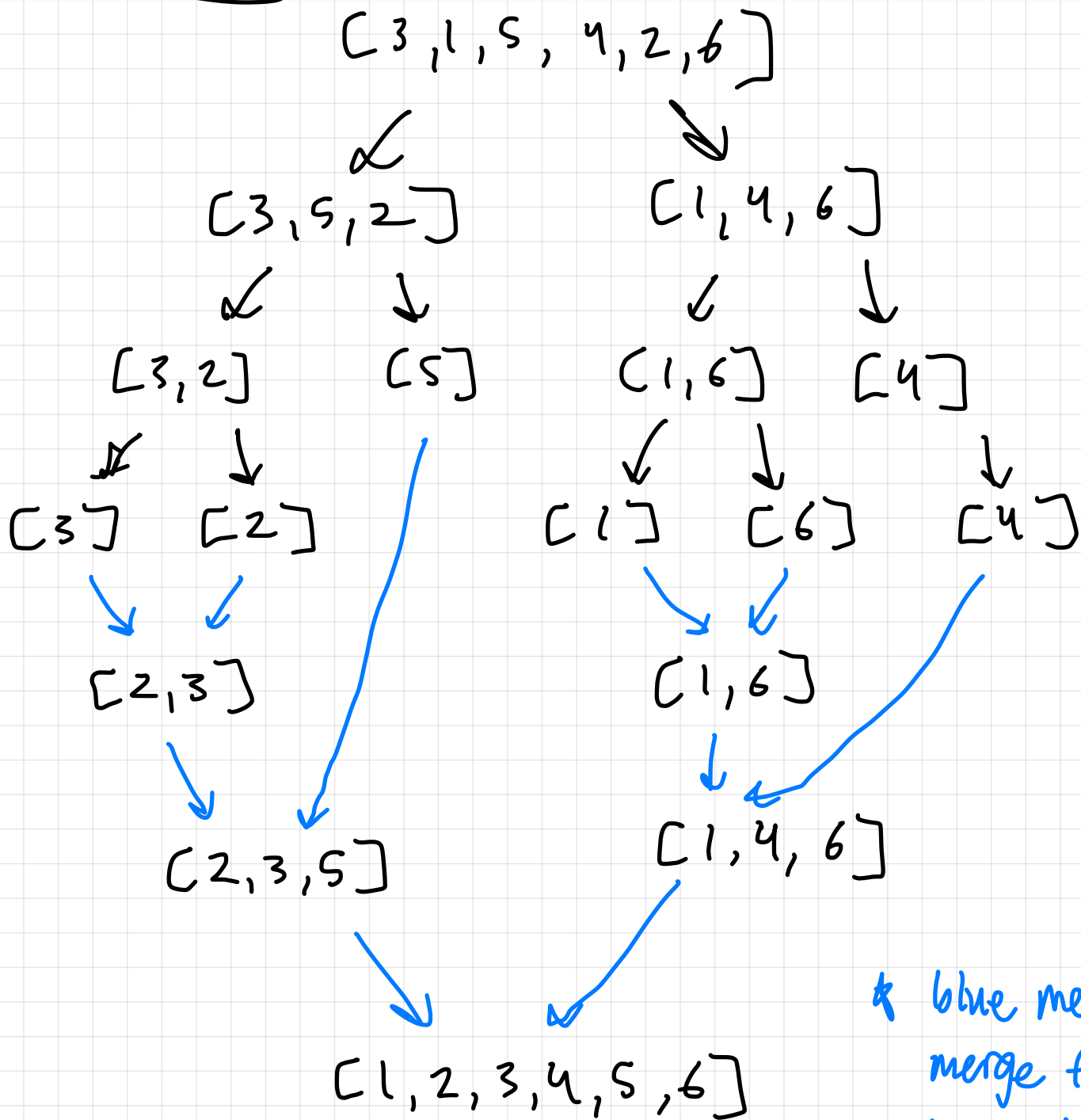
[1, 2, 5]

list 2:

[3, 4, 6]

[1, 2, 3, 4, 5, 6]

merge sort:



* blue means
merge function
is used