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CSE DATA SCIENCE

Module 2: Length of Vector

The length of a vector can be calculated using the L2 norm.

– The notation for the L2 norm of a vector is $||v||_2$ and this type of norm is also known as Euclidean Norm(since this uses Euclidean distance).

– The L2 norm is calculated as the square root of the sum of the squared vector values. So, this norm finds the distance of the vector coordinate from the origin of the vector space.

$$||v||_2 = sqrt\ [\ (b1)^2 + (b2)^2 + (b3)^2\ ]$$

– The L2 norm of a vector can be calculated using the norm( ) function with default parameters(means default order in the norm function is 2).

– This type of norm is most commonly used in Machine Learning(due to being a differentiable function, which is crucial for optimization purposes).