



## 5. DIVIDE AND CONQUER

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- ▶ *merge demo*

Lecture slides by Kevin Wayne

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<http://www.cs.princeton.edu/~wayne/kleinberg-tardos>

# Merge demo

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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A

3	7	10	14	18
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sorted list B

2	11	16	17	23
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# Merge demo

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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A

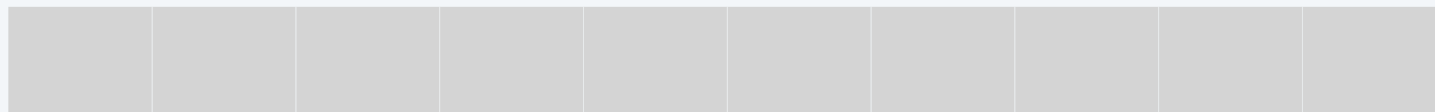


sorted list B



compare minimum entry in each list: copy 2

sorted list C



# Merge demo

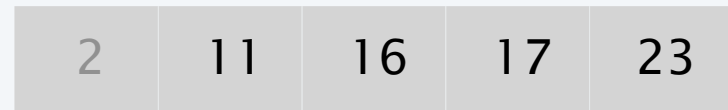
---

Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A

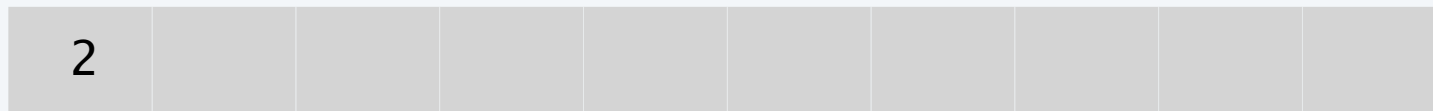


sorted list B



compare minimum entry in each list: copy 3

sorted list C



# Merge demo

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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A

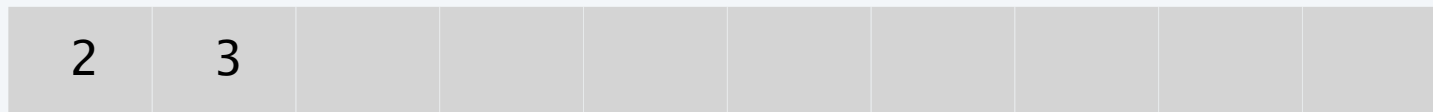


sorted list B



compare minimum entry in each list: copy 7

sorted list C



# Merge demo

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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A

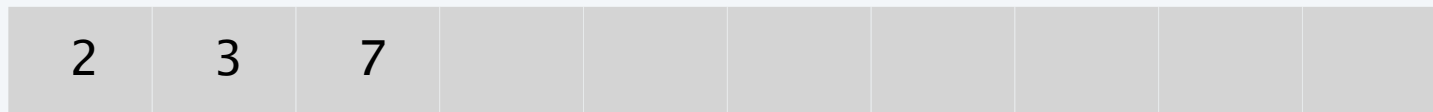


sorted list B



compare minimum entry in each list: copy 10

sorted list C



# Merge demo

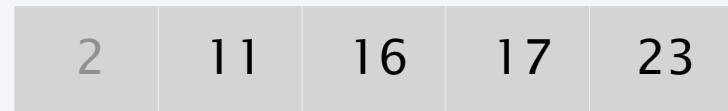
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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A

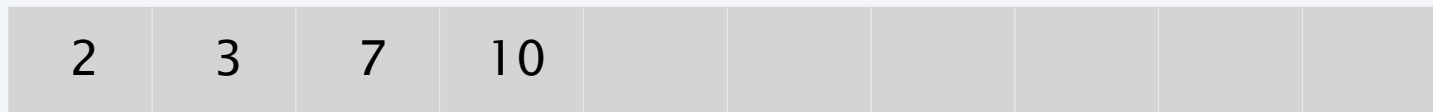


sorted list B



compare minimum entry in each list: copy 11

sorted list C



# Merge demo

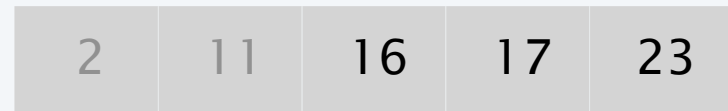
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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A



sorted list B



compare minimum entry in each list: copy 14

sorted list C





# Merge demo

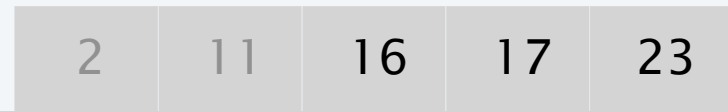
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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A



sorted list B



compare minimum entry in each list: copy 16

sorted list C



# Merge demo

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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A



sorted list B



compare minimum entry in each list: copy 17

sorted list C



# Merge demo

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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A



sorted list B



compare minimum entry in each list: copy 18

sorted list C



# Merge demo

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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A

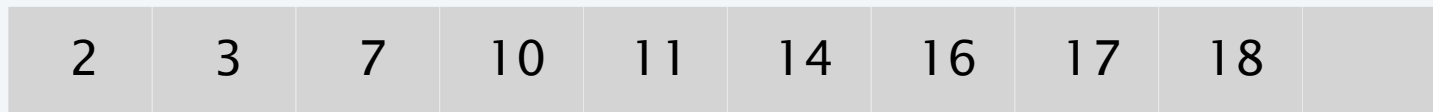


sorted list B



list A exhausted: copy 23

sorted list C



# Merge demo

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Given two sorted lists  $A$  and  $B$ , merge into sorted list  $C$ .

sorted list A



sorted list B



done

sorted list C

