# **Visualization of Data Movements and Accesses**

Til Mohr





### Listing 1: Matrix Summation

```
1 let matrix = Matrix::random(2, 2);
2 let mut sum = 0;
3 for column in 0..2 {
4   for row in 0..2 {
5     sum += matrix.get(row, column);
6   }
7 }
8 sum
```

#### Matrix:



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#### Matrix:

### Matrix in Memory:

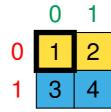
1 2 3 4



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#### Current Item: Ca





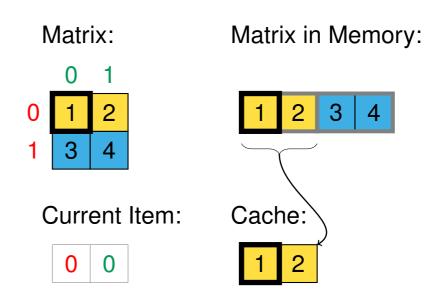






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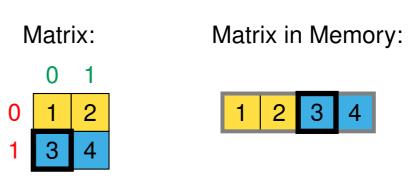






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Current Item: Cache:

1 0

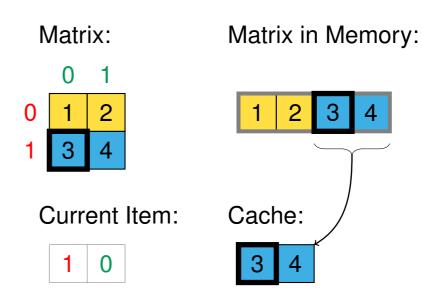
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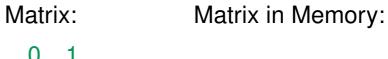






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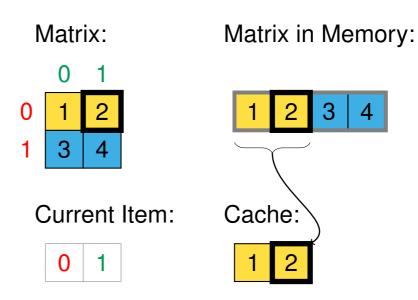
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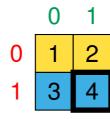




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## Matrix: Matrix in Memory:





Current Item: Cache:

1 1

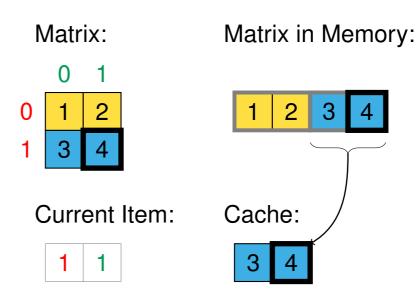
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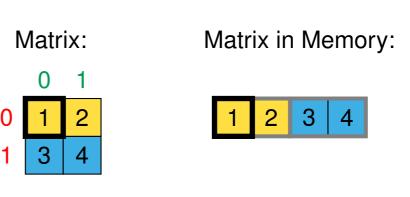






Listing 2: Matrix Summation

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Current Item: Cache:

0 0

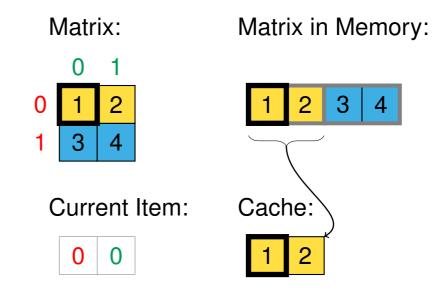






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#### Matrix:

#### Matrix in Memory:



#### Current Item:

0 1

#### Cache:

1 2

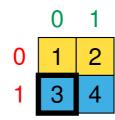




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#### Matrix in Memory:



#### Current Item:



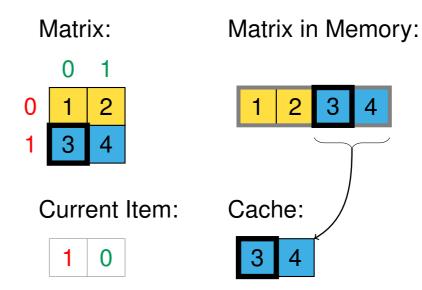
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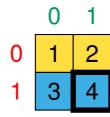


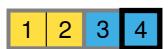


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#### Current Item:





# **Outline**



