Insertion Sort

Idea, Pseudocode, Code, and Example

Insertion Sort: Idea

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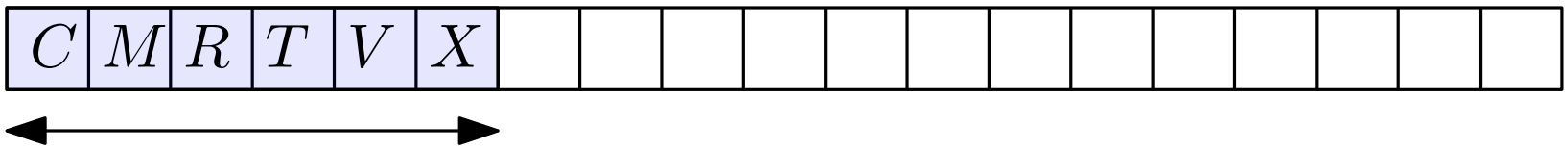

Suppose this part of the array is already sorted; for example because we have already been running InsertionSort for a while.

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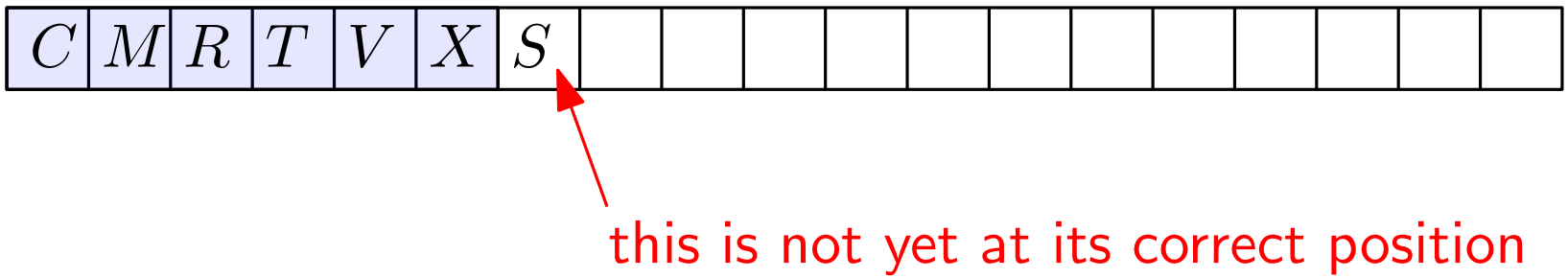

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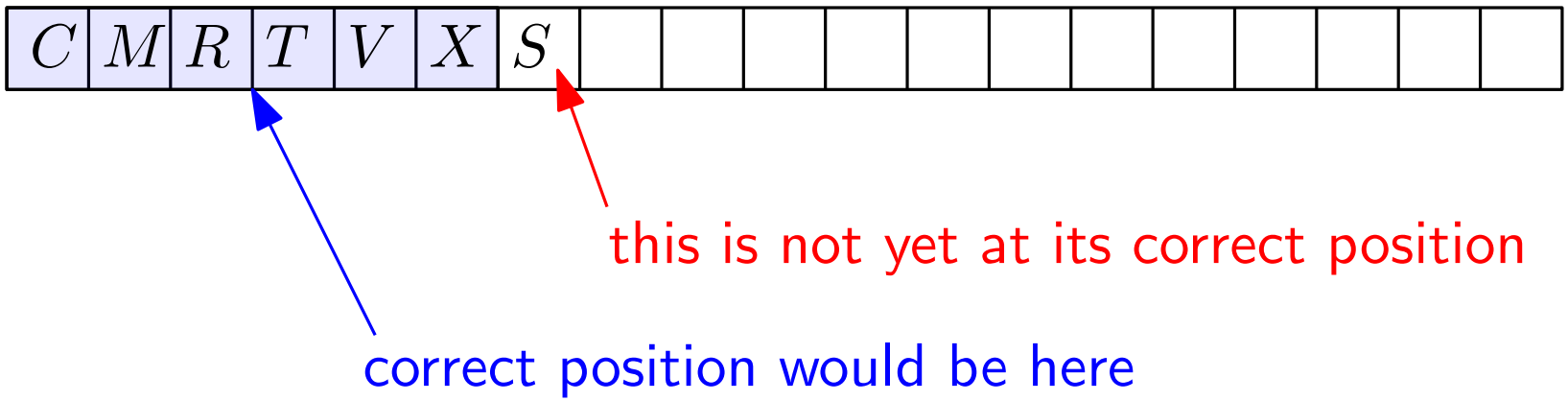

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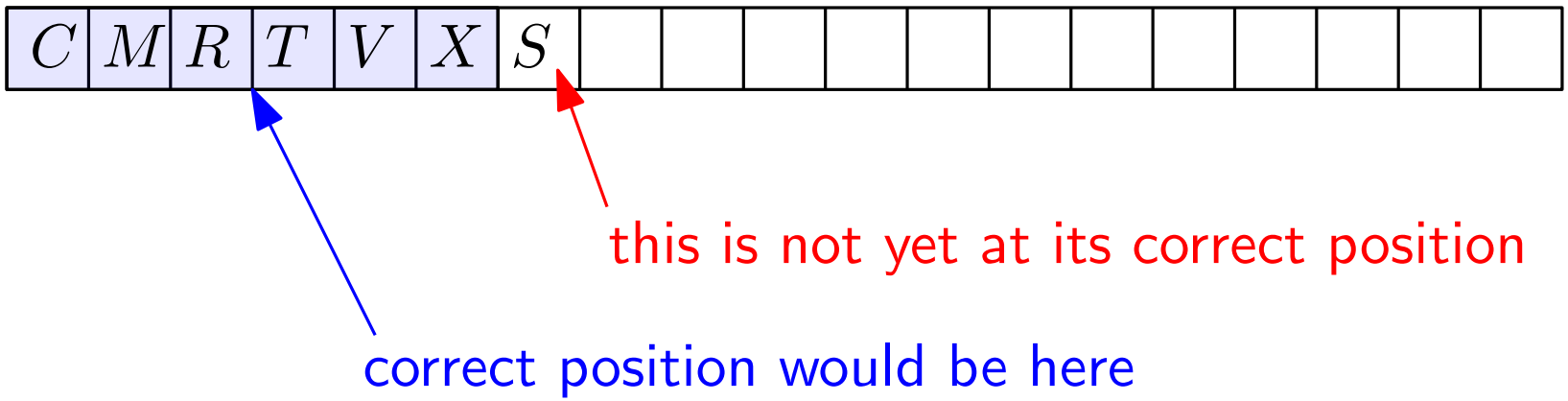

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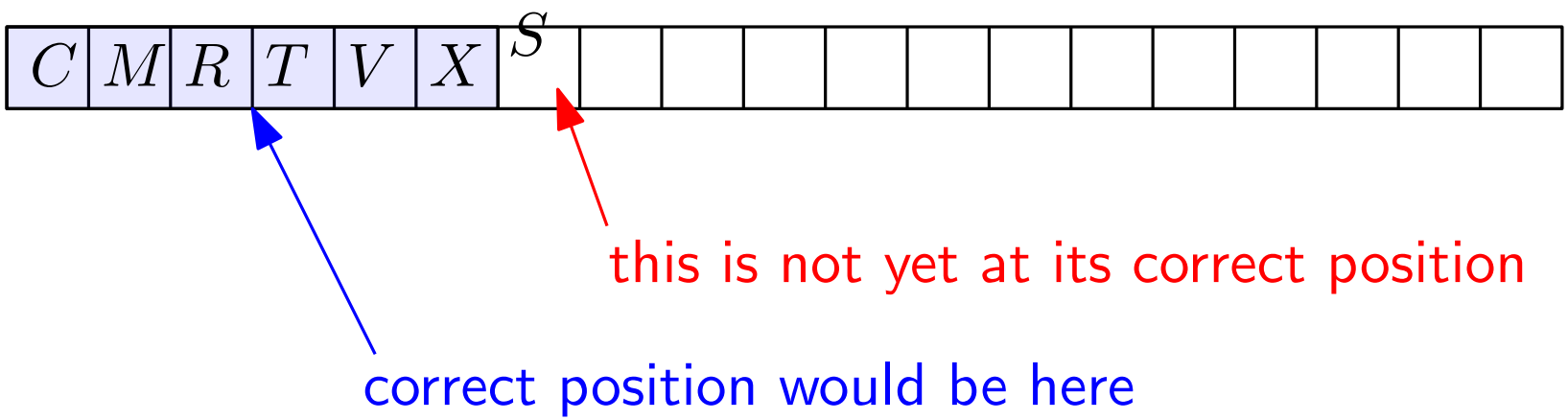

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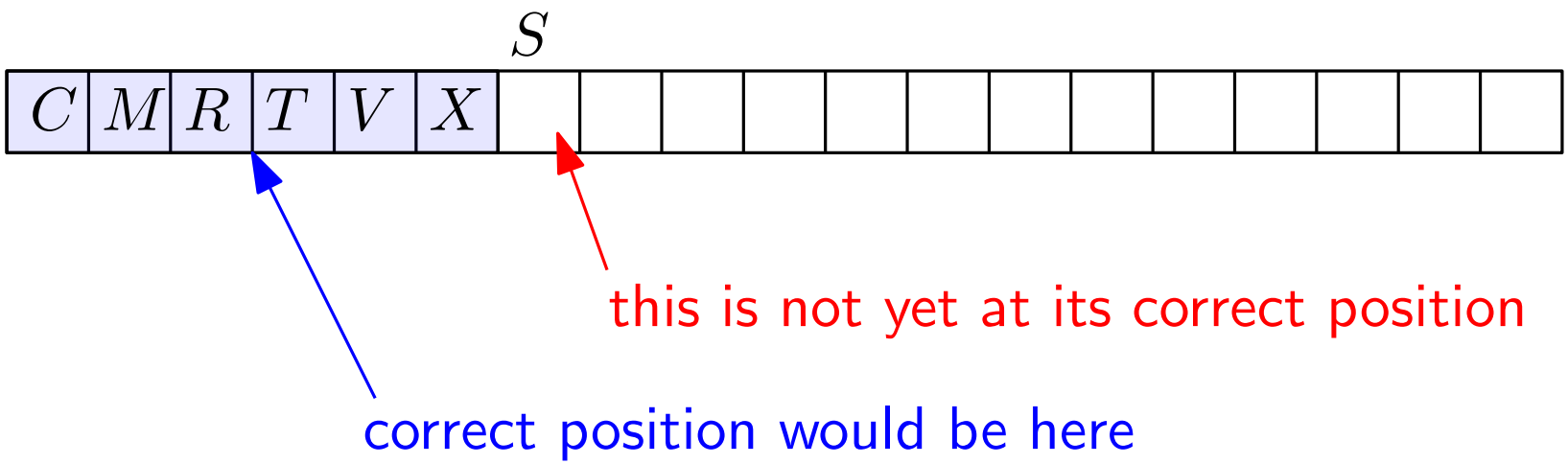

