

Types (III)

Multidimensional Arrays

- How do you make it into a continuous block of memory?
 - by rows or by columns

```
A[0][0] A[0][1] A[0][2]
A[1][0] A[1][1] A[1][2]
A[2][0] A[2][1] A[2][2]
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- row-major order

A[0][0]	A[0][1]	A[0][2]	A[1][0]	A[1][1]	A[1][2]
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- column-major order

A[0][0]	A[1][0]	A[2][0]	A[0][1]	A[1][1]	A[2][1]
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- Again, we need random access in constant time. How do we compute the address of $A[i][j]$?
 - In col major order, it is
 - $\text{addr of } A[i][j] = \text{addr-of-A} + j * \text{slot-size} * \text{col-size} + i * \text{slot-size}$
- Does row-major vs col-major make any difference? If you are searching the array which order should you do it? Why?
 - same as hardware; cache hits increase