

Mergesort

Merge(A,B)

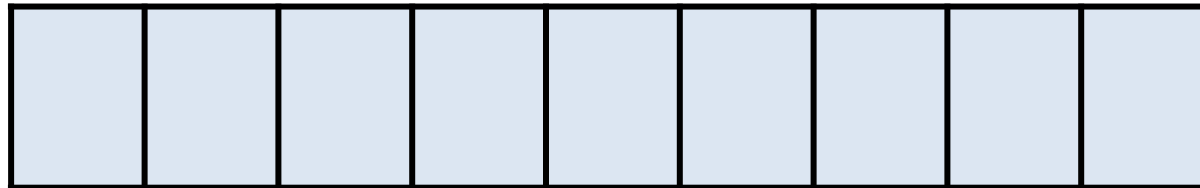
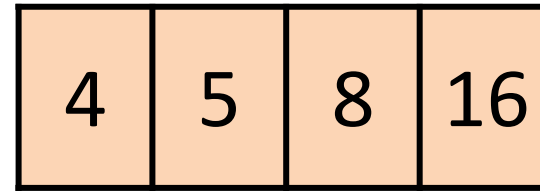
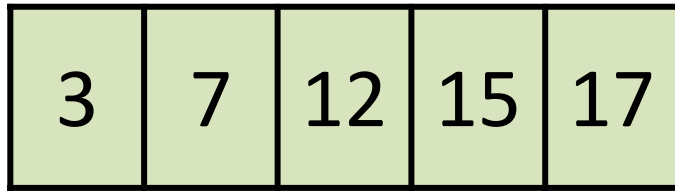
3	7	12	15	17
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4	5	8	16
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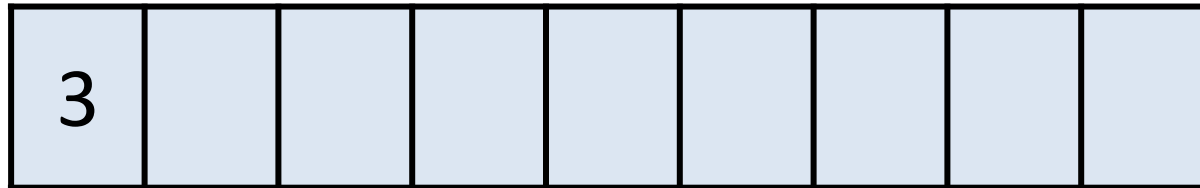
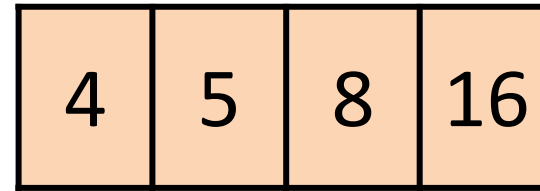
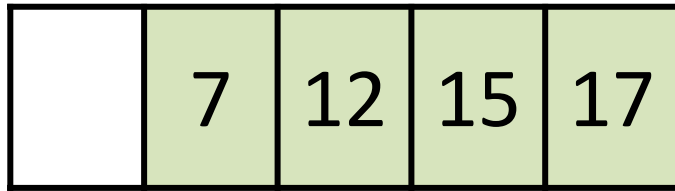
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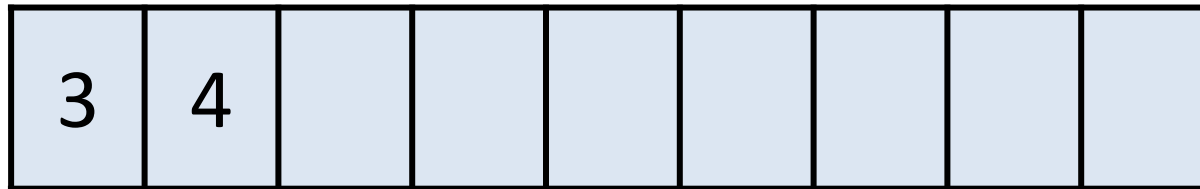
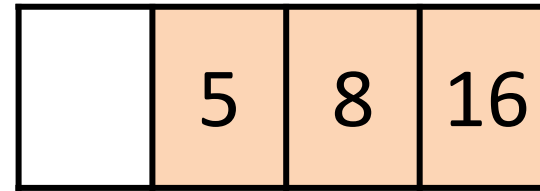
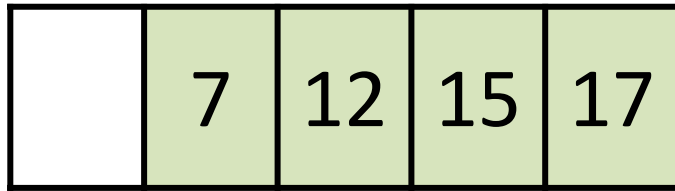
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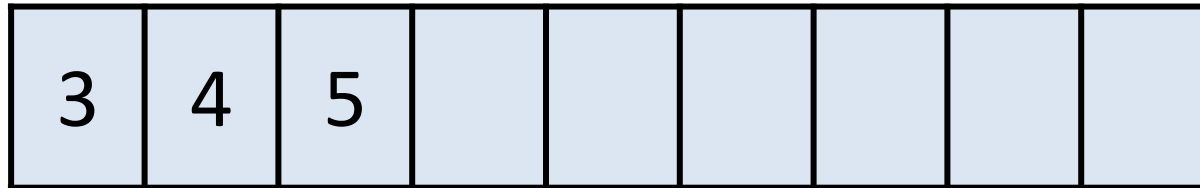
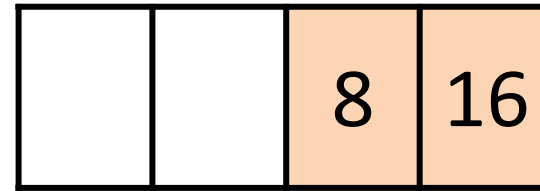
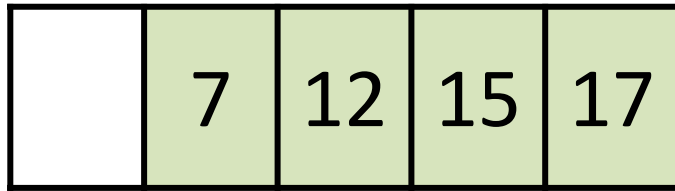
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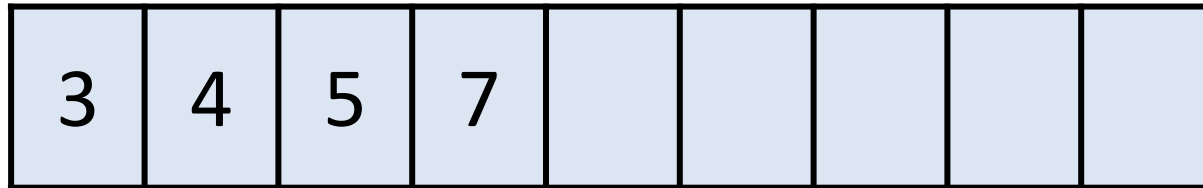
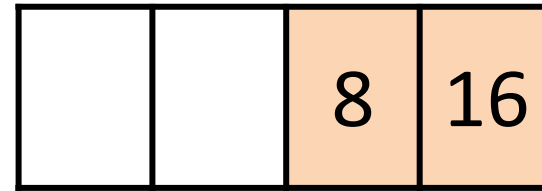
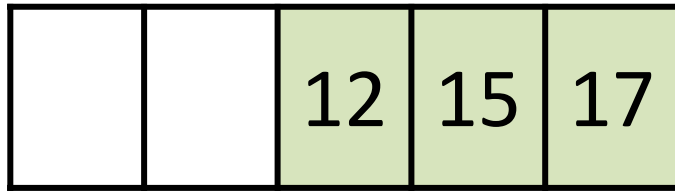
Mergesort

