

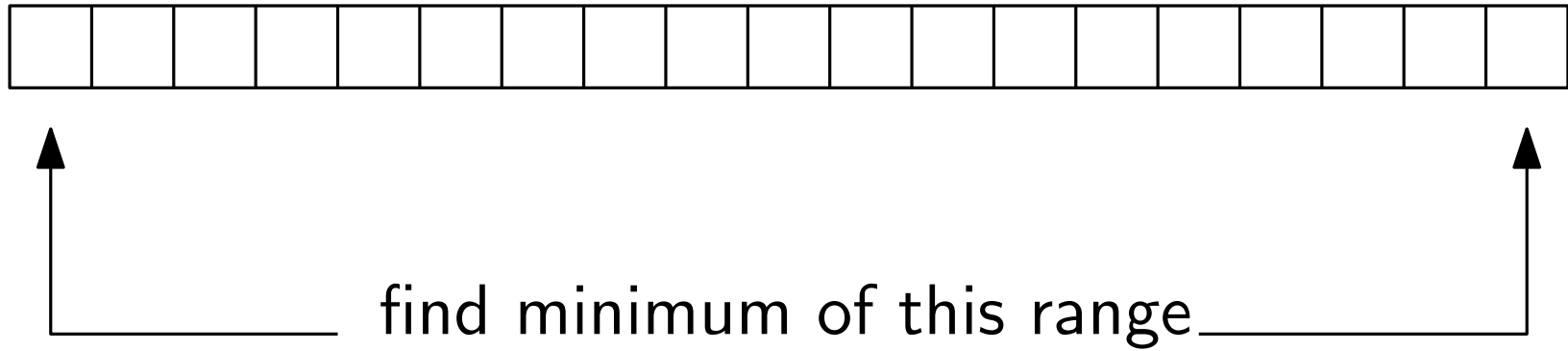
Selection Sort

Idea, Pseudocode, Code, and Example

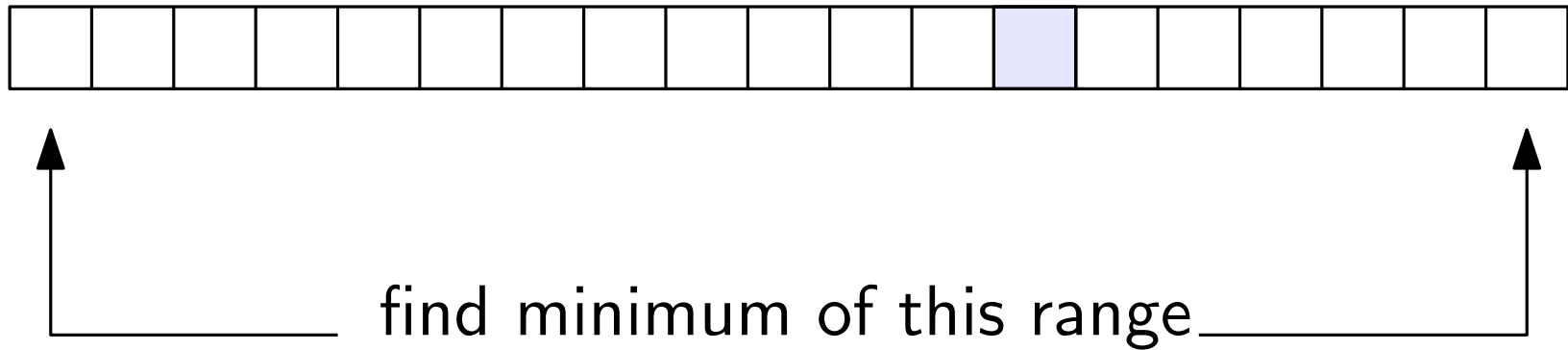
Selection Sort: Idea

[illegible]

Selection Sort: Idea

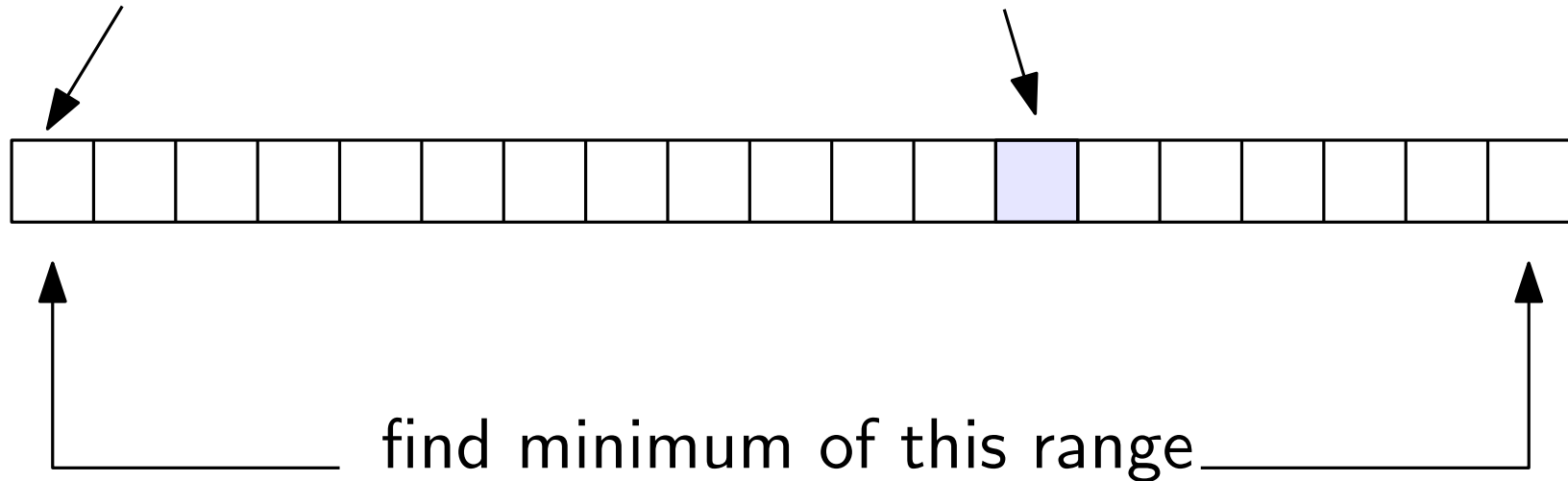


Selection Sort: Idea



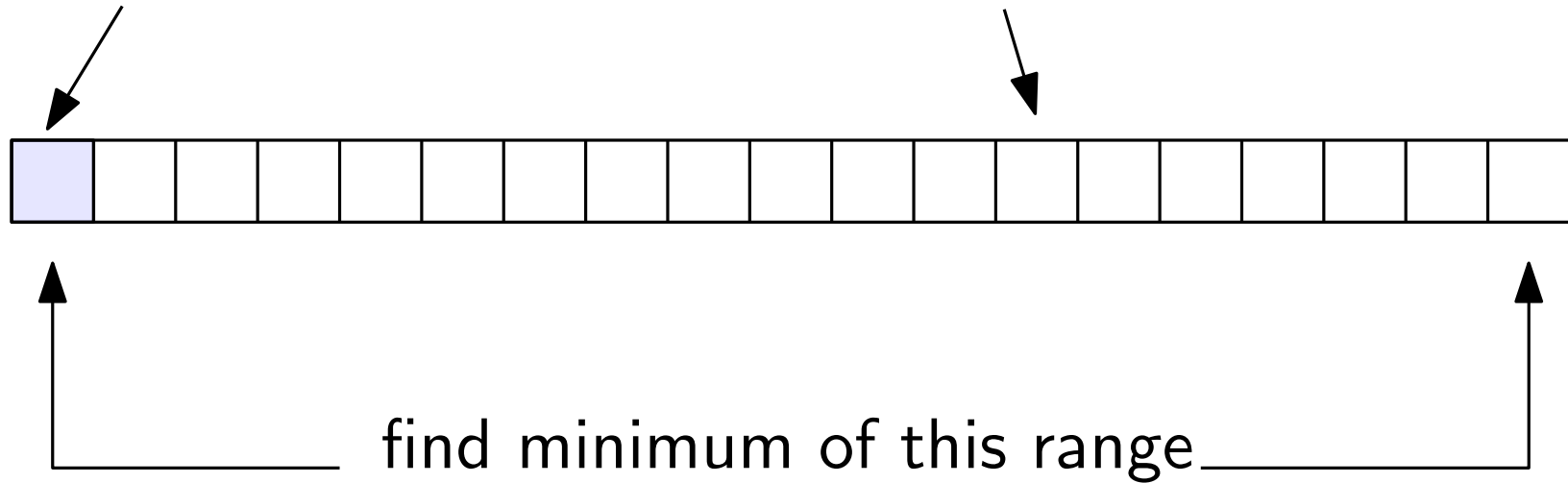
Selection Sort: Idea

exchange first element and minimum



Selection Sort: Idea

exchange first element and minimum

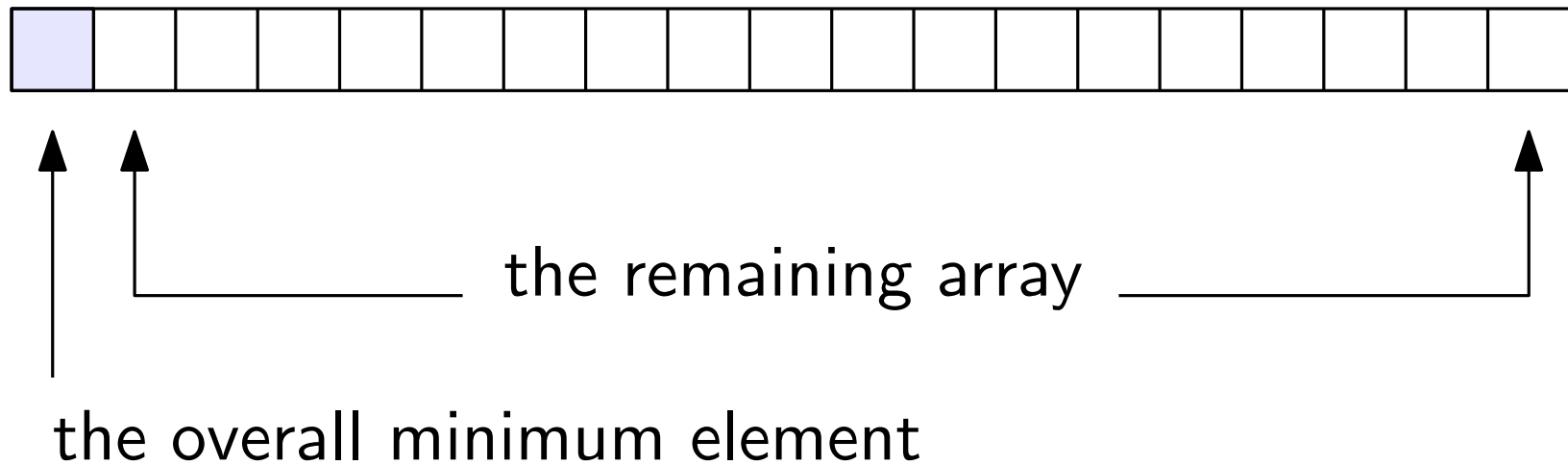


Selection Sort: Idea

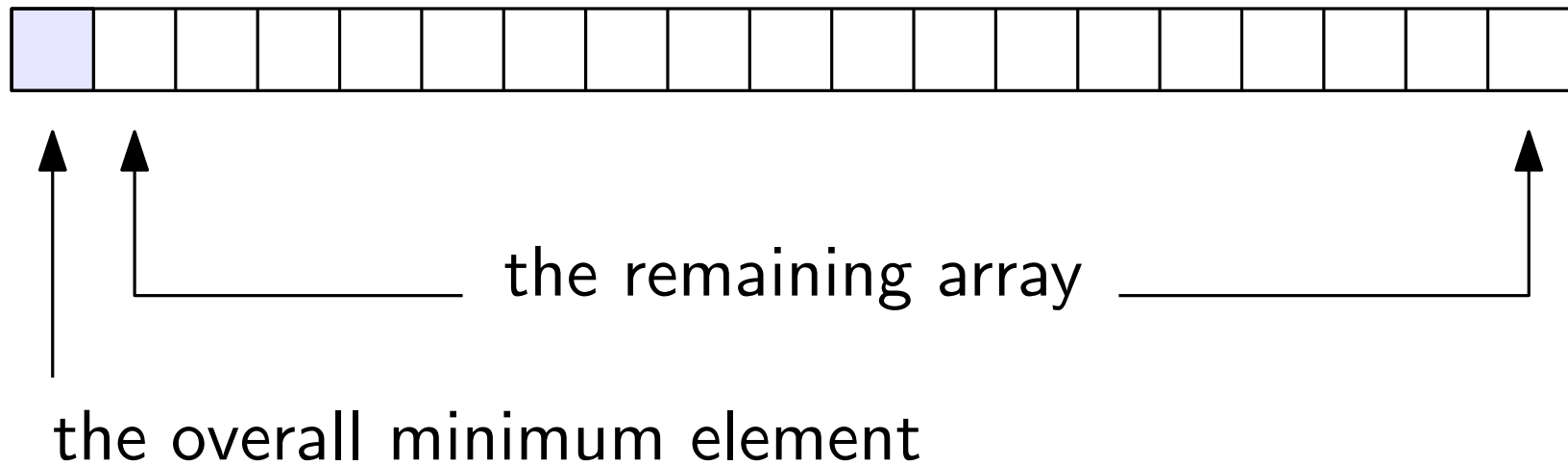


the overall minimum element

Selection Sort: Idea



Selection Sort: Idea



Repeat this on the remaining array.

Selection Sort: Pseudocode

1. **for** $i = 1, \dots, n - 1$:
2. find minimum element in array $A[i + 1, \dots, n]$
 in particular, find its index j in A ; the *argmin*
3. exchange $A[i]$ and $A[j]$

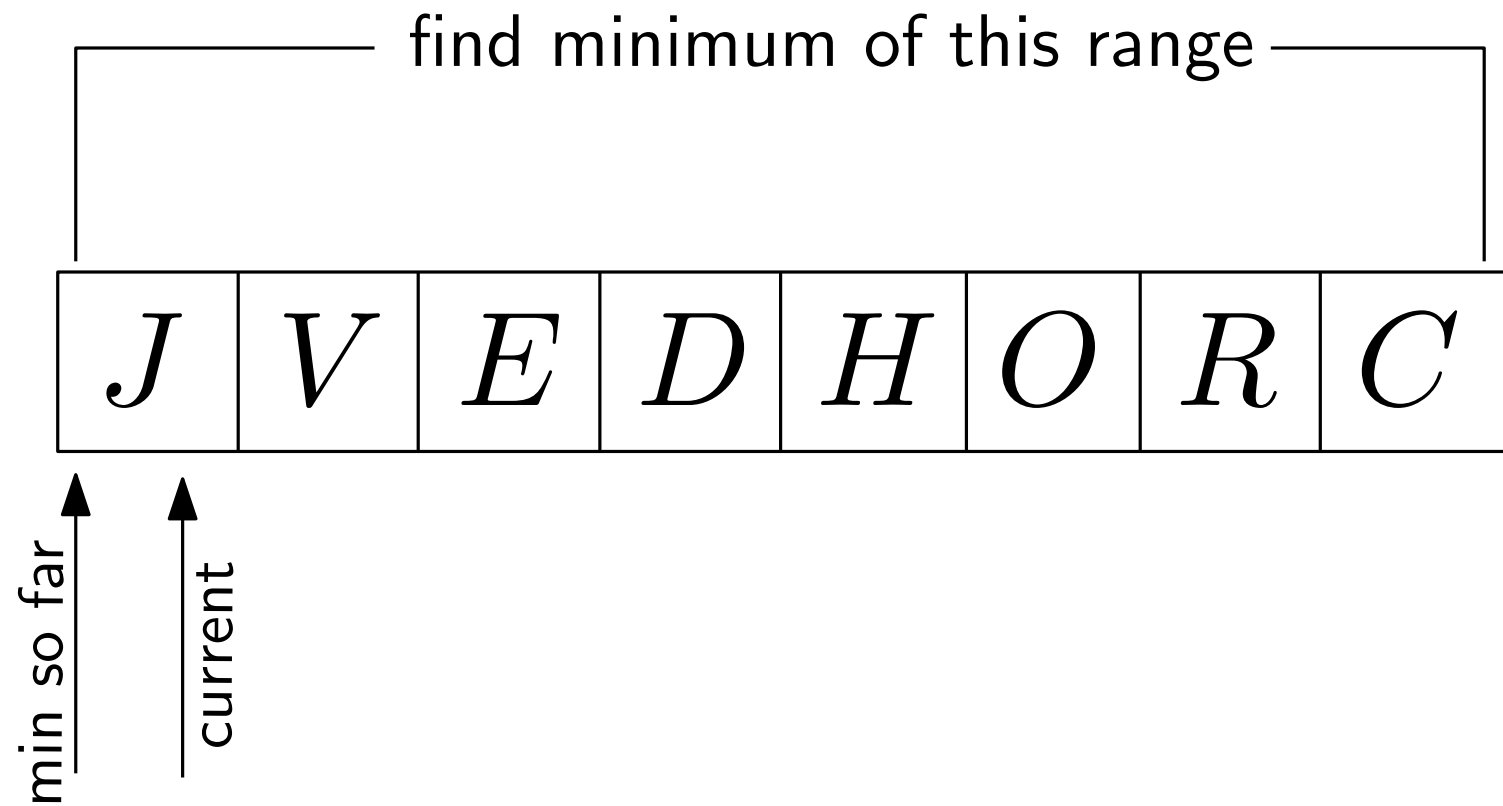
Selection Sort: java code

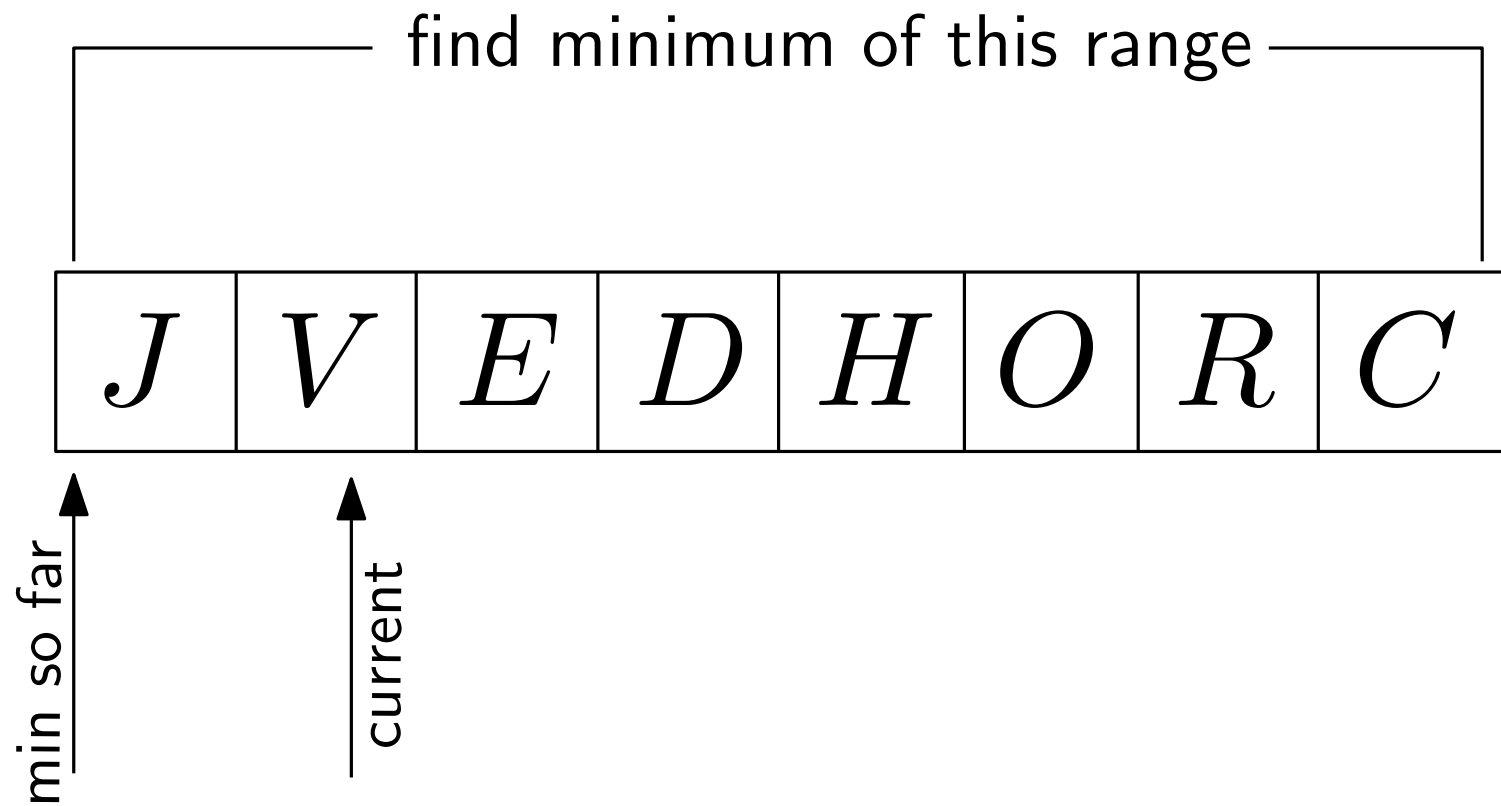
```
for (int i = 0; i <= n-2; i++) {  
    int argmin = i;  
    // find the smallest in range i,...,n-1  
    for (int j = i+1; j <= n-1; j++) {  
        if (array[j].compareTo(array[argmin]) < 0) {  
            argmin = j;  
        }  
    }  
    // exchange elements at i and argmin  
    String smallest = array[argmin];  
    array[argmin] = array[i];  
    array[i] = smallest;  
}
```

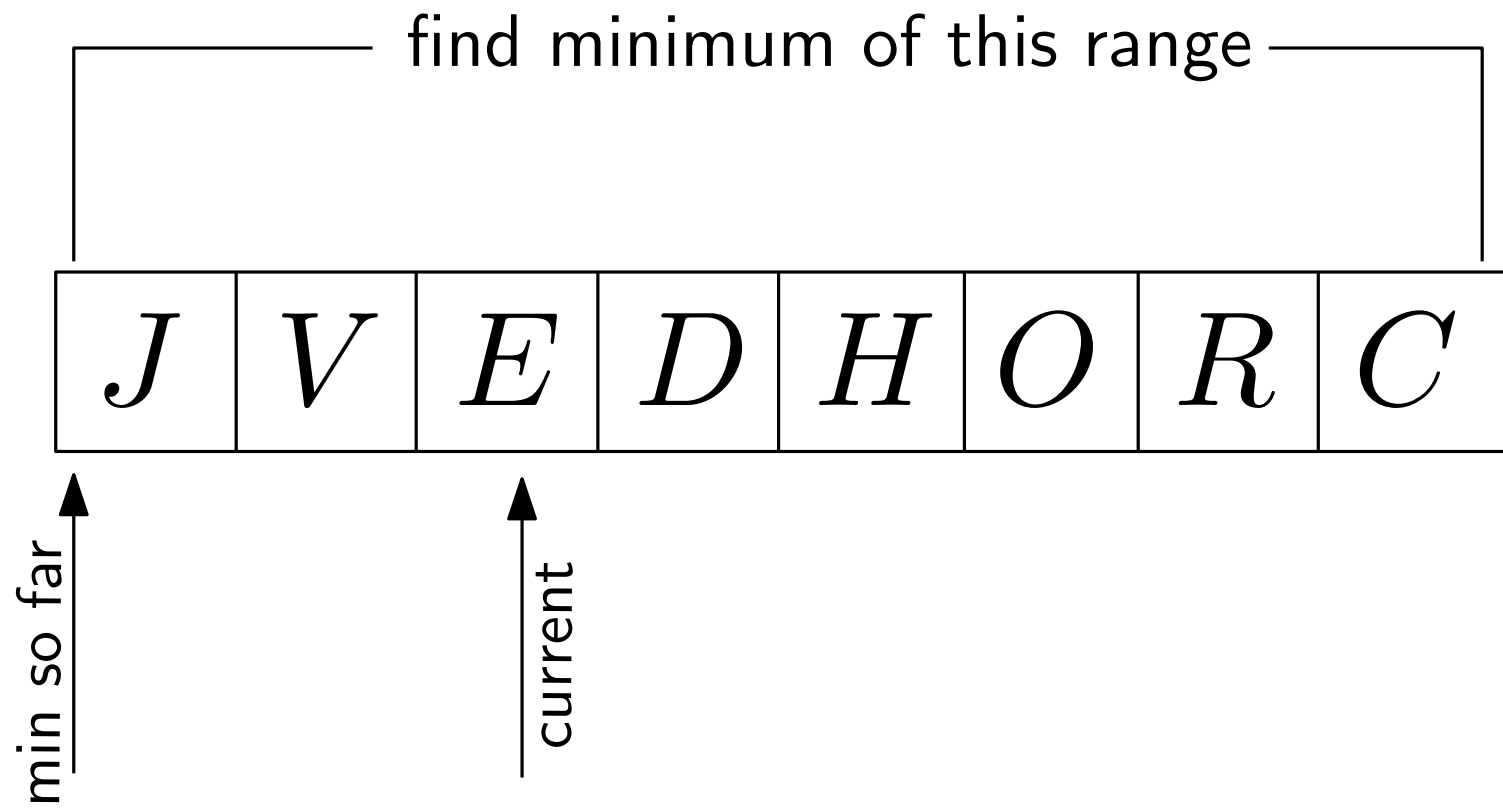
<i>J</i>	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	<i>C</i>
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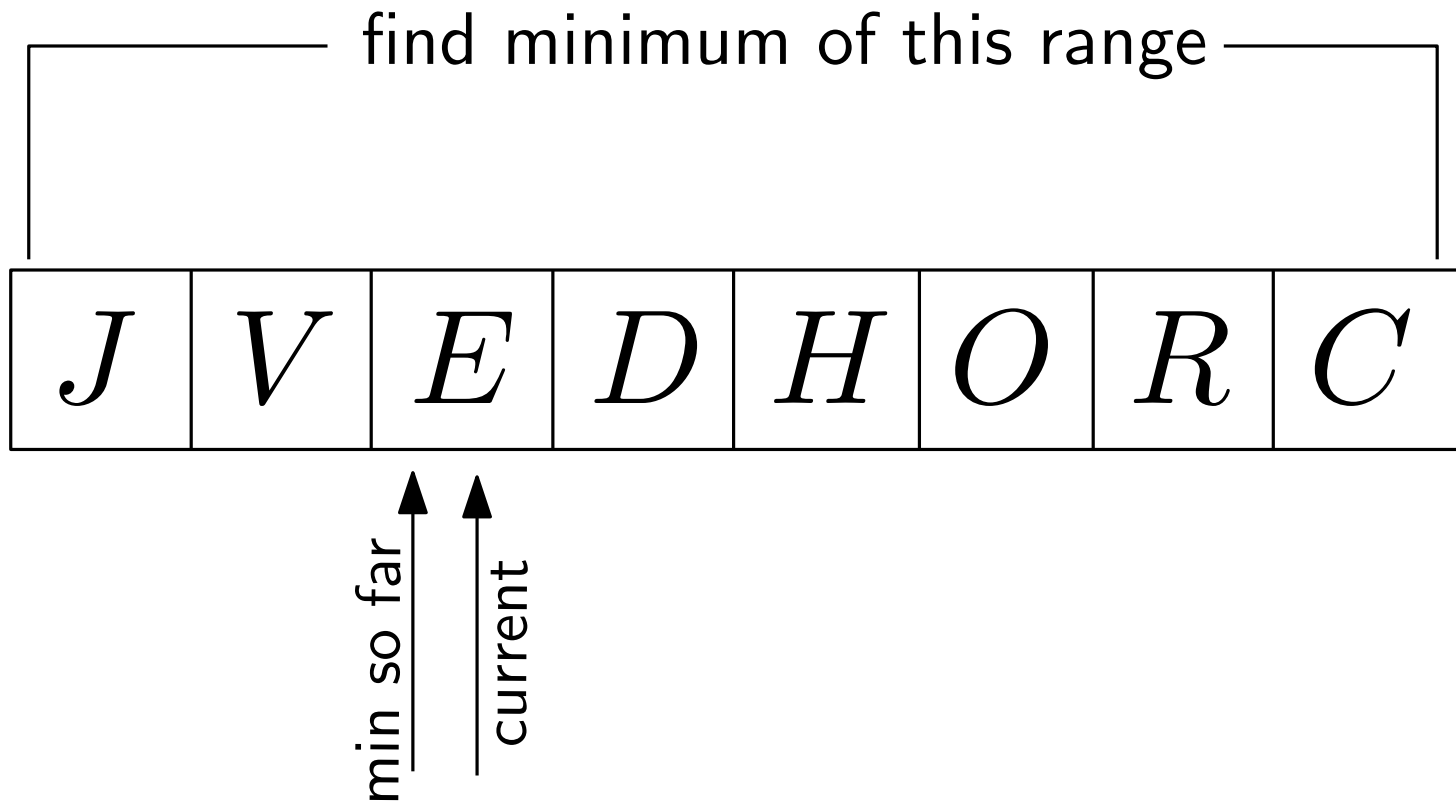
find minimum of this range