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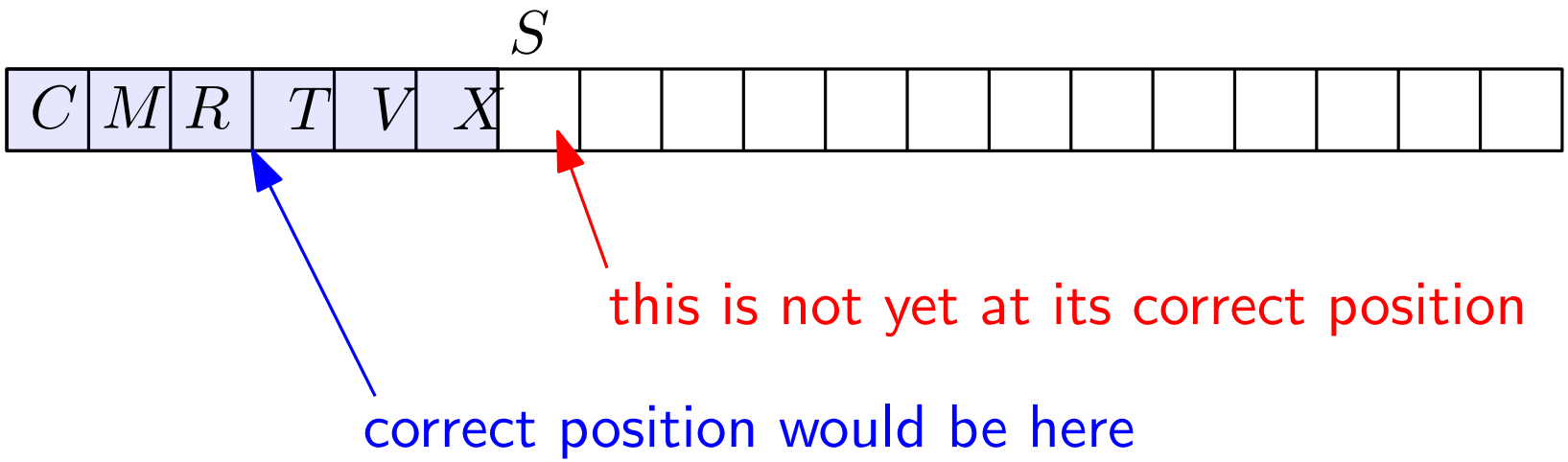

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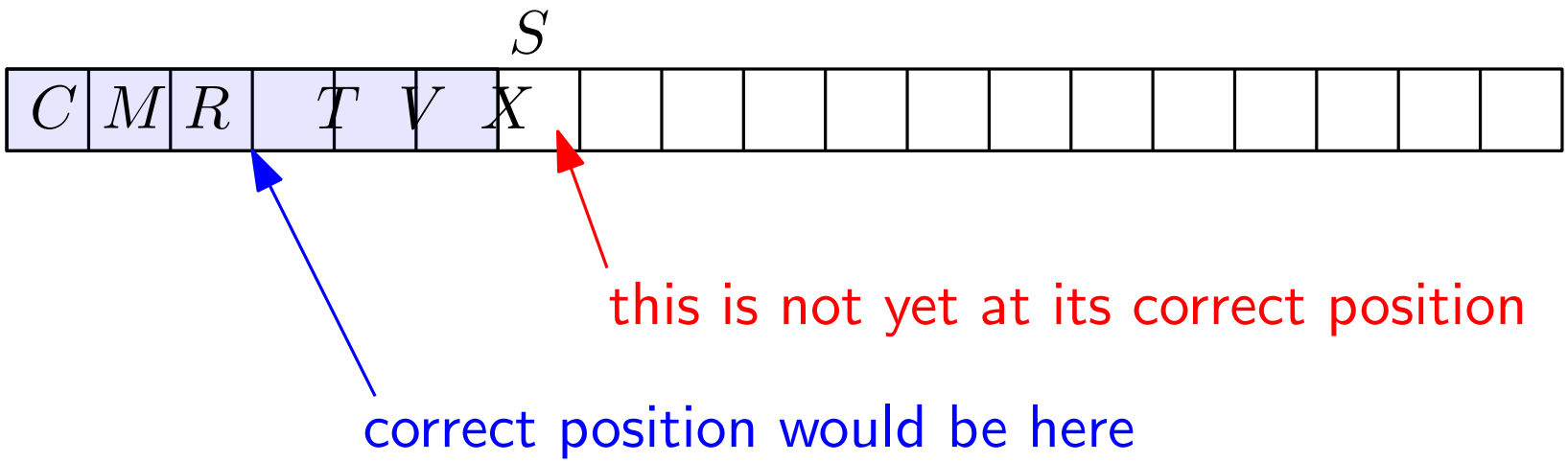

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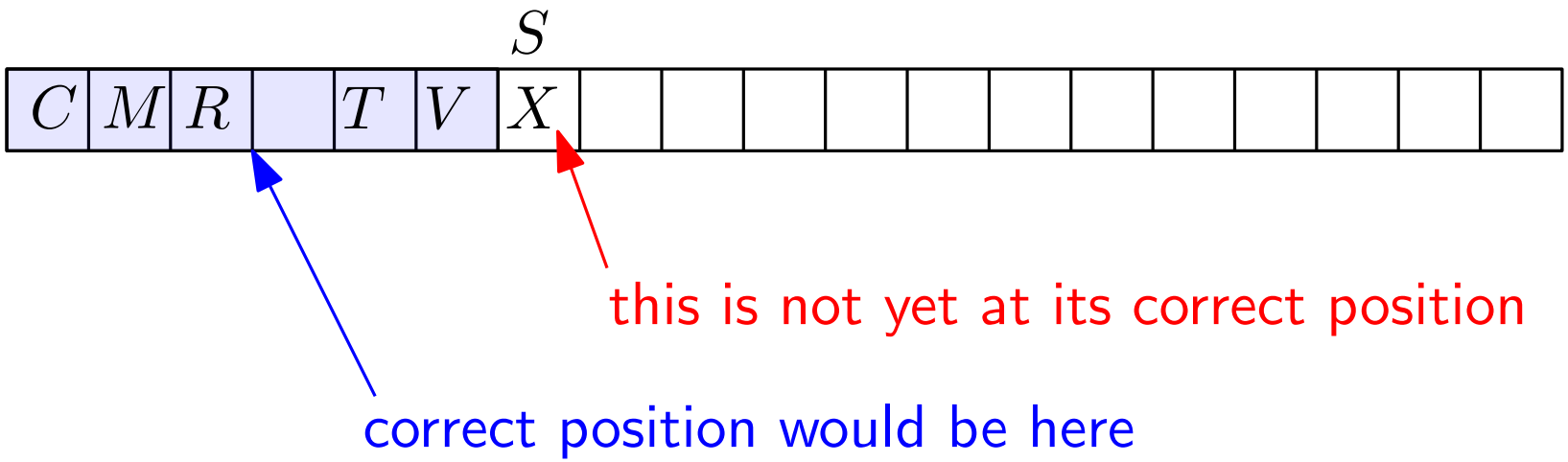

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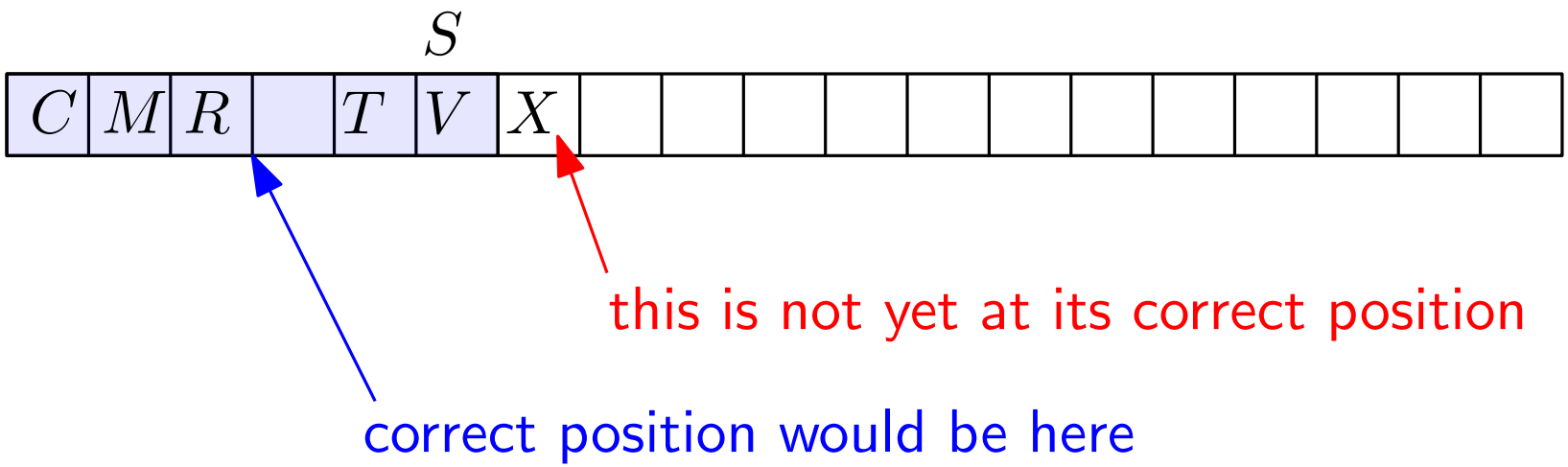