Merge(A,B)



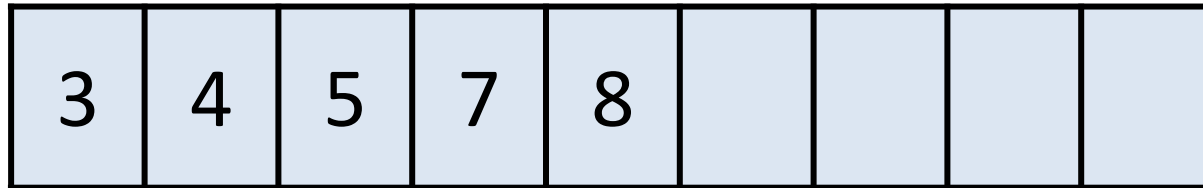
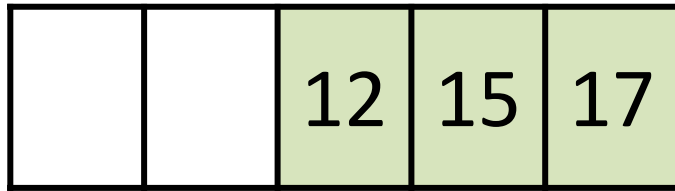
Mergesort

Merge(A,B)



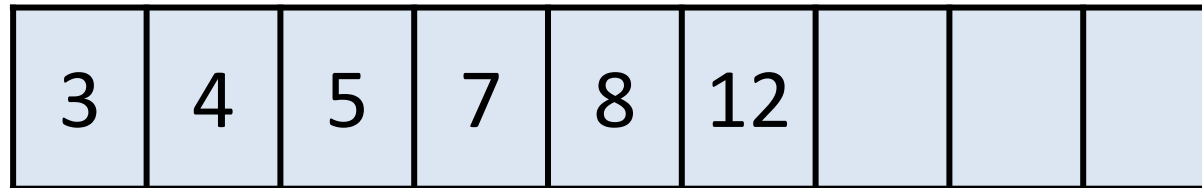
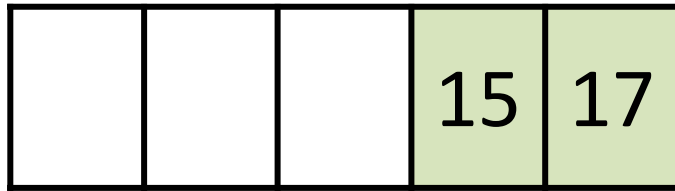
Mergesort

Merge(A,B)



