



Introduction to Data Exploration

Vector Data

Objectives



Objective

Understand vector
representation of data

Common Data Representations



Relational/Object Oriented data

Vector Space (spatial or high-dimensional) data

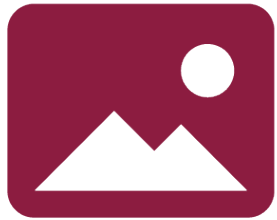
Strings, sequences, and time series data

Trees and graphs

Fuzzy and probabilistic data

Vector Data

Images



Videos



Social
Networks



Books

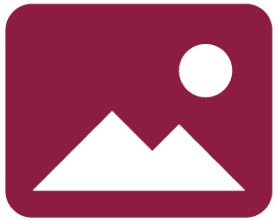


Sensor
Reading



Vector Data

Images



- colors
- textures
- shapes

Videos



- actors
- ratings
- directors

Social
Networks



- connections
- likes
- interactions

Books



- words
- authors
- publishers

Sensor
Reading



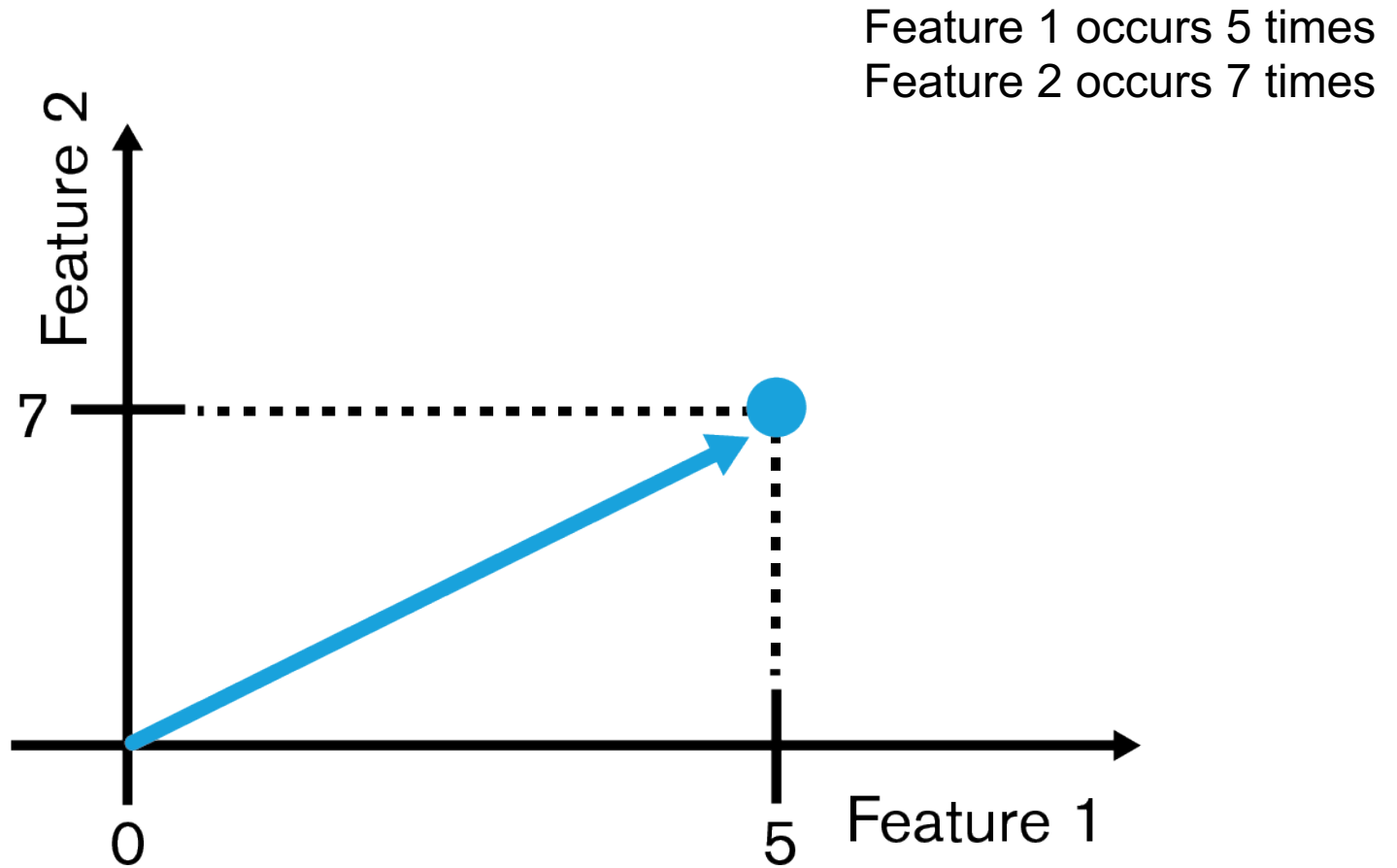
- sensor values
- patterns

How are counts represented?