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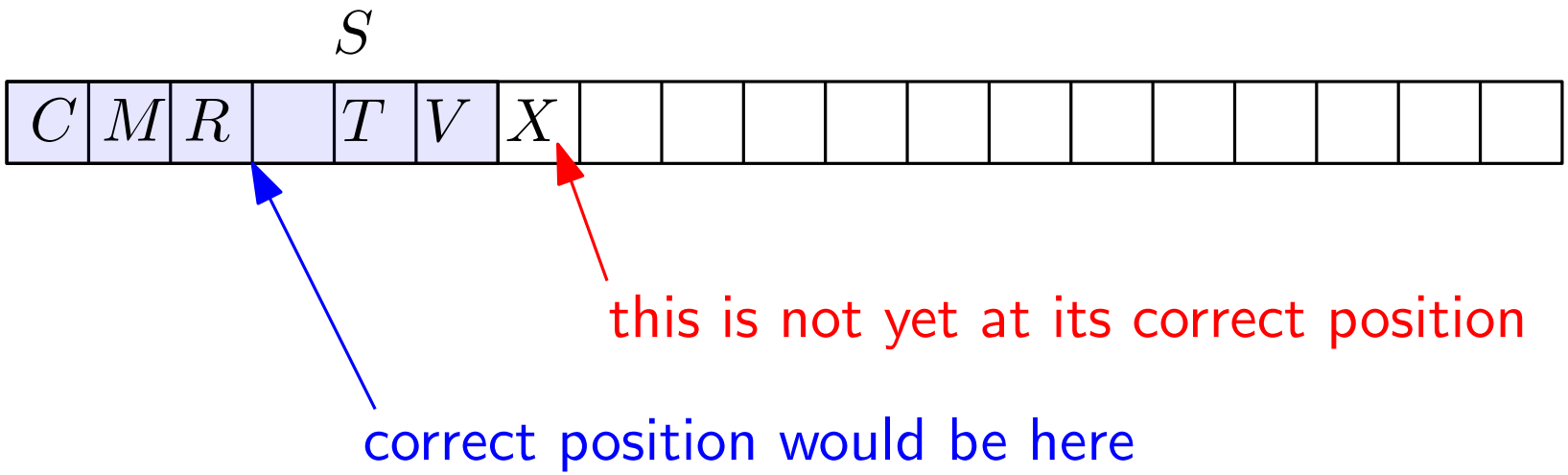

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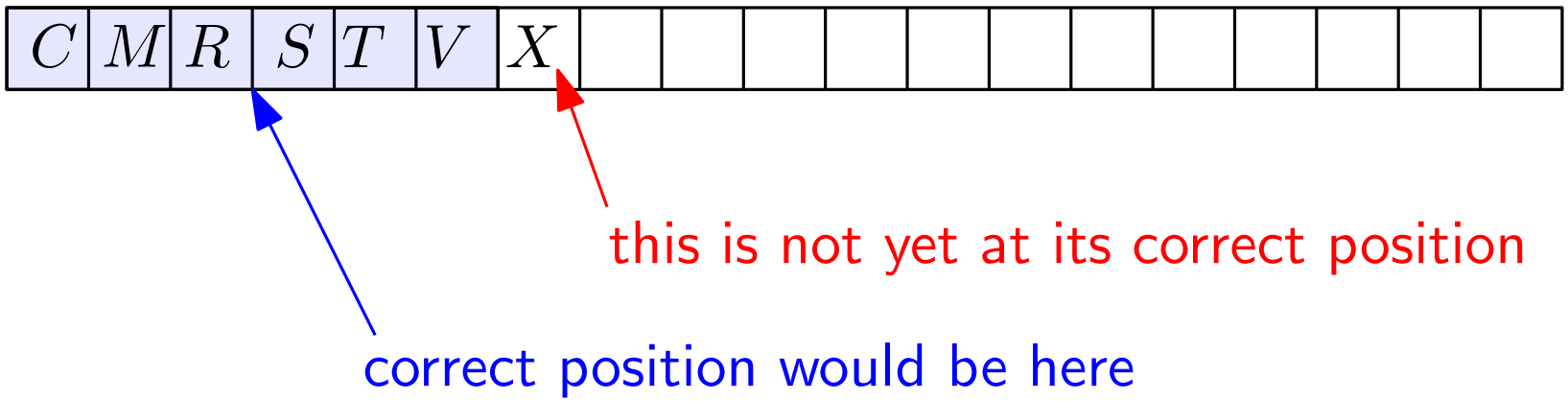

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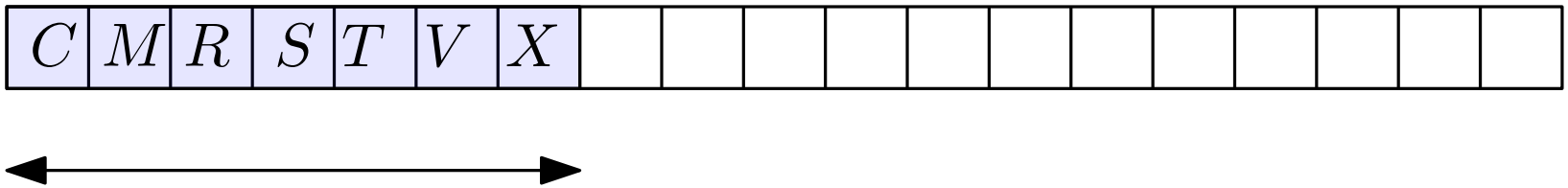

now this part is already sorted

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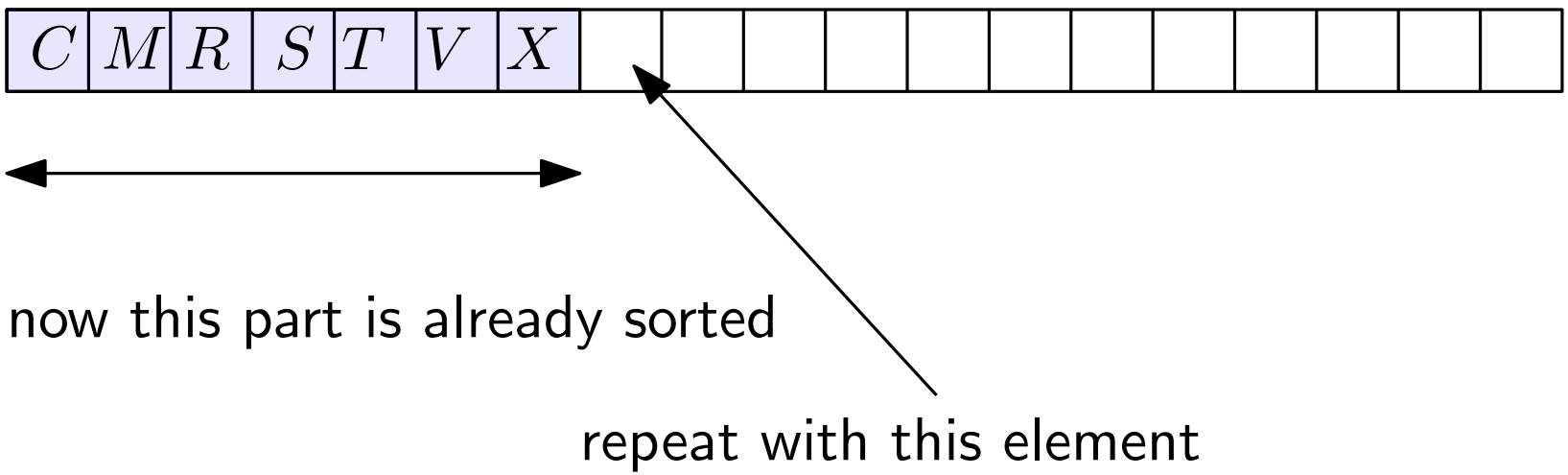
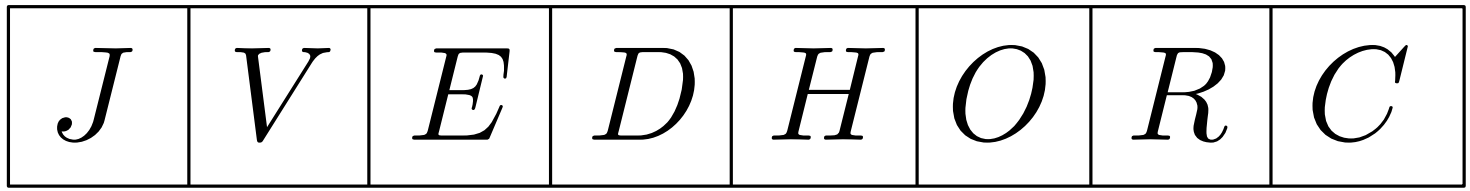


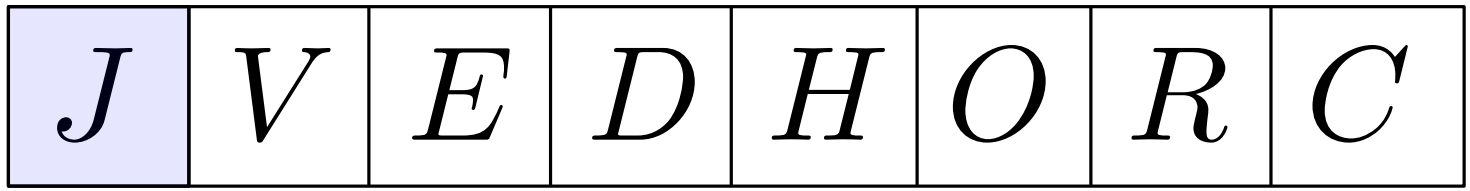
Insertion Sort: Pseudocode

1. `for` $i = 2, \ldots, n$:
2. move $A[i]$ to its correct place in $A[1..i-1]$:
3. $j = i$
4. `while` $j > 1$ and $A[j] < A[j-1]$:
5. exchange $A[j-1]$ and $A[j]$
6. $j := j - 1$

Selection Sort: java code

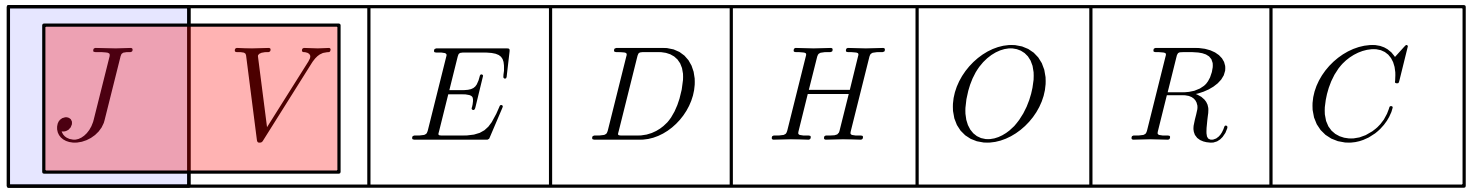
```
for (int i=1; i<n; i++) {
   int j = i;
   while (j > 0 && array[j].compareTo(array[j-1]) < 0) {
      String temp = array[j];
      array[j] = array[j-1];
      array[j-1] = temp;
      j = j-1;
   }
}
```


J V E D H O R C



This part is already sorted in itself

Is this pair correctly sorted?