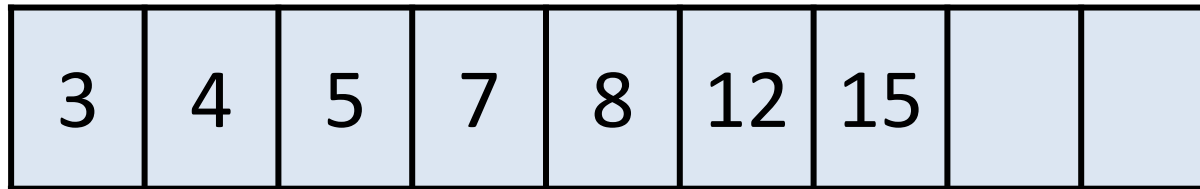
Mergesort

Merge(A,B)



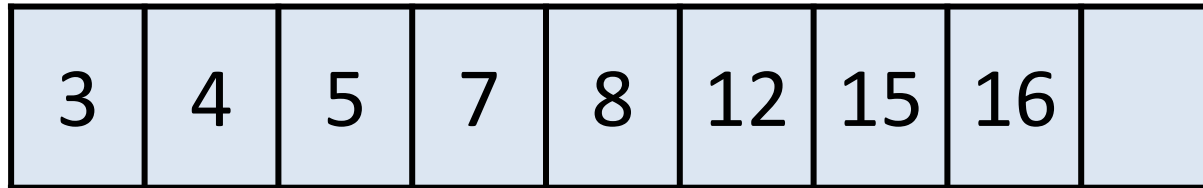
Mergesort

Merge(A,B)



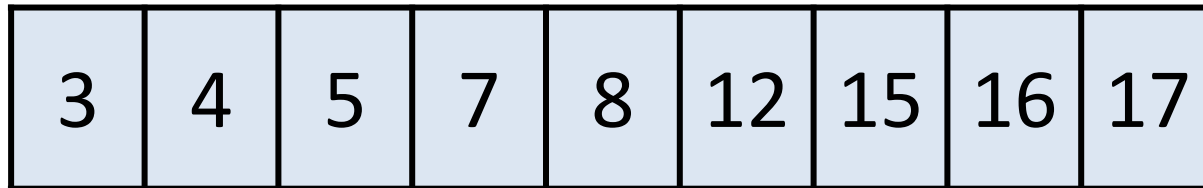
Mergesort

Merge(A,B)



Mergesort

Merge(A,B)



Mergesort

Merge(A,B)

3	4	5	7	8	12	15	16	17
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Suppose $|A| = a$ and $|B| = b$ with $n = a + b$.

How many comparisons are needed in a call to `merge(A,B)`? What is the runtime?

Mergesort

Merge(A,B)

3	4	5	7	8	12	15	16	17
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Suppose $|A| = a$ and $|B| = b$ with $n = a + b$.

merge(A,B) needs at most $n - 1$ comparisons
and runs in $O(n)$ time

Mergesort

mergesort(A)

12	4	7	15	3	13	3	14	1
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Mergesort

mergesort(A)

12	4	7	15	3	13	3	14	1
----	---	---	----	---	----	---	----	---




12	4	7	15
----	---	---	----


Mergesort

mergesort(A)

12	4	7	15	3	13	3	14	1
----	---	---	----	---	----	---	----	---



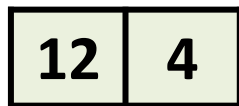
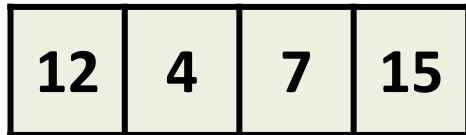
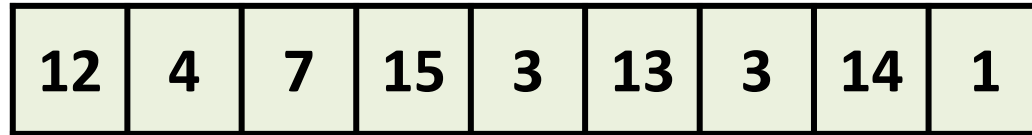
12	4	7	15
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12	4
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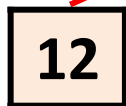
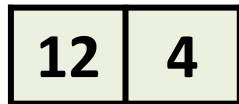
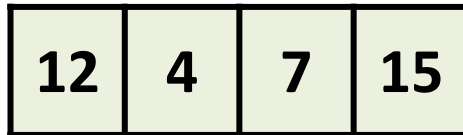
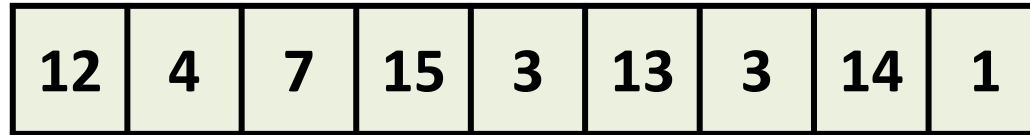
Mergesort

mergesort(A)