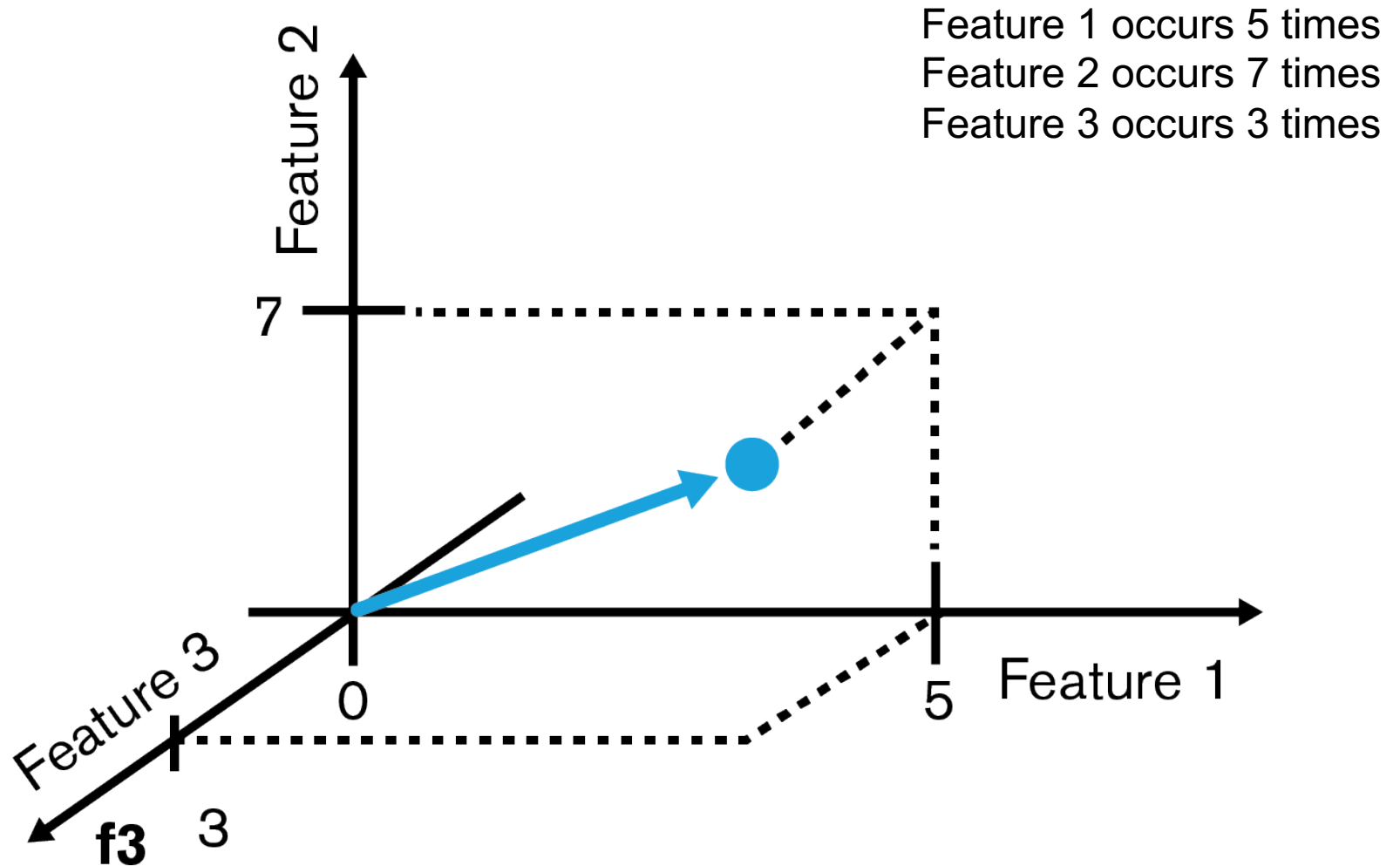
Feature 1 occurs 5 times