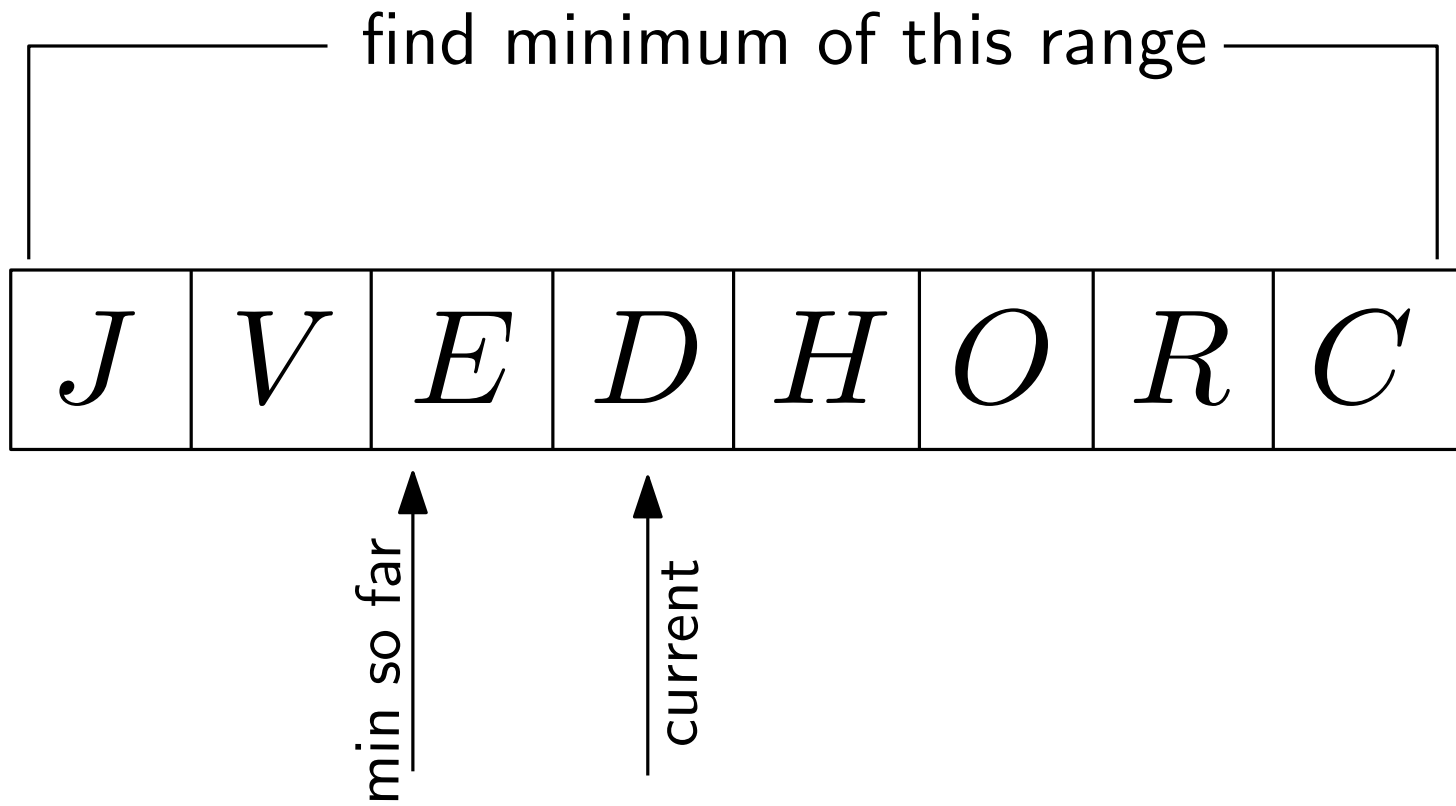
<i>J</i>	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	<i>C</i>
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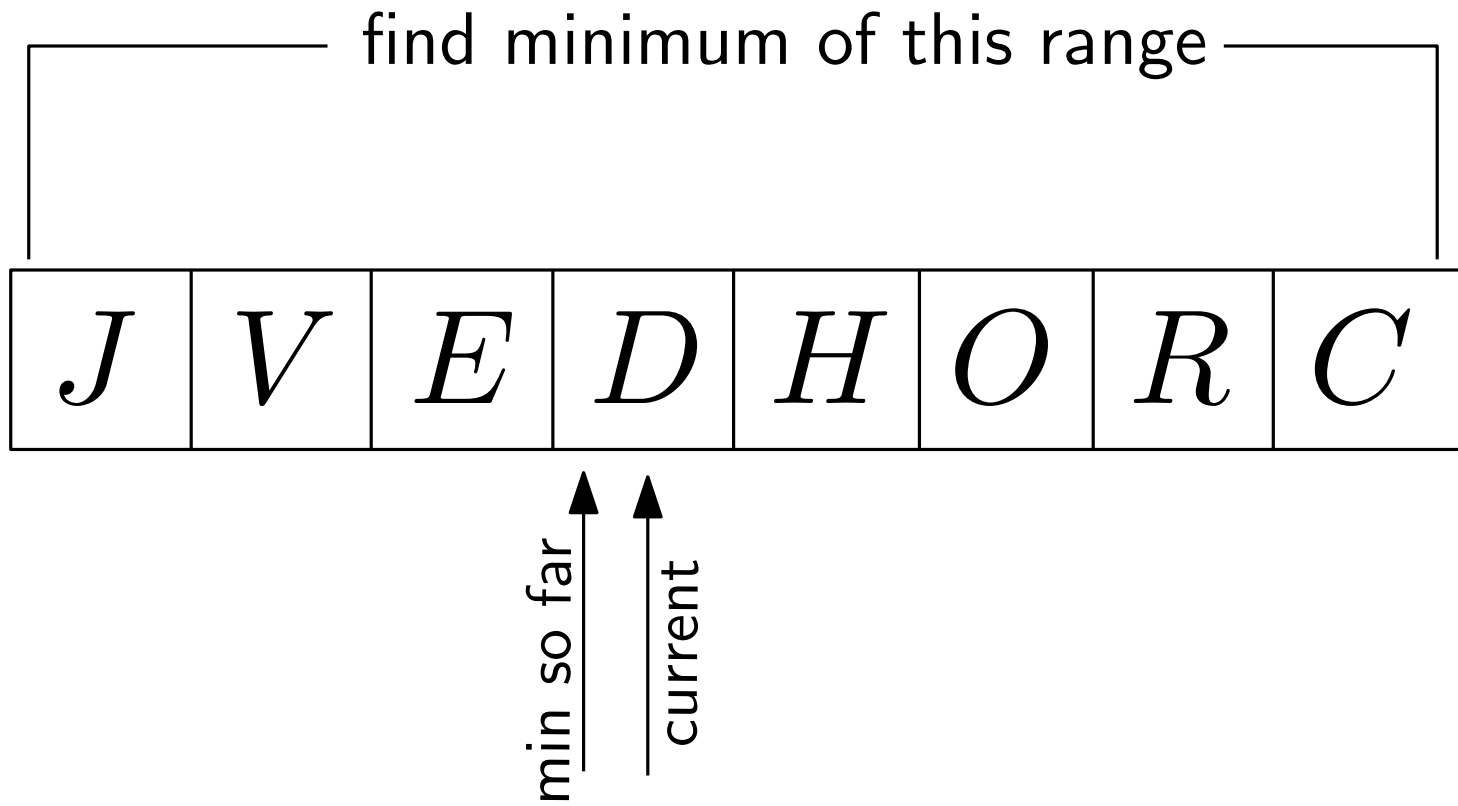


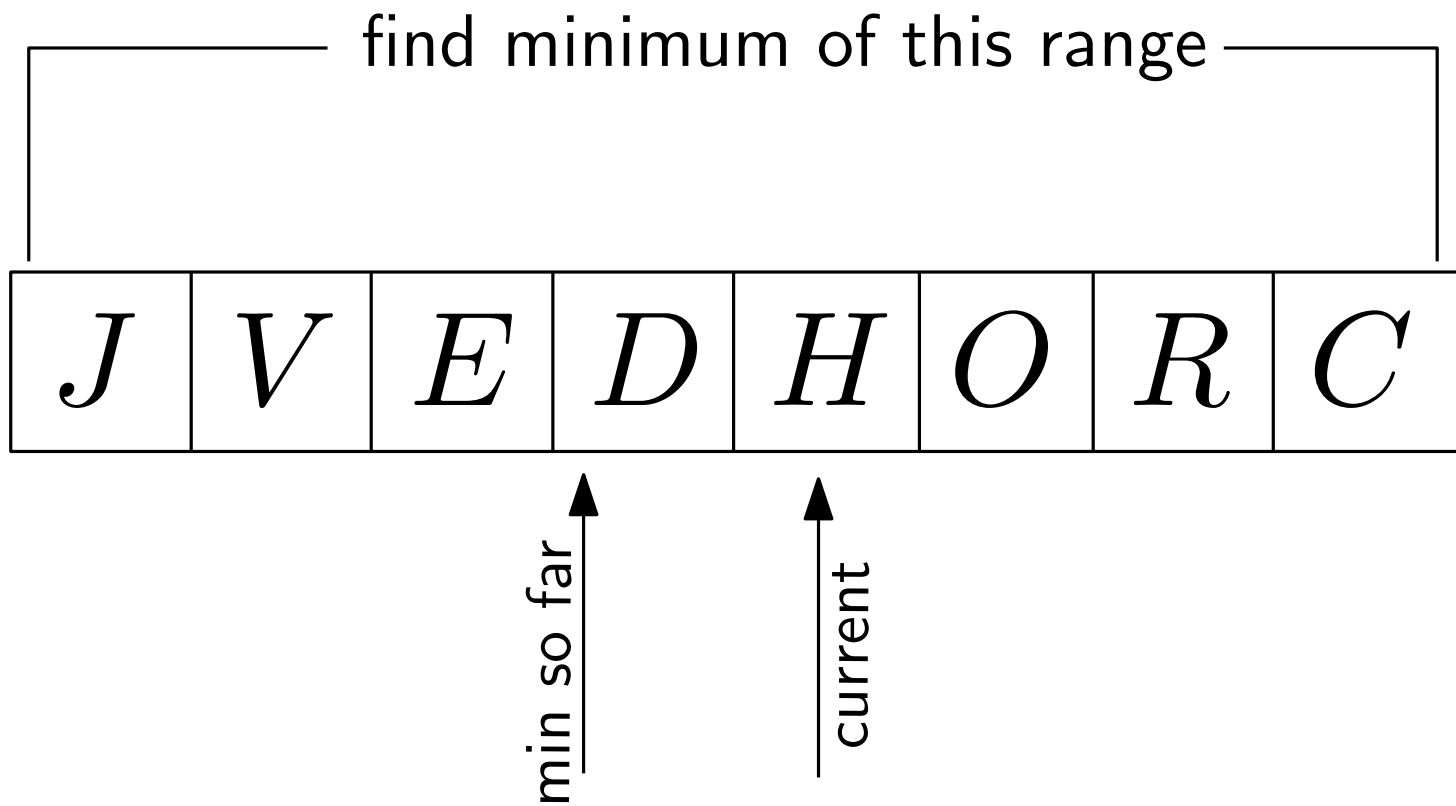


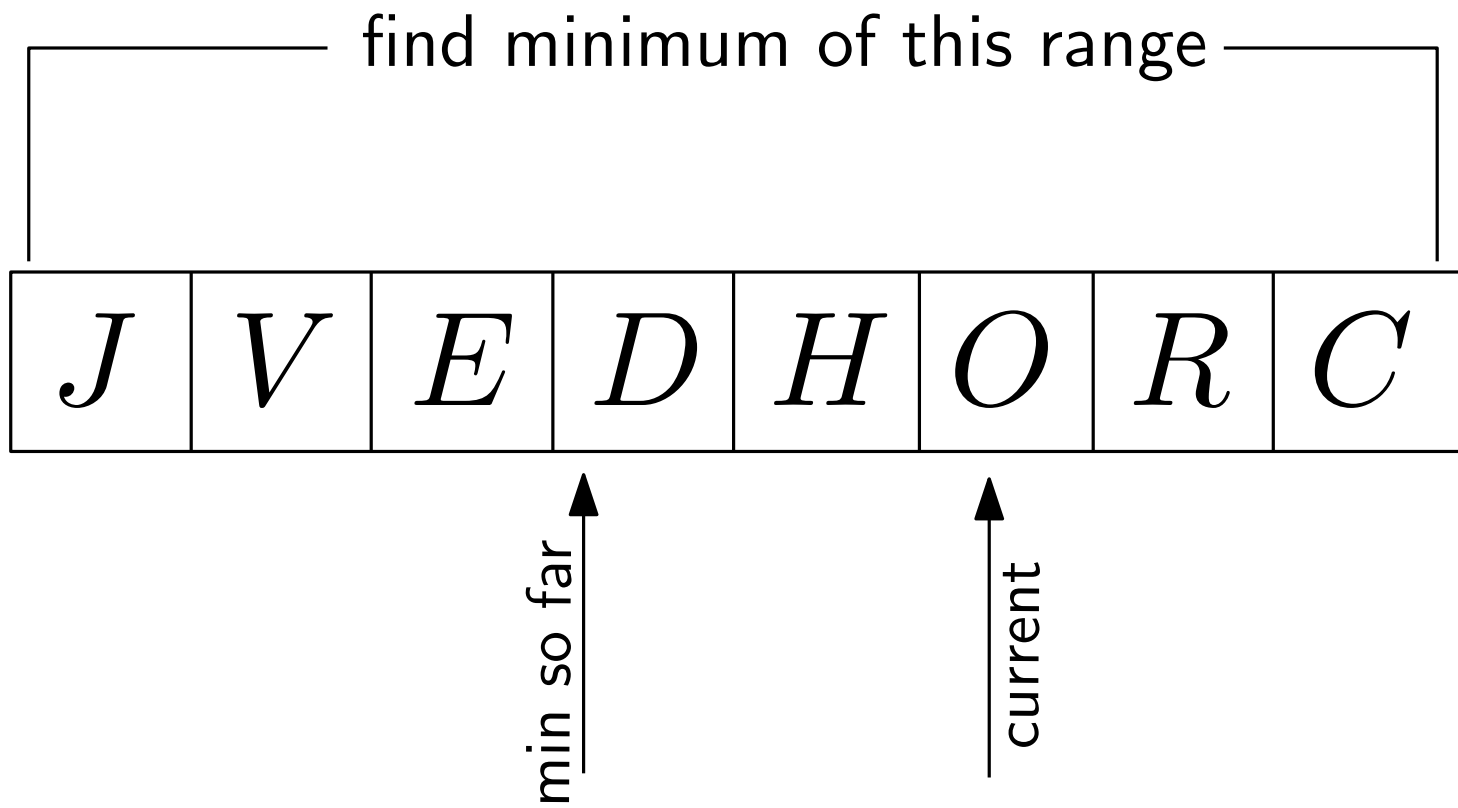


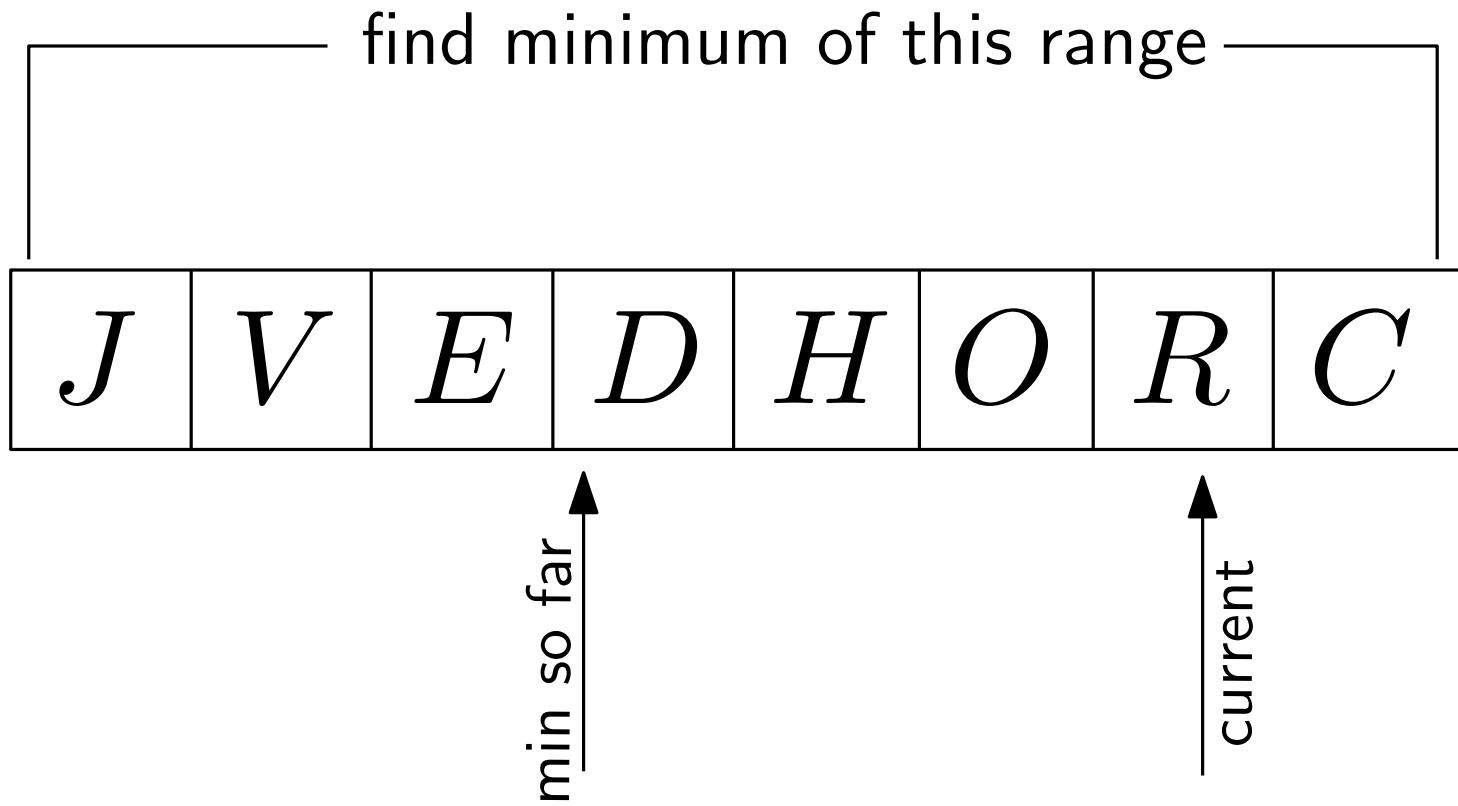


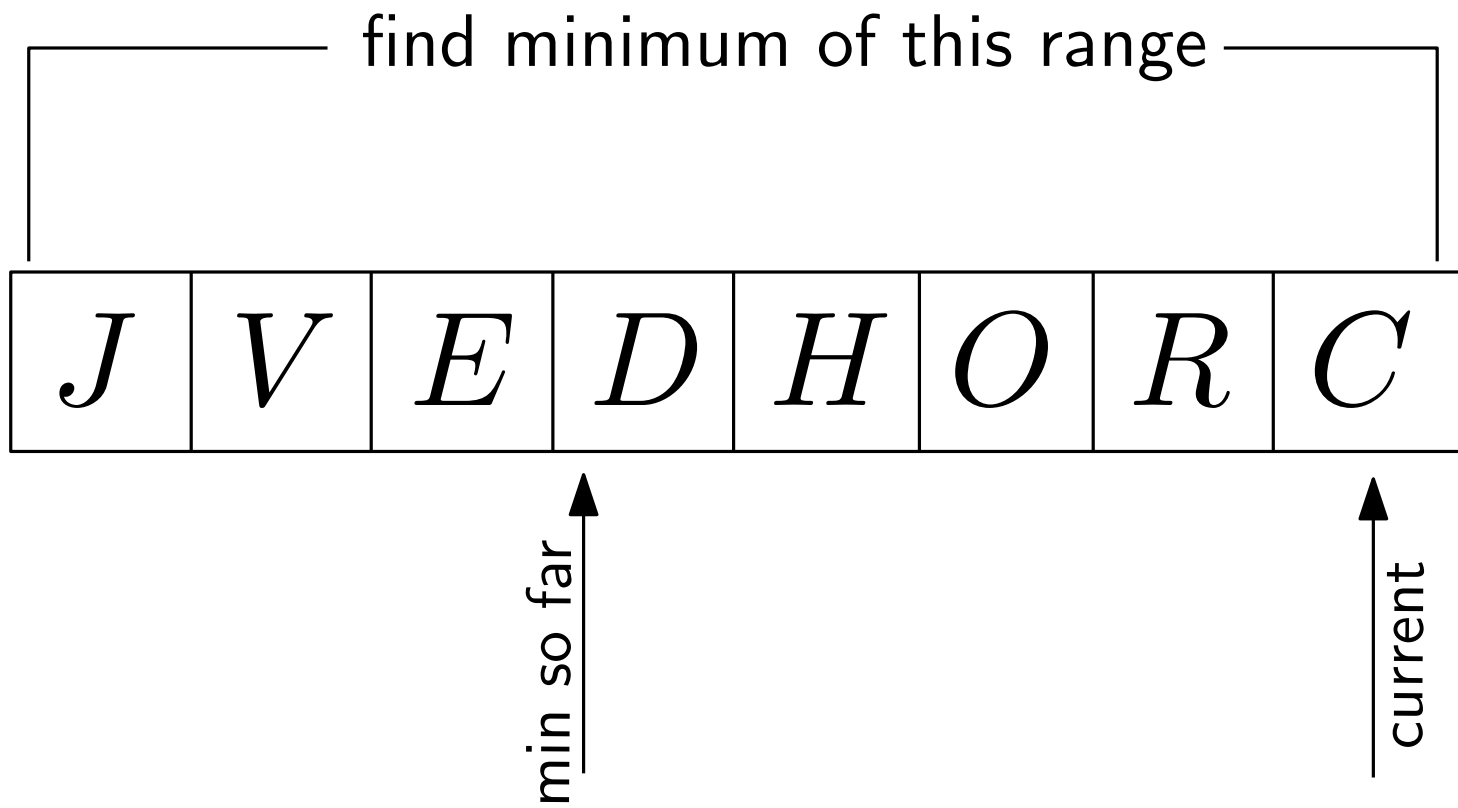


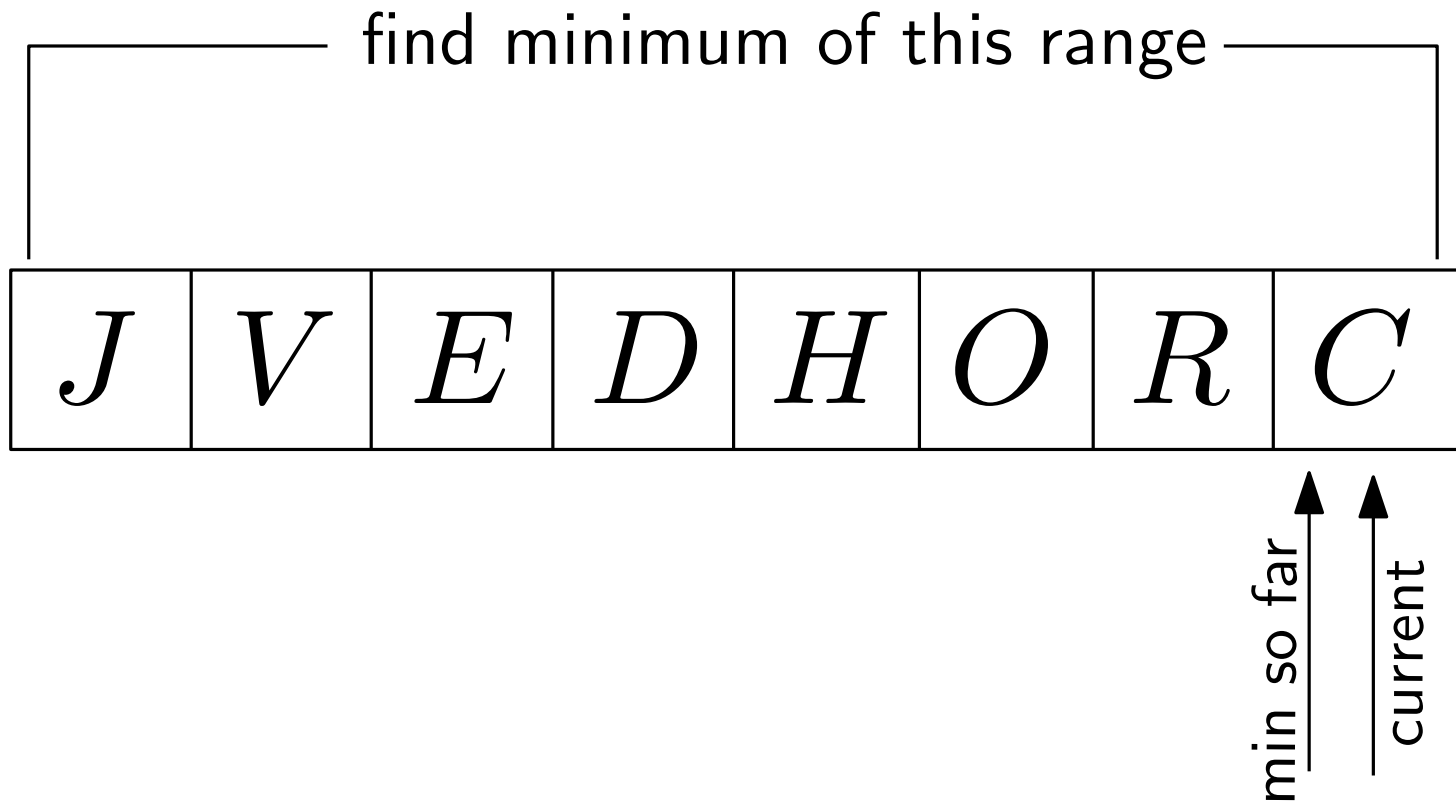


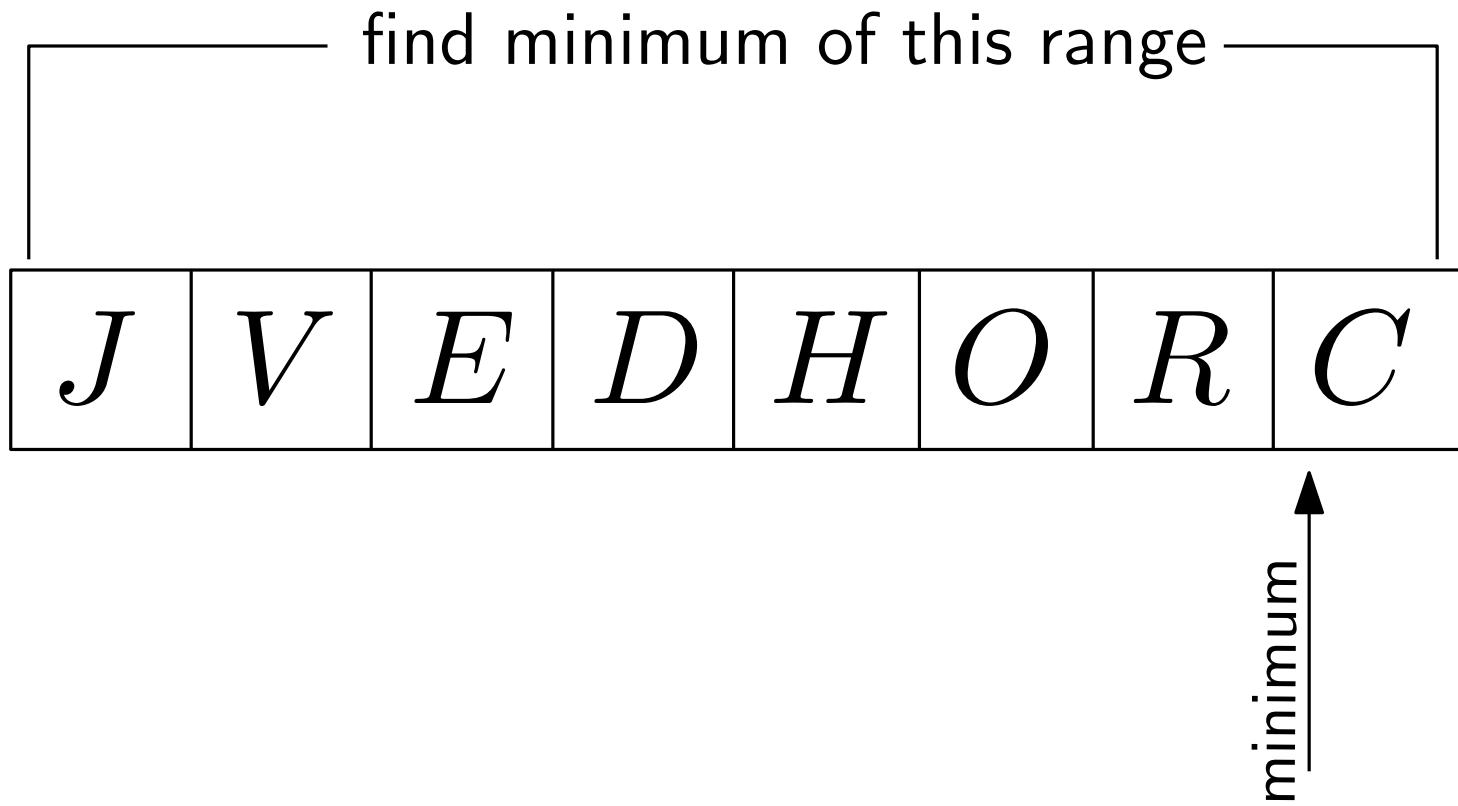


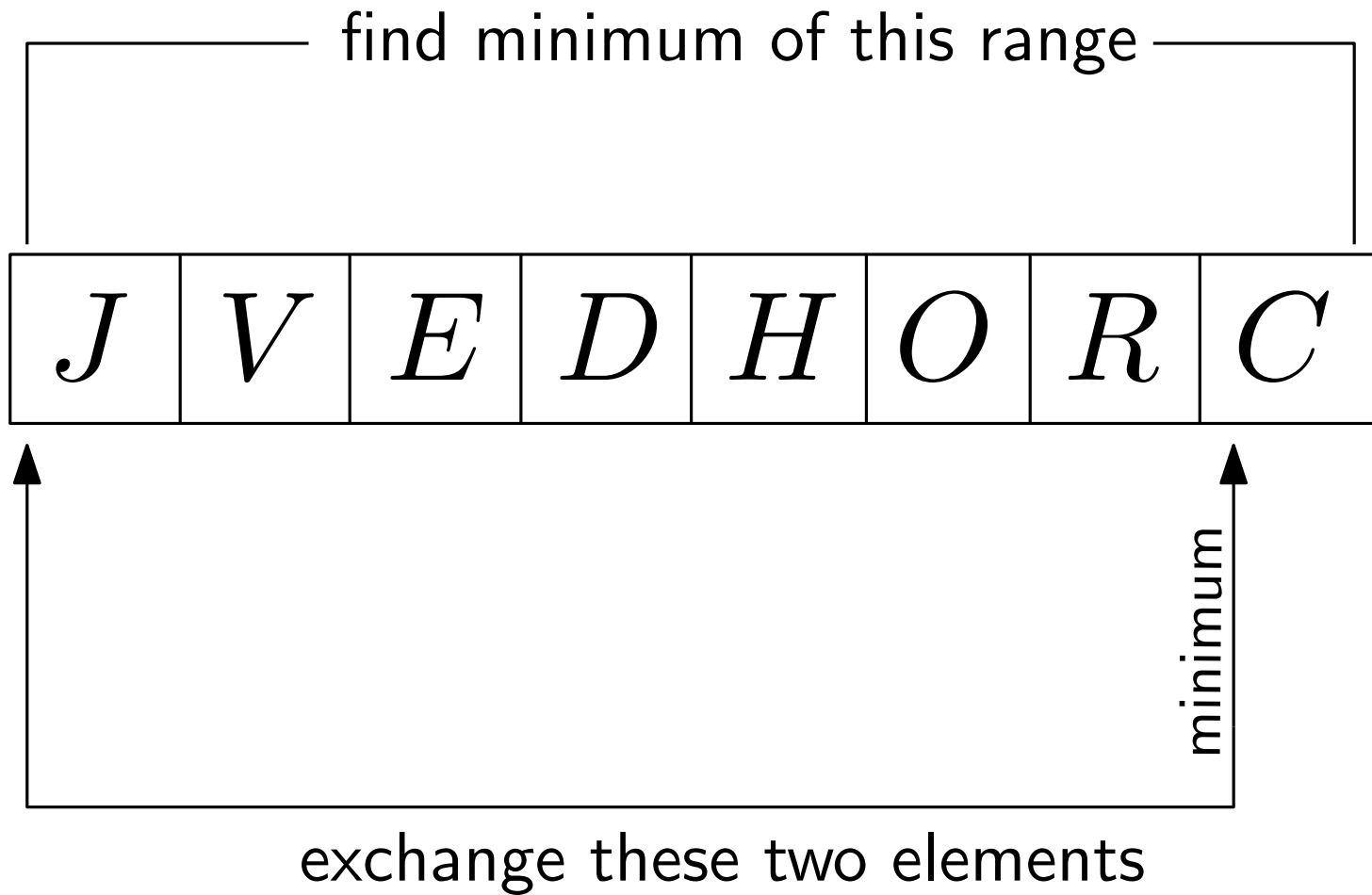












<i>J</i>	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	<i>C</i>
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minimum

exchange these two elements

	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	
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↑
J