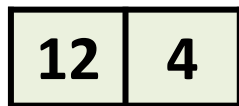
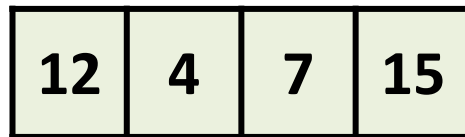
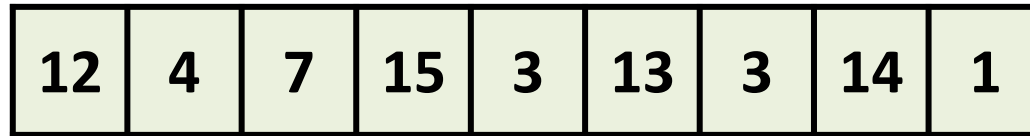
Mergesort

mergesort(A)



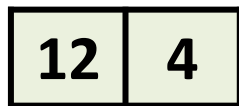
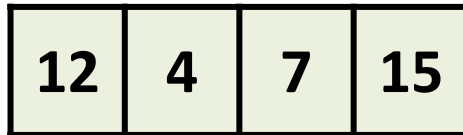
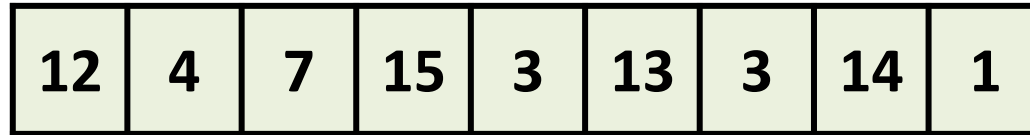
Mergesort

mergesort(A)



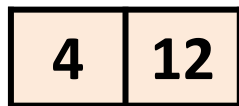
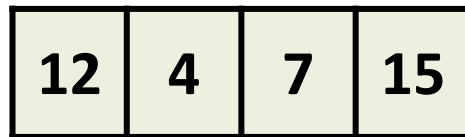
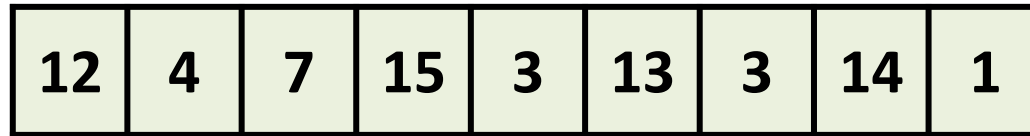
Mergesort

mergesort(A)



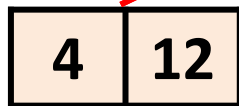
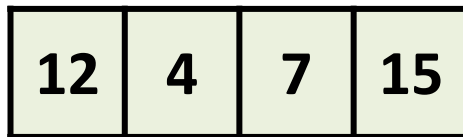
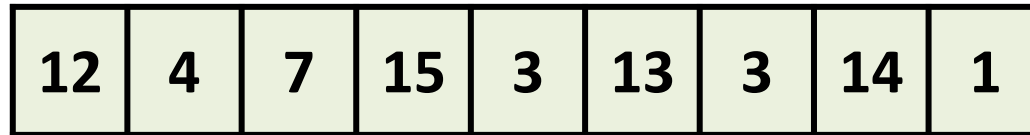
Mergesort

mergesort(A)



