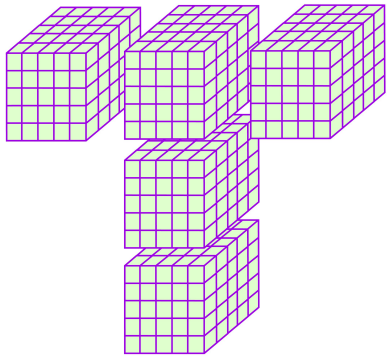
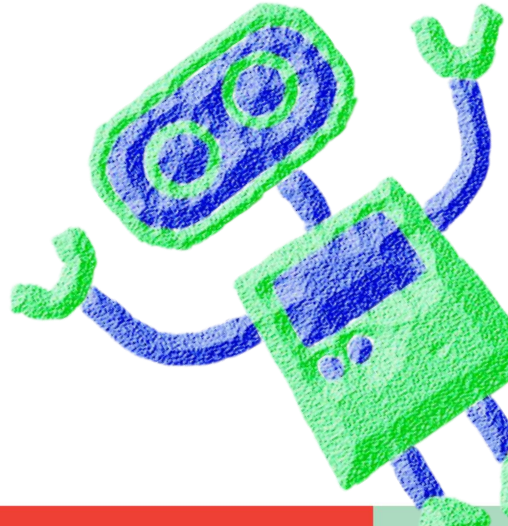
Elvis Saravia

Friendly Data Science

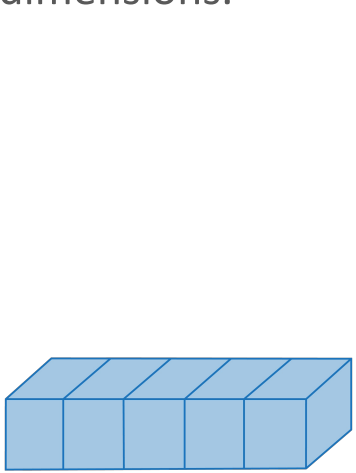
What is a Tensor?



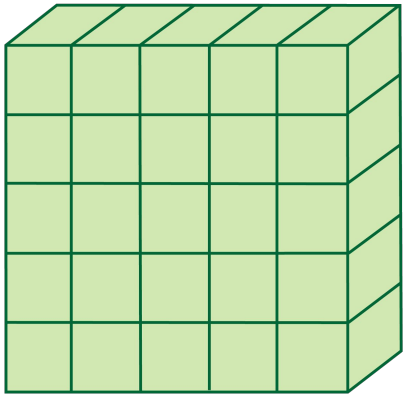


What is a Tensor?

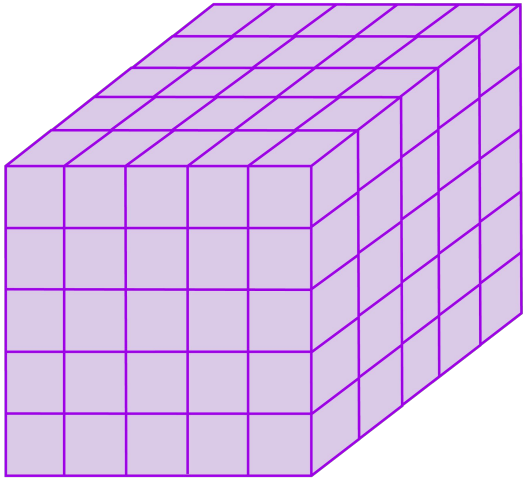
Informally, you can think of a tensor as a mathematical object which represents a **generalization** of **vectors** and **matrices** that can hold some **relationship** in very high dimensions.