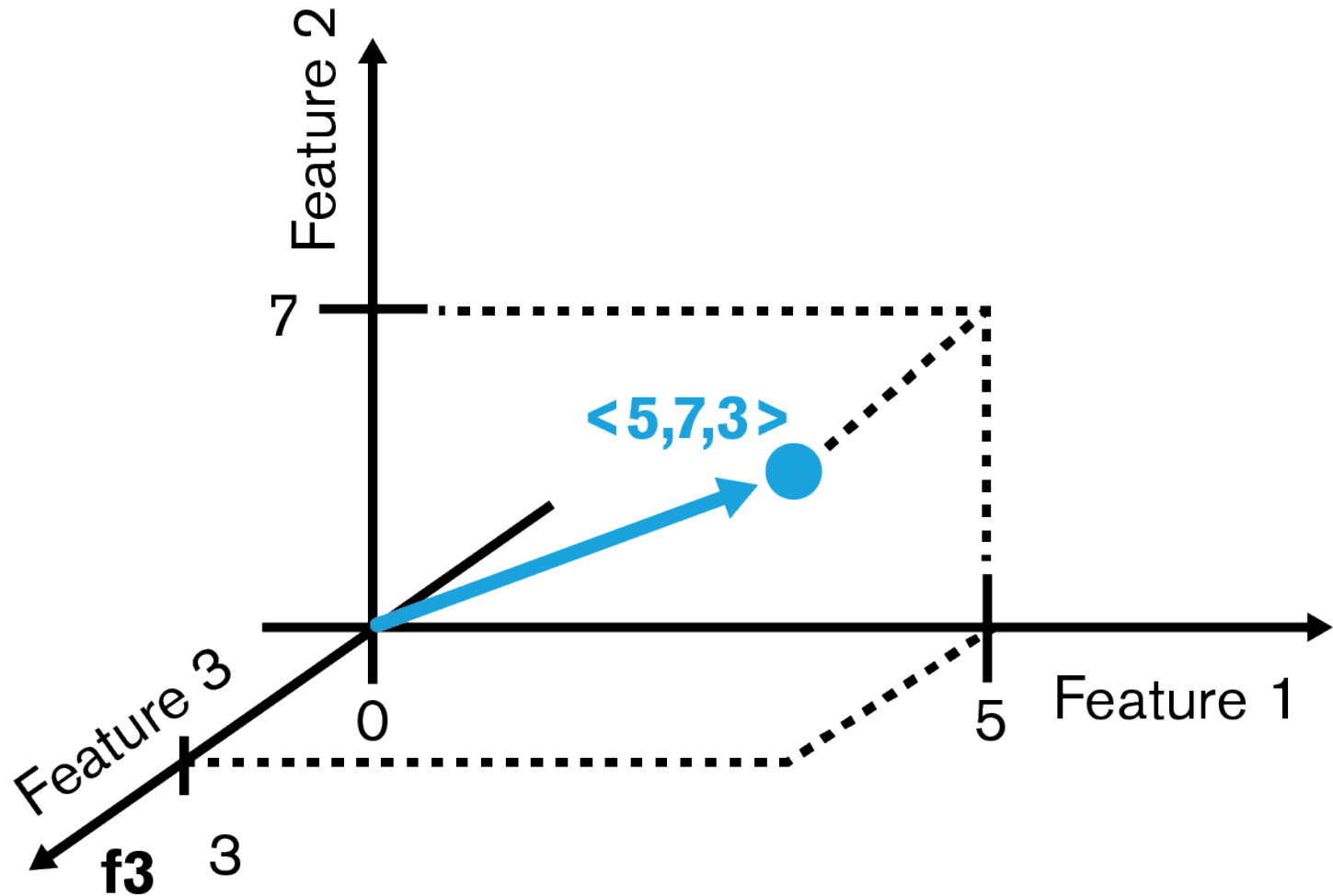
How are counts represented?



