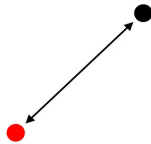
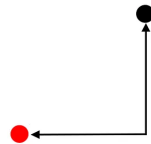
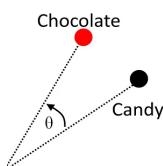
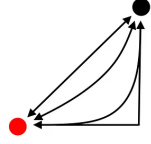
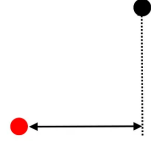
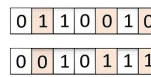
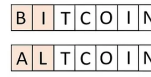
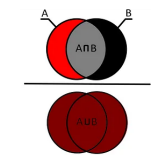
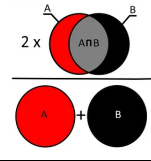
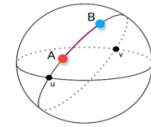
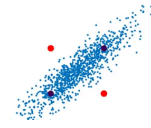
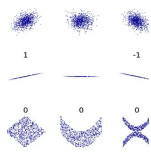
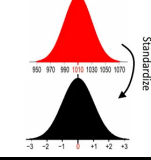
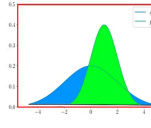
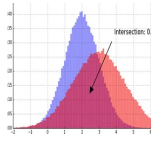
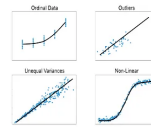
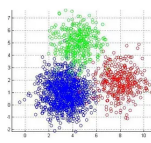


Picture	Method	Application	Features	Disadvantages	Formula
	Euclidean Distance	General distance measurement, Clustering, Classification, Regression	Measures the straight line distance between two points in n-dimensional space.	Sensitive to outliers, Can be affected by scale differences	$O(n)$ Fast
	Manhattan Distance	Distance on grid networks, Routing algorithms, Image processing	Measures the distance between two points on a grid network, where movement is limited.	Ignores diagonal movement, not useful for high-dimensional data,	$O(n)$ Fast
	Cosine Similarity	Text document clustering, Text analysis, Recommendation systems	Measures the cosine of the angle between two vectors	Ignores magnitude of vectors, Not useful for negative values or high degree of correlation data	$O(n)$ Fast
	Minkowski Distance	General distance measurement	Measures the distance between two points in n-dimensional space, where r determines the metric used.	Sensitive to outliers	$O(n)$ Fast
	Chebyshev Distance	Measuring maximum difference, Clustering, Anomaly detection	Measures the maximum difference between corresponding components of two vectors	Only applicable for continuous data, Sensitive to outliers, may not be as useful for highly correlated data	$O(n)$ Fast
	Hamming Distance	Measuring string similarity, Error-correcting codes, DNA sequencing	Measures the number of positions at which the corresponding symbols are different.	Only for same length strings, May not be as useful for continuous data	$O(n)$ Fast
	Levenshtein Distance	Measuring string similarity	Measures the minimum number of single-character edits required to transform one string into another.	More expensive for long strings	$O(n^2)$ Slow
	Jaccard Similarity	Set similarity measurement, Text analysis, recommendation systems	Measures the similarity between two sets by comparing their intersection and union.	Ignores magnitude of sets, May not be as useful for continuous data	$O(n)$ Fast
	Sørensen-Dice Index	Measuring similarity of sets, Ecology, Biology, Genetics	Measures the similarity between two sets	May not be as useful for continuous data and Ignores magnitude of sets	$O(n)$ Fast
	Haversine Distance	Measuring distance on a sphere, Geographic calculations	Measures the great-circle distance between two points on a sphere, such as the Earth.	Not useful for small distances where a spherical Earth is not an accurate representation	$O(n)$ Slow
	Mahalanobis Distance	Multivariate statistical analysis, Outlier detection, Clustering	Measures the distance between two points in n-dimensional space, taking into account the correlation between variables.	Requires full covariance matrix, May not be as useful for datasets with a large number of variables	$O(n^3)$ Slow
	Pearson Correlation	Measuring linear correlation	Measures the linear correlation between two variables in a dataset.	Requires linear correlation	$O(n^2)$ Slow
	Squared Euclidean Distance	Clustering algorithms	Measures the square of the straight line distance between two points in n-dimensional space.	More sensitive to outliers	$O(n)$ Fast
	Jensen-Shannon Divergence	Measuring similarity of probability distributions. Clustering, Recommendation systems	symmetric measure used to compare probability distributions. considers both similarities and differences between the distributions	Only applicable for non-negative vectors	$O(n)$ Slow
	Chi-Square Distance	Measuring similarity of histograms	Measures the distance between two histograms by comparing their Chi-Square divergence.	Only applicable for non-negative vectors	$O(n)$ Fast
	Spearman Correlation	Measuring rank correlation	Measures the correlation between two variables in a dataset based on their rank order.	Only applicable for ordinal data	$O(n \log n)$ Fast
	Canberra Distance	Measuring distance for sparse data	Measures the distance between two vectors, taking into account their relative magnitudes.	More sensitive to small differences	$O(n \log n)$ Fast