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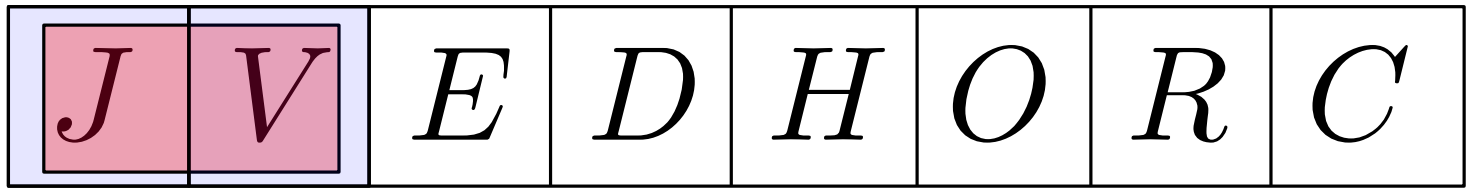
Is this pair correctly sorted?

Yes. So extend the blue box.



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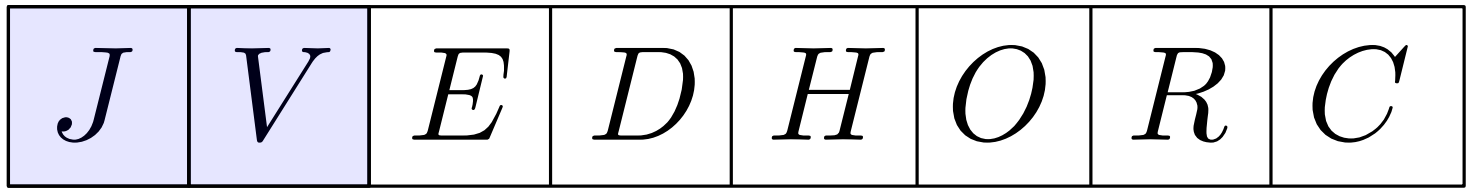

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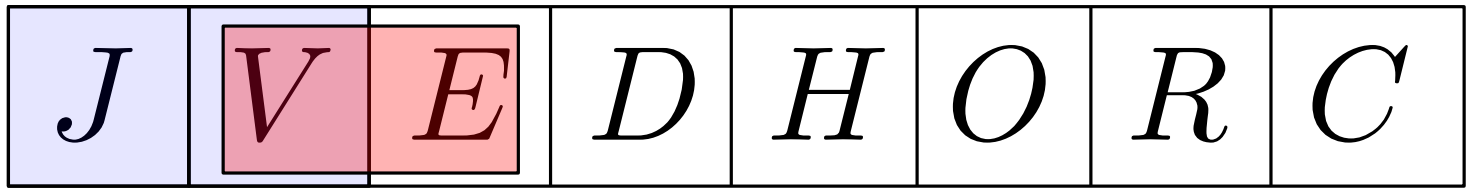

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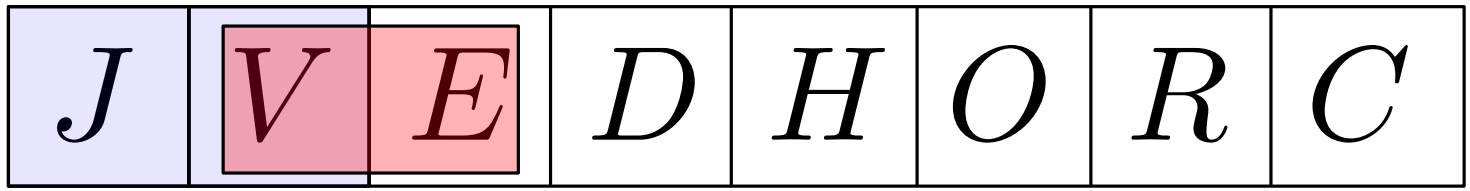
swap them



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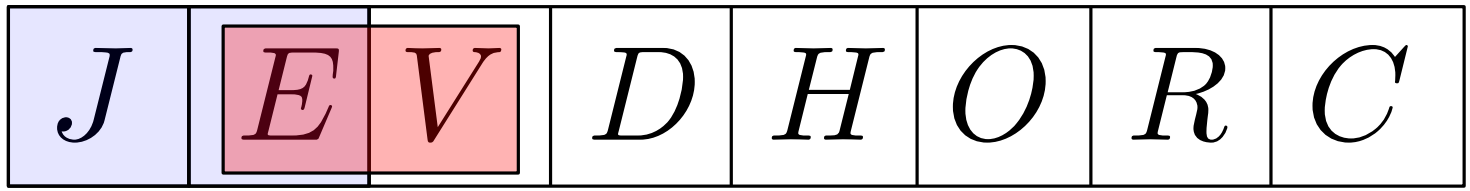

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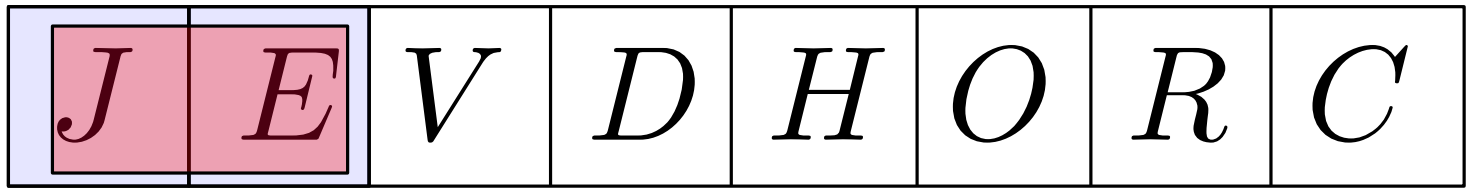

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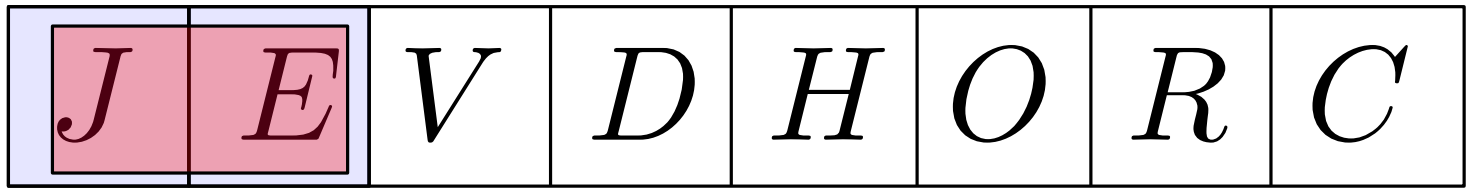

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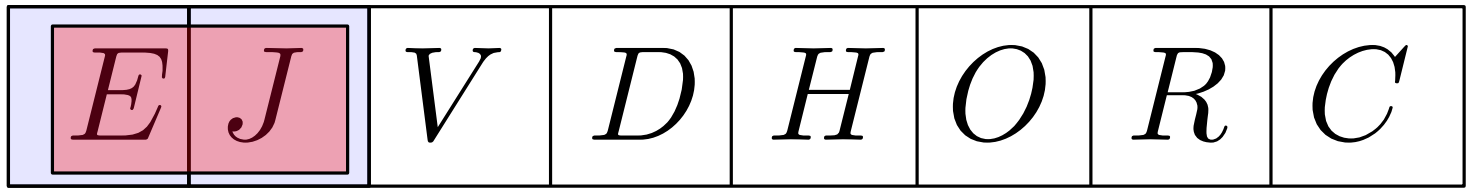

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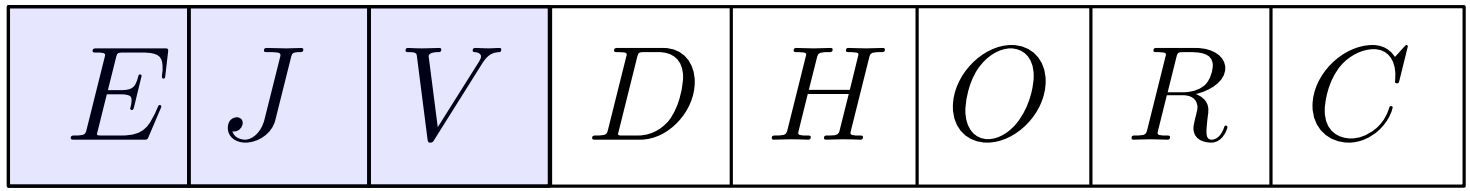

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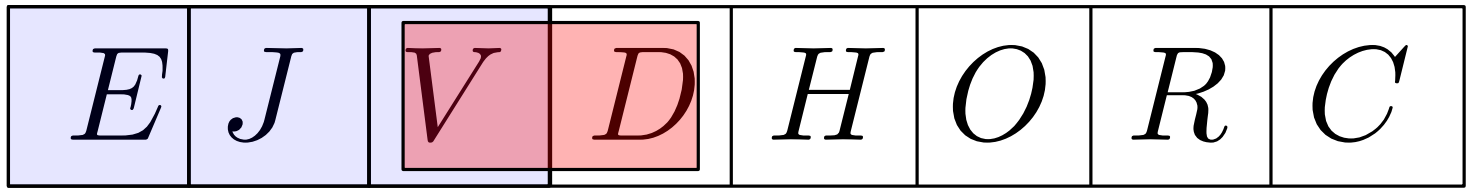

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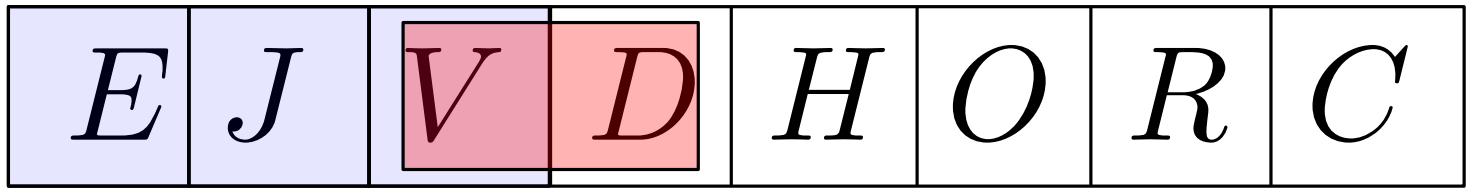