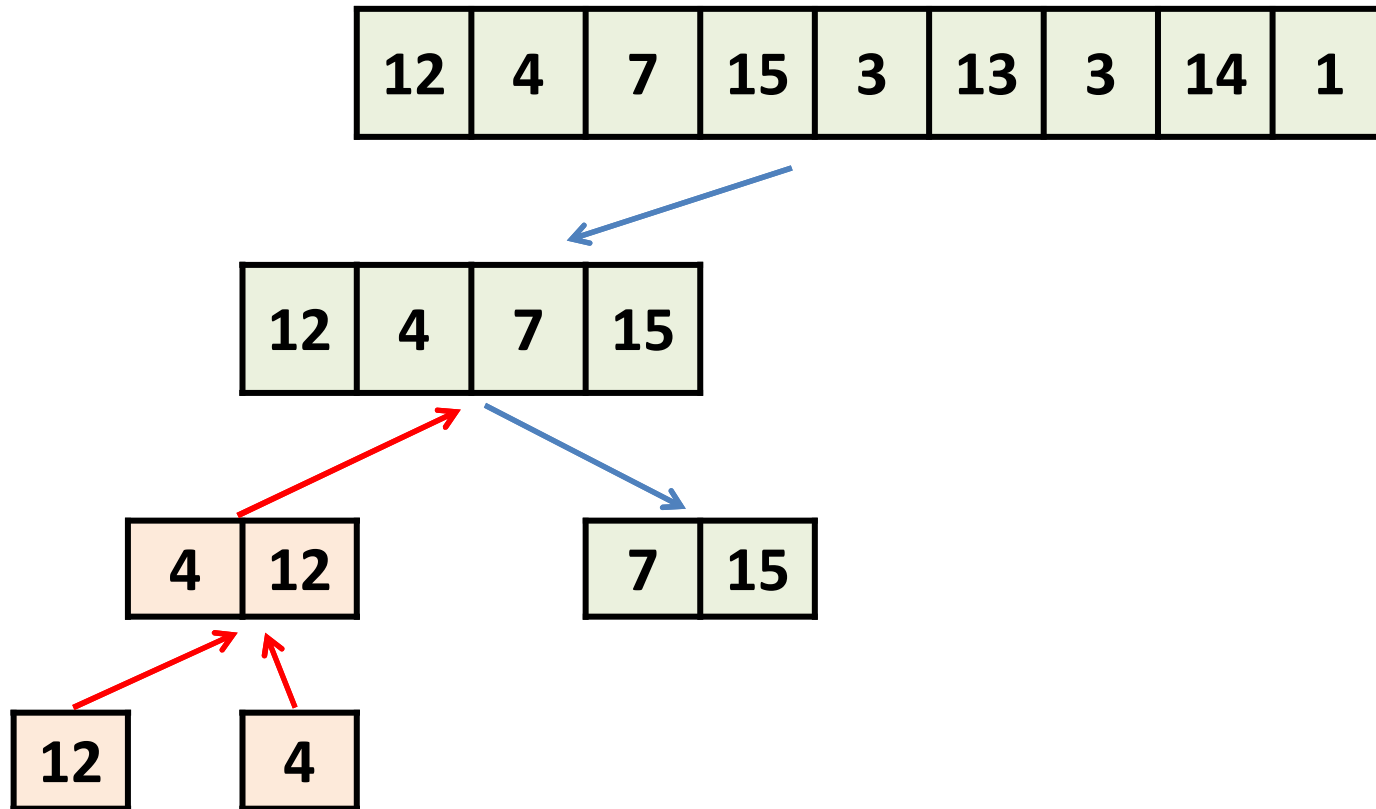
Mergesort

mergesort(A)



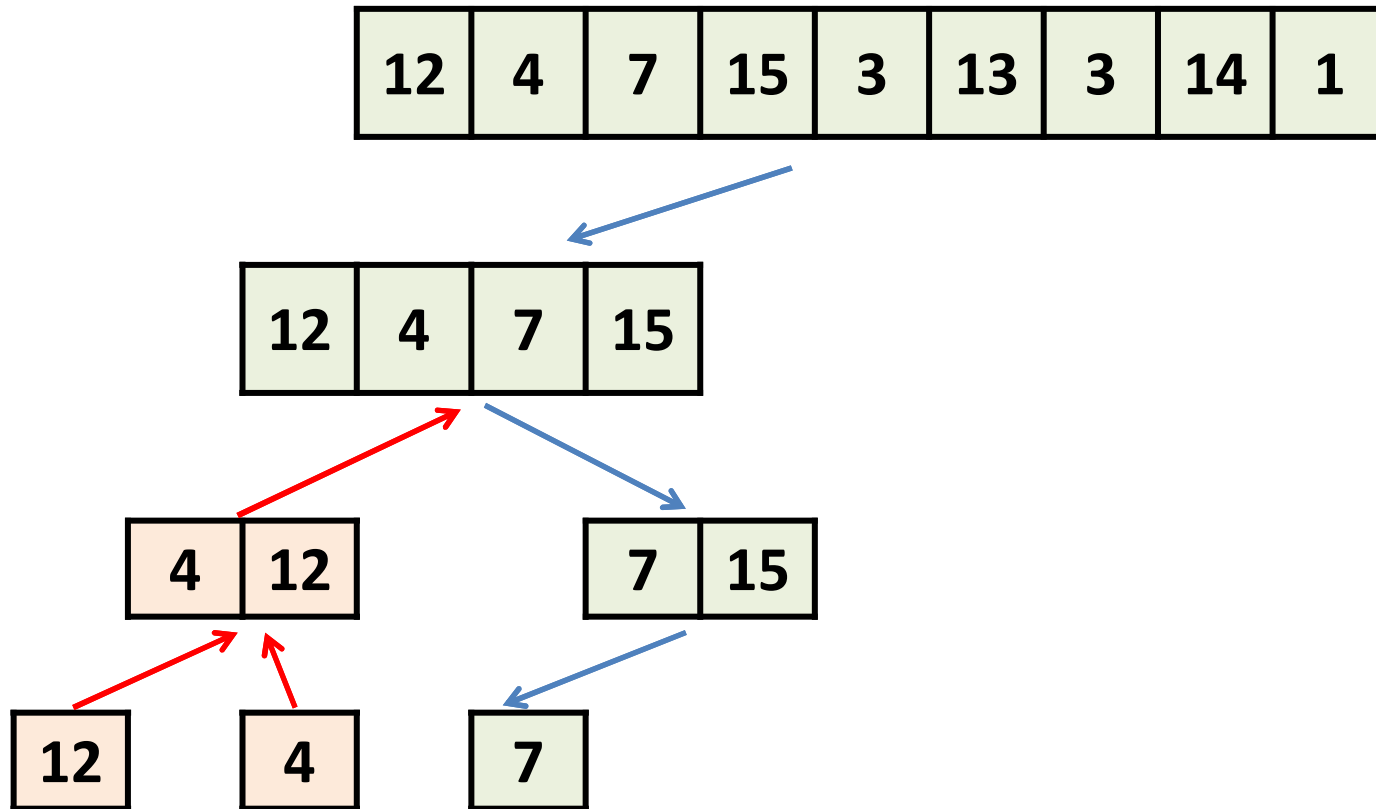
Mergesort

mergesort(A)