↑
C

minimum

exchange these two elements

	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	
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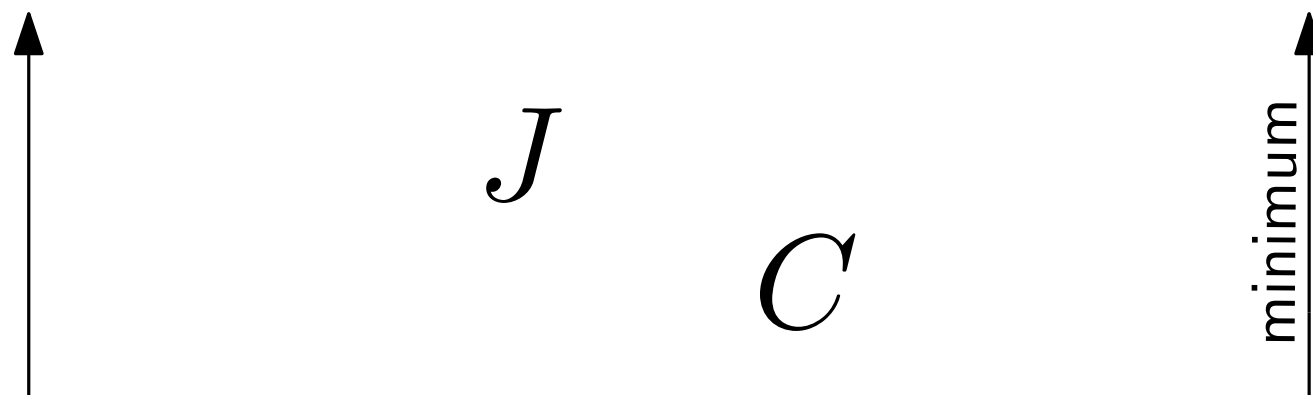
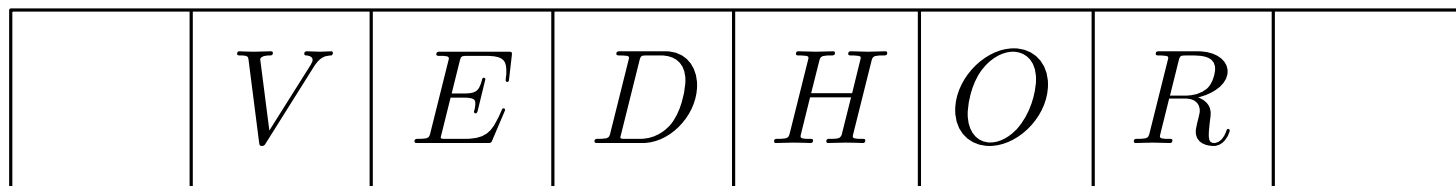


exchange these two elements

	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	
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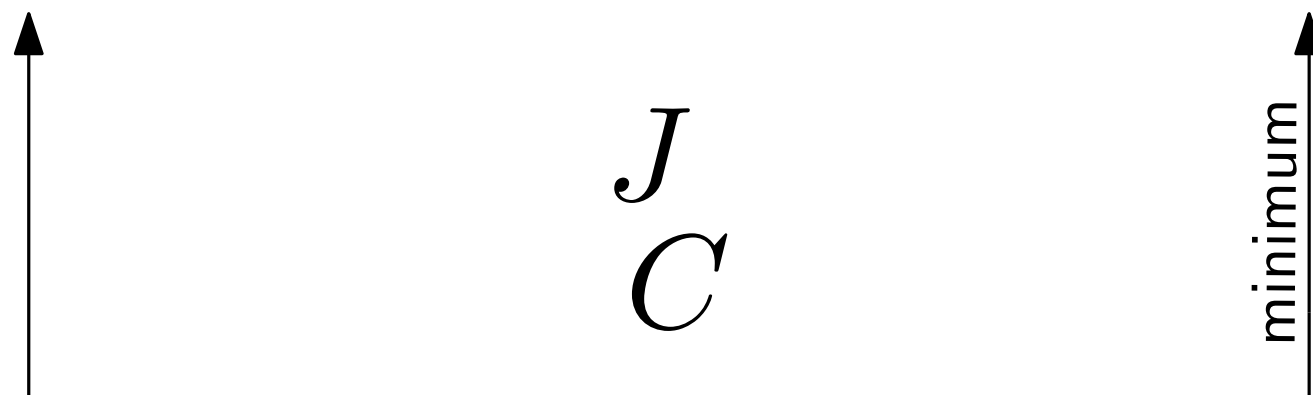


exchange these two elements

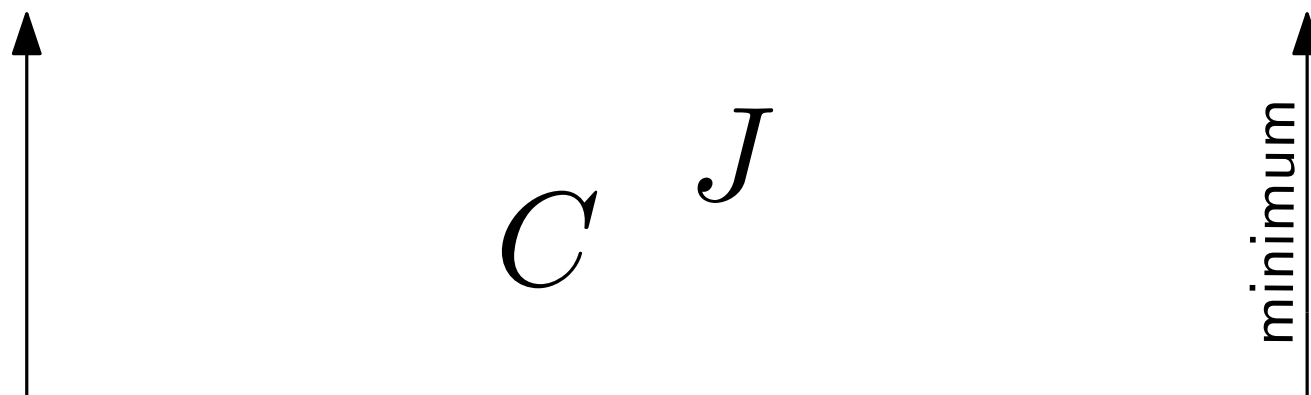
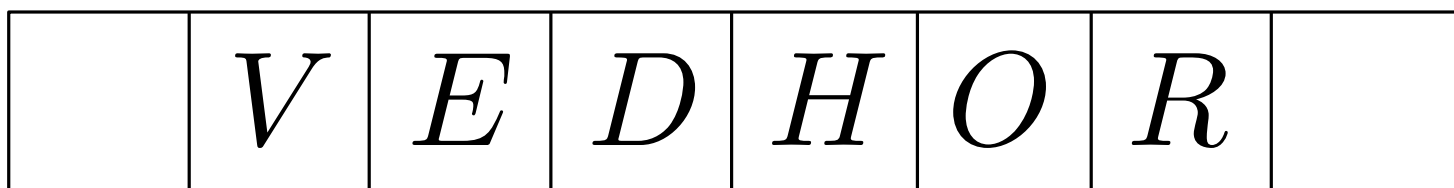


exchange these two elements

	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	
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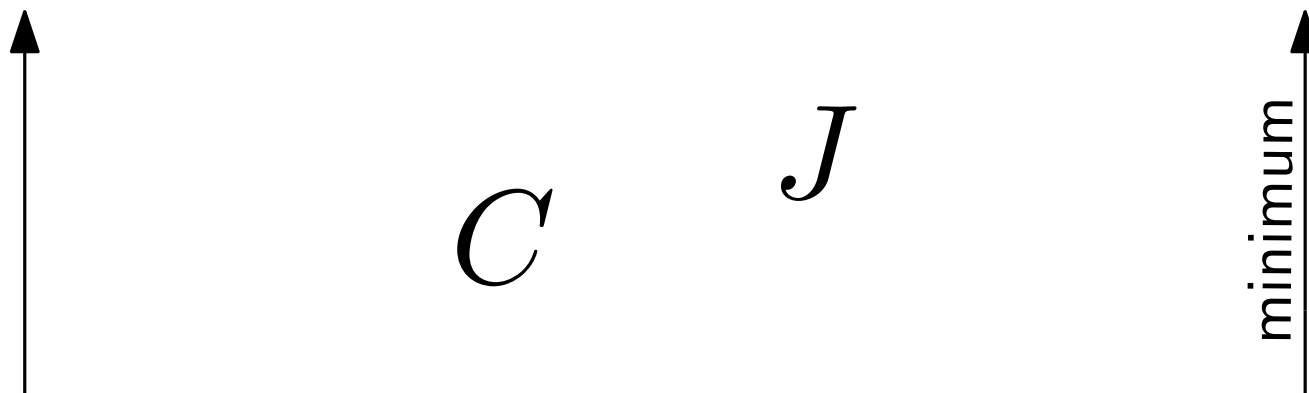


exchange these two elements



exchange these two elements

	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	
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exchange these two elements

	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	
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exchange these two elements

	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	
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exchange these two elements

<i>C</i>	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	<i>J</i>
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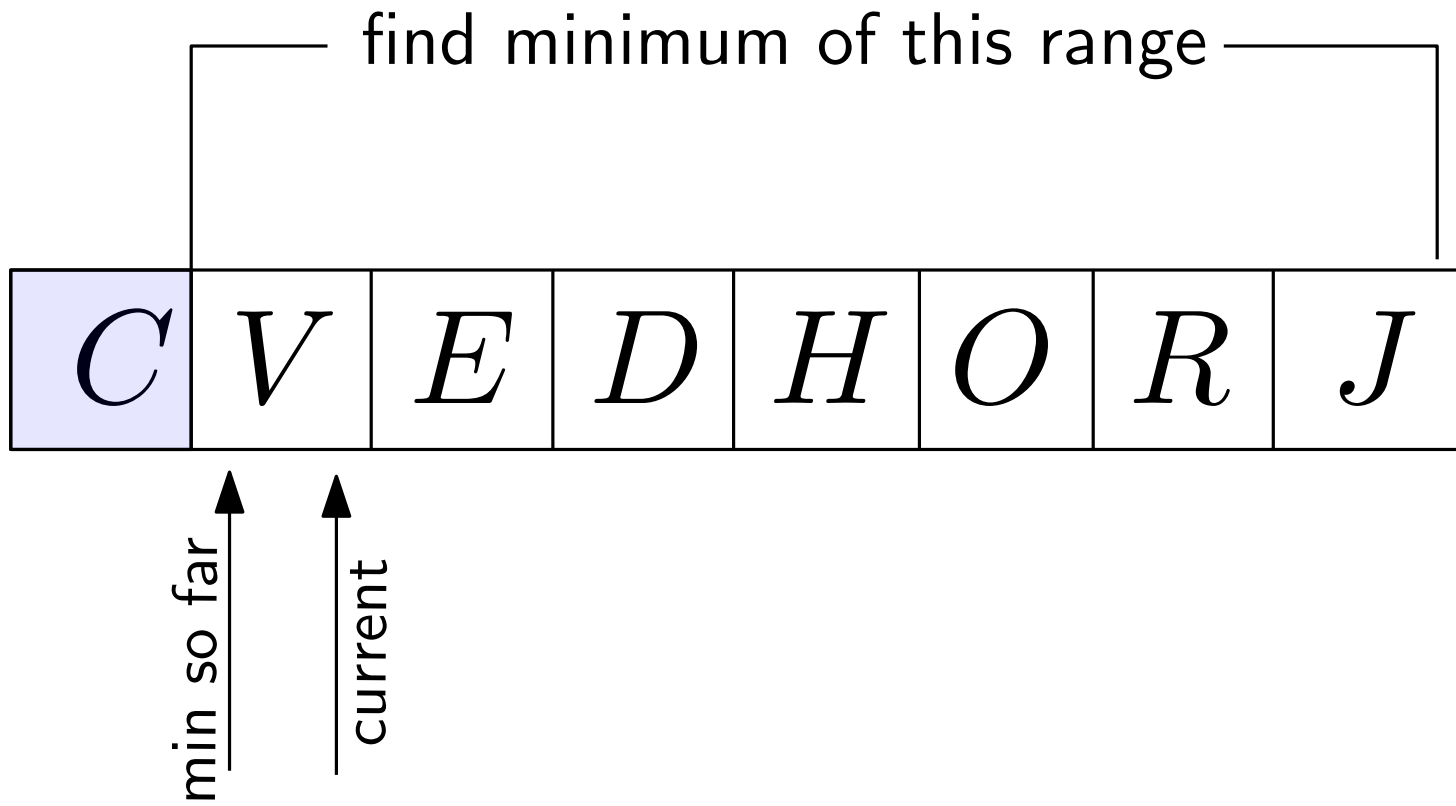
minimum

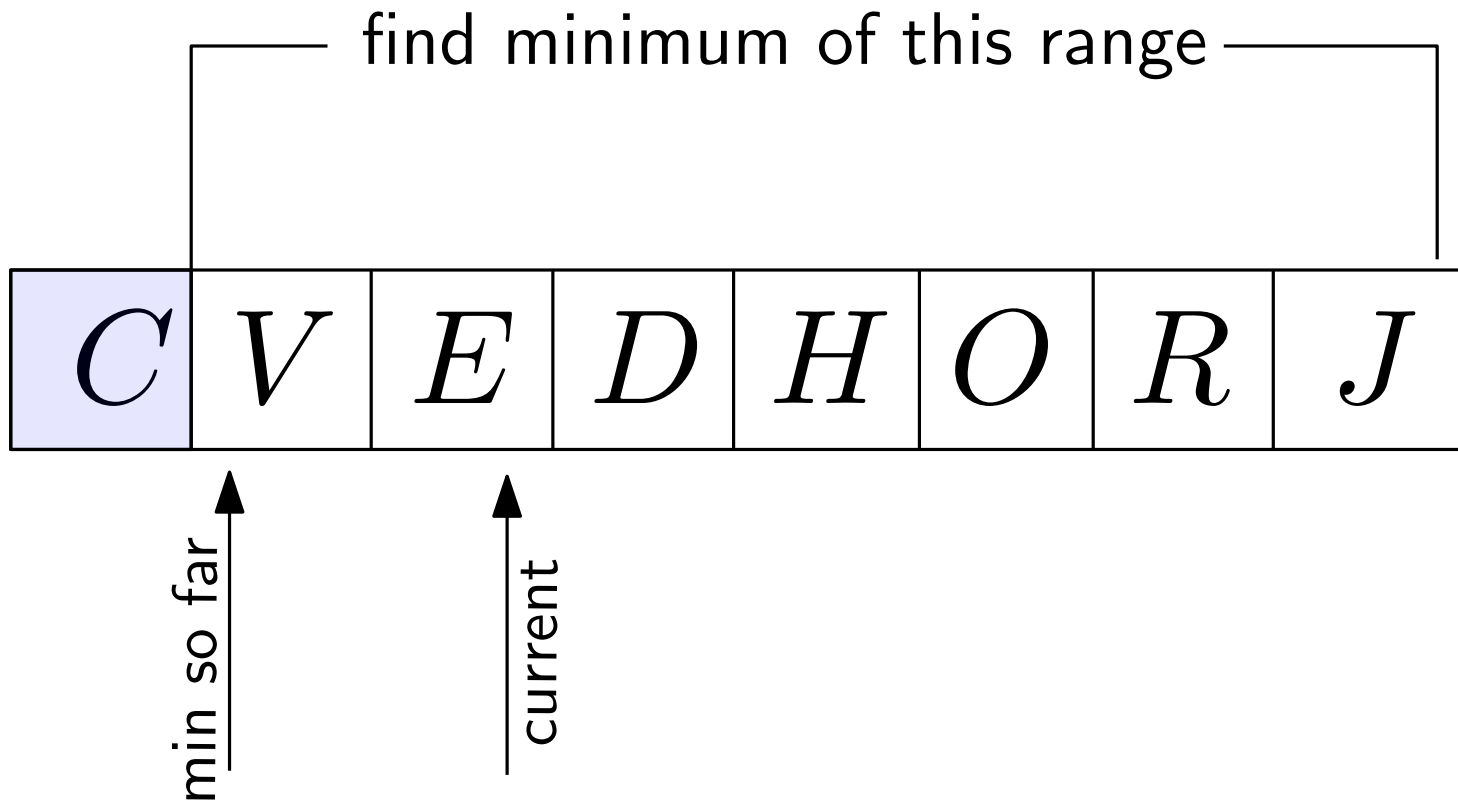
exchange these two elements

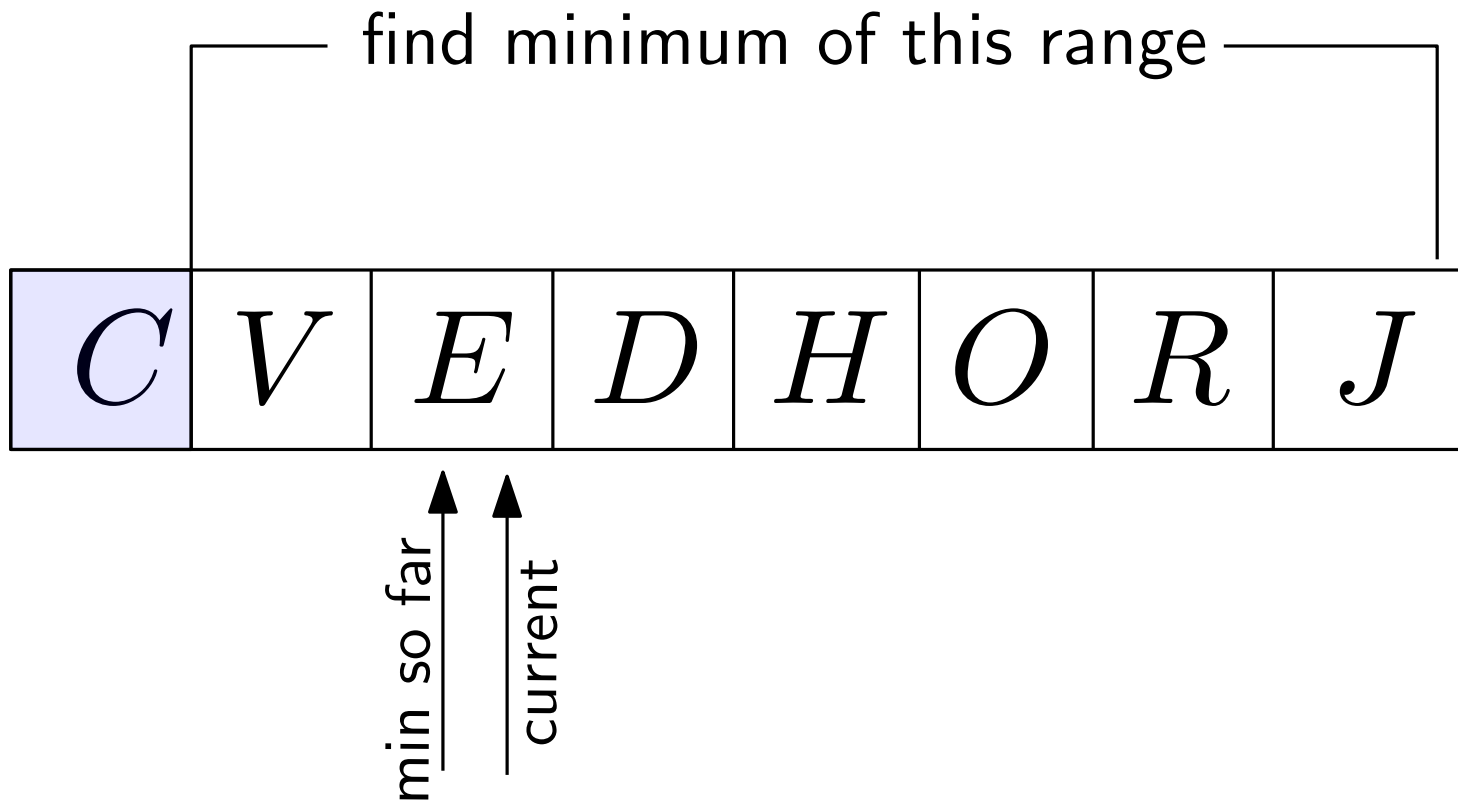
<i>C</i>	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	<i>J</i>
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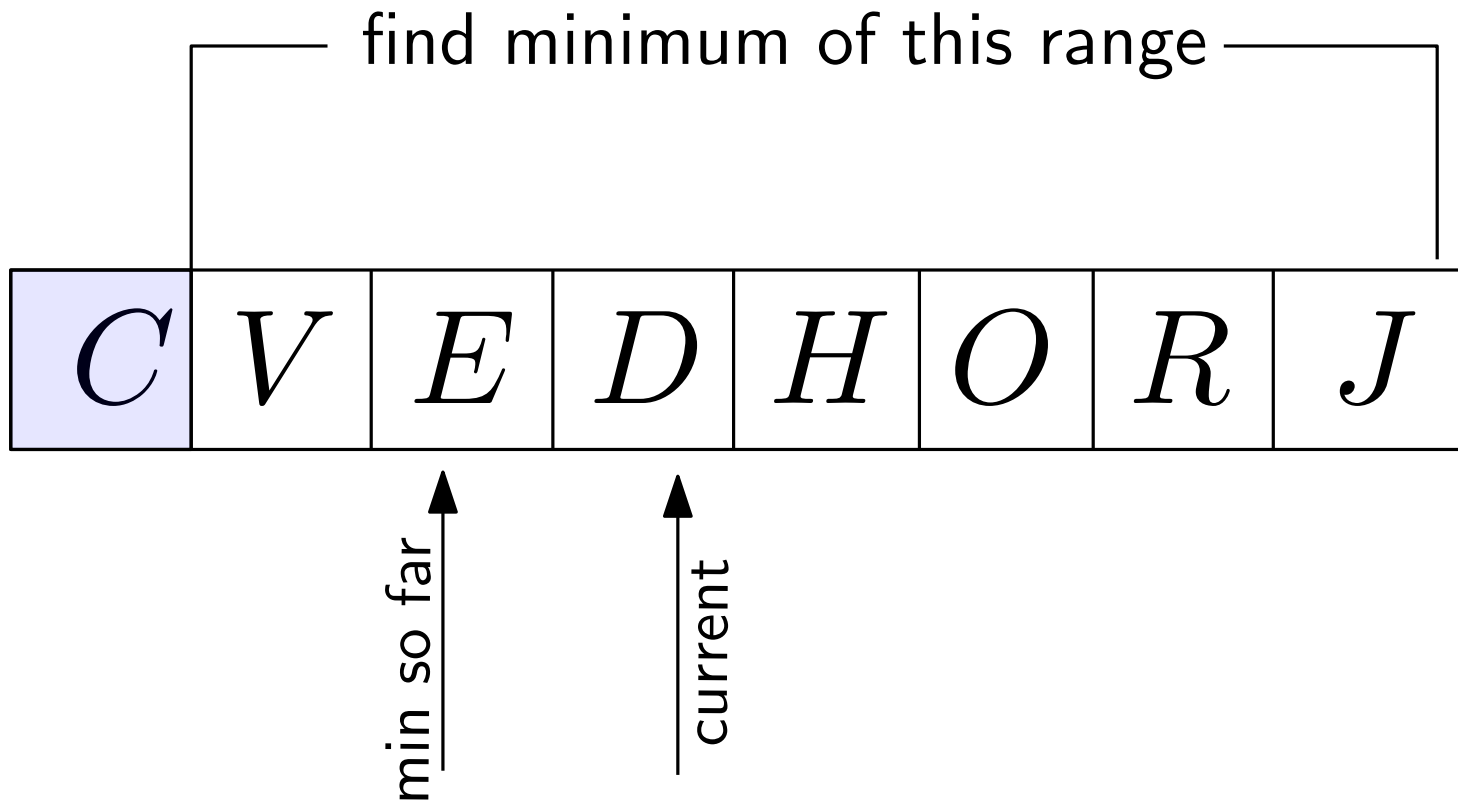
find minimum of this range

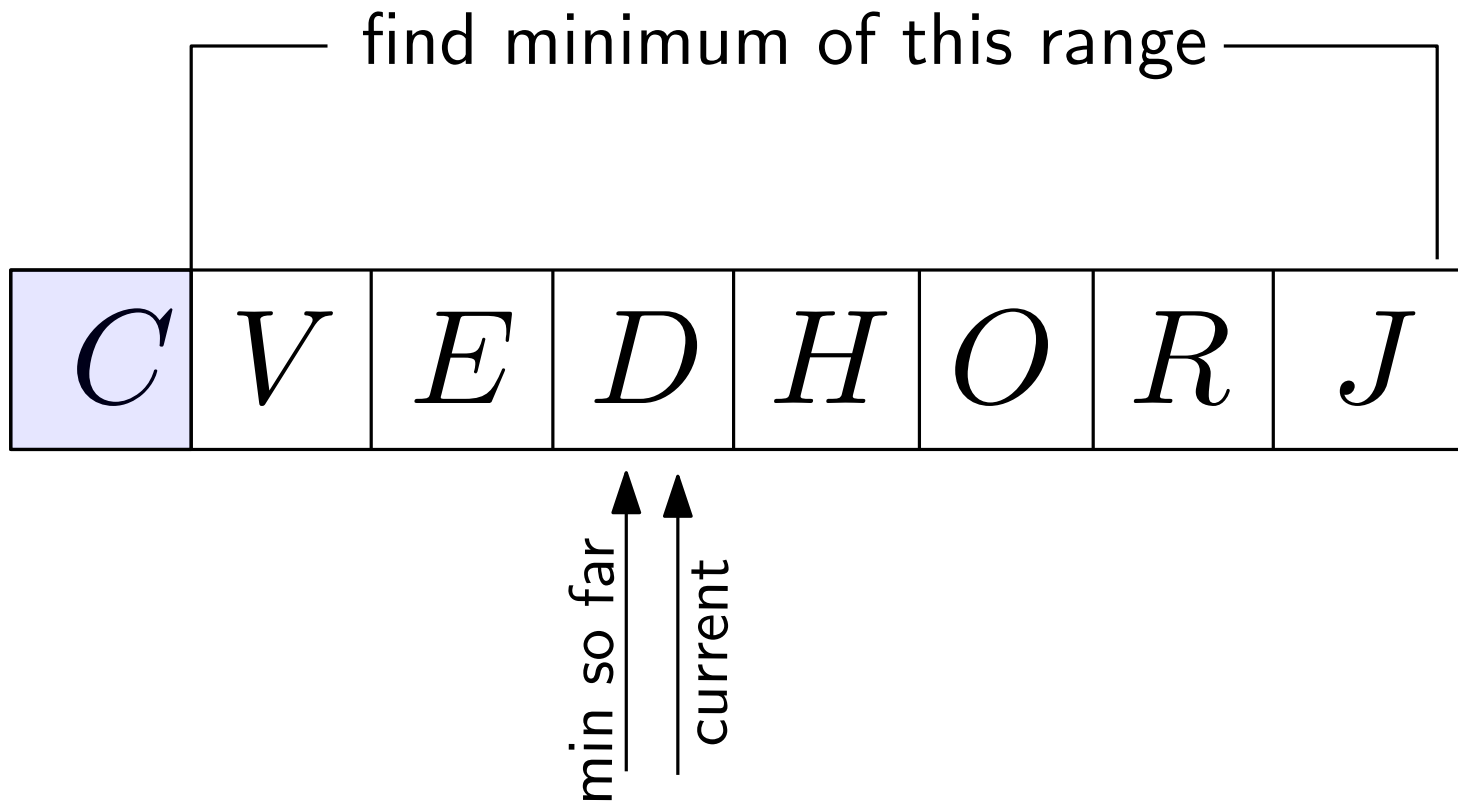
<i>C</i>	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	<i>J</i>
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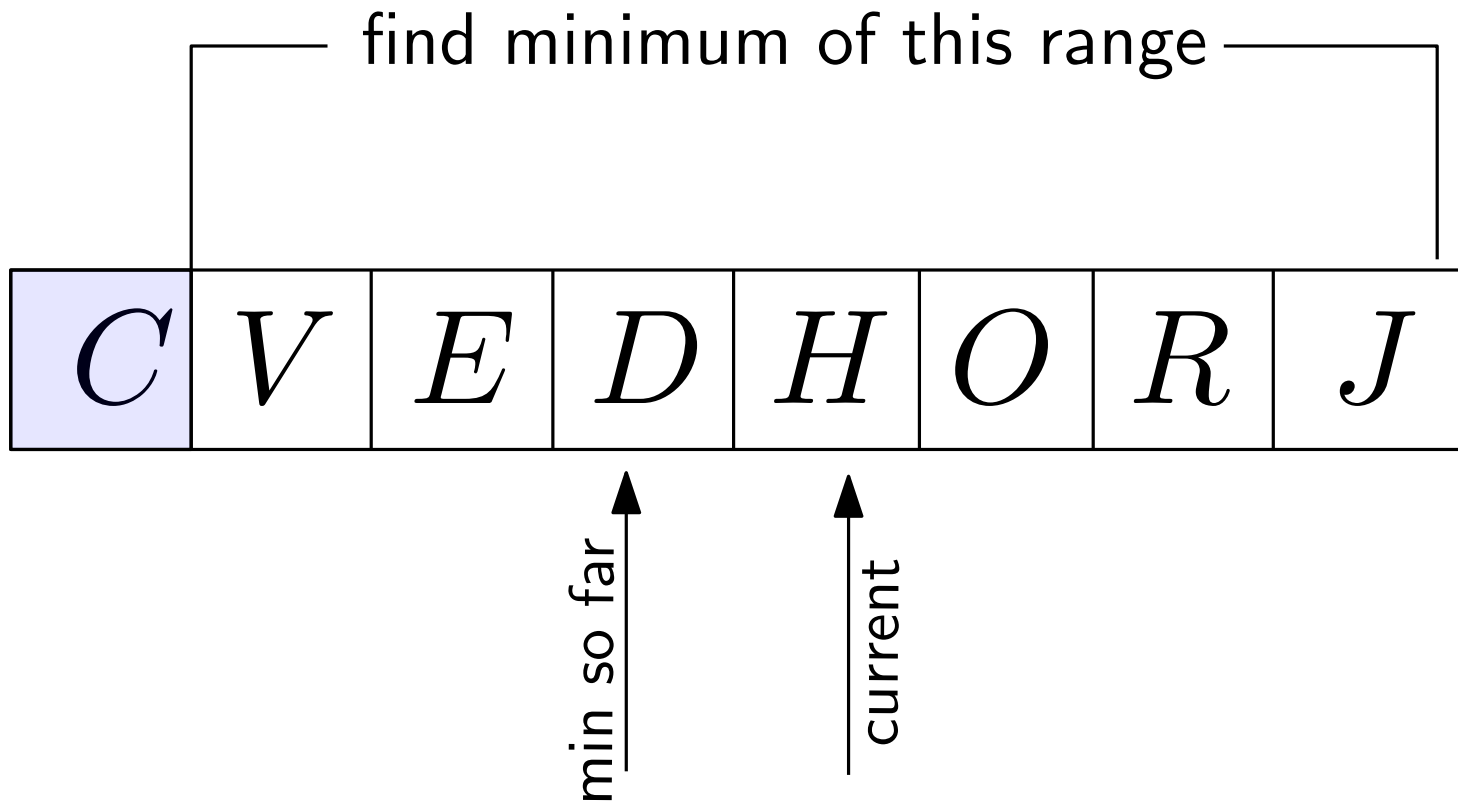