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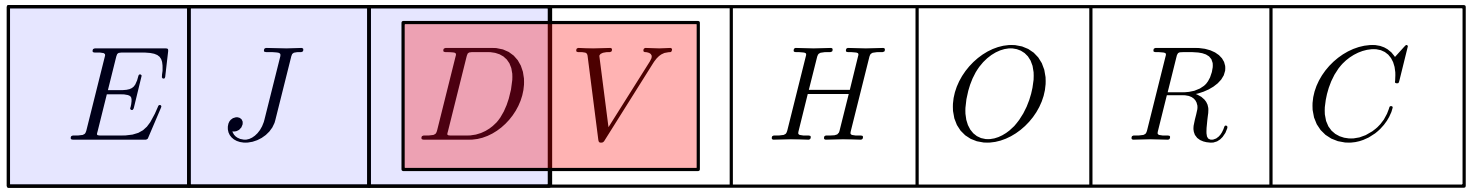

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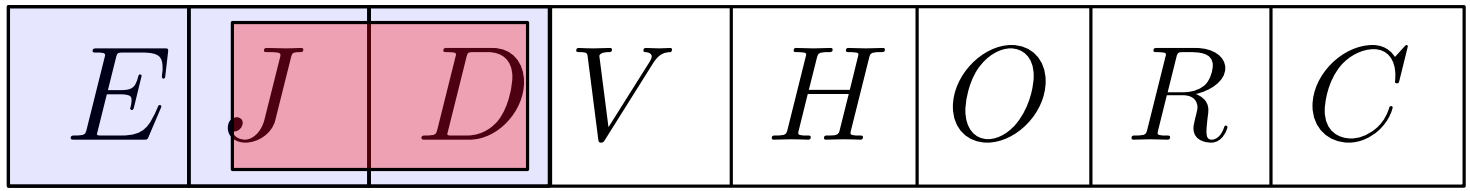

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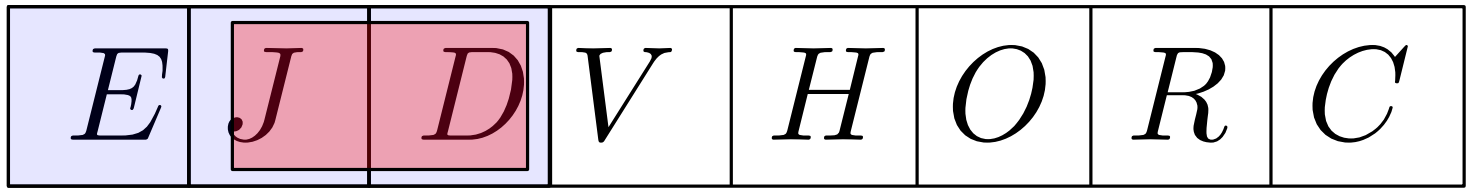

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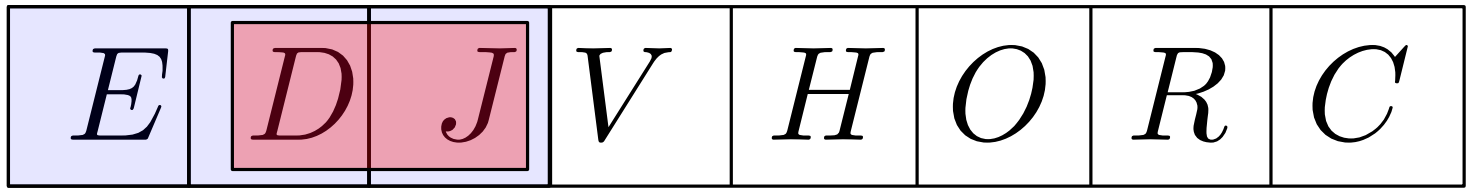

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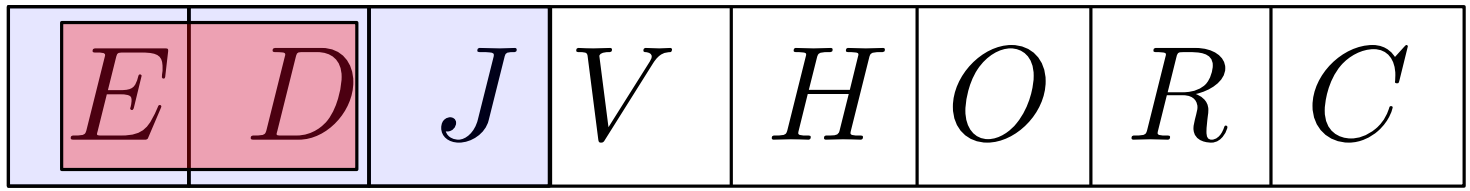

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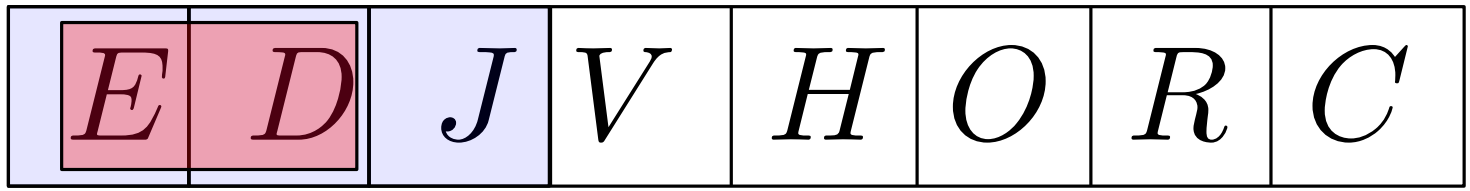

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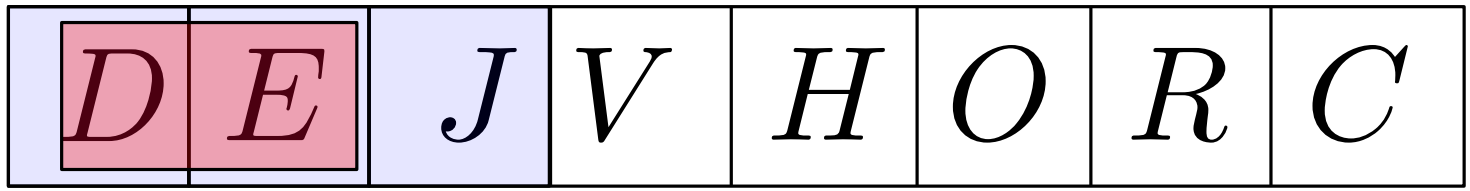

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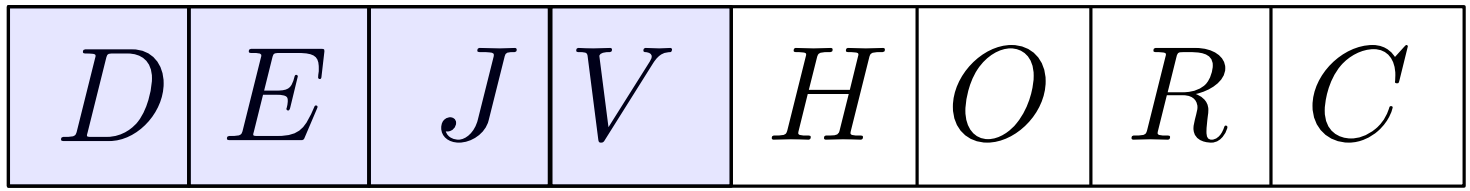

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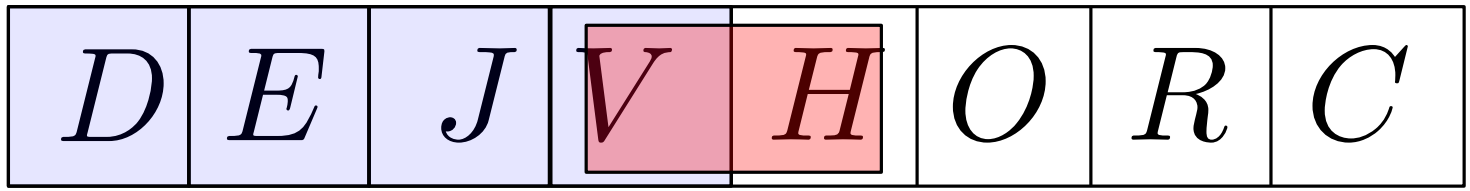

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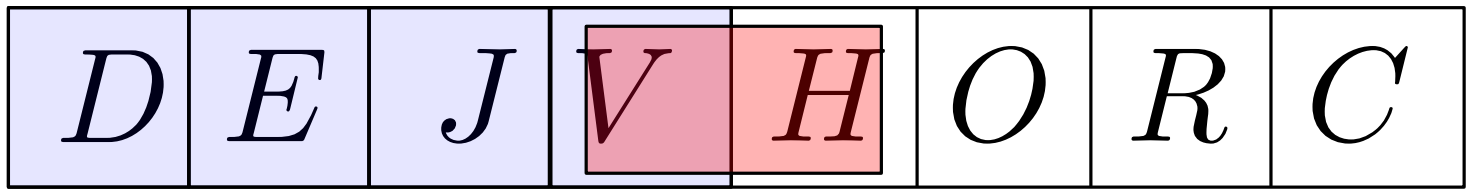

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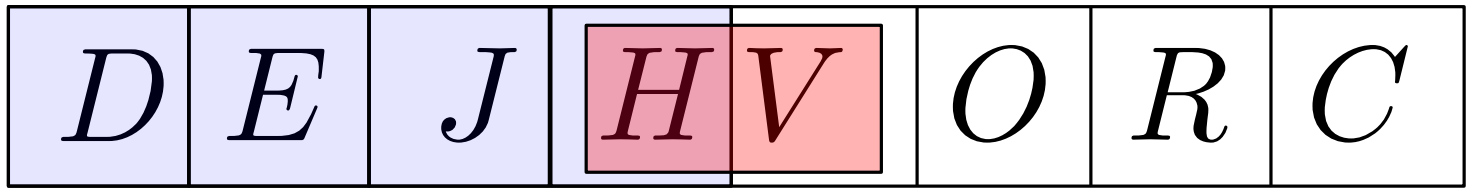