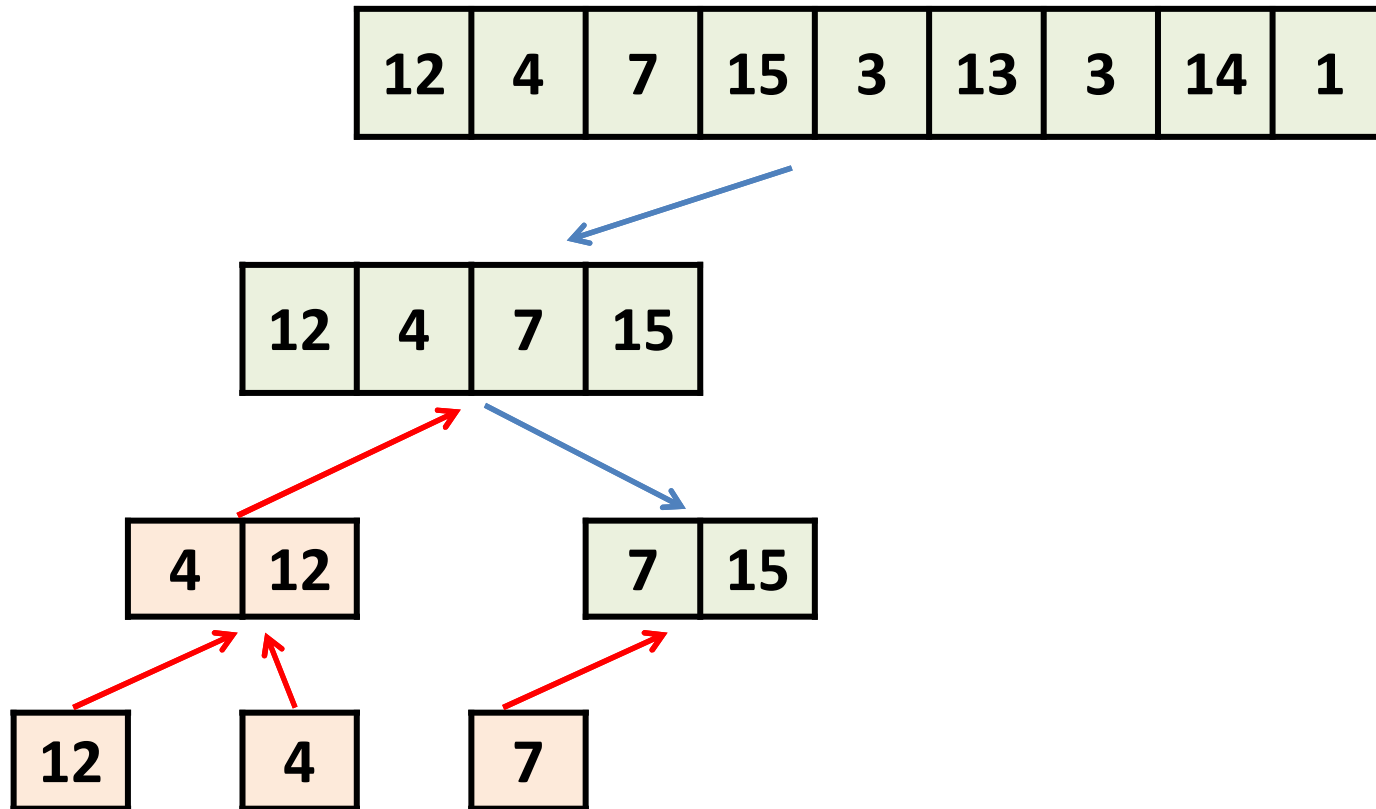
Mergesort

mergesort(A)



