

CHEAT SHEET

K-Nearest Neighbors

Algorithm Name	KNN
Description	For a given test point, the KNN algorithm identifies the k most similar training points and finds the most common label among them. This label is used as a prediction for the test point.
Applicability	Often competitive in low-dimensional spaces in settings with many classes; used for classification or regression.
Assumptions	“Similar inputs have similar labels”; KNN assumes that the user has a way to compute distances that reflect meaningful dissimilarities.
Underlying Mathematical Principles	<ul style="list-style-type: none">• Distance metrics
Additional Details	<ul style="list-style-type: none">• Hyperparameter is number of neighbors (k)• Dealing with ties — fall back to smaller k-values• Distance metric used is application specific
Example	Identify individuals visible in a photo uploaded to a social media account.