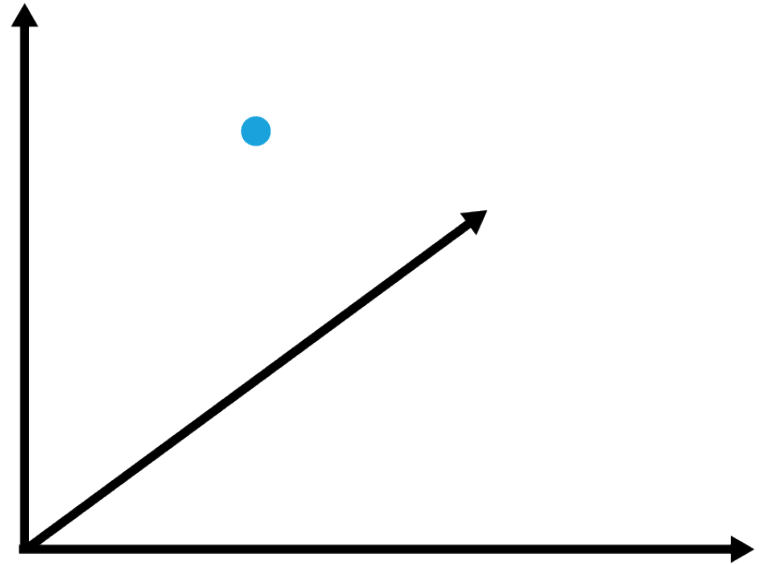
How are counts represented?



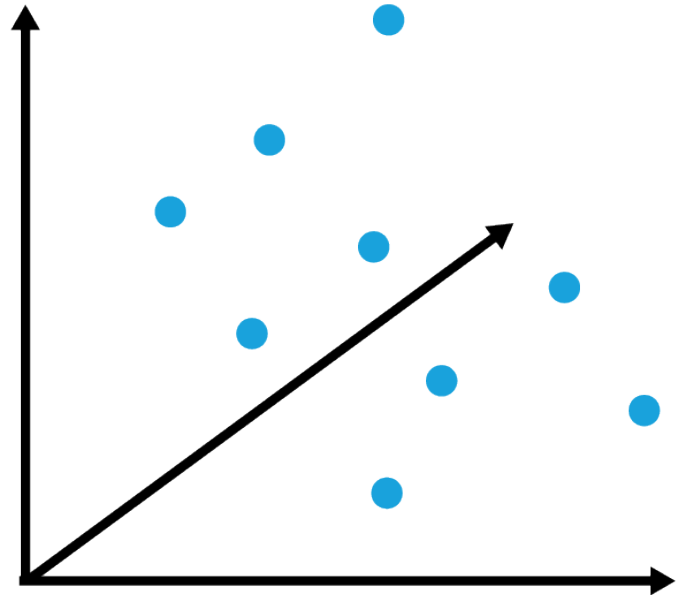
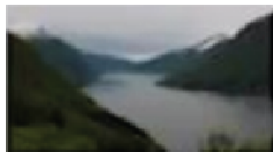
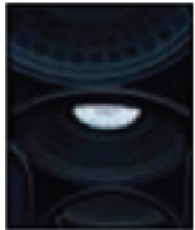
Vector Representation



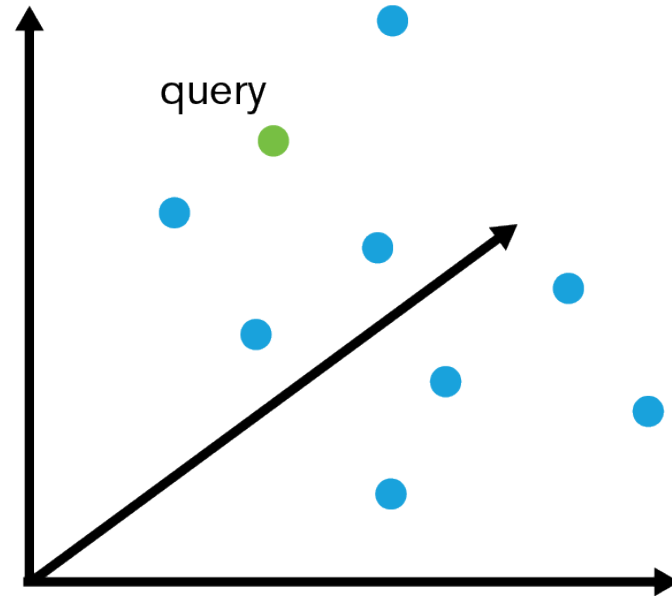
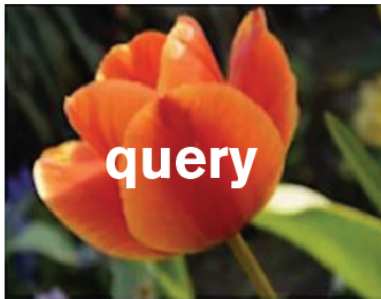
Vector Representation of a Given Object