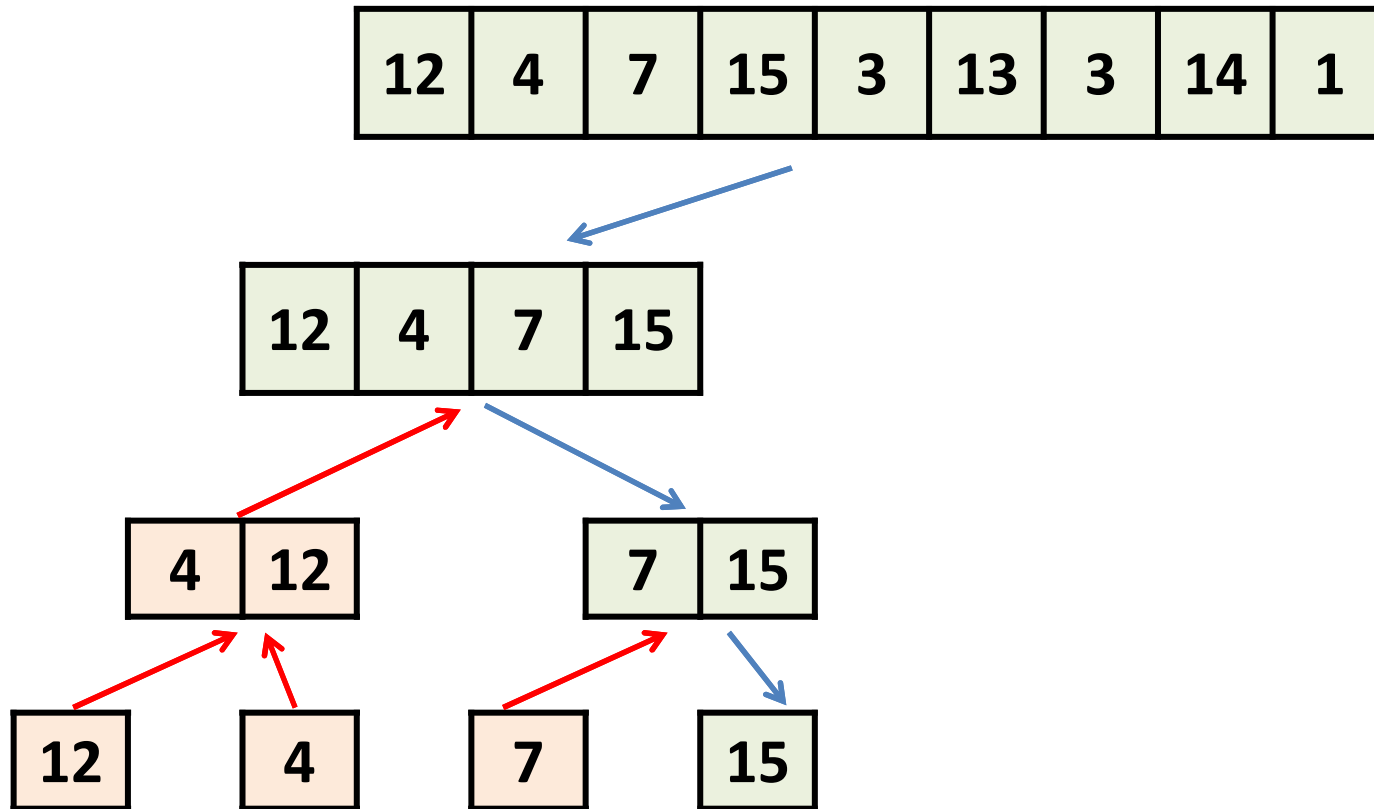
Mergesort

mergesort(A)



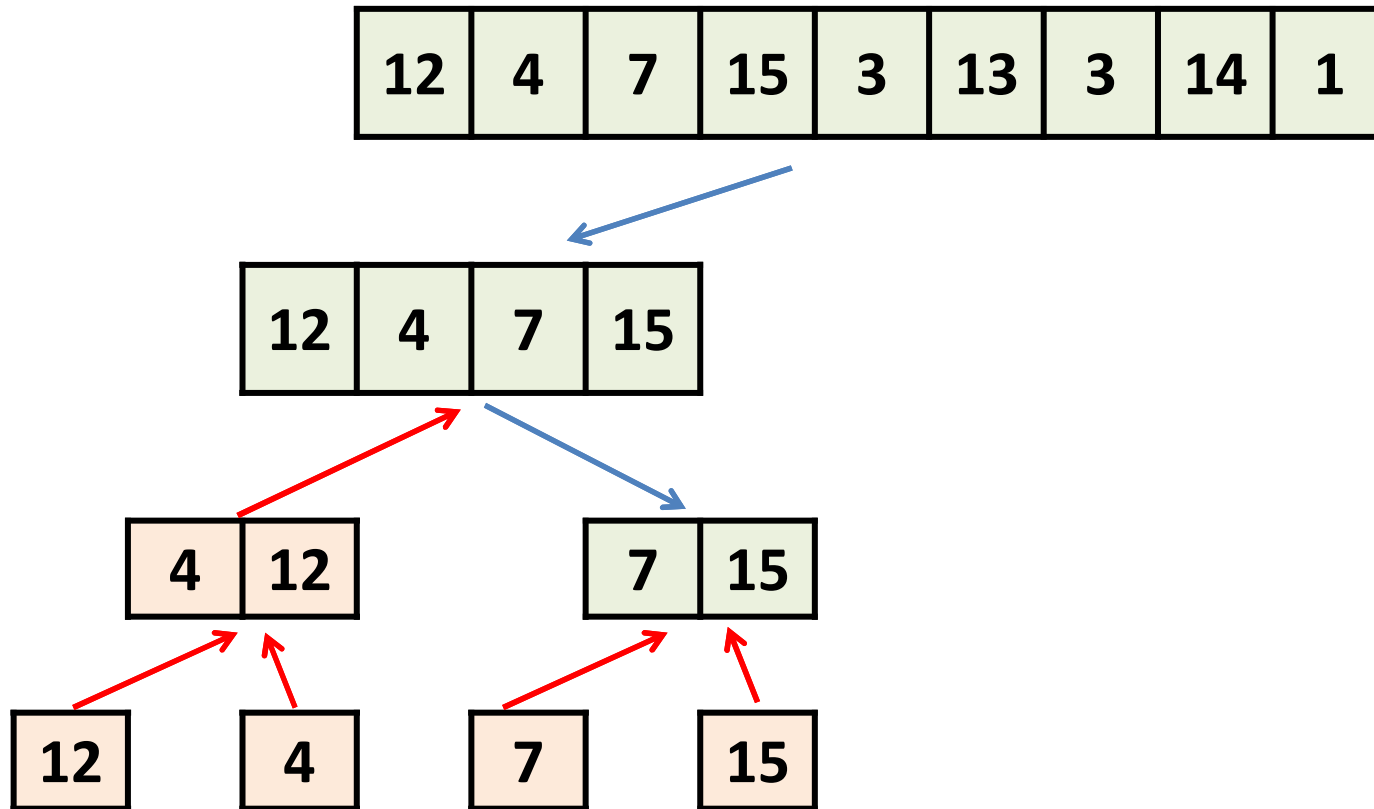
Mergesort

mergesort(A)