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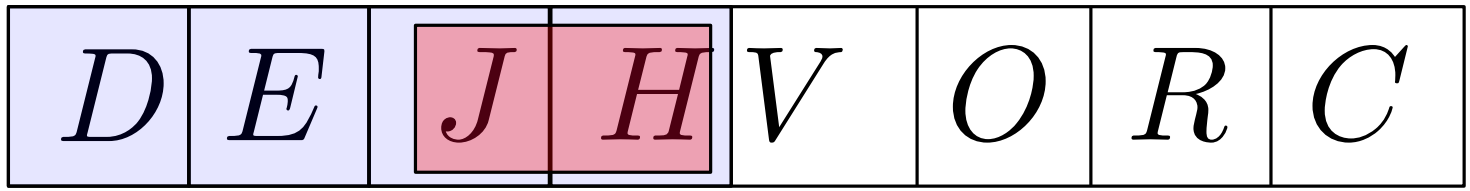

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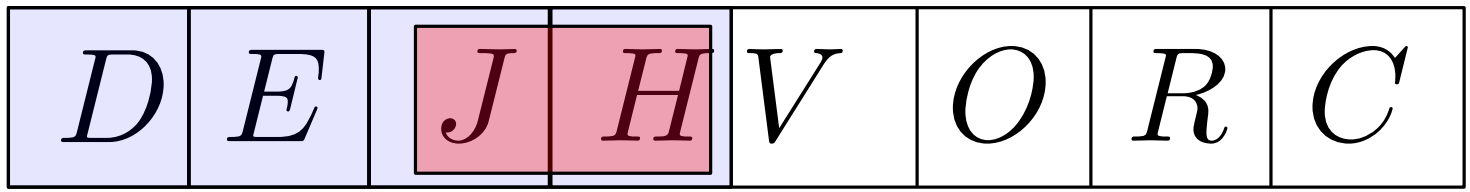

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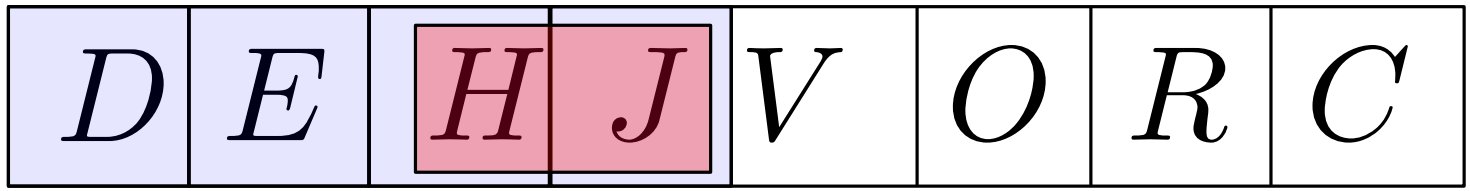

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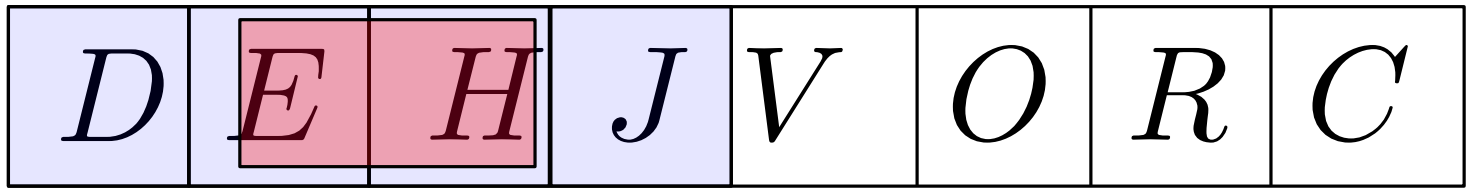

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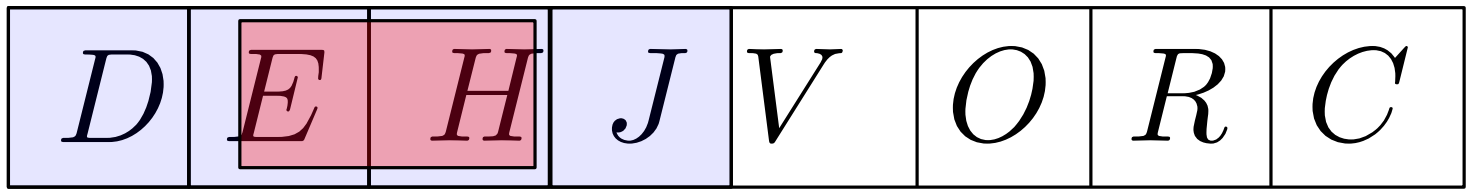
already okay



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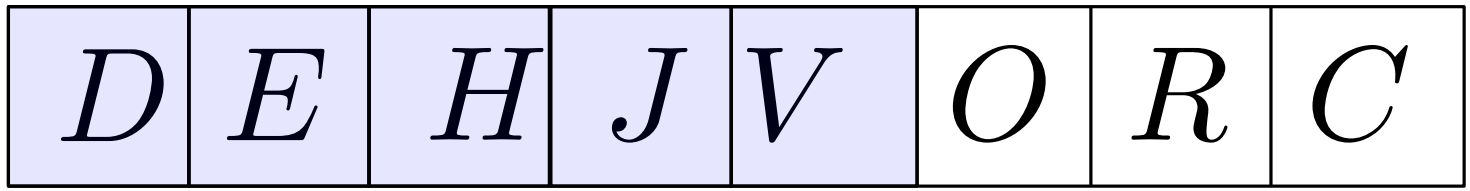

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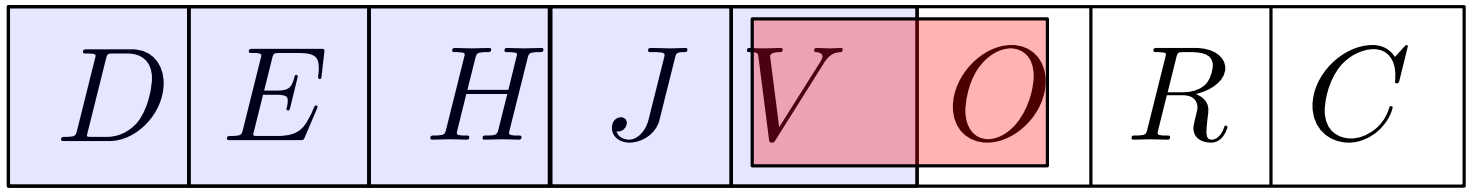

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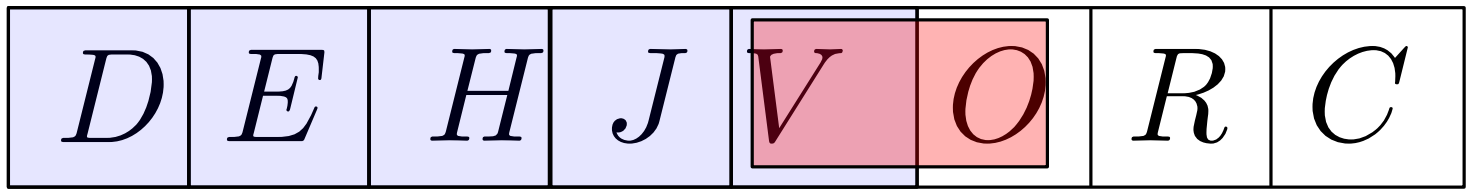
swap them



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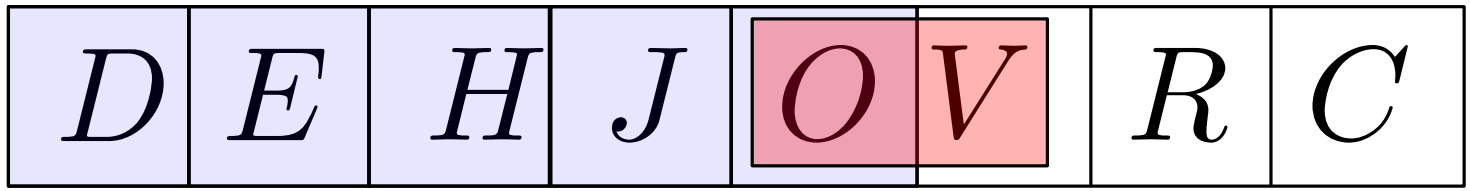

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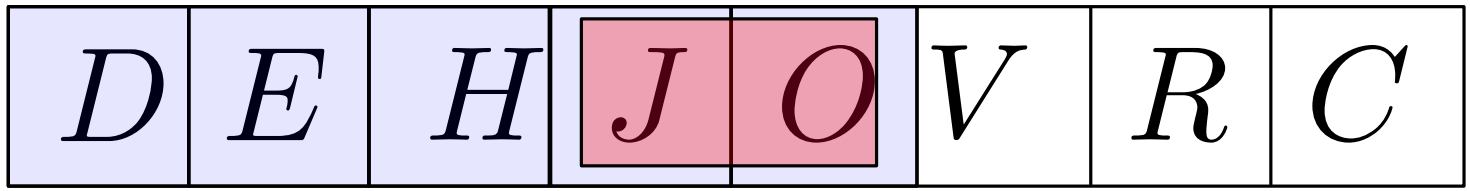

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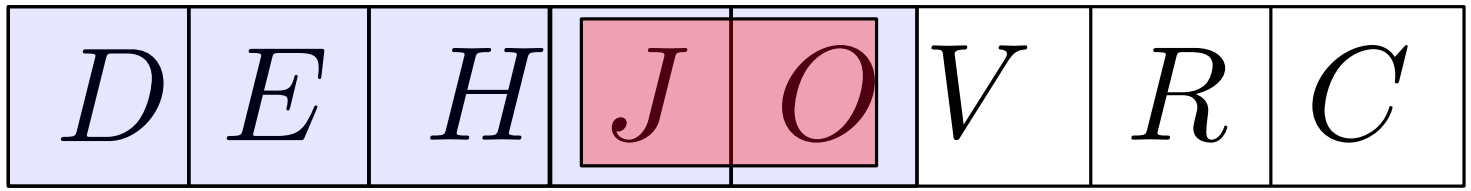