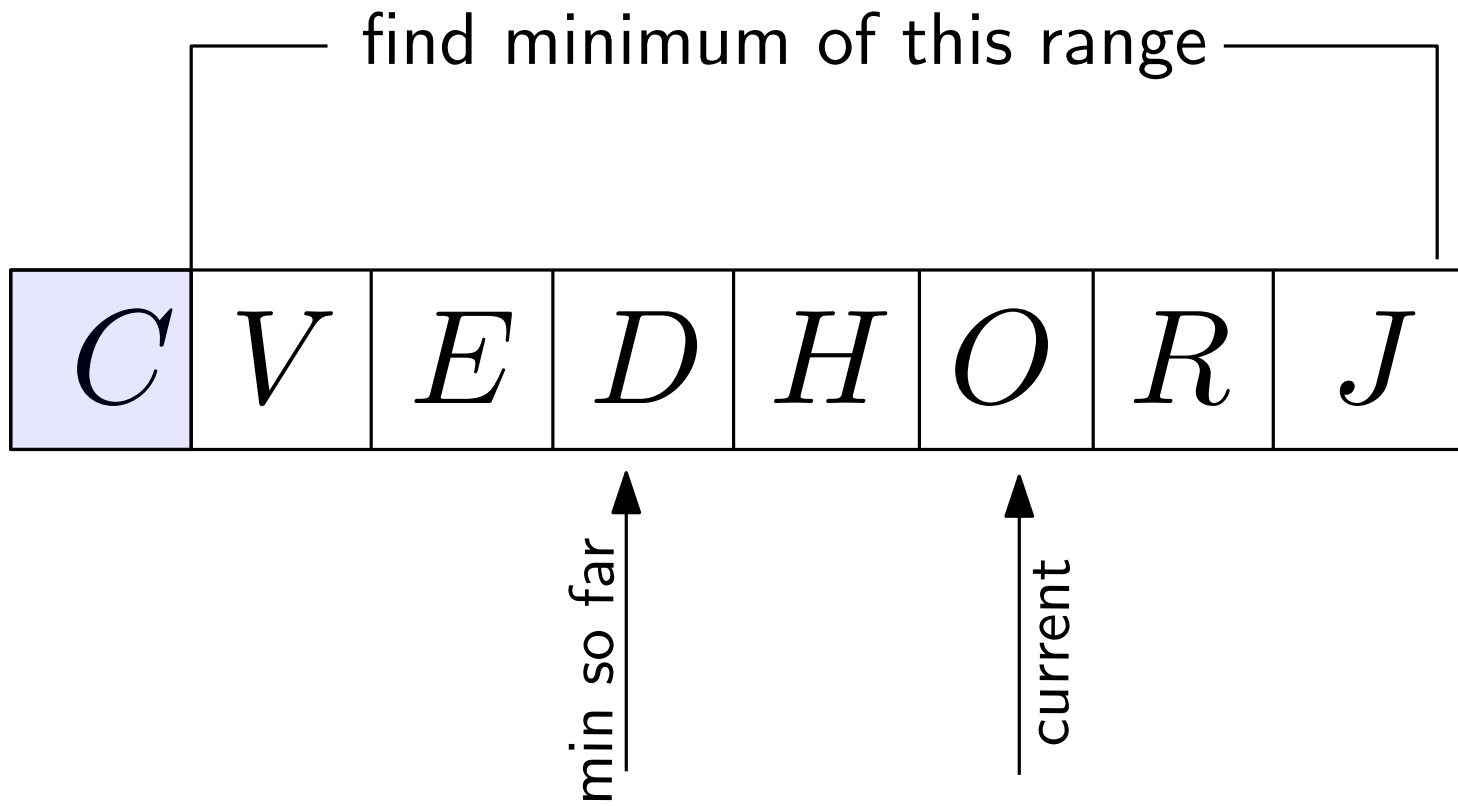


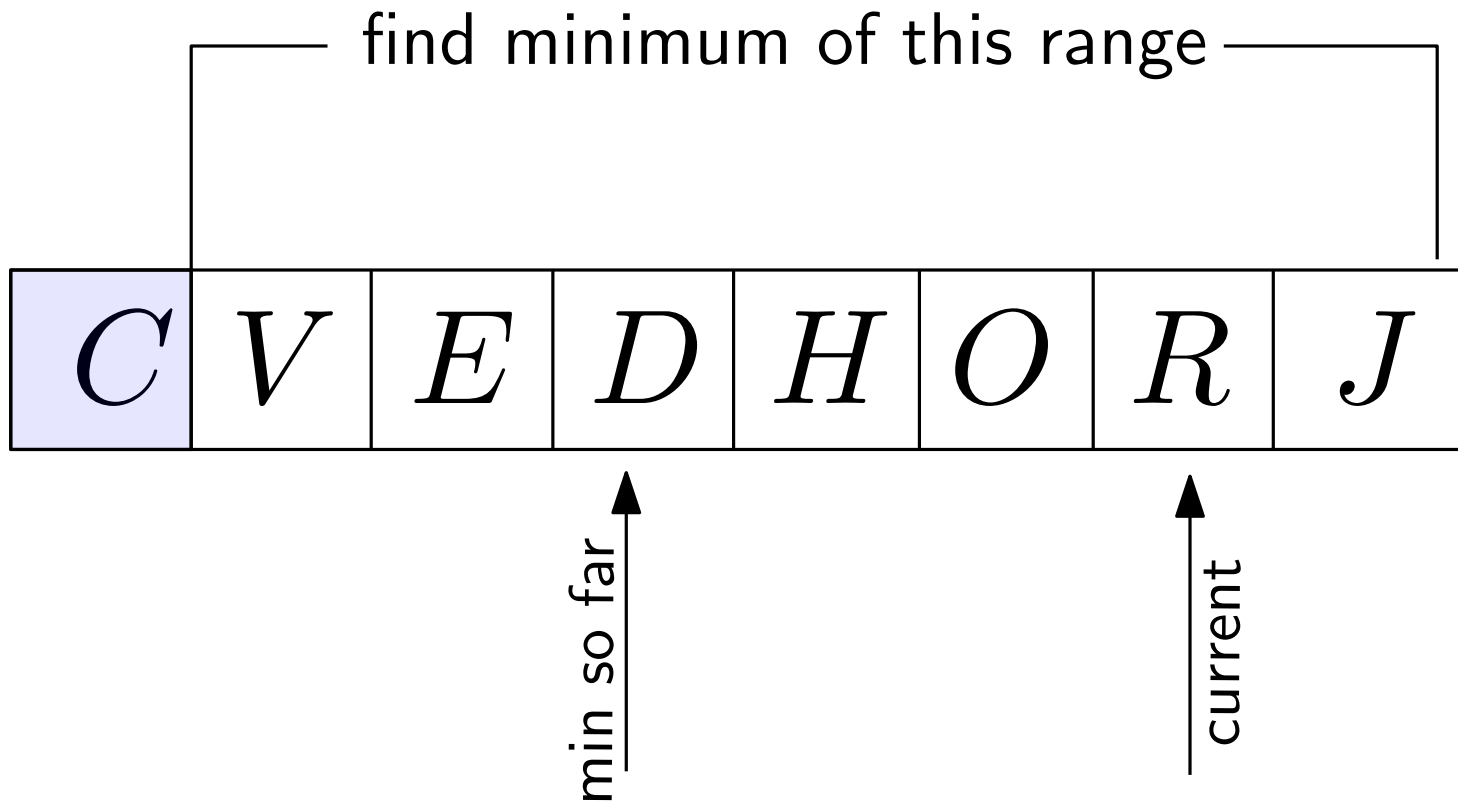


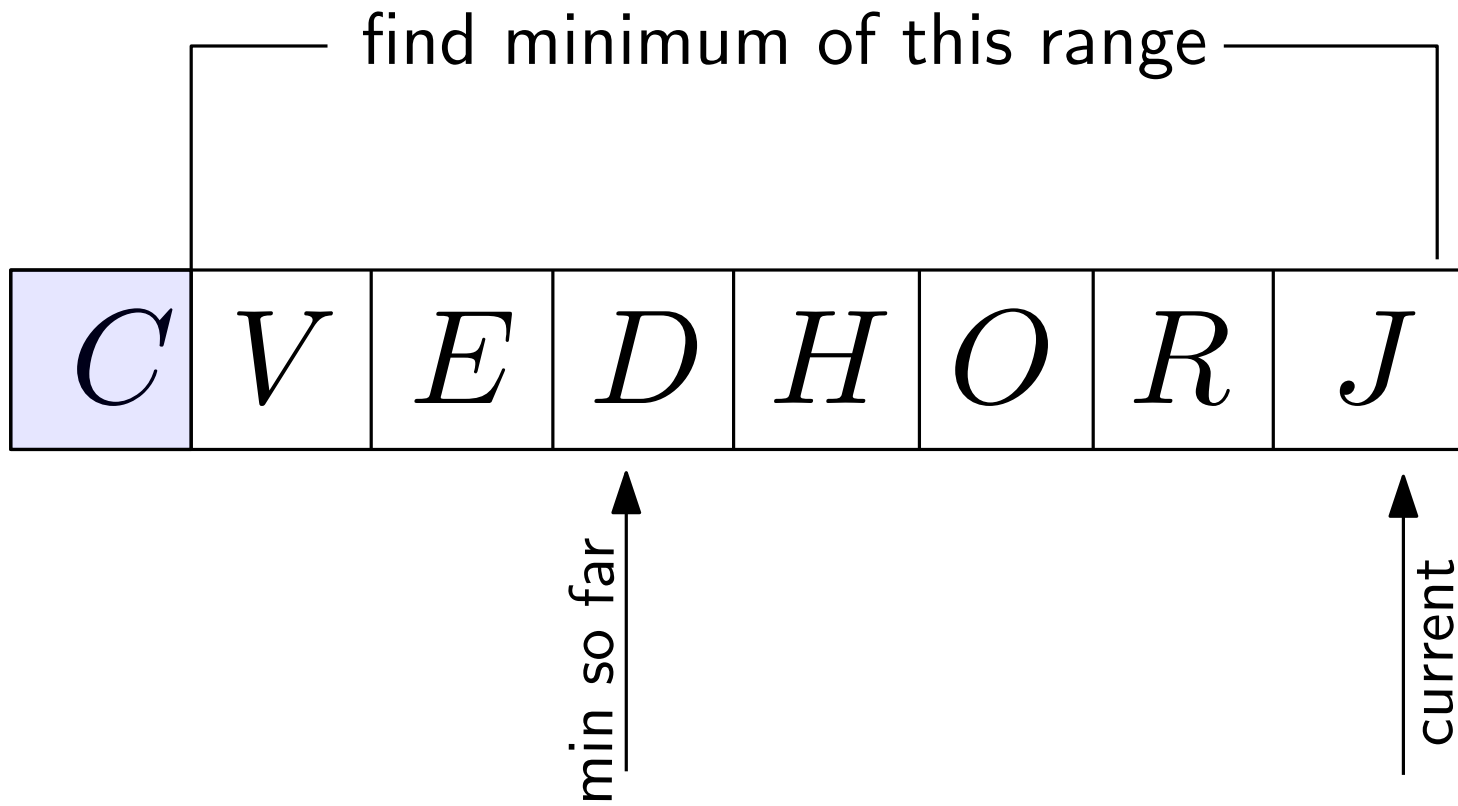


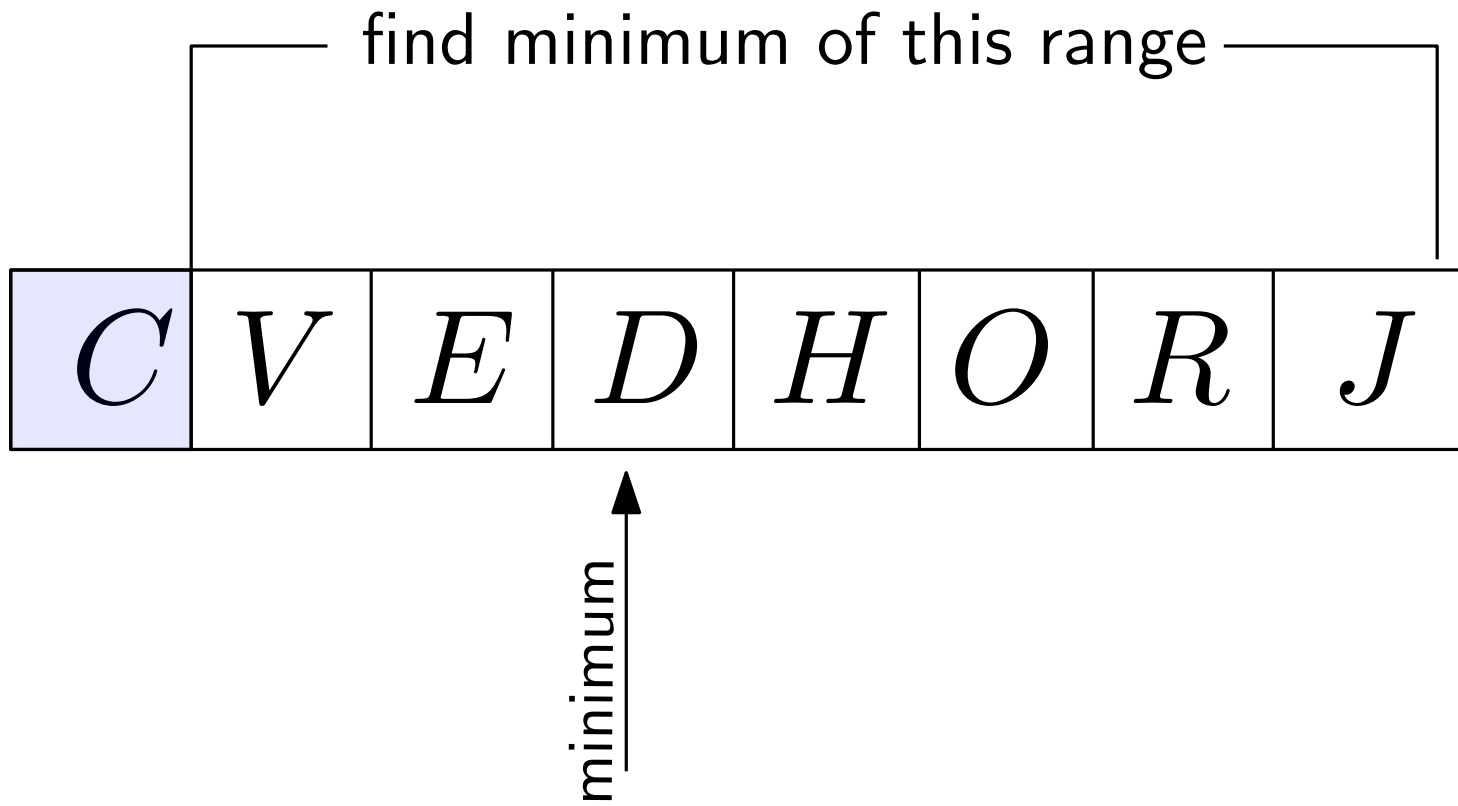


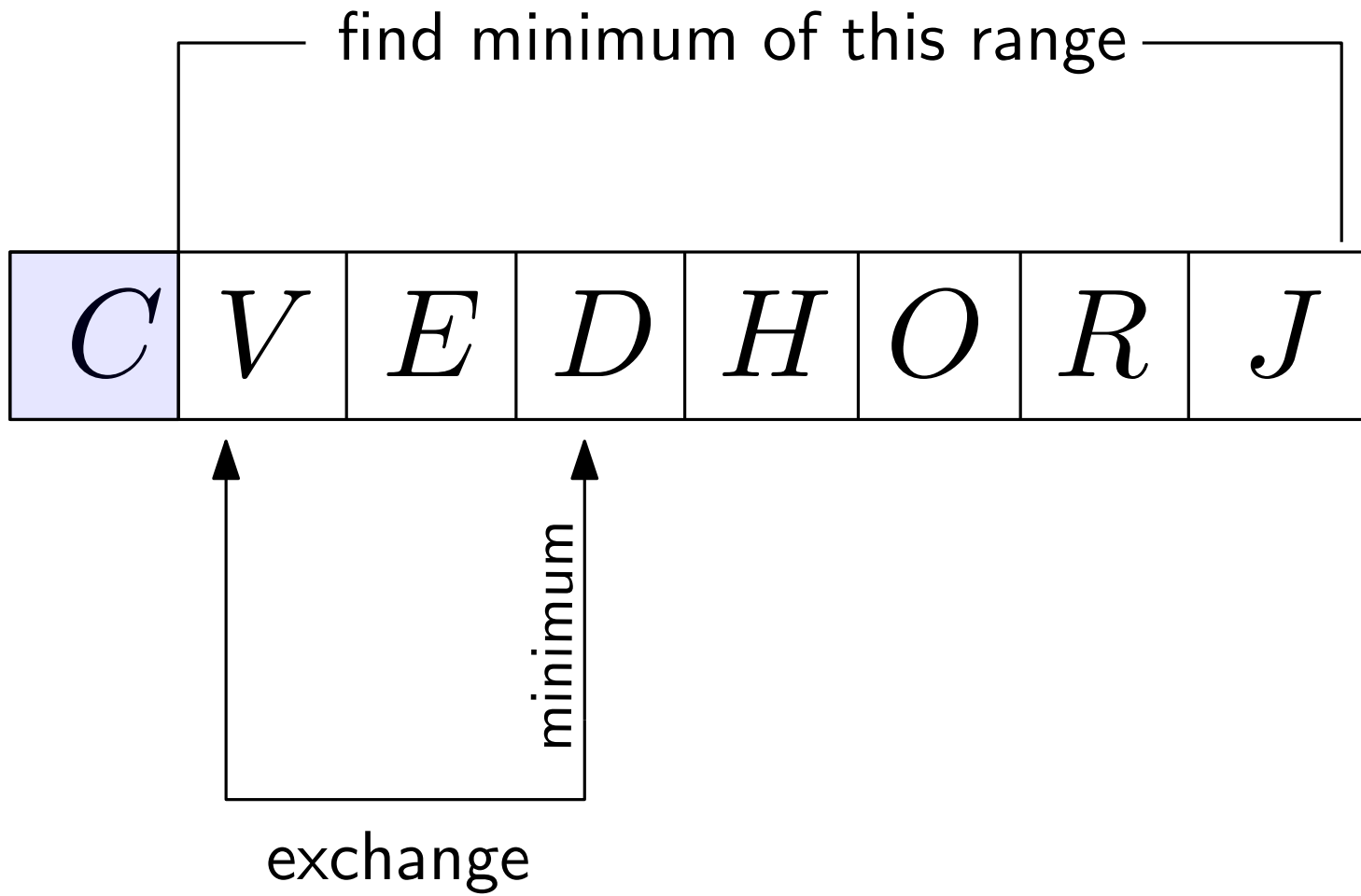




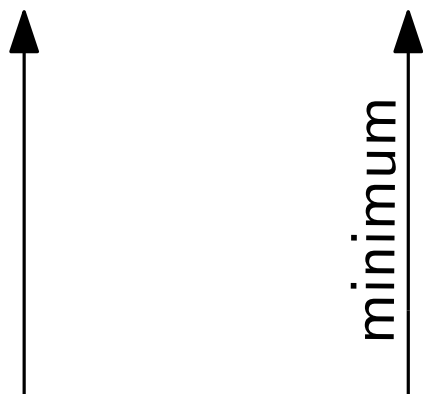






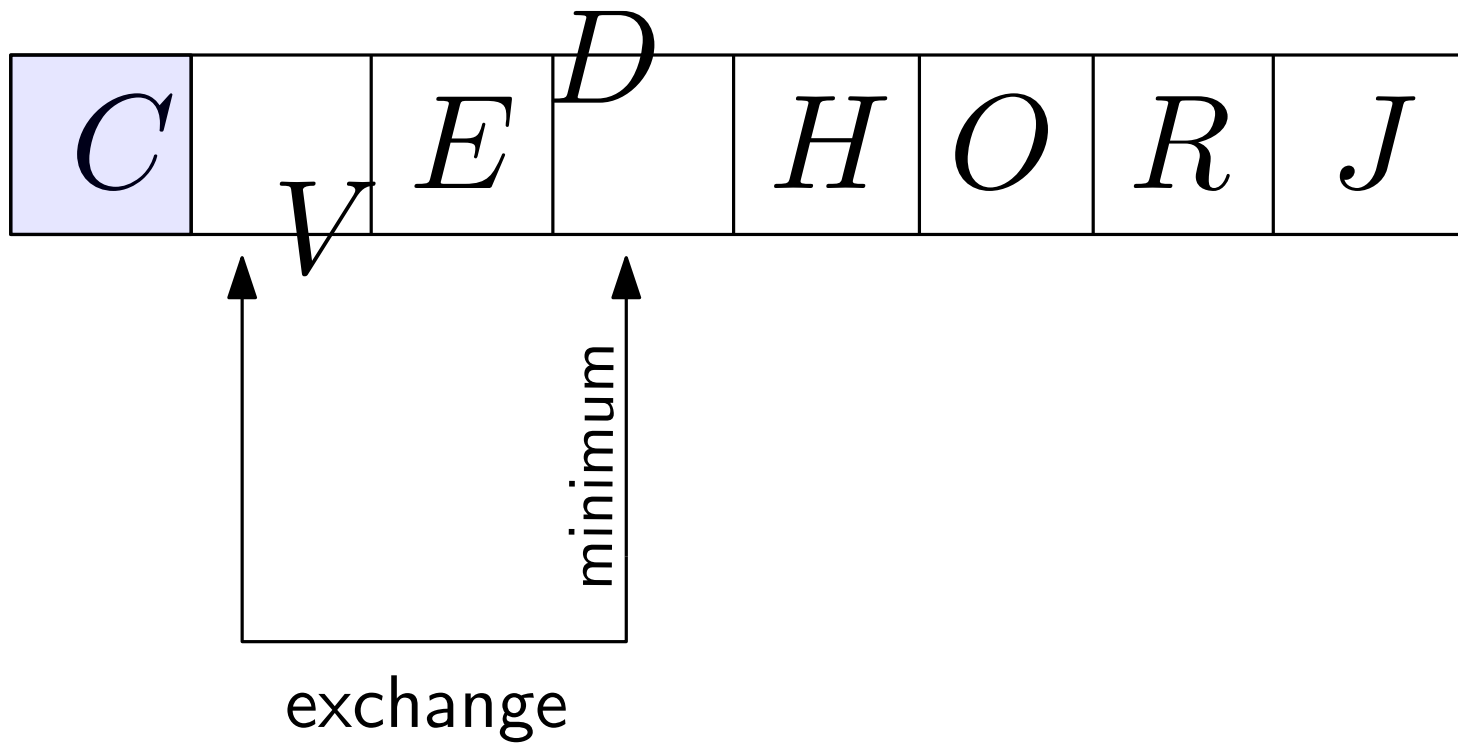


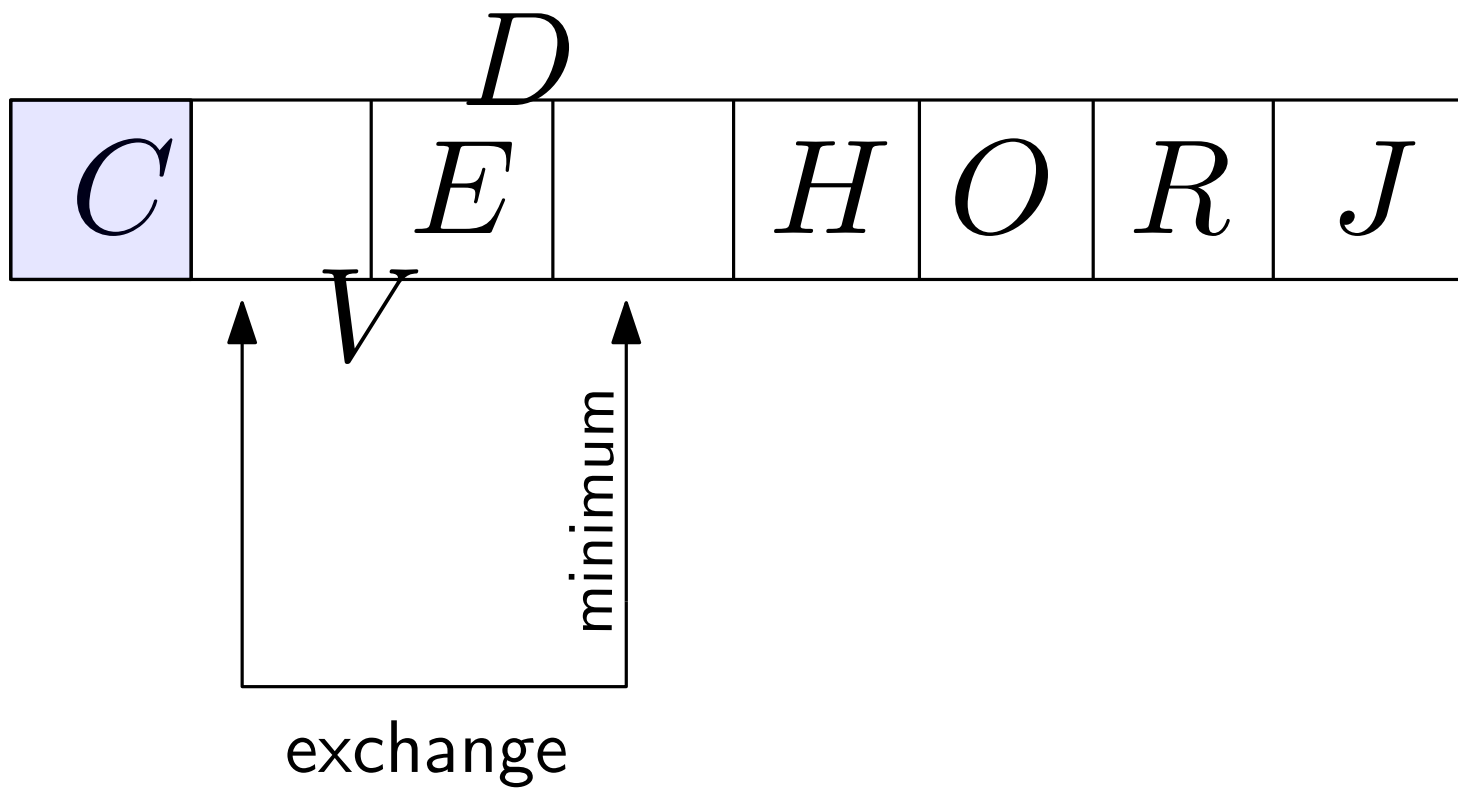
<i>C</i>	<i>V</i>	<i>E</i>	<i>D</i>	<i>H</i>	<i>O</i>	<i>R</i>	<i>J</i>
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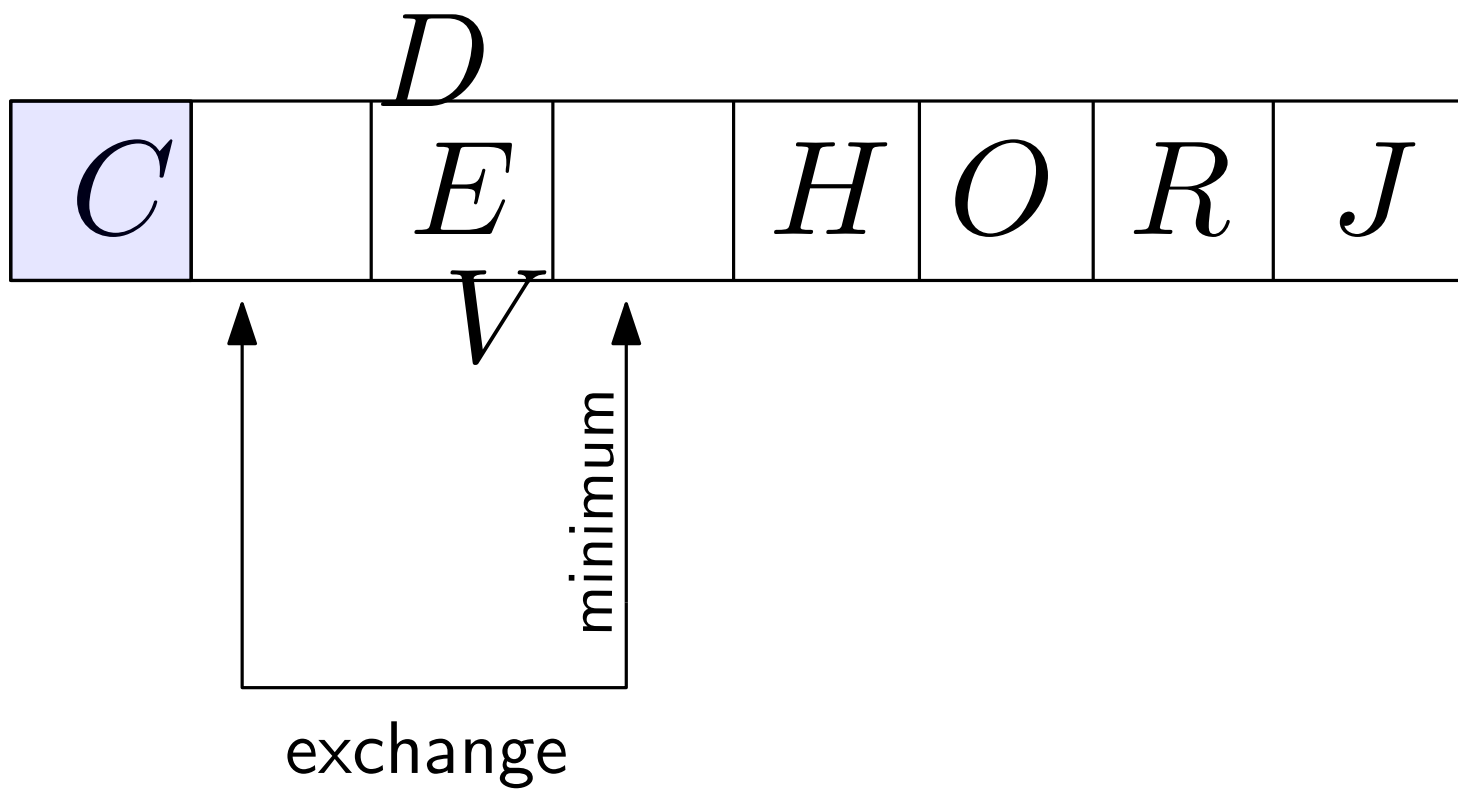