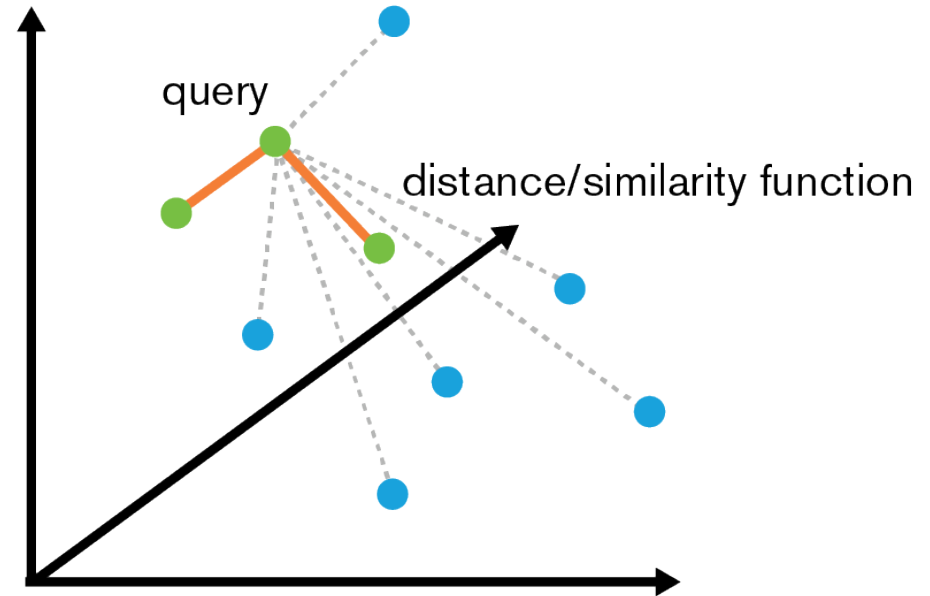
Vector Representation



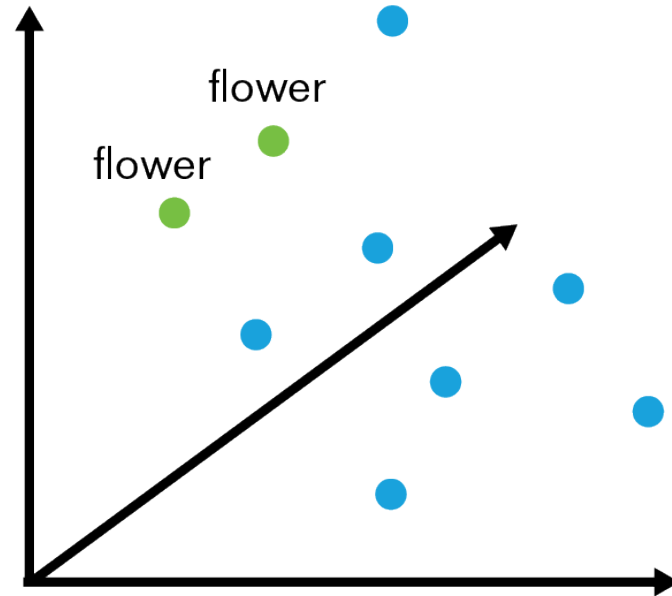
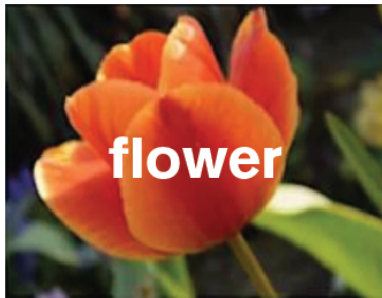
Querying



Similarity based (nearest neighbor) search



Classification



Classification