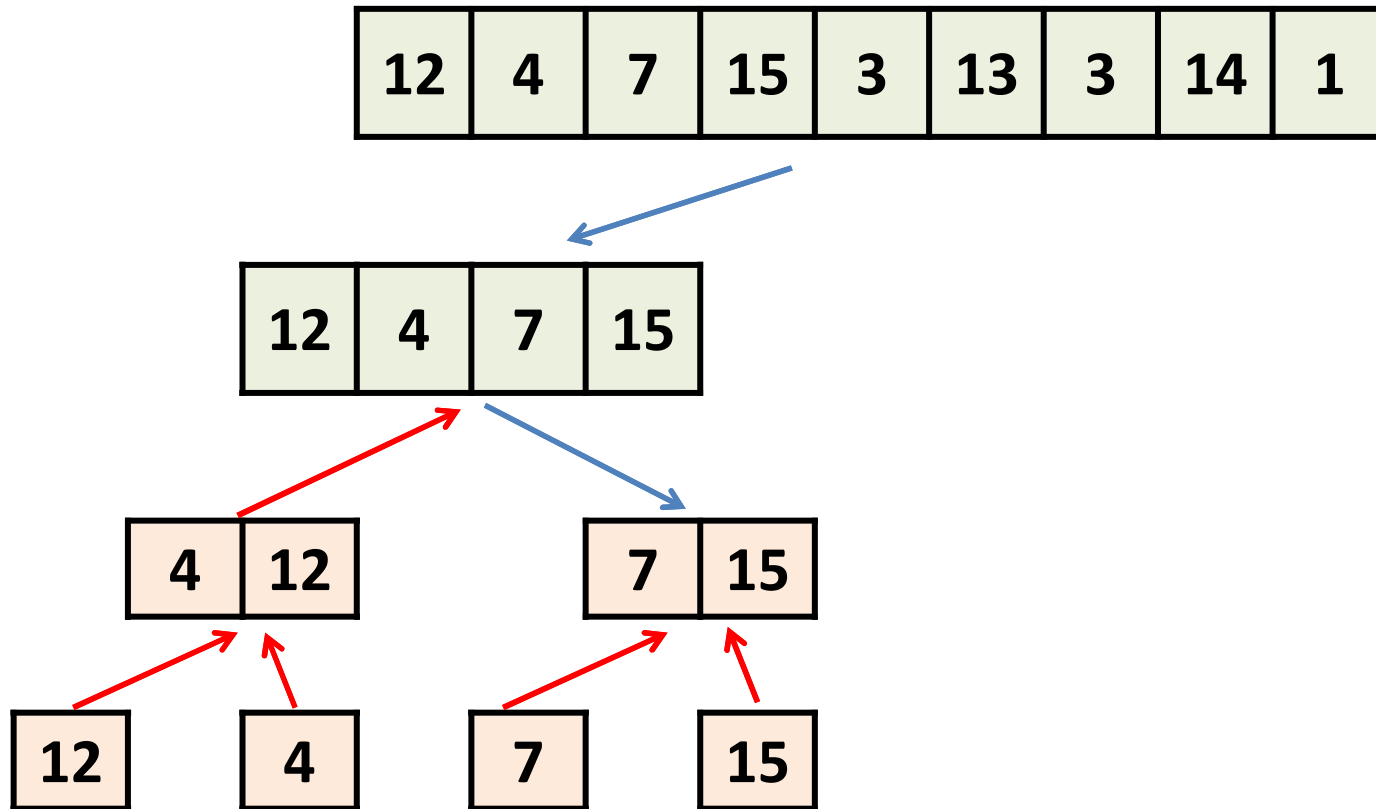
Mergesort

mergesort(A)



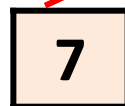
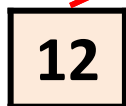
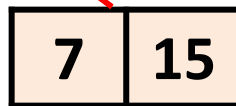
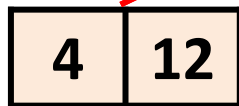
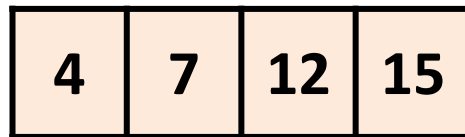
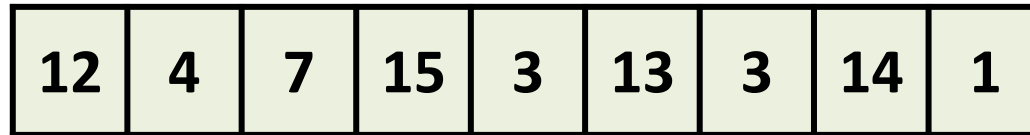
Mergesort

mergesort(A)



Mergesort

mergesort(A)



Mergesort

mergesort(A)