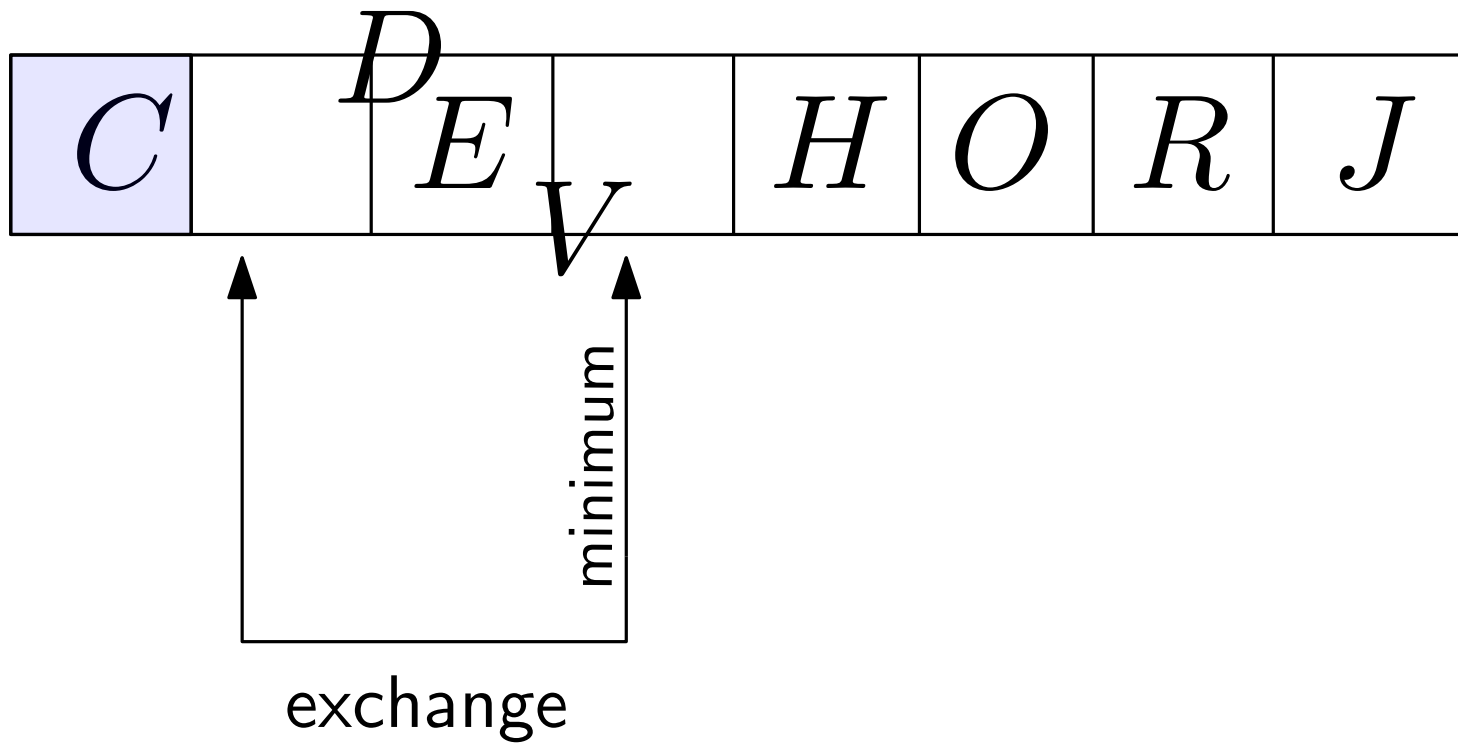
exchange

minimum

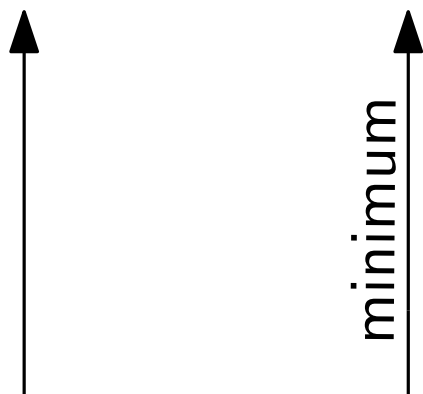






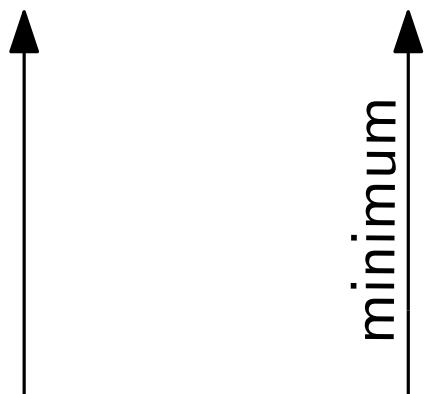


<i>C</i>	<i>D</i>	<i>E</i>	<i>V</i>	<i>H</i>	<i>O</i>	<i>R</i>	<i>J</i>
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exchange

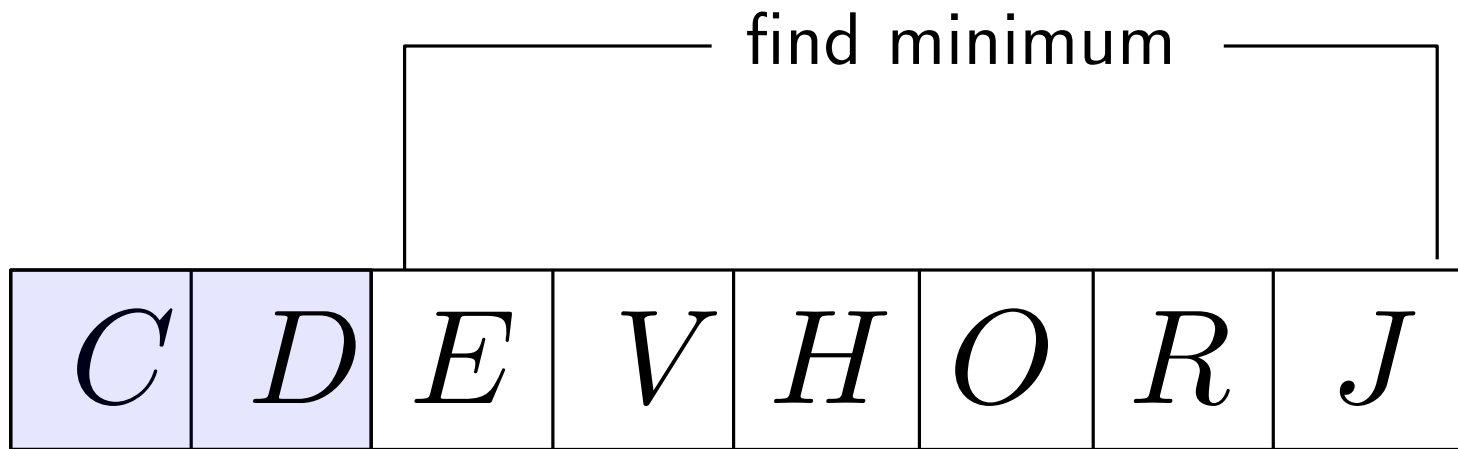
<i>C</i>	<i>D</i>	<i>E</i>	<i>V</i>	<i>H</i>	<i>O</i>	<i>R</i>	<i>J</i>
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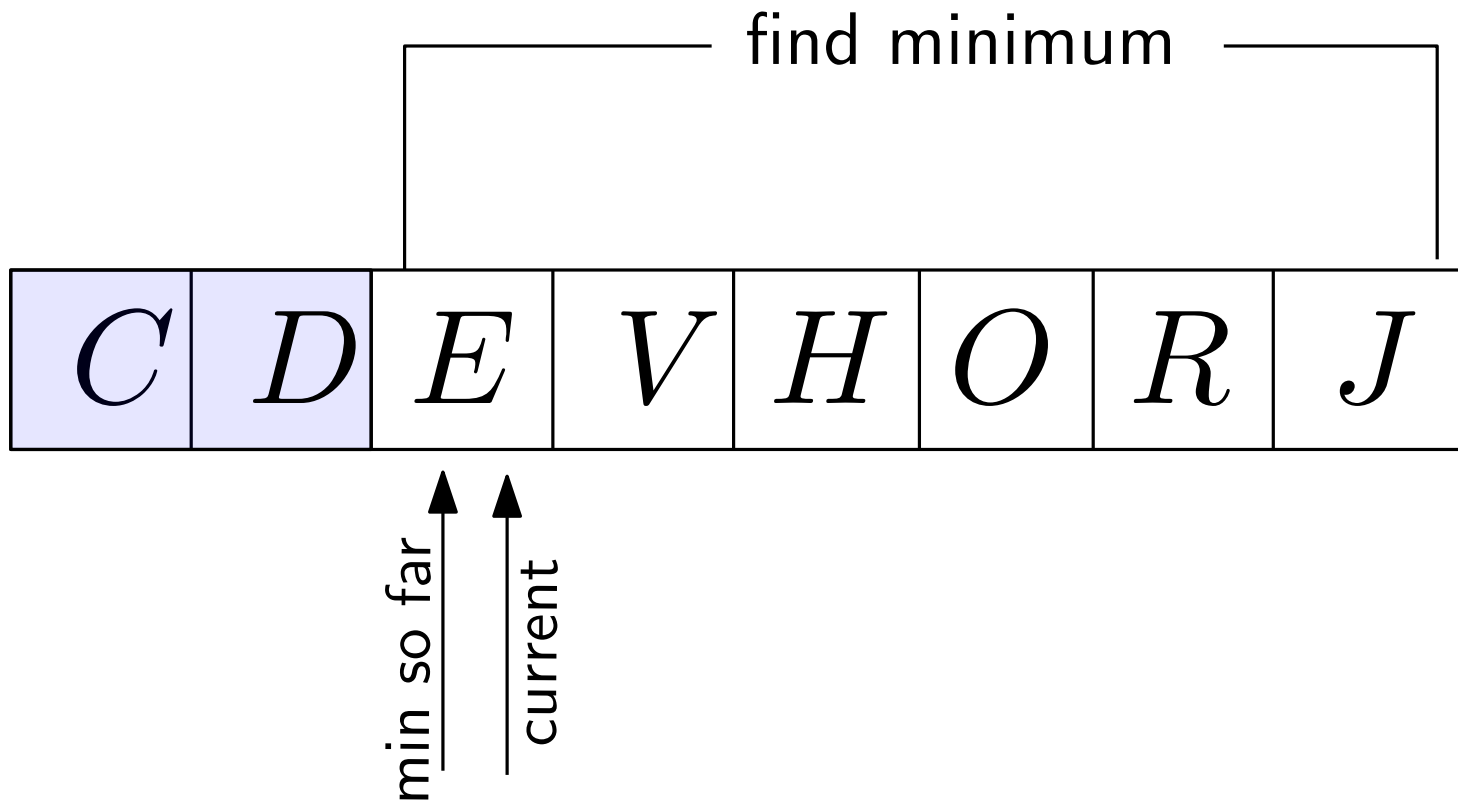


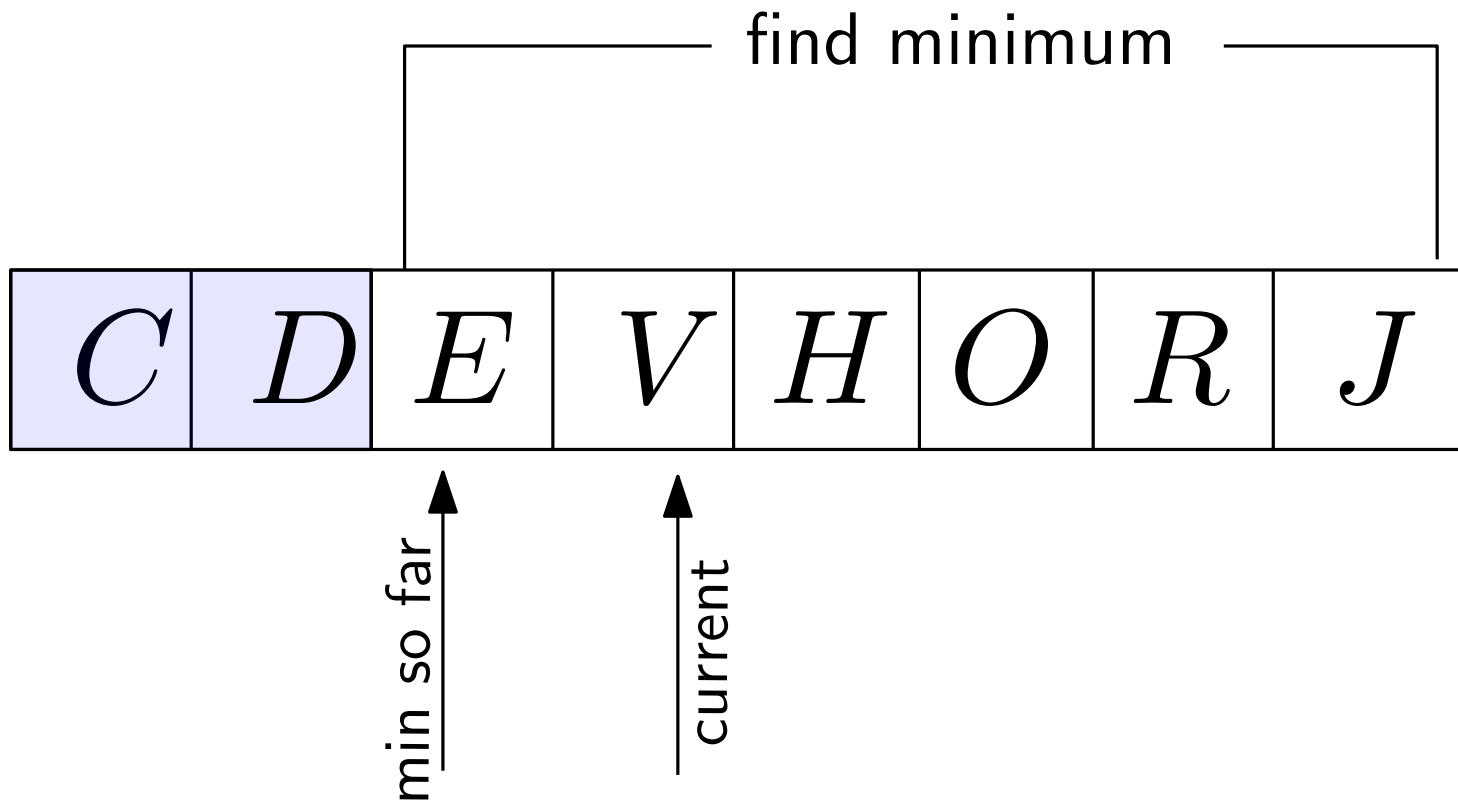
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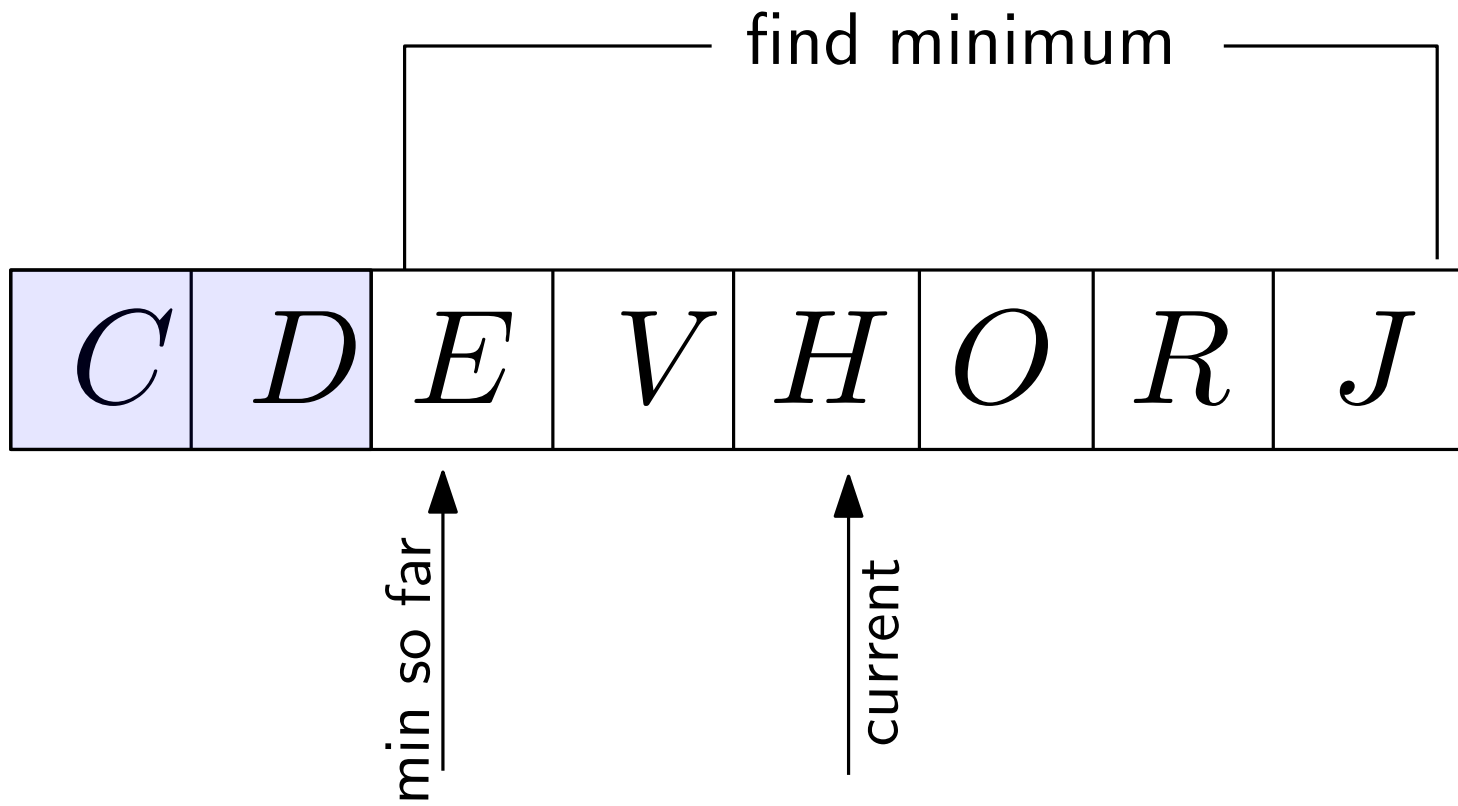
minimum

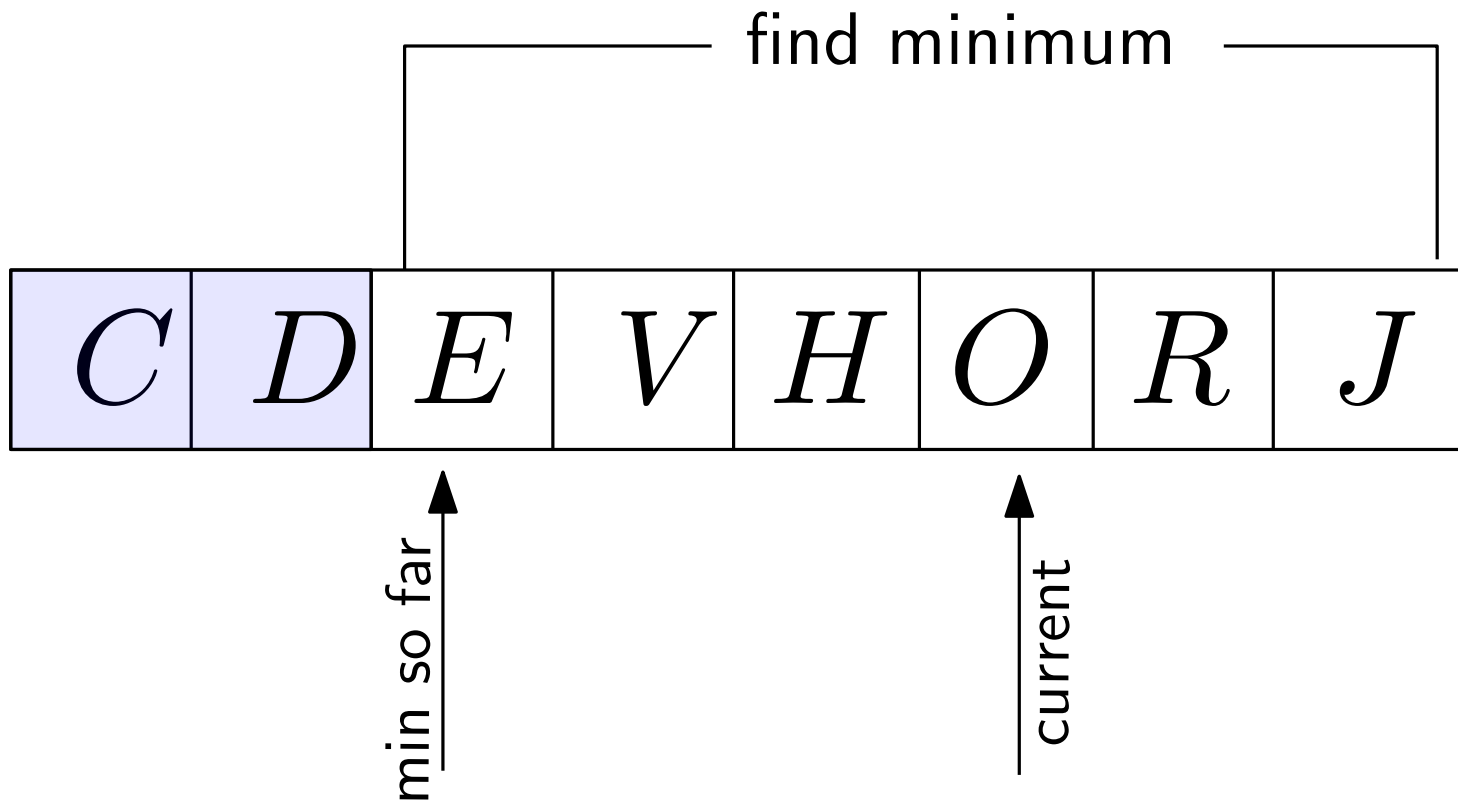
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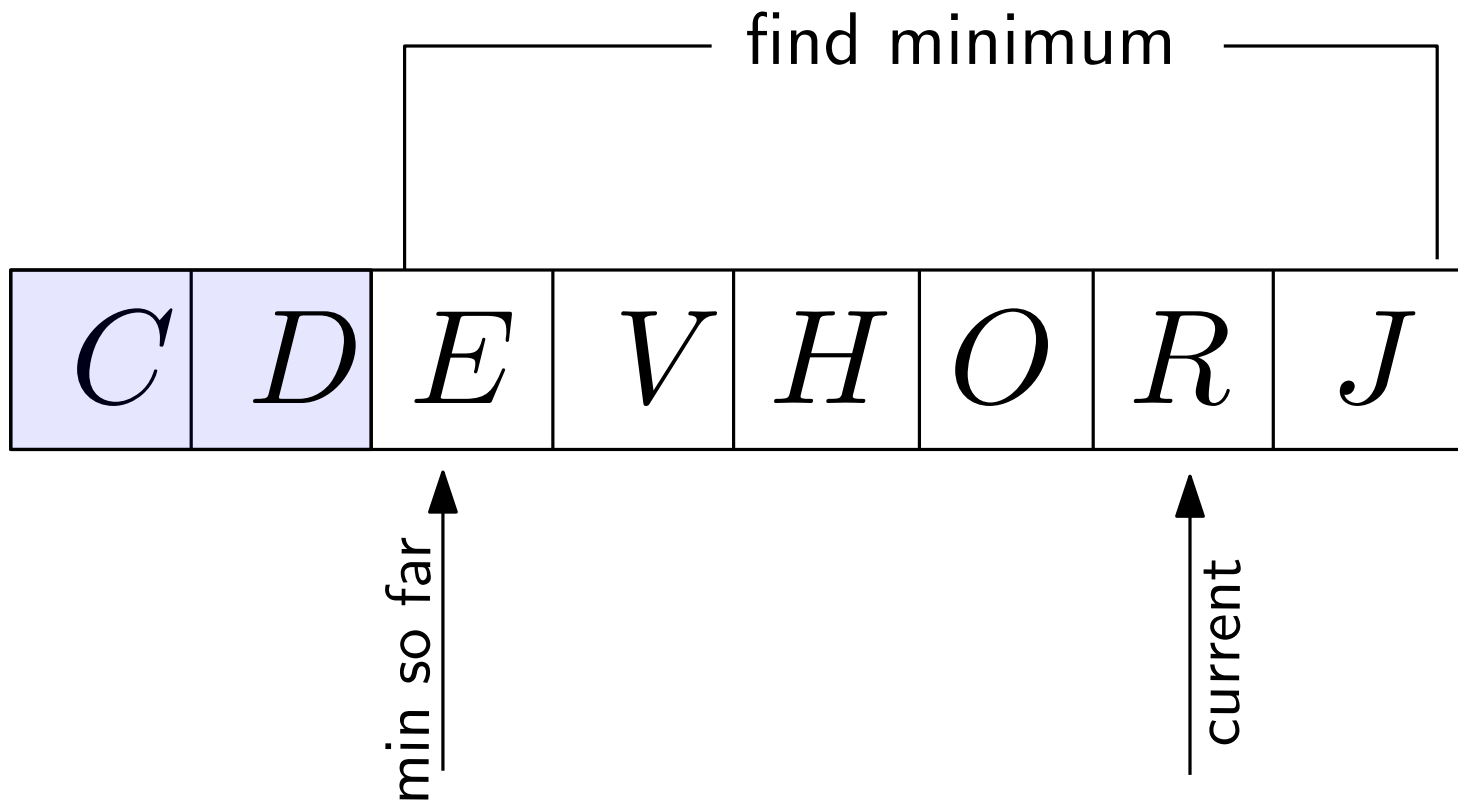