Vector



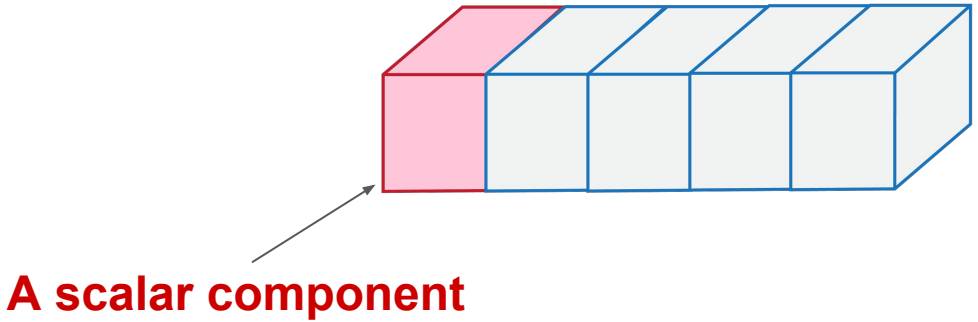
Matrix



Tensor

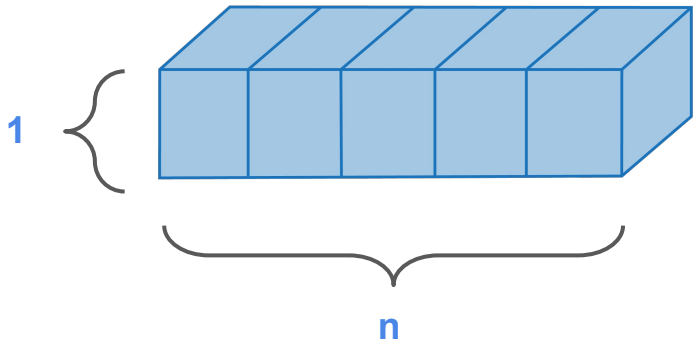
What is a Scalar?

A scalar represents a **one-component quantity**, such as a single number.



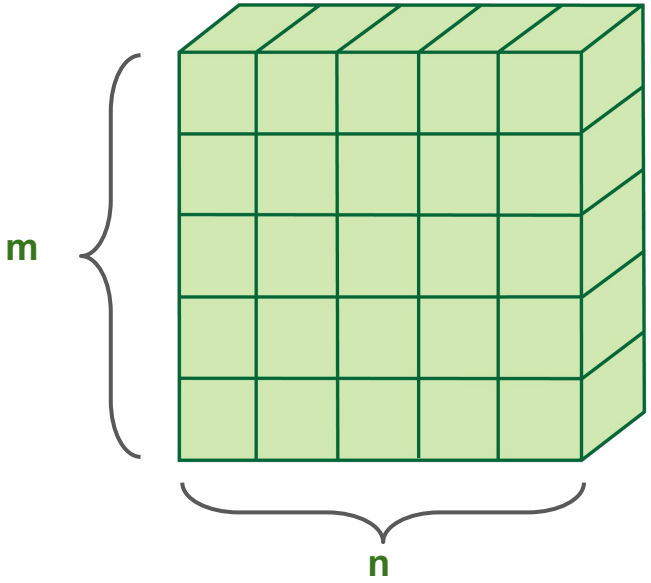
What is a Vector?

A vector is a **one-dimensional array** of length ***n***. ***n*** represents the number of scalar components in the vector.



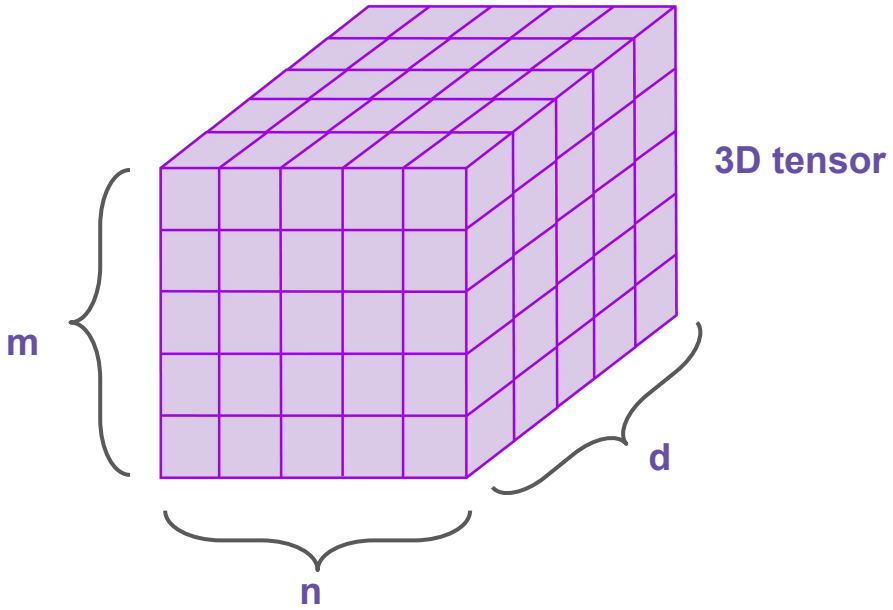
What is a Matrix?