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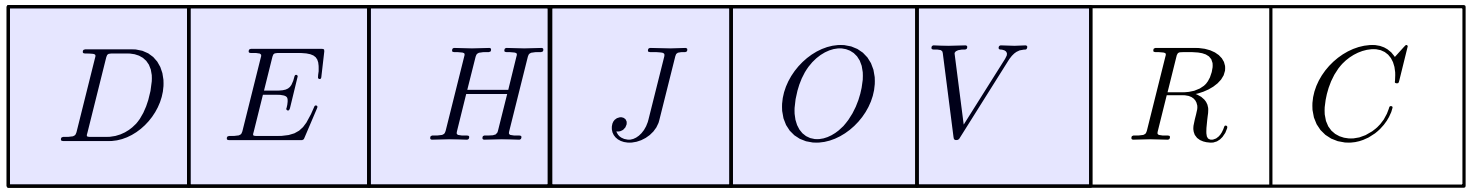

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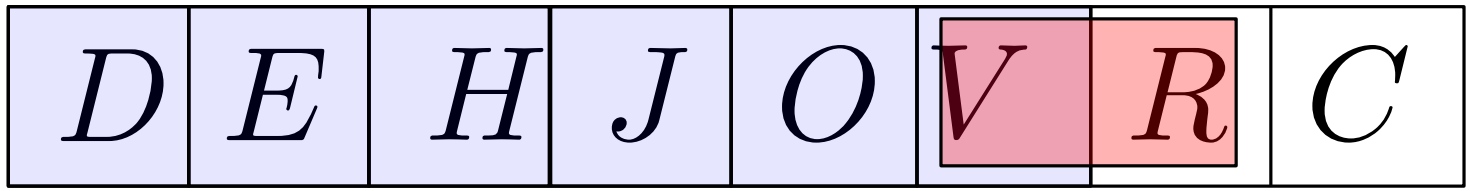
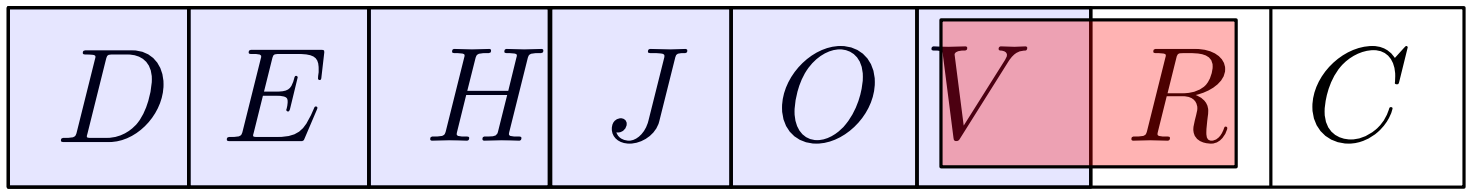


This part is already sorted in itself

swap them



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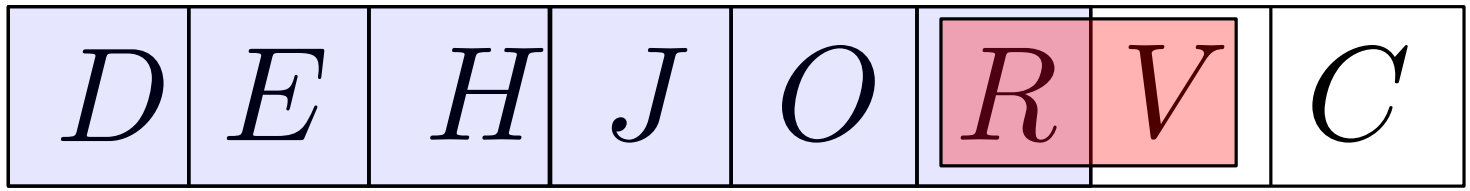

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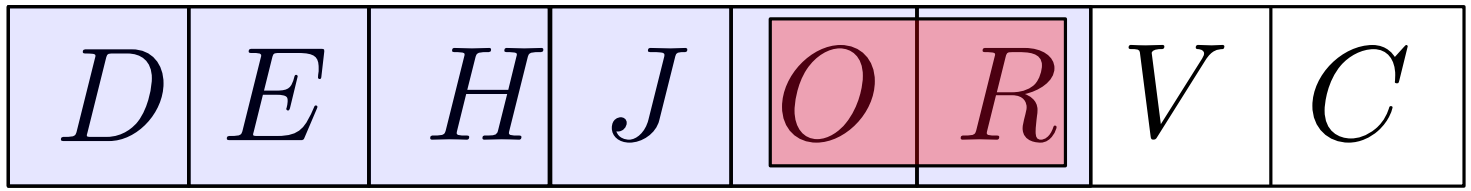

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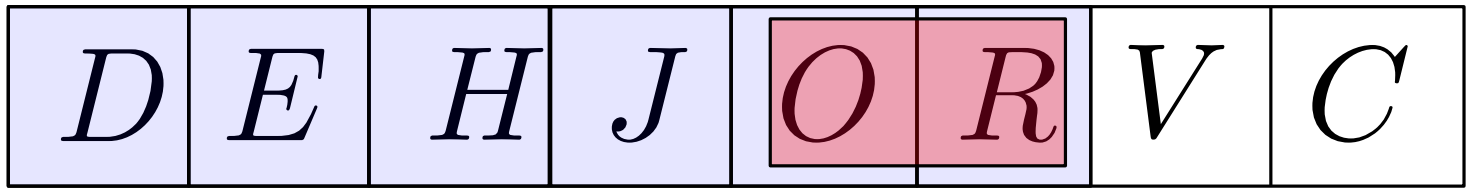

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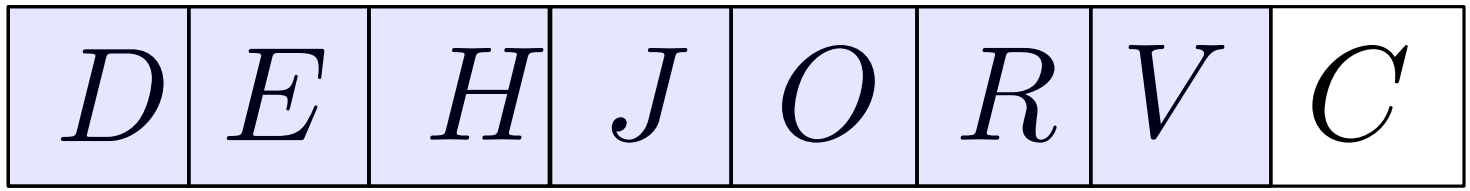

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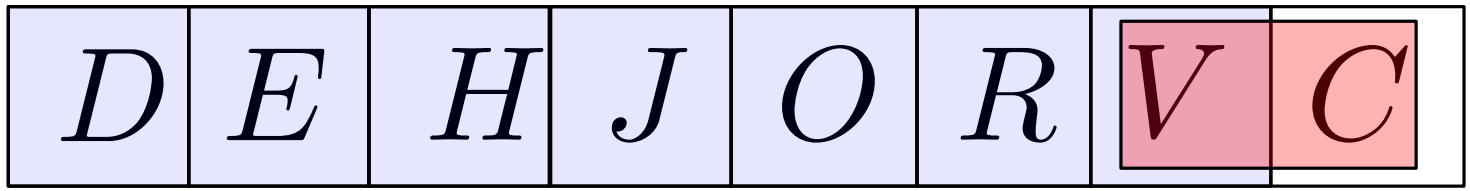

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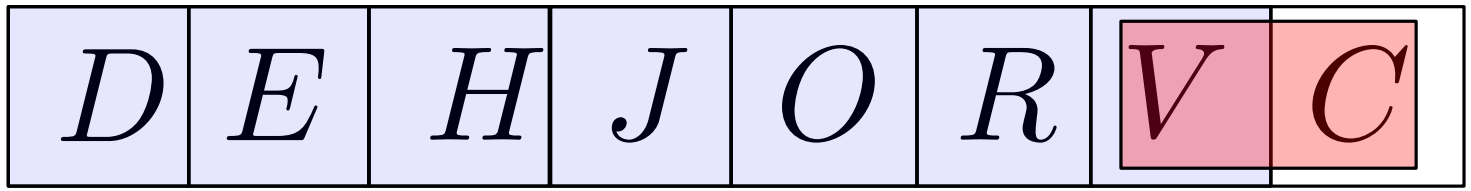

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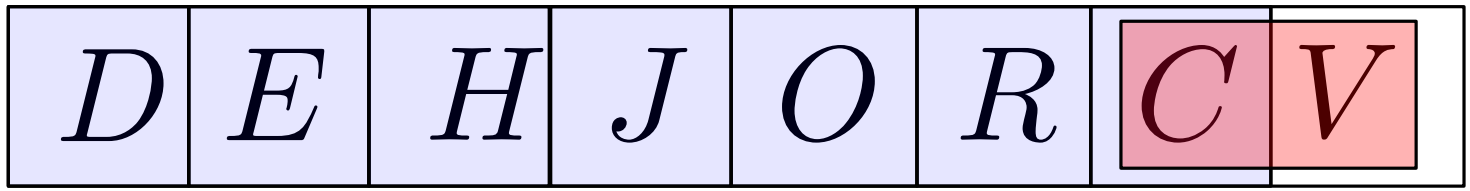

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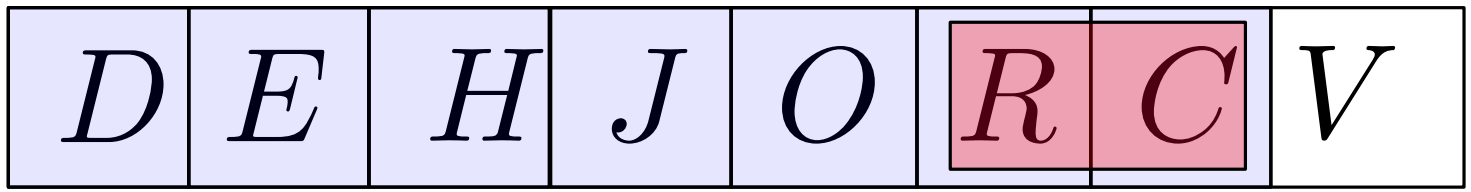

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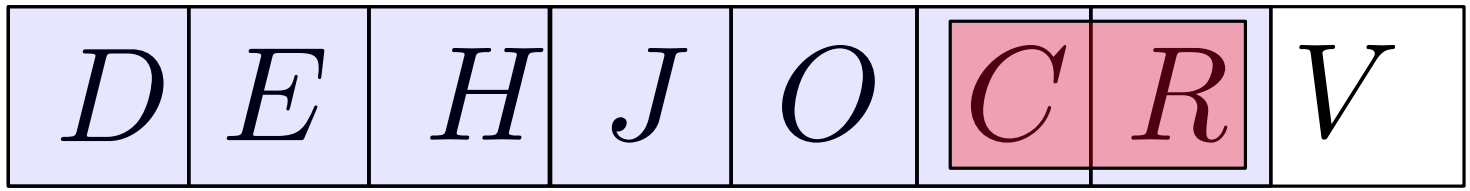