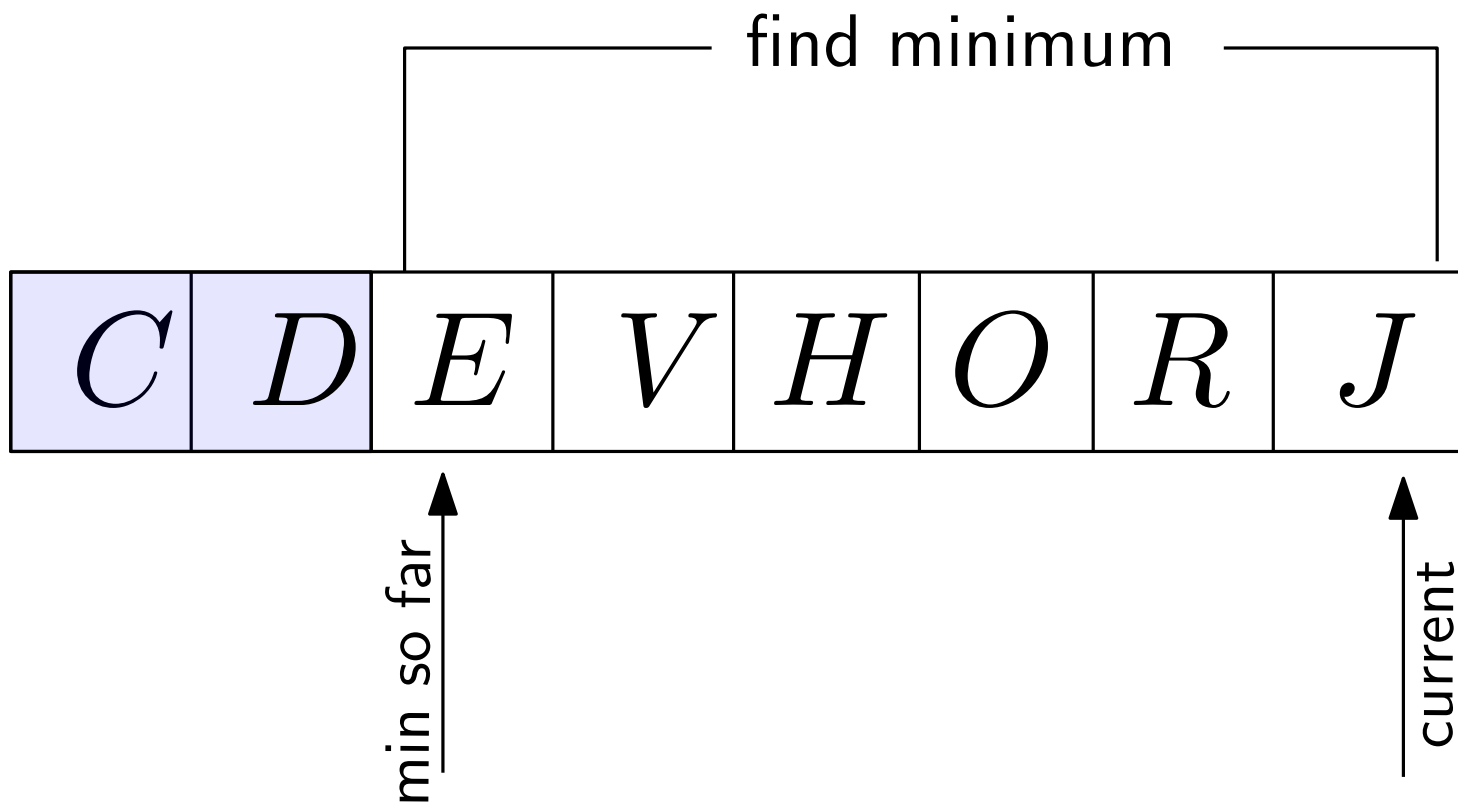


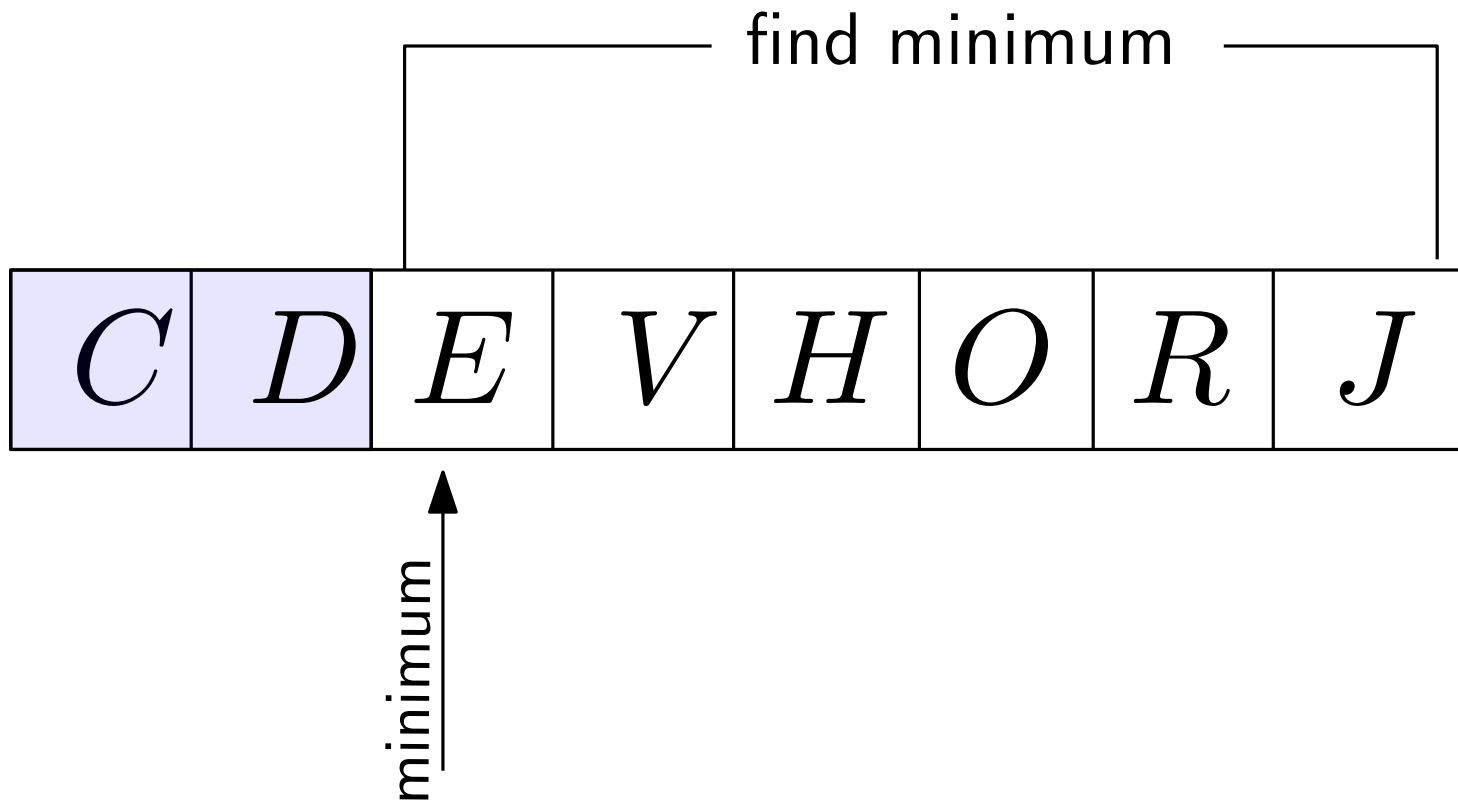


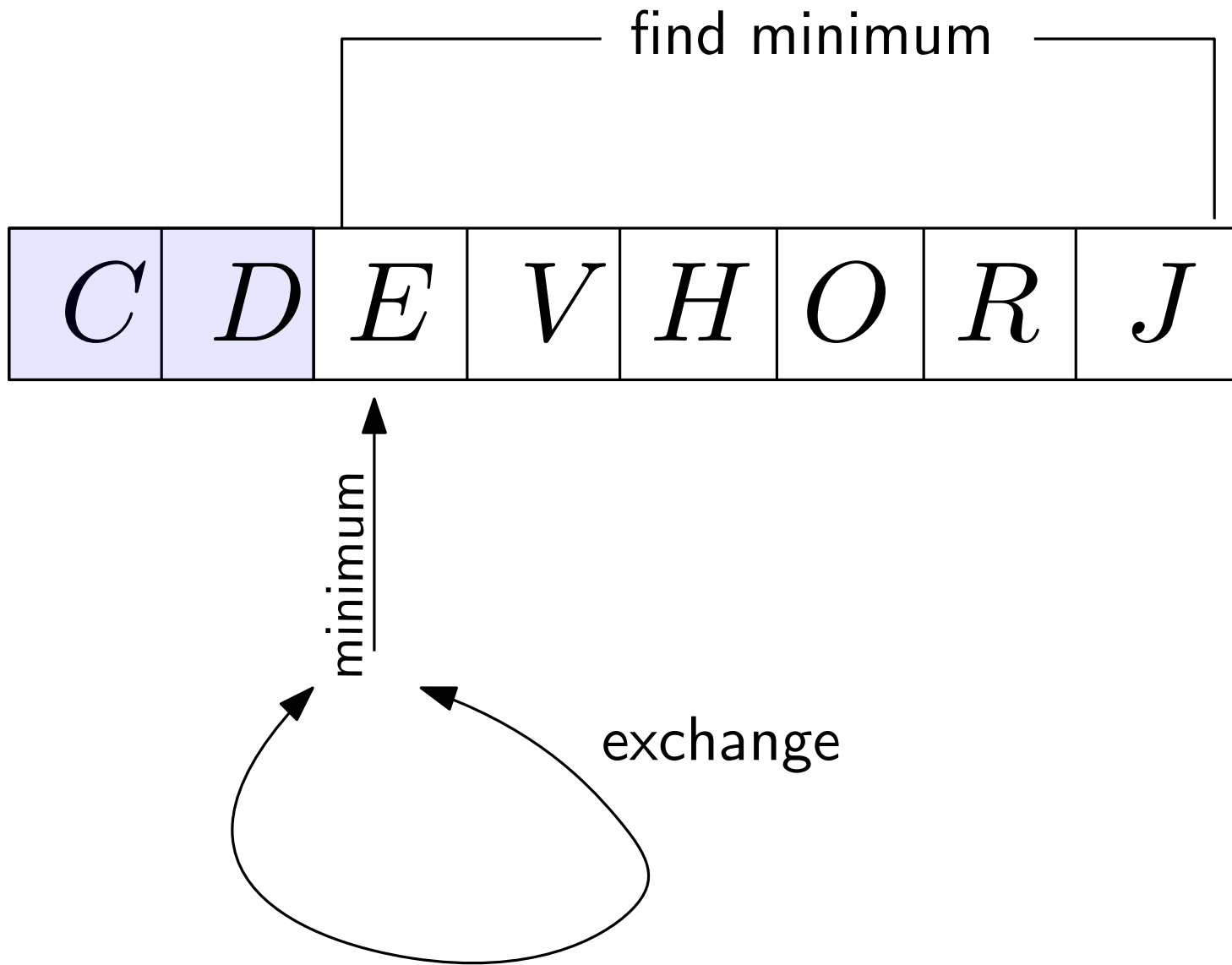




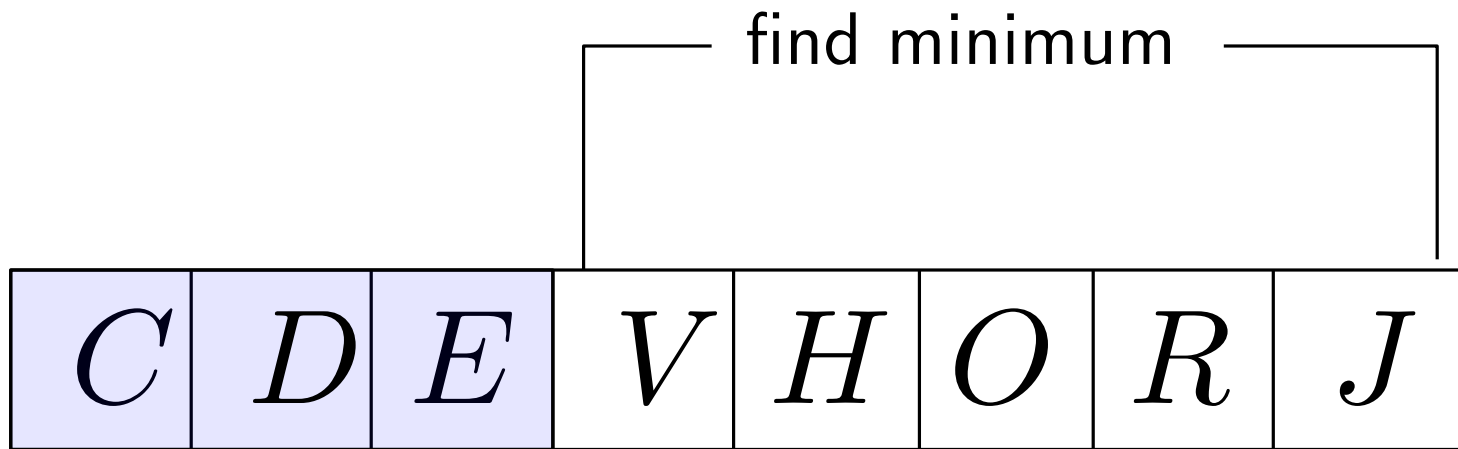


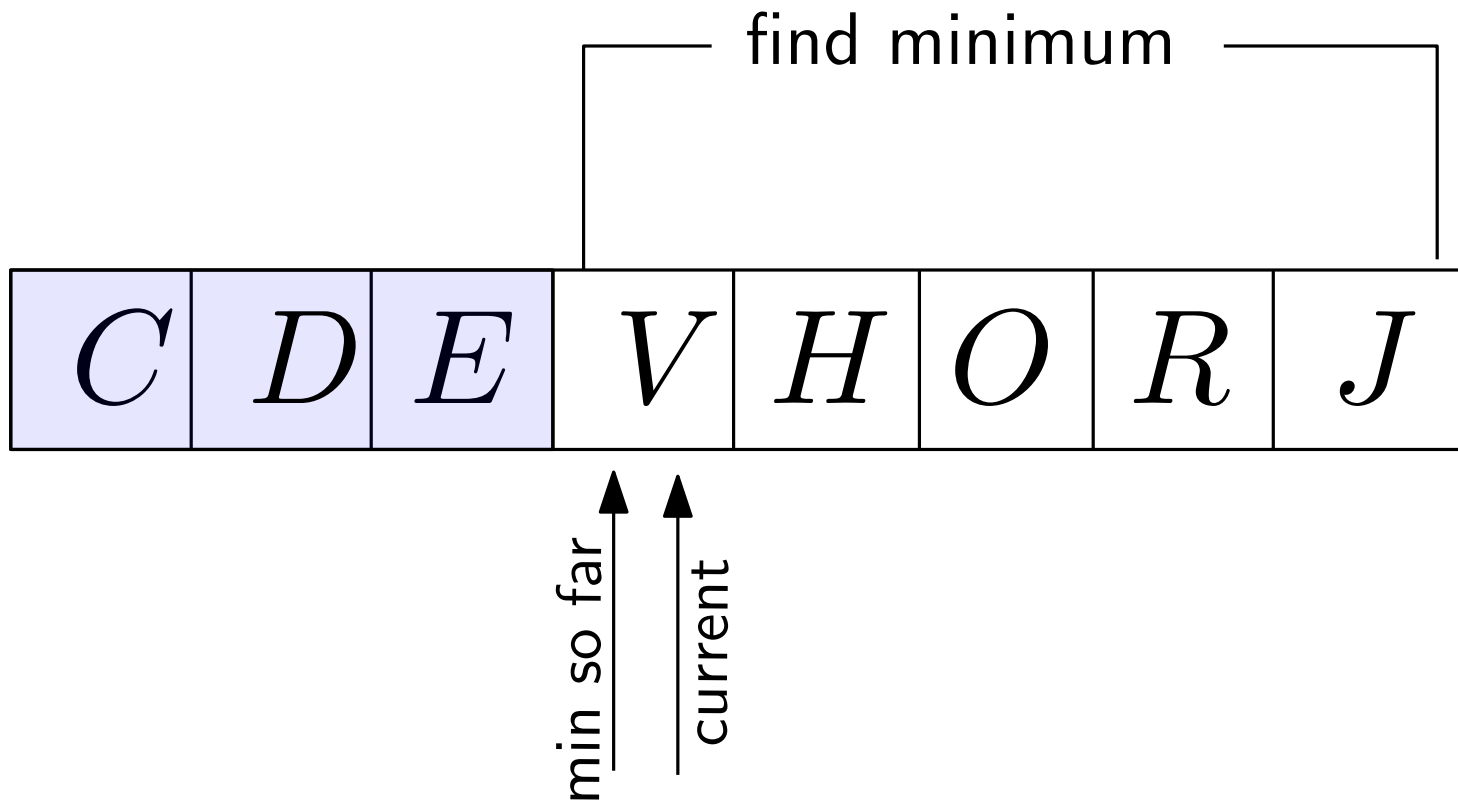


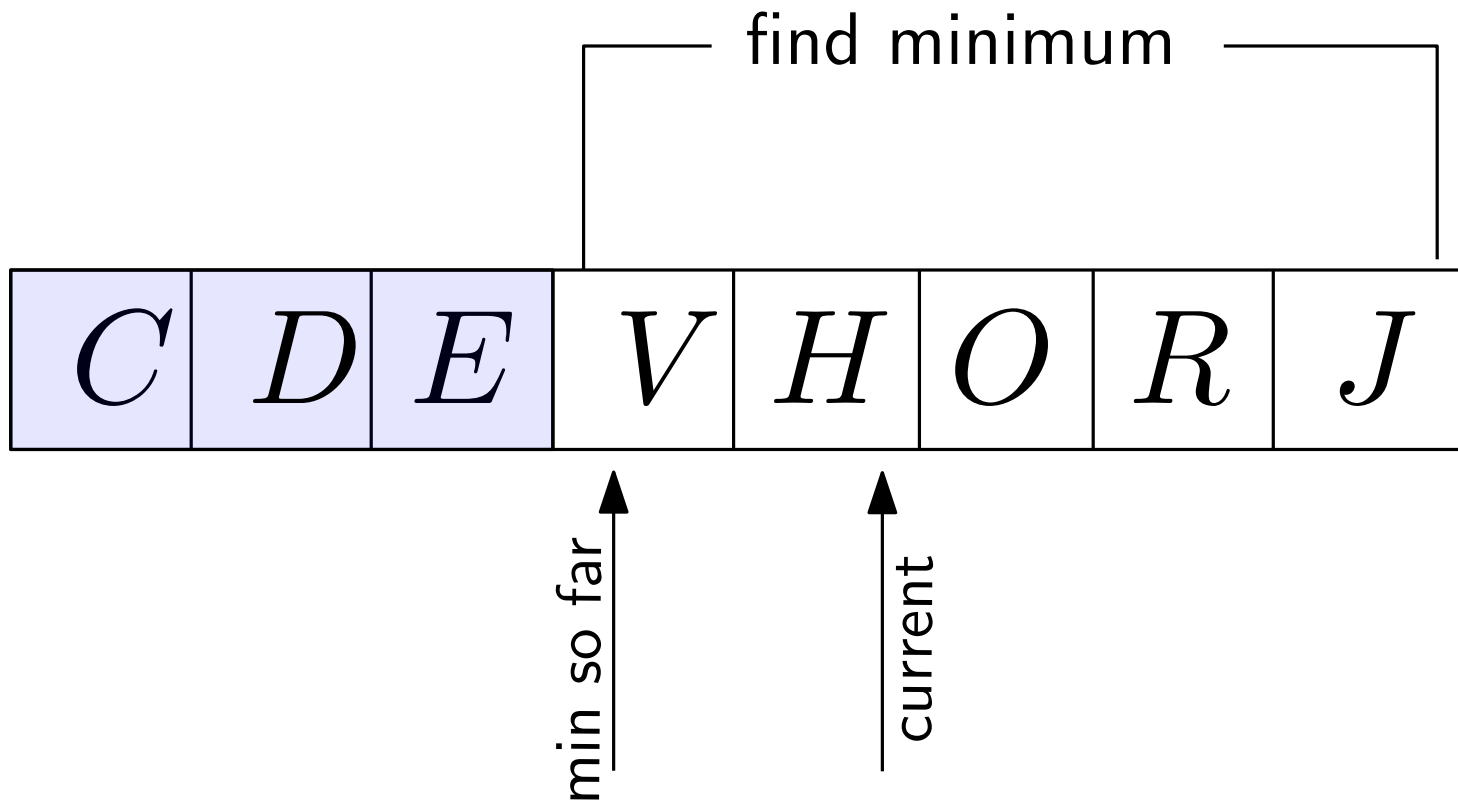


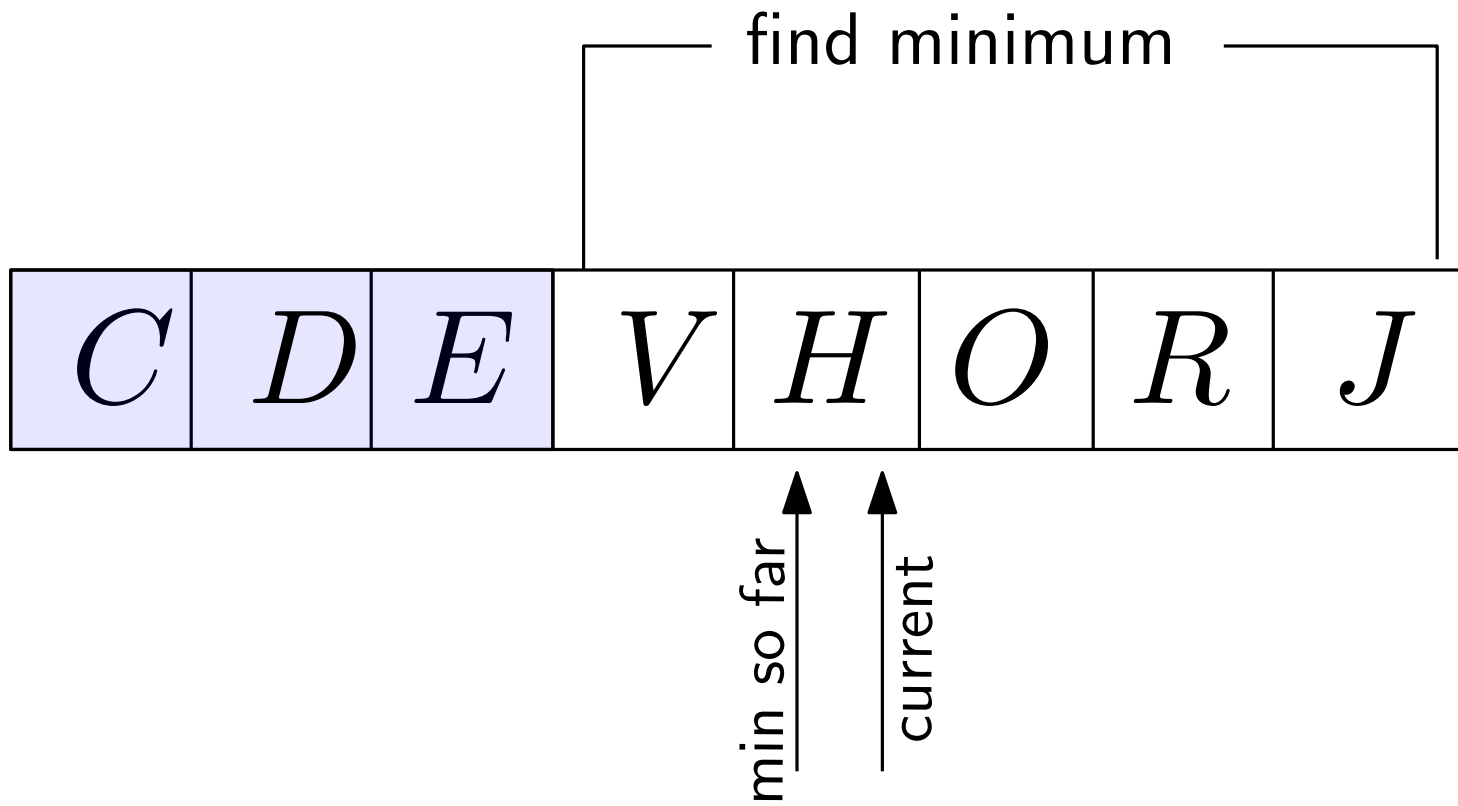


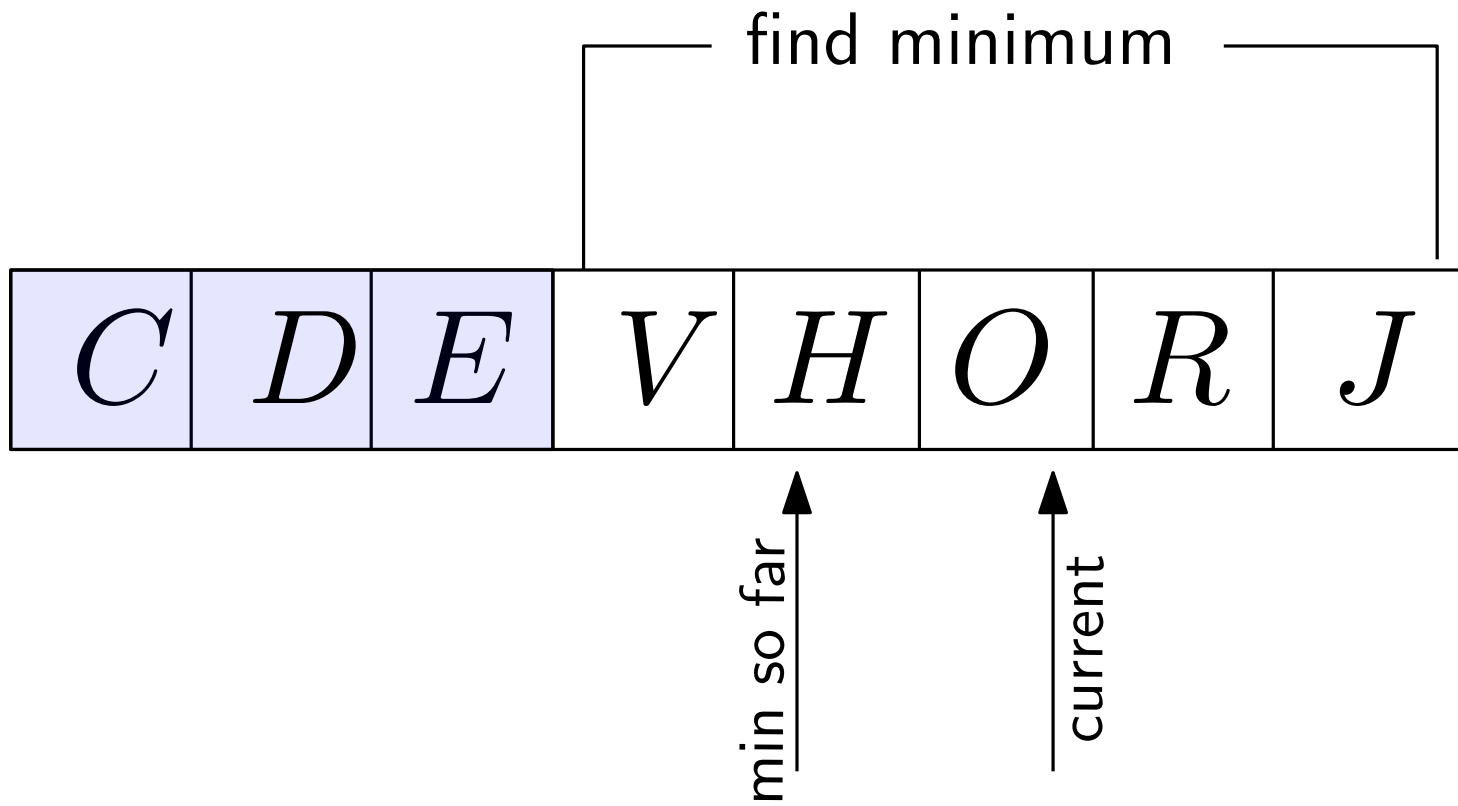
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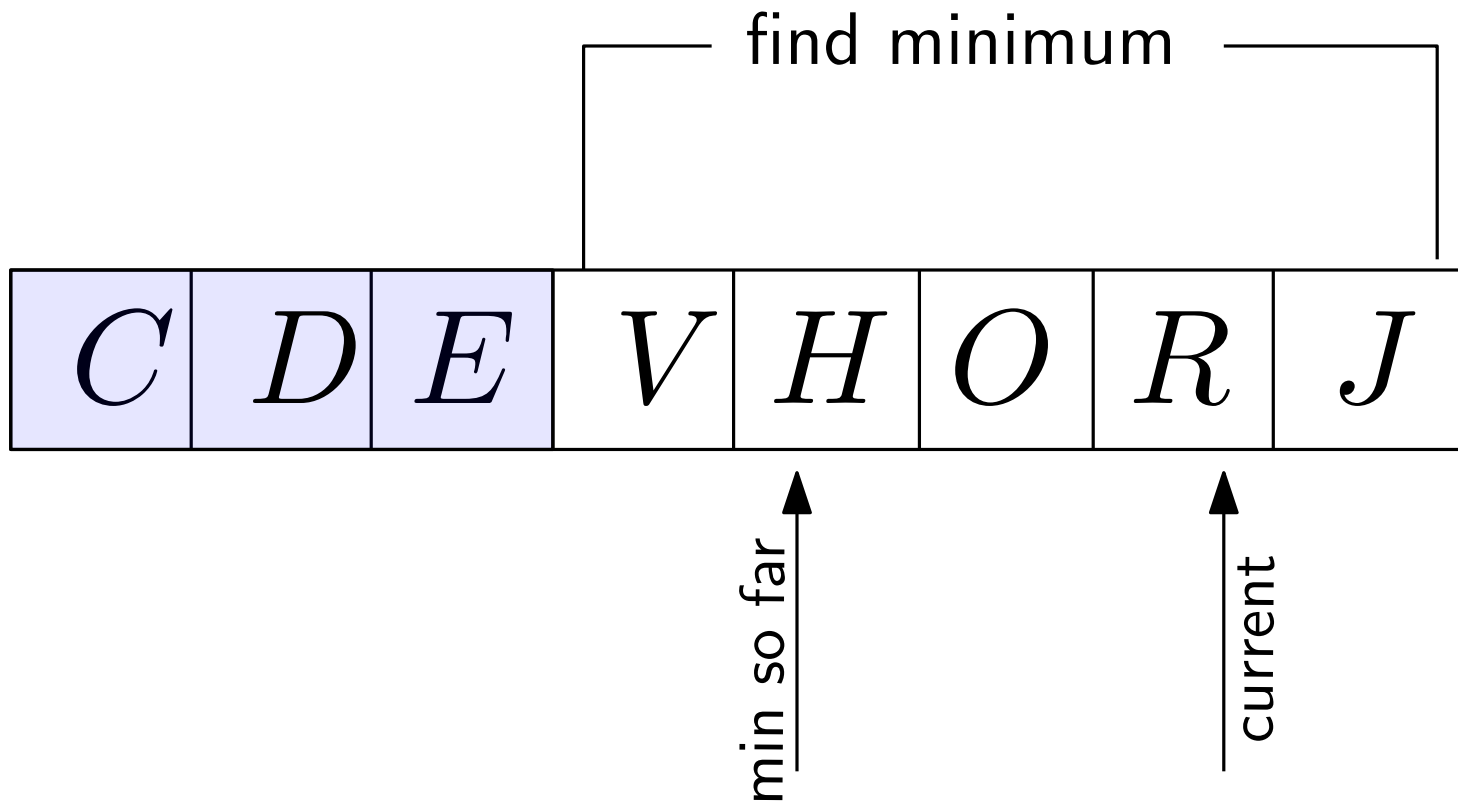


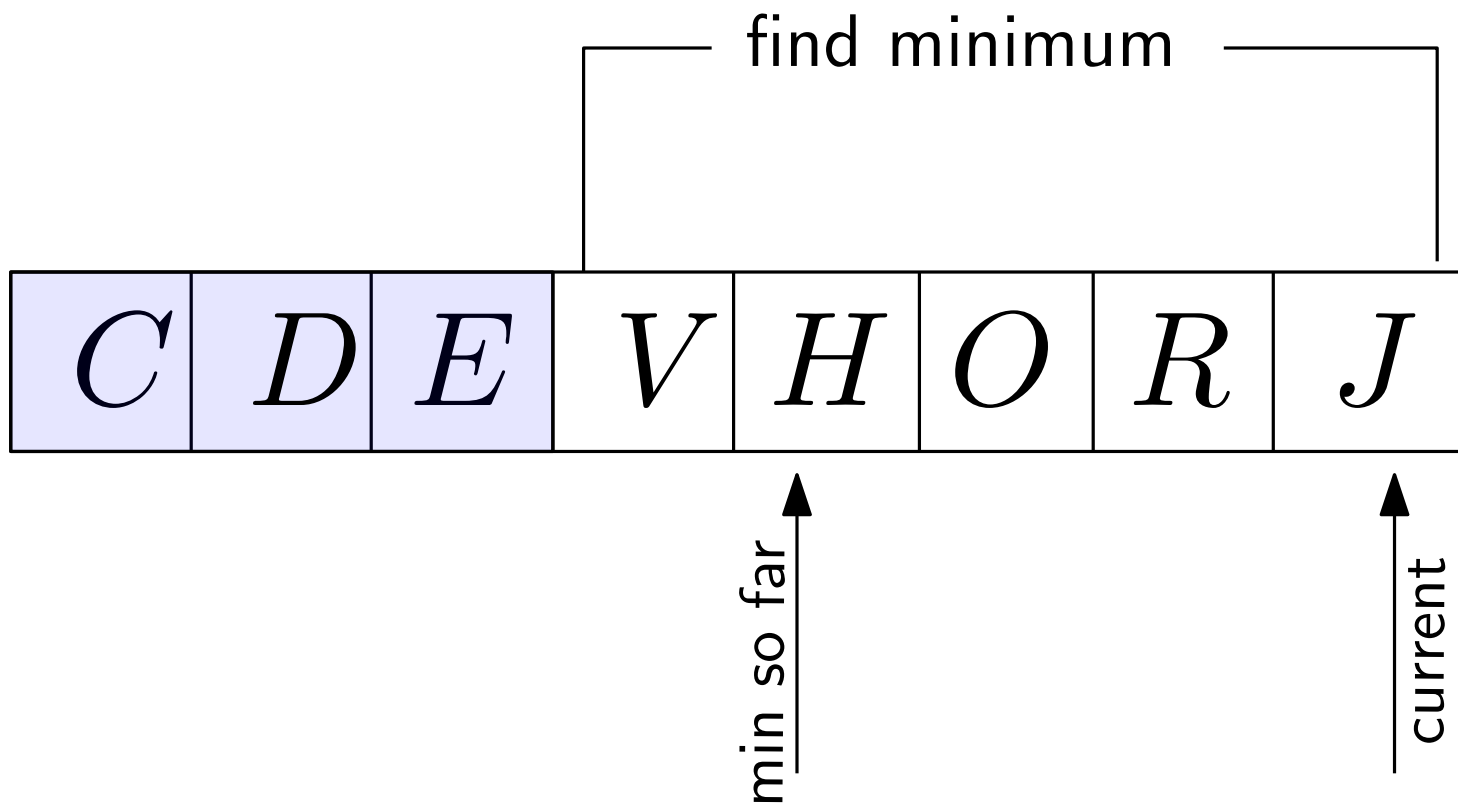


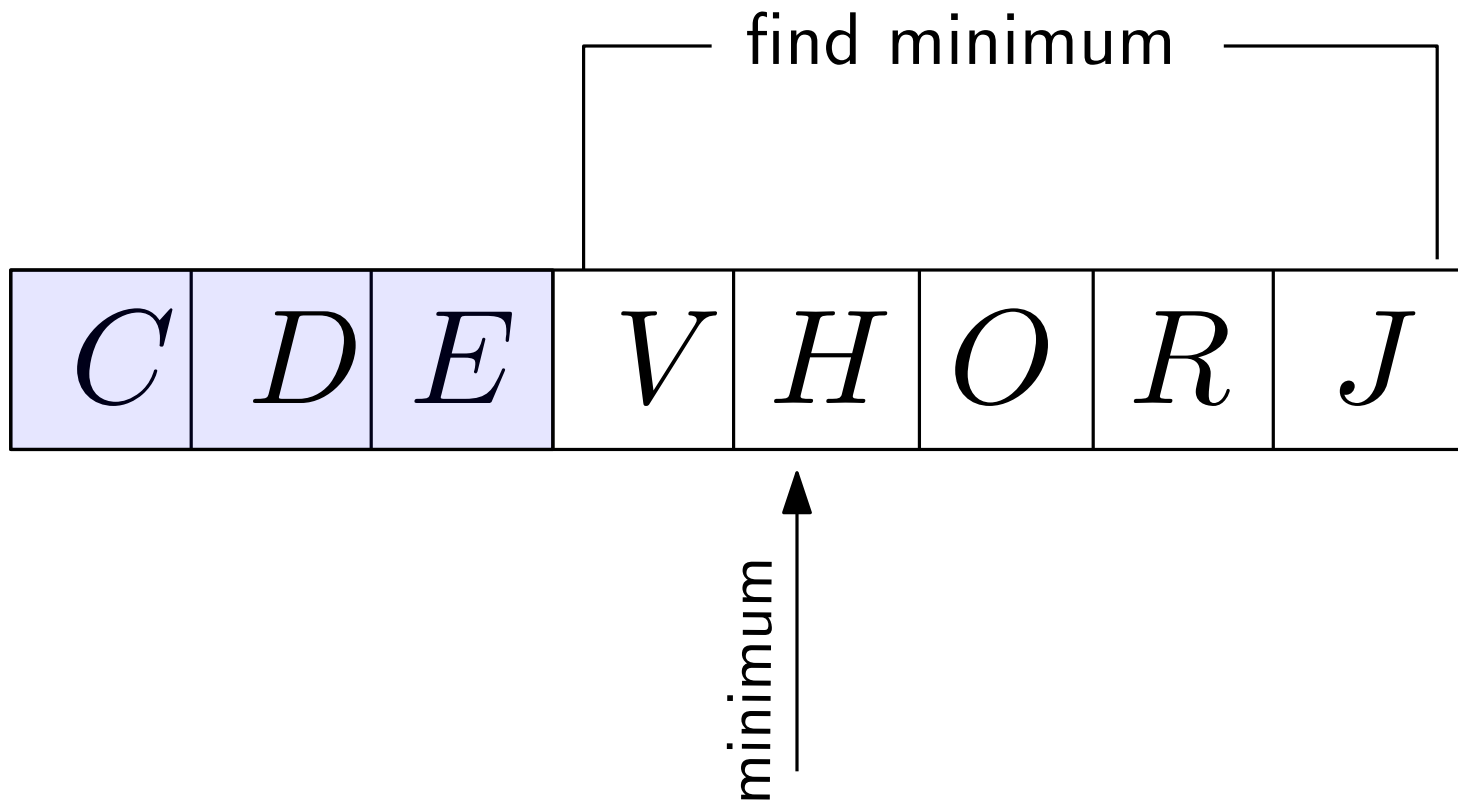


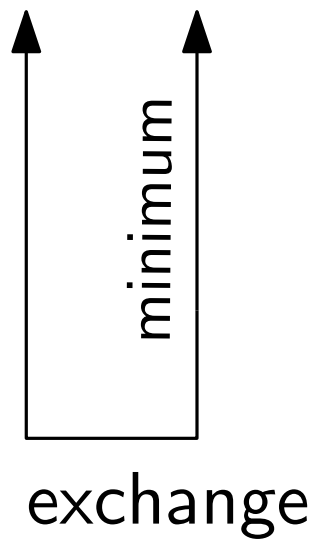
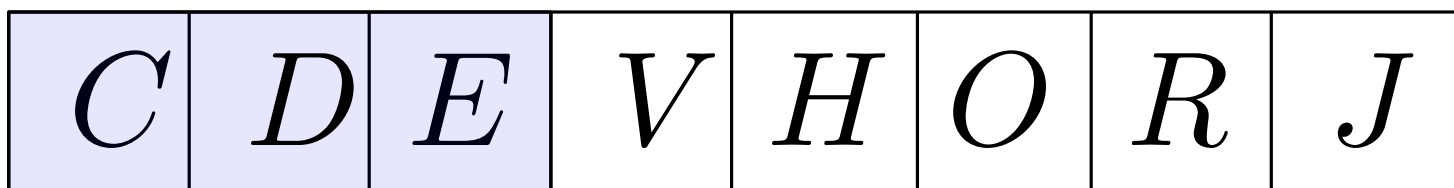