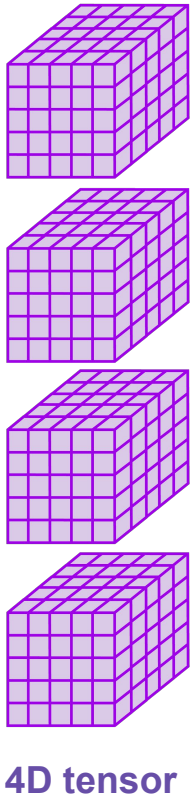
A matrix is a **2-D array** of numbers. A matrix is also made up of scalars and vectors.



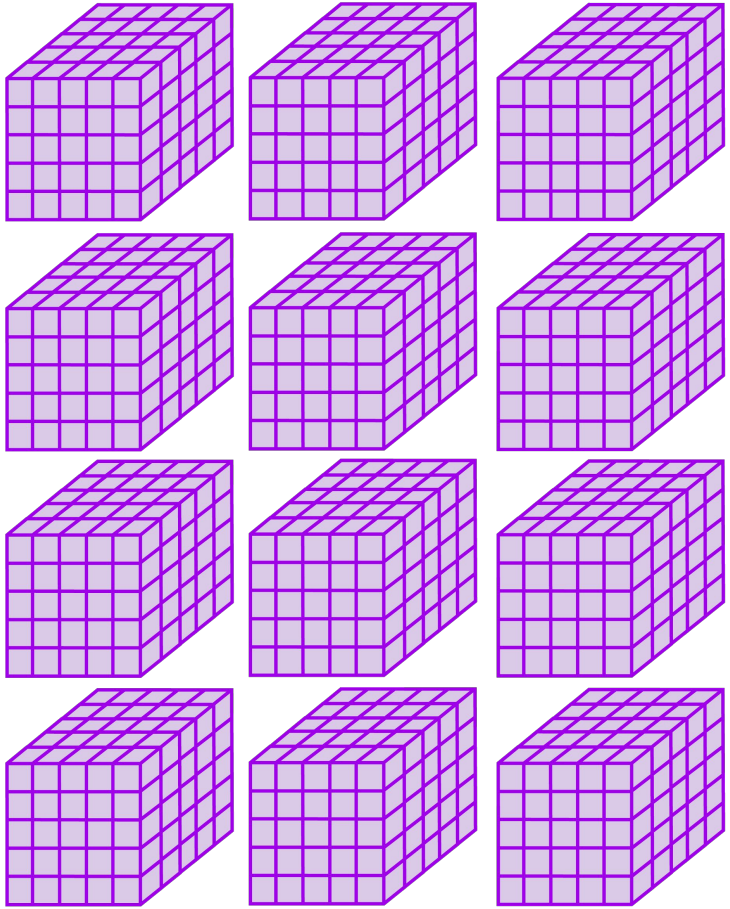
Tensor

A tensor is just a generalization of vectors and matrices.



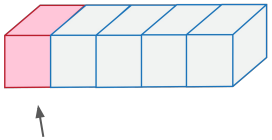


Quiz time!

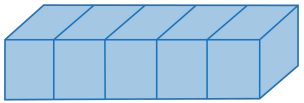


Rank

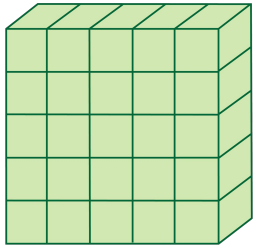
Rank is a **unit of dimensionality** that describes the dimensions of the tensor.



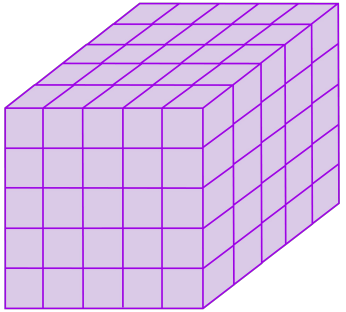
A scalar component
(rank 0)
(0-D Tensor)



A vector
(rank 1)
(1-D Tensor)



A matrix
(rank 2)
(2-D Tensor)



A 3-D Tensor
(rank 3)

See you soon!