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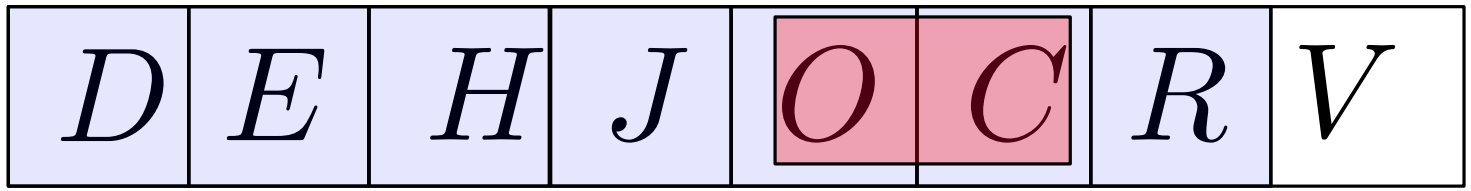

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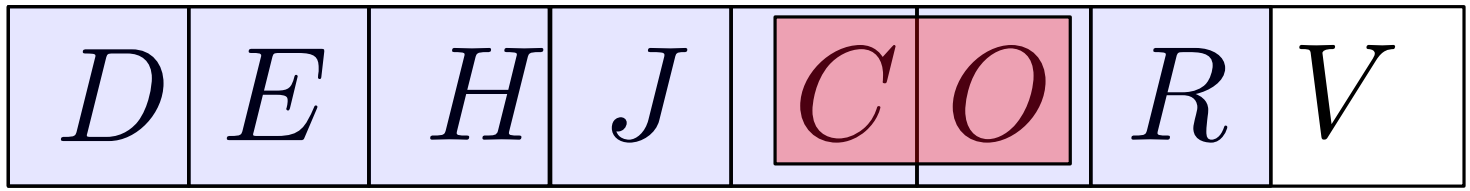

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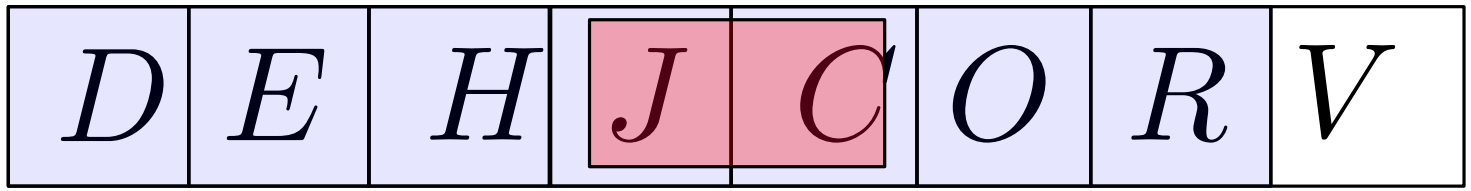

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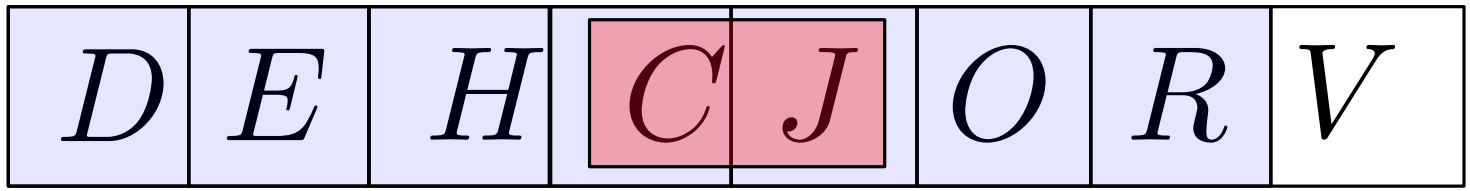

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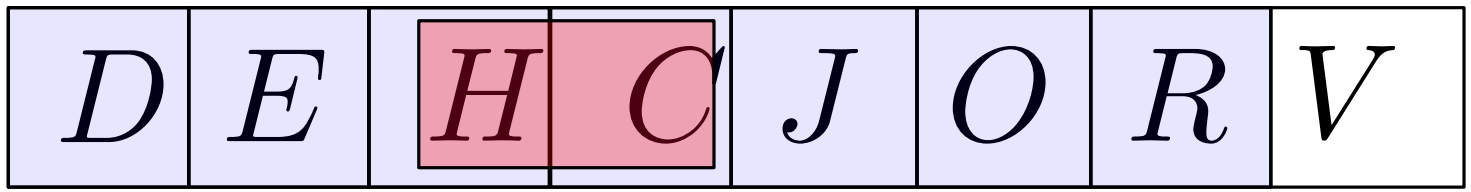

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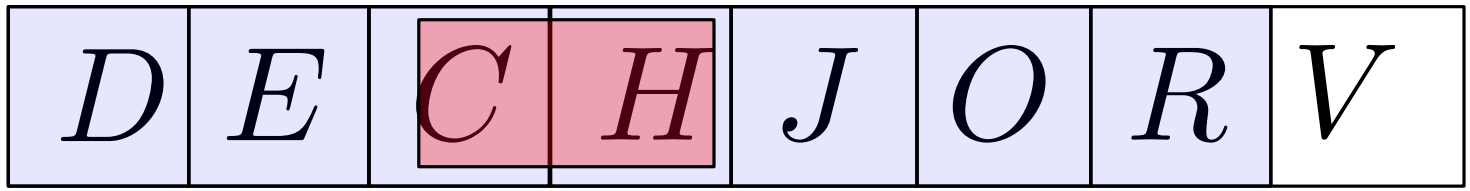

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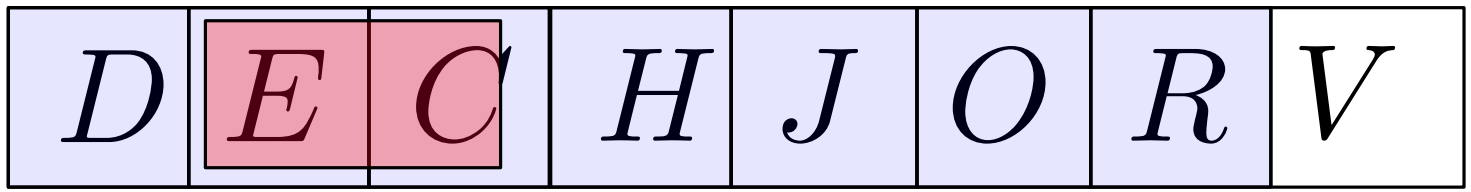

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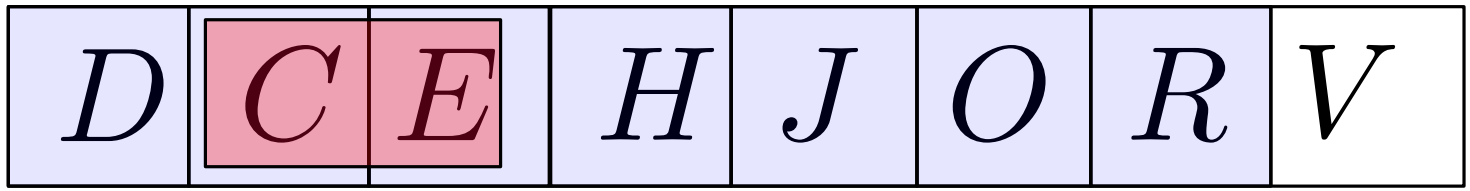

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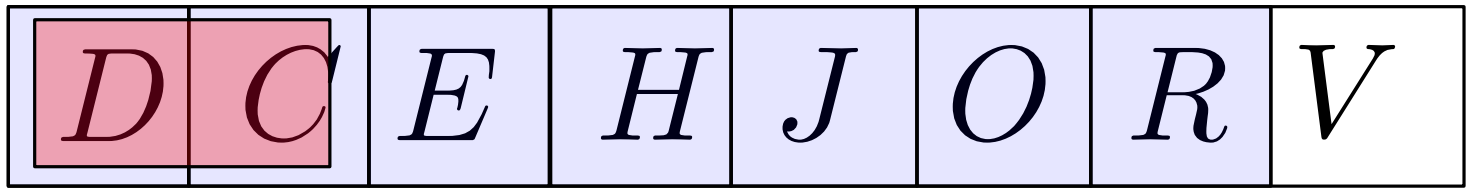

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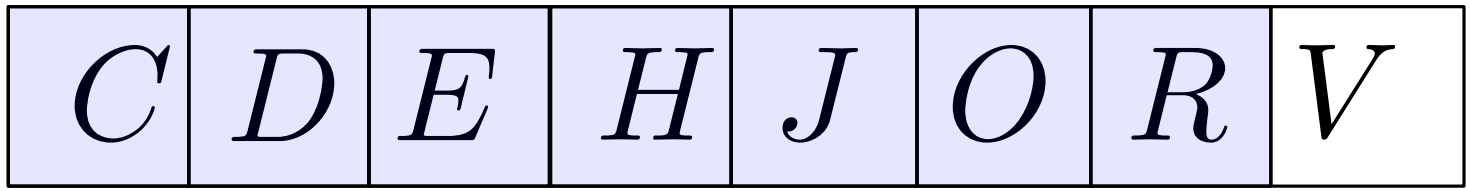

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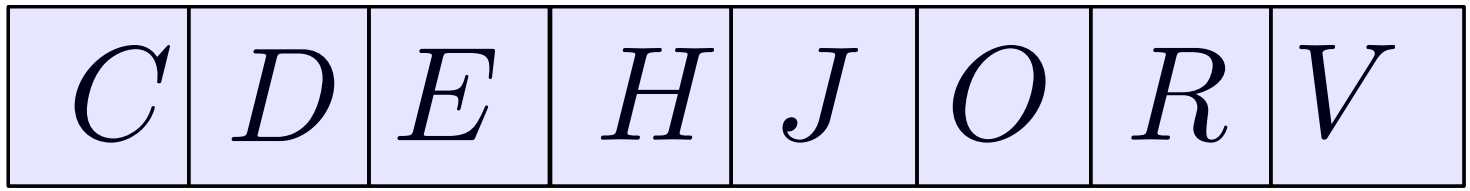

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