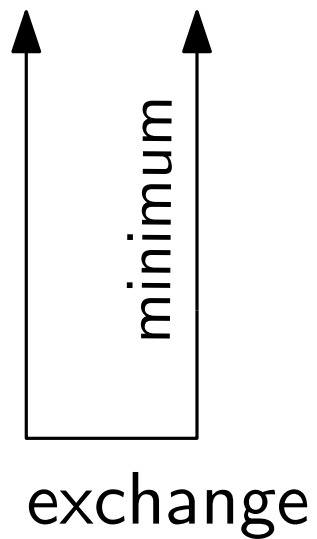
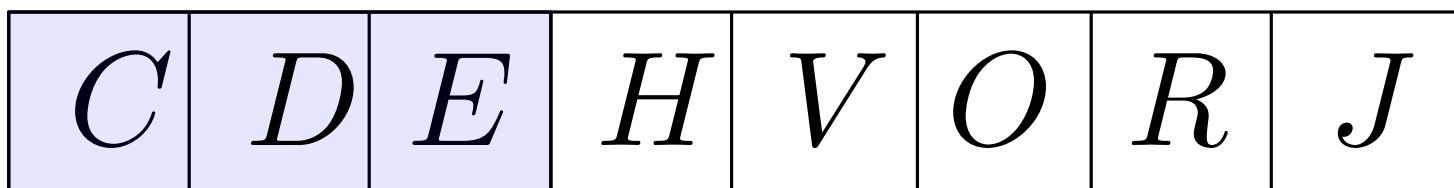




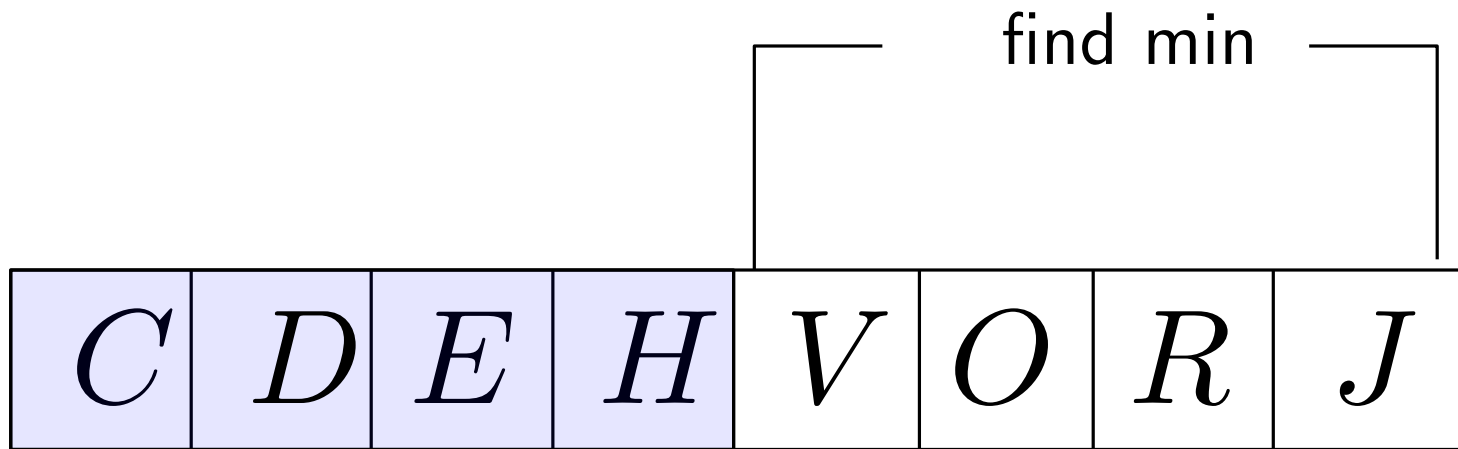


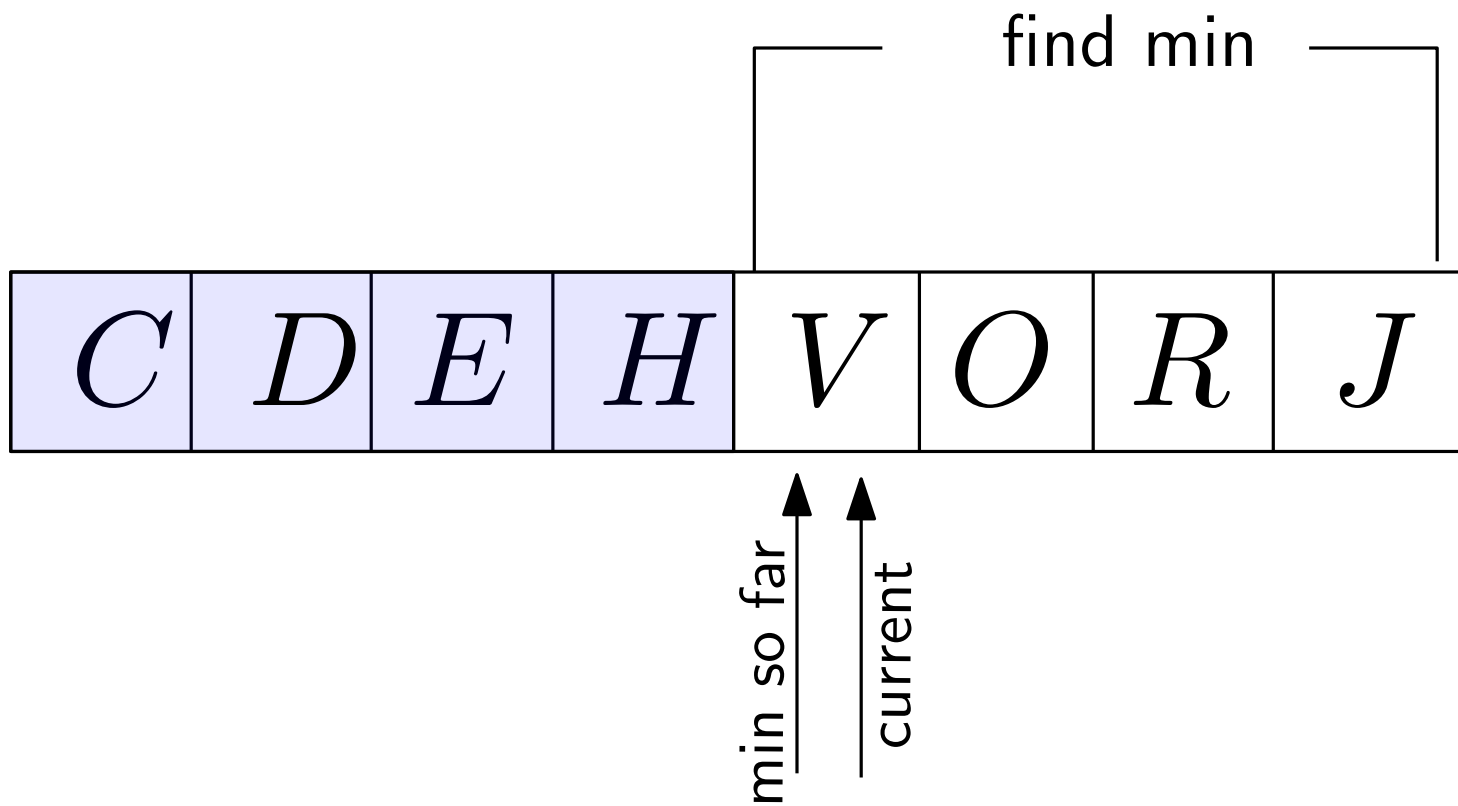


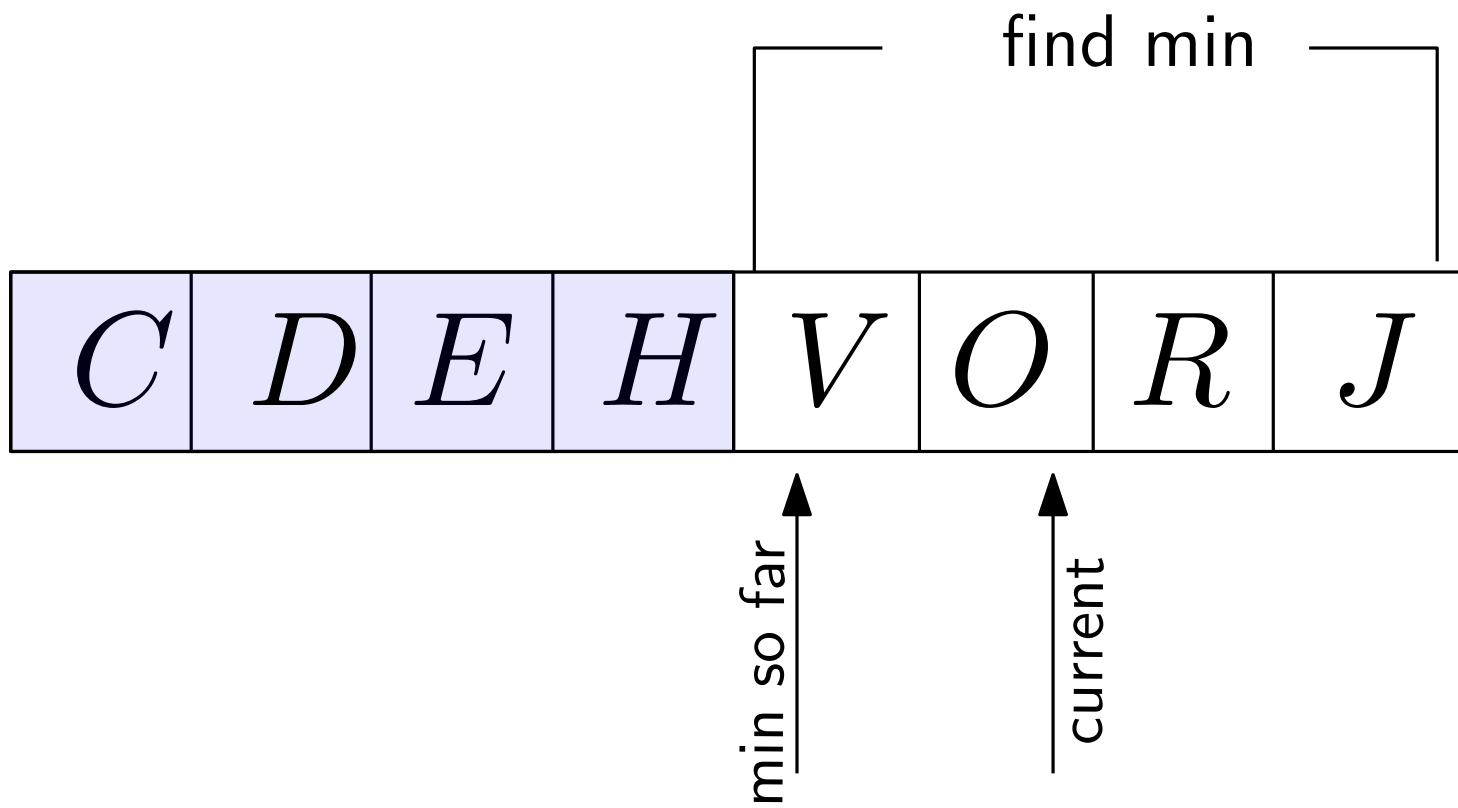


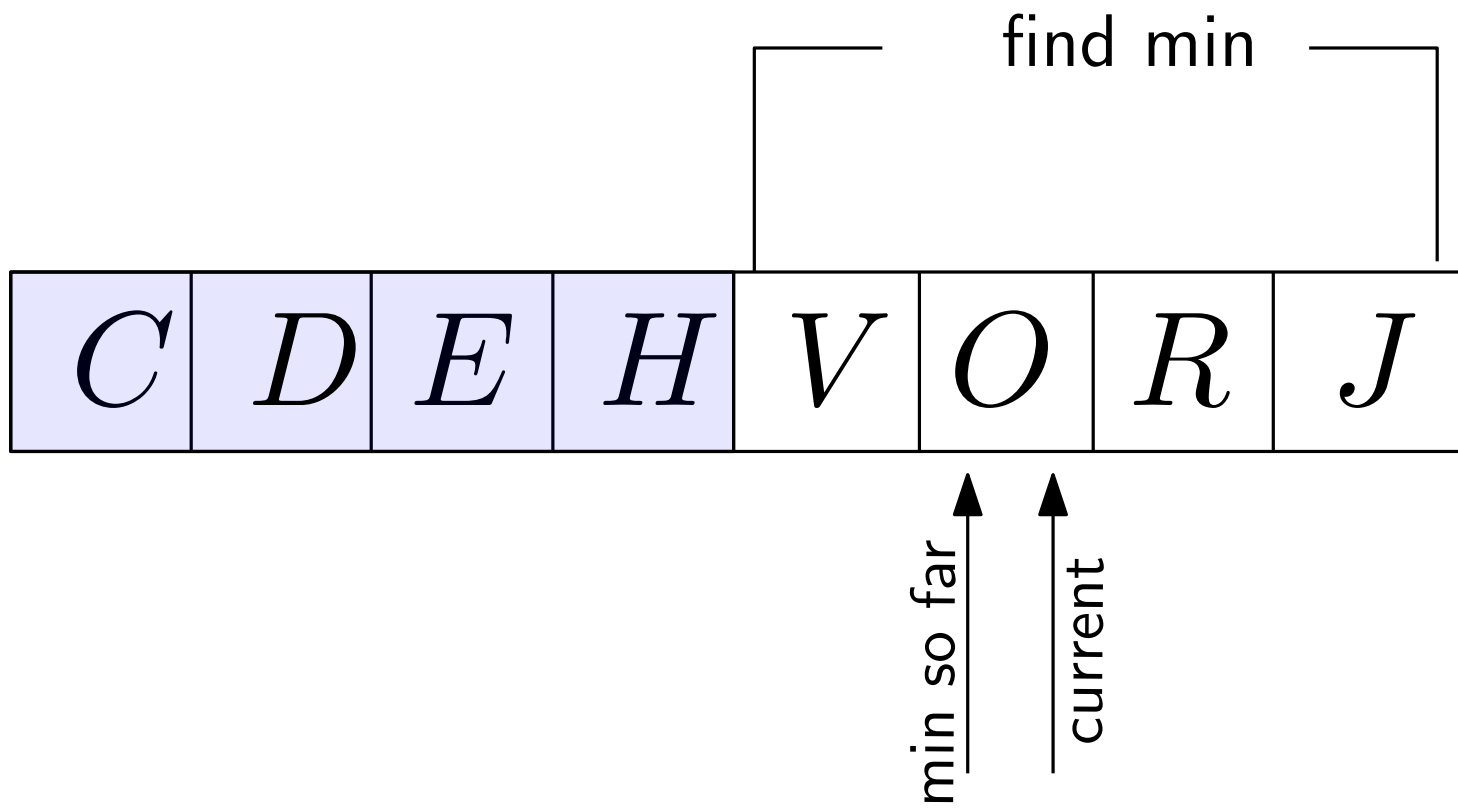


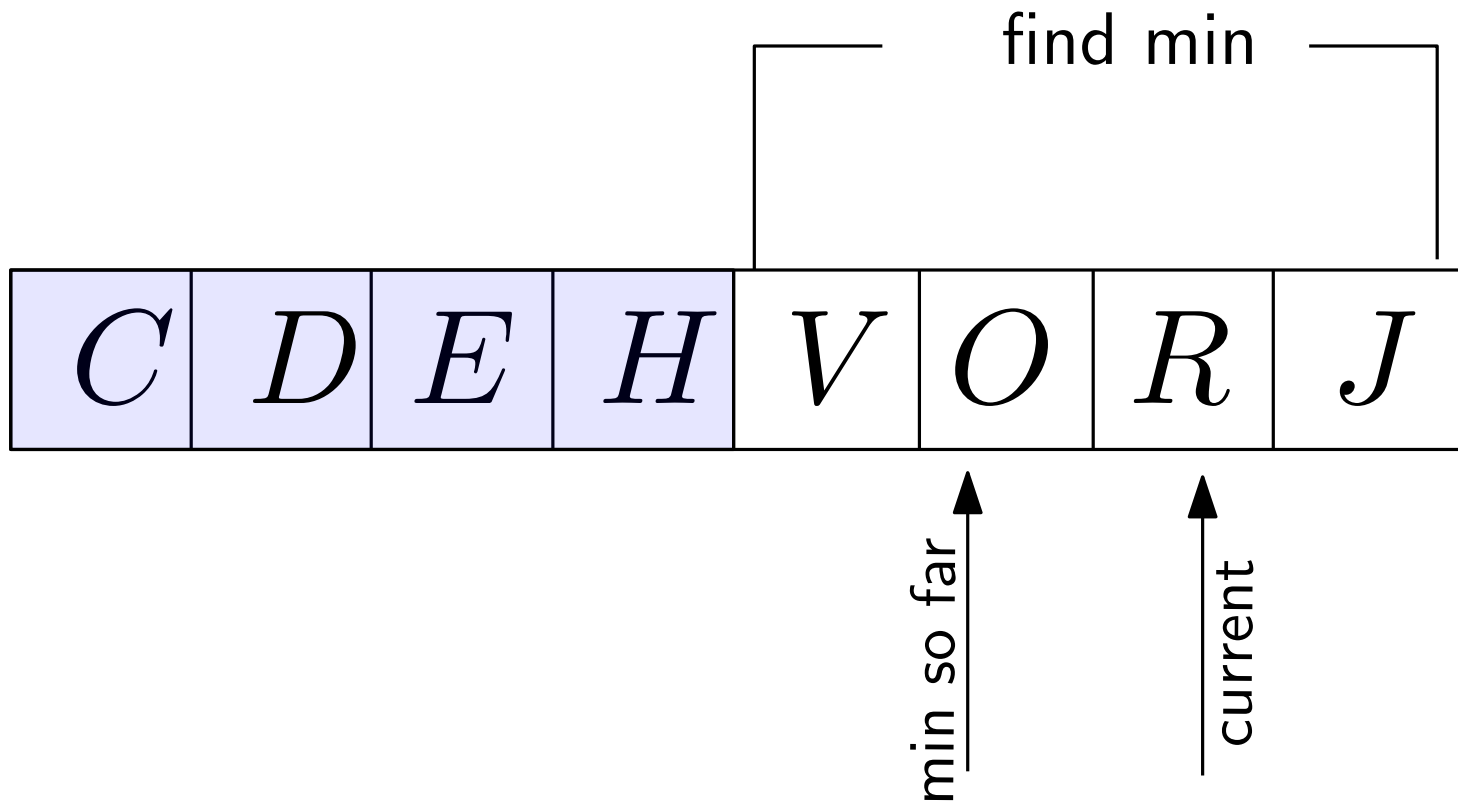
<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>V</i>	<i>O</i>	<i>R</i>	<i>J</i>
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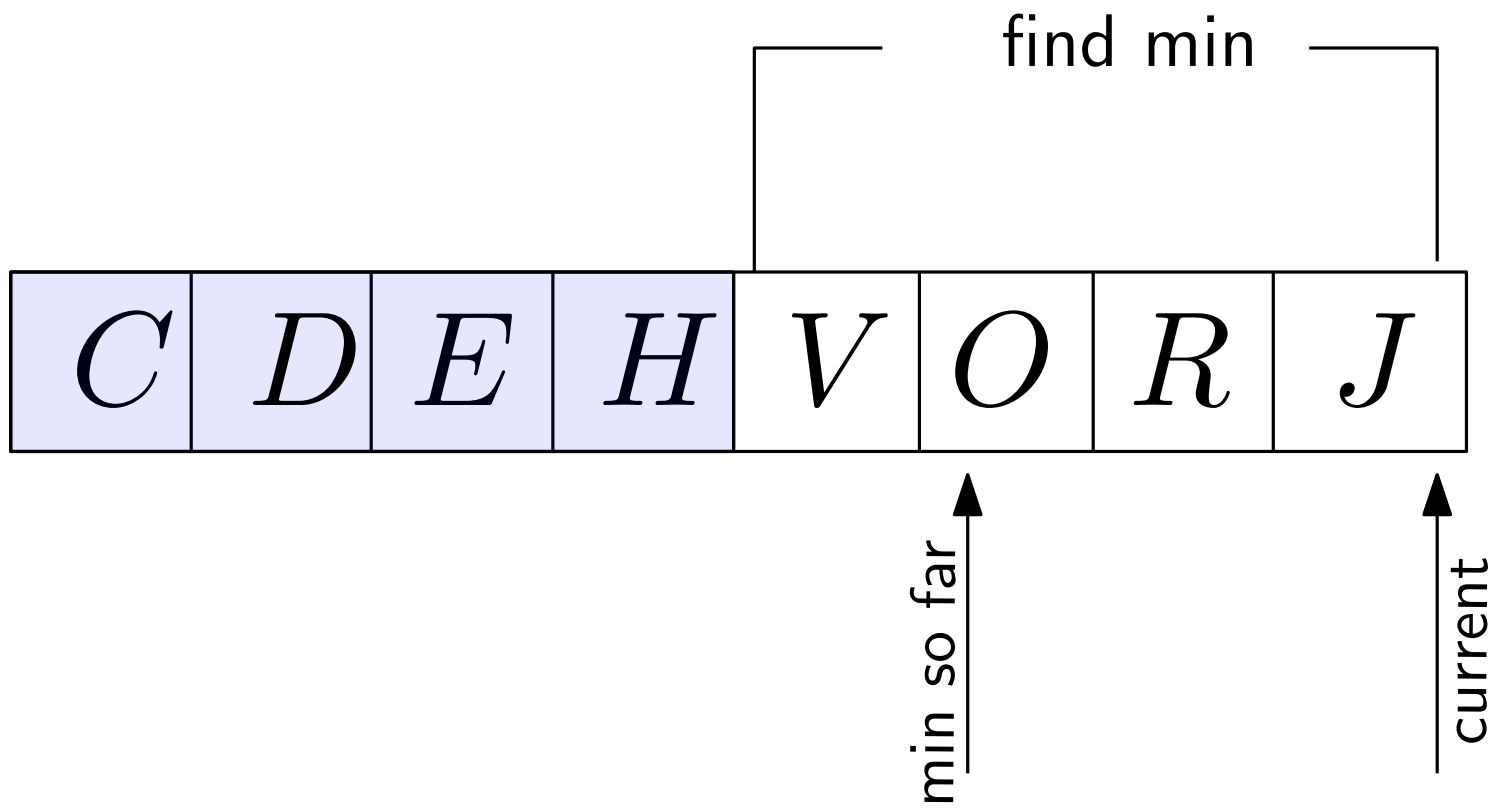


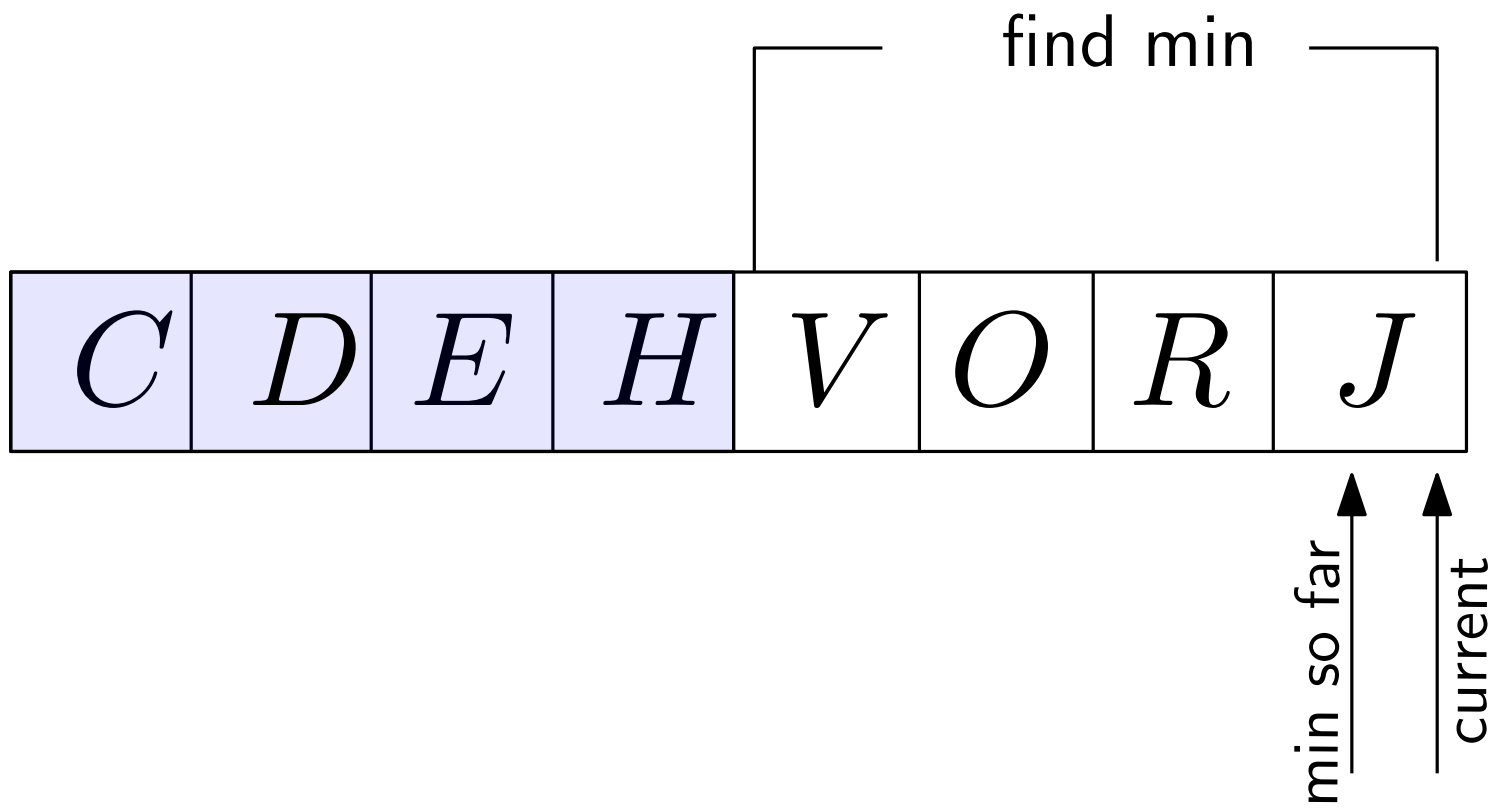


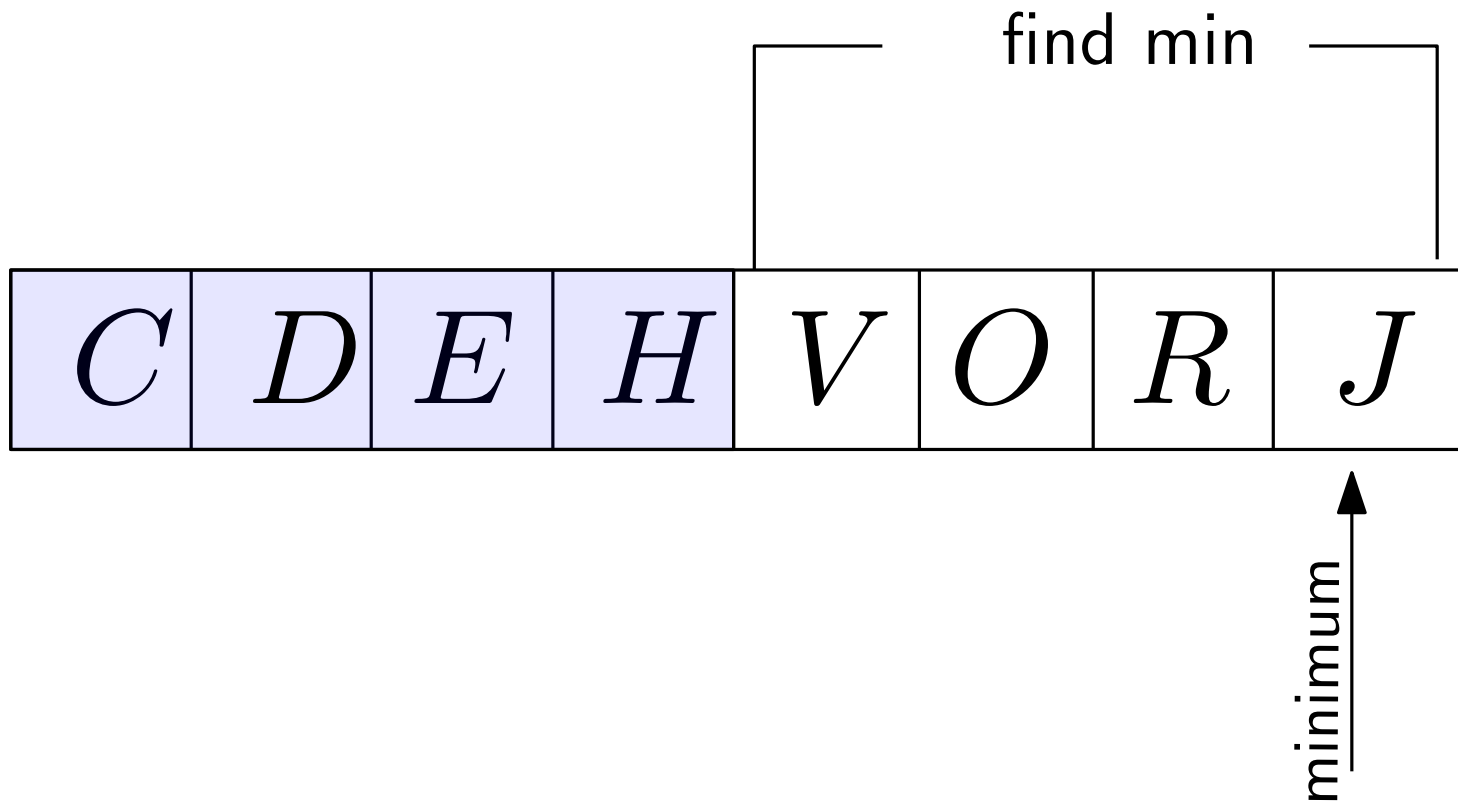


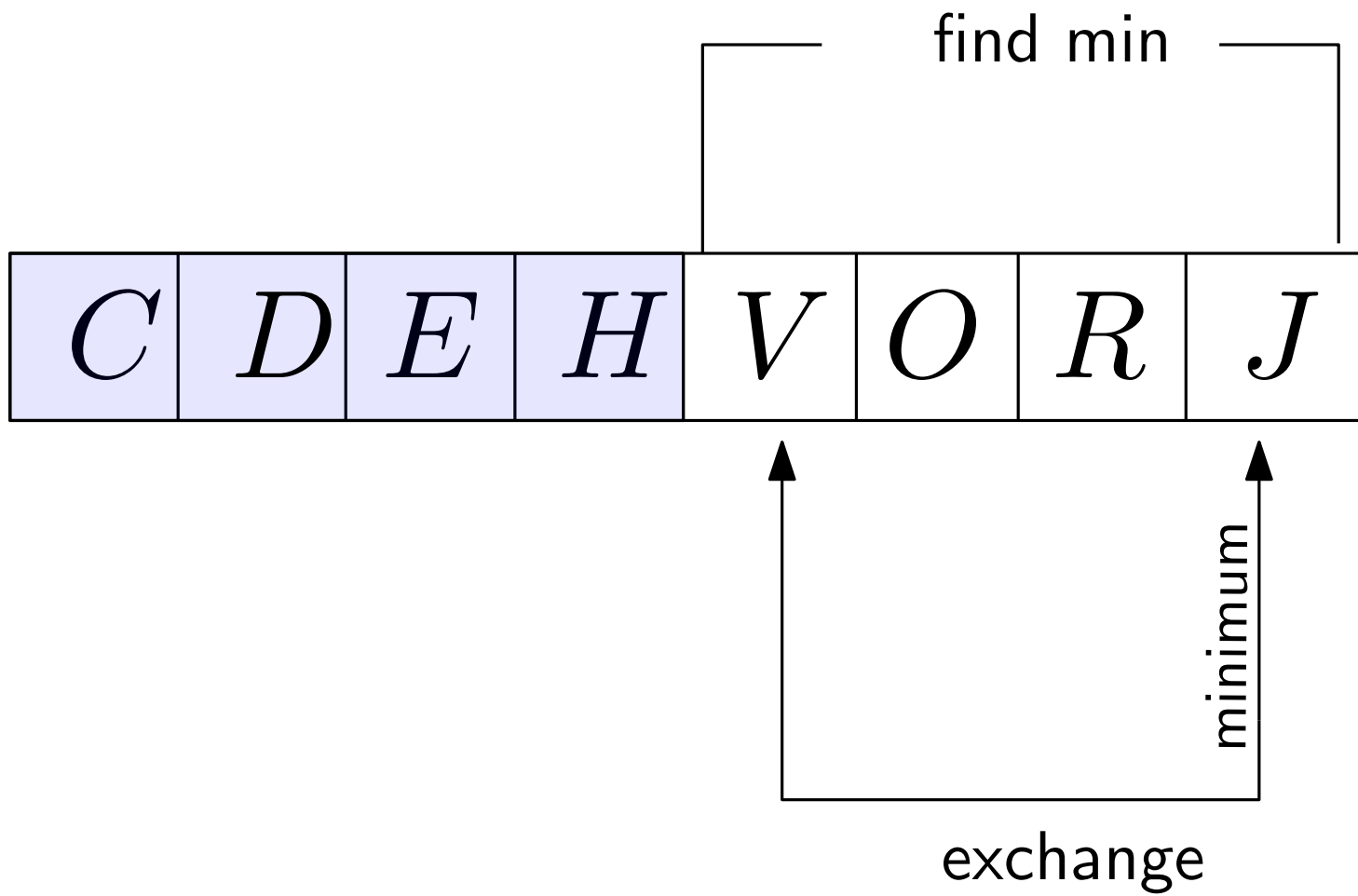


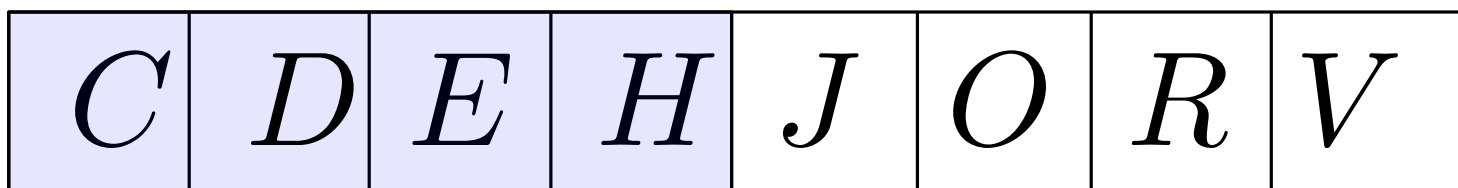












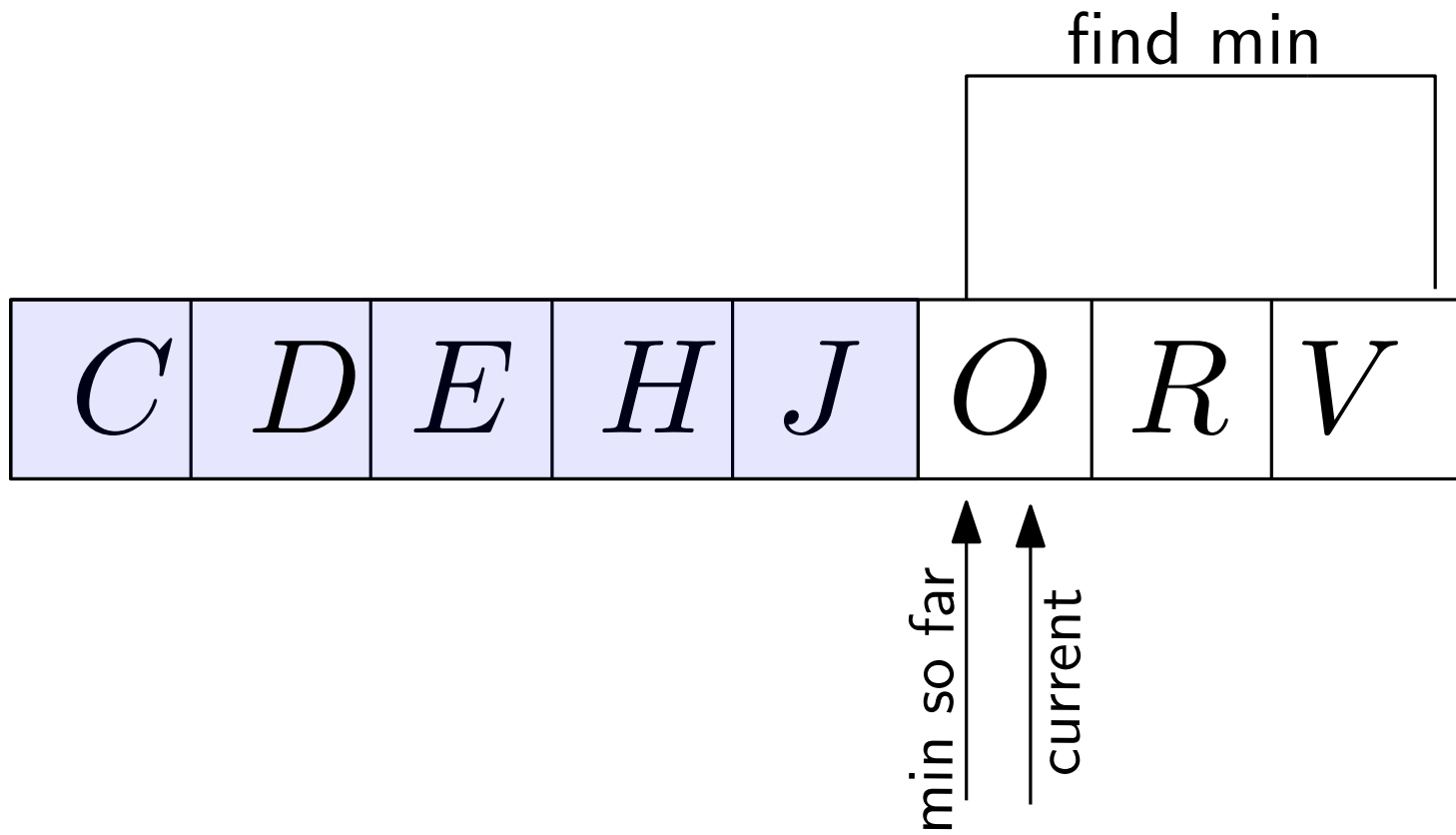
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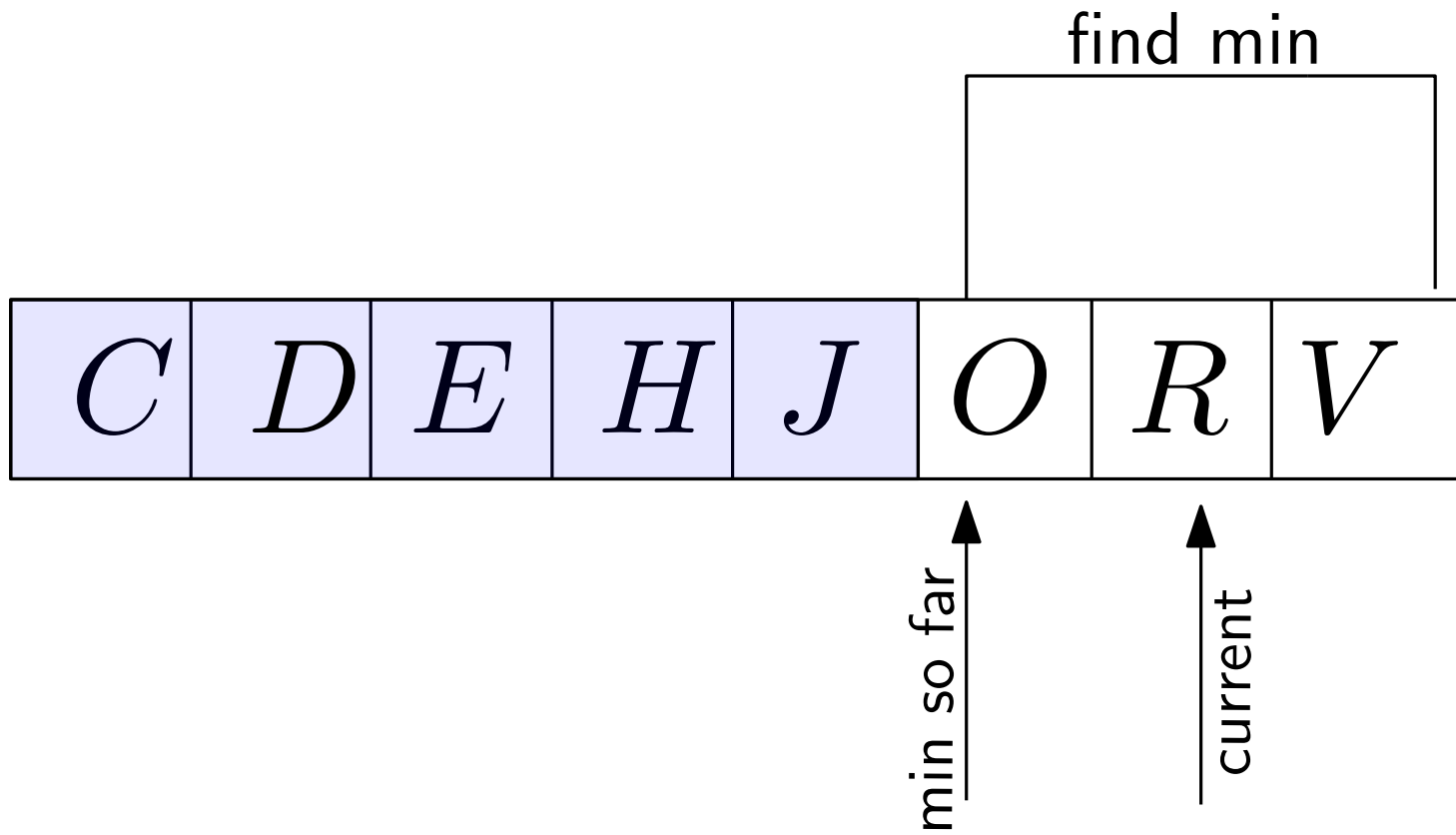
minimum

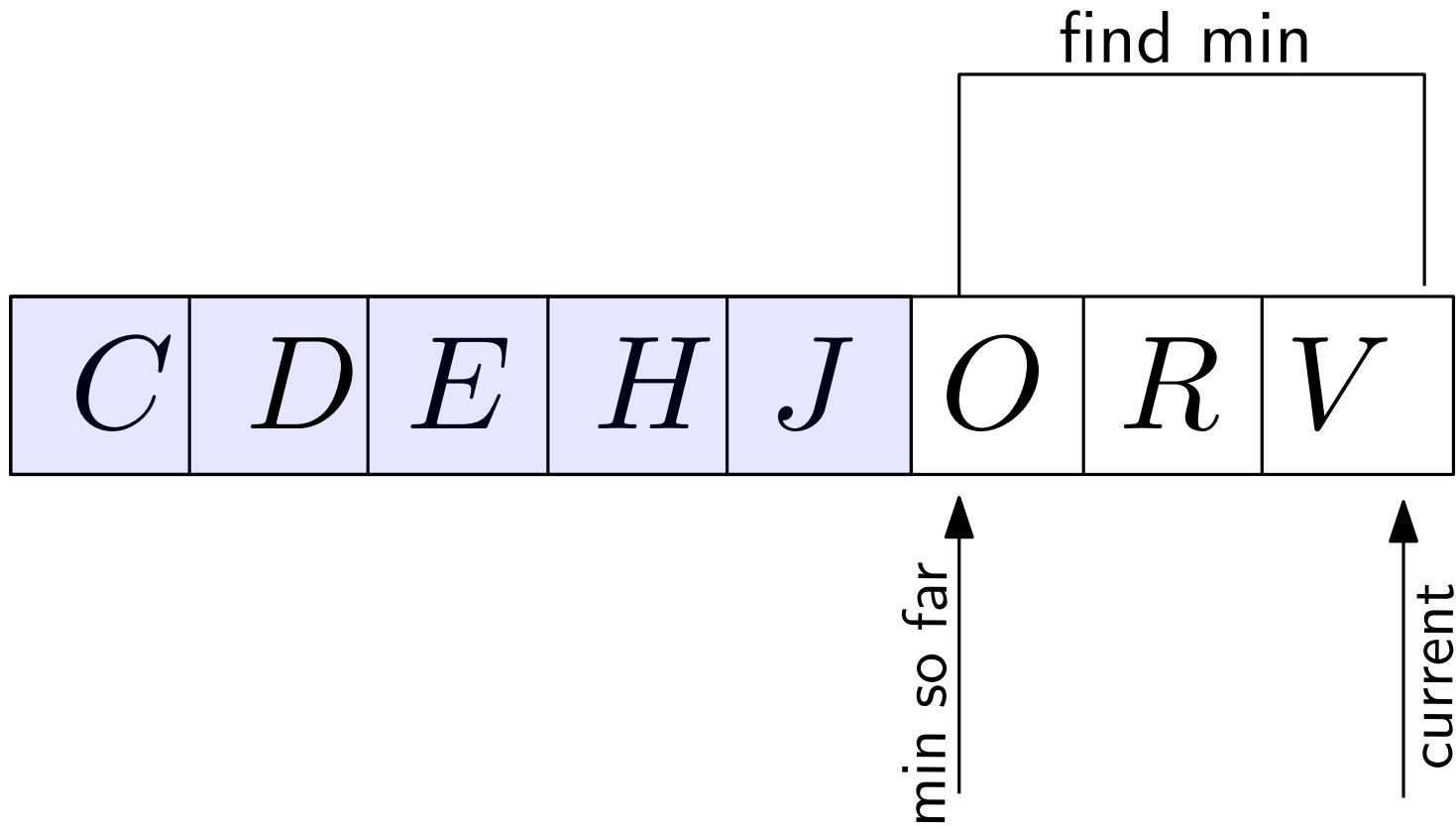
<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>V</i>
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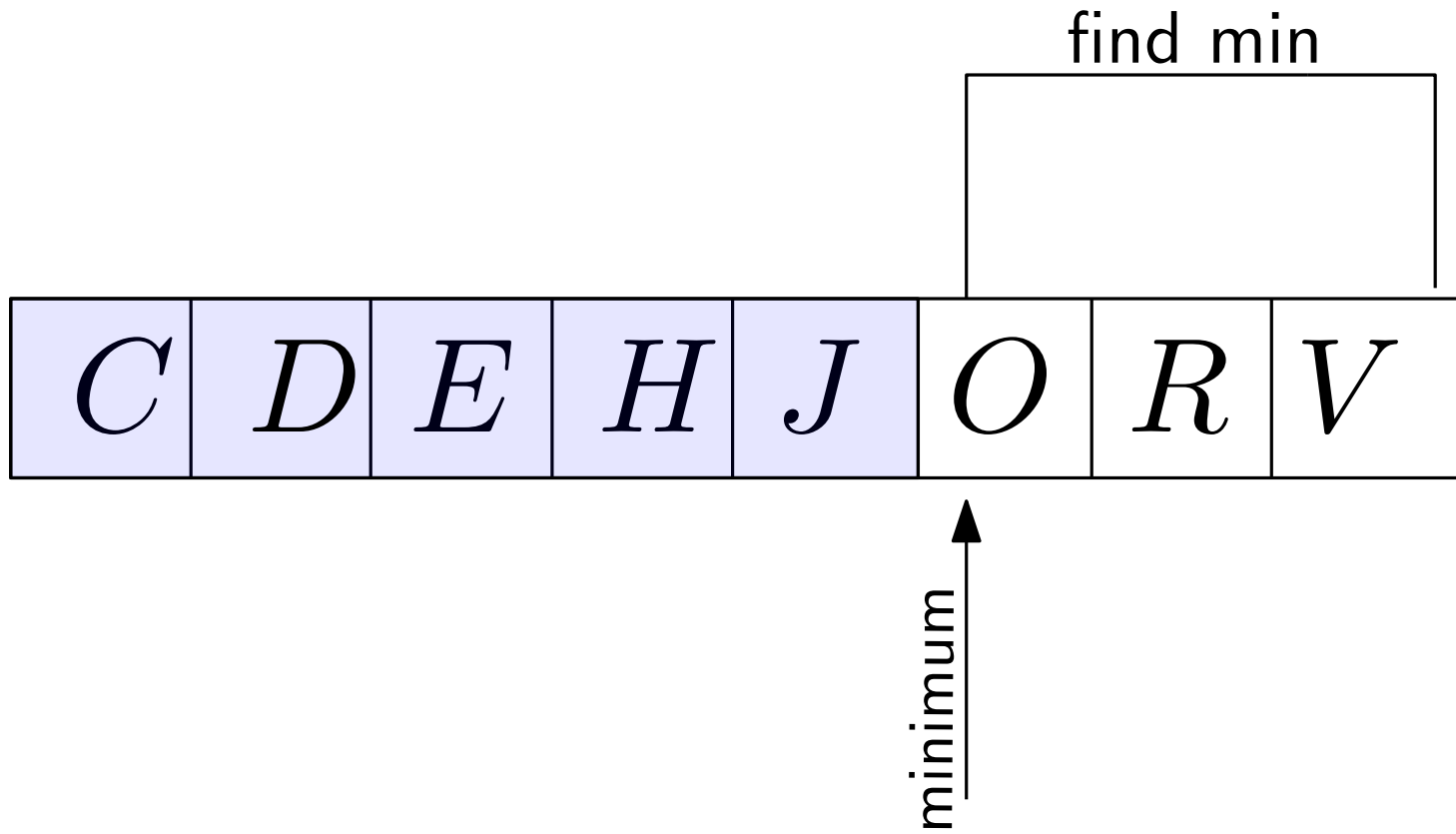
find min

<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>V</i>
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<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>V</i>
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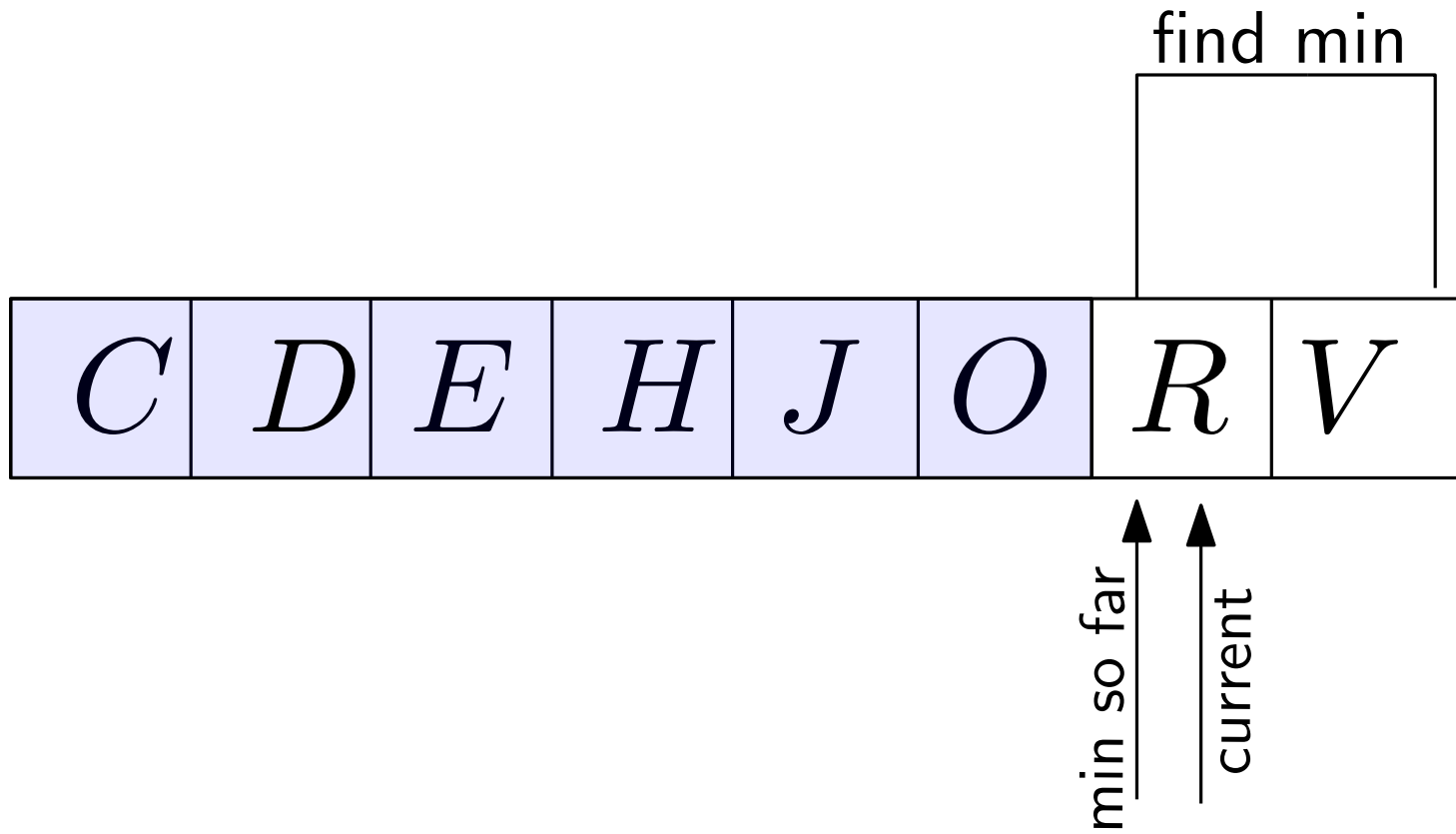
minimum

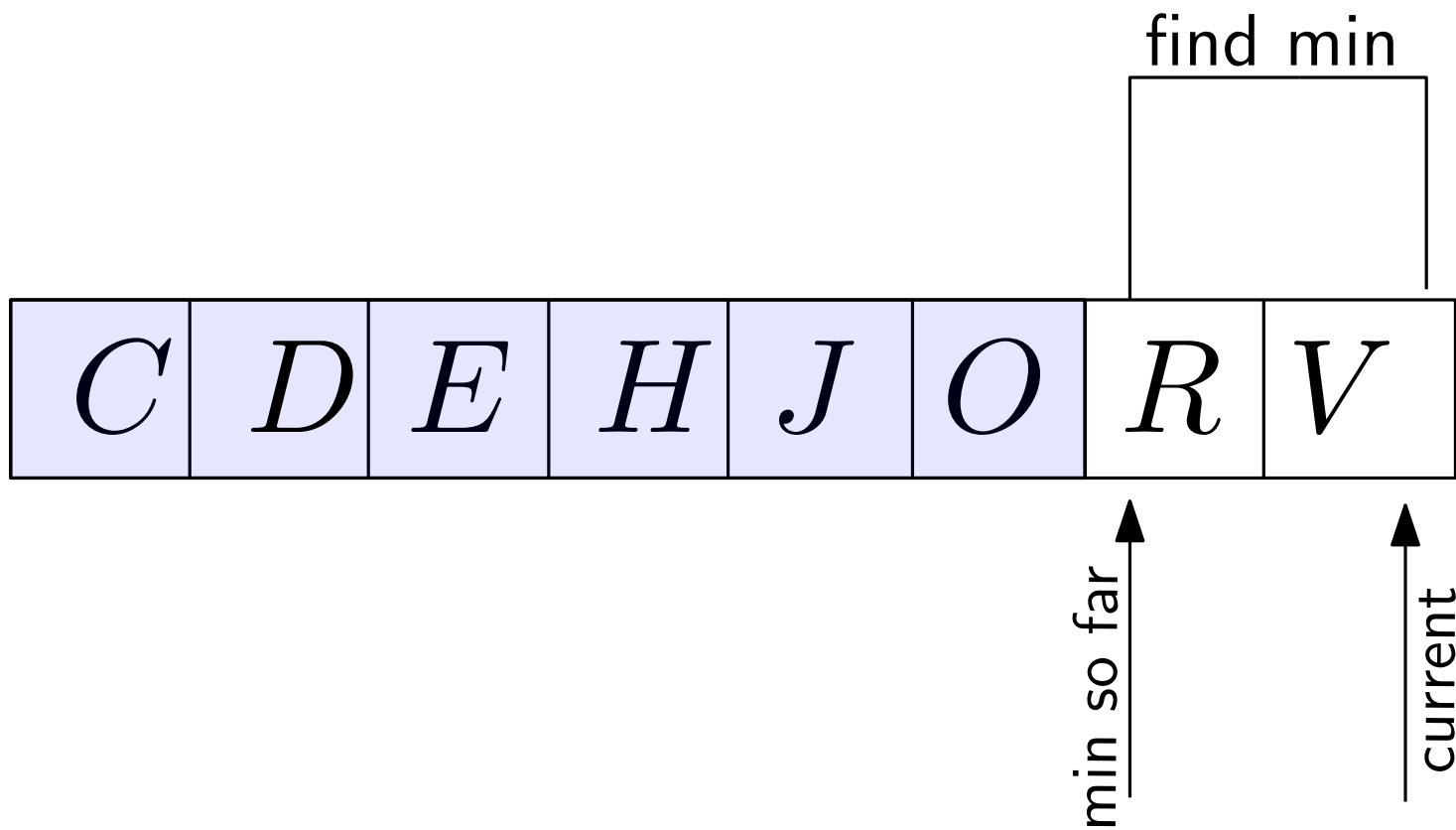


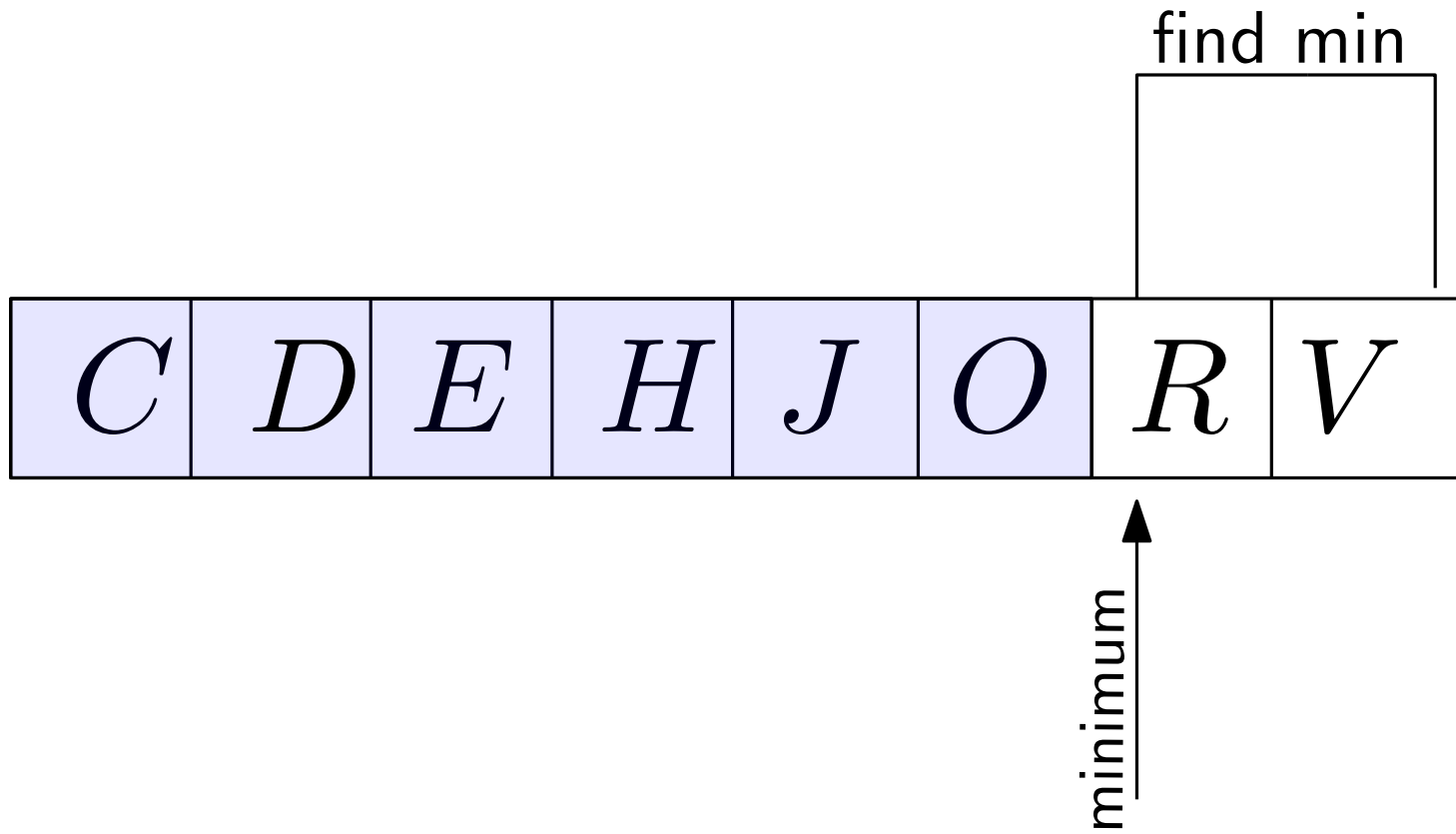
<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>V</i>
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find min

<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>V</i>
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<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>V</i>
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minimum

<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>V</i>
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<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>V</i>
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<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>V</i>
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<i>C</i>	<i>D</i>	<i>E</i>	<i>H</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>V</i>
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