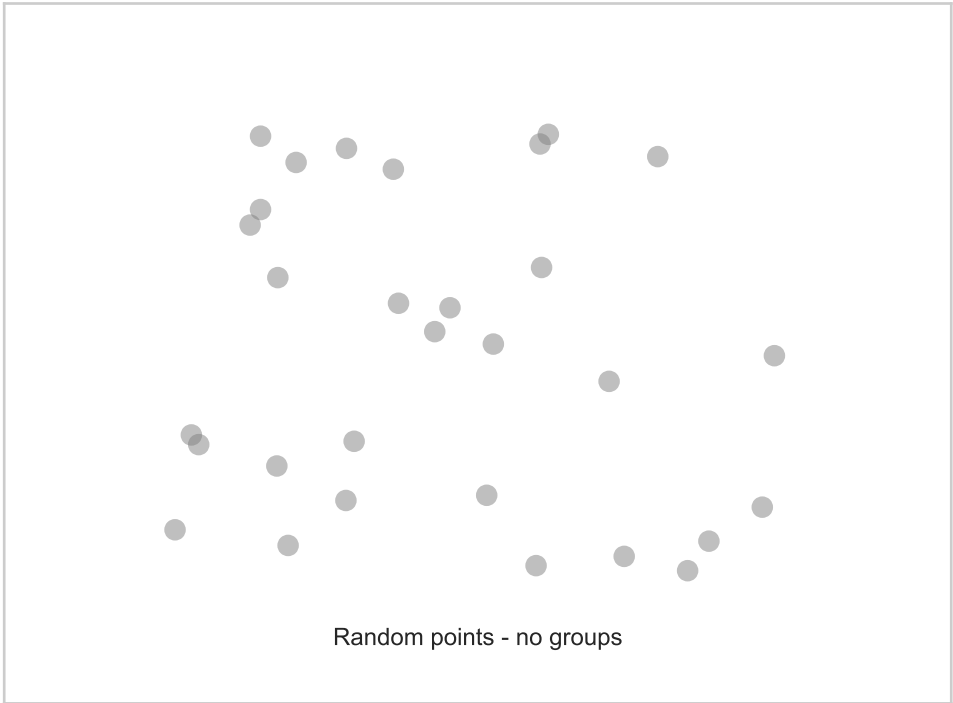


# Clustering: Finding Groups in Data (No Math Required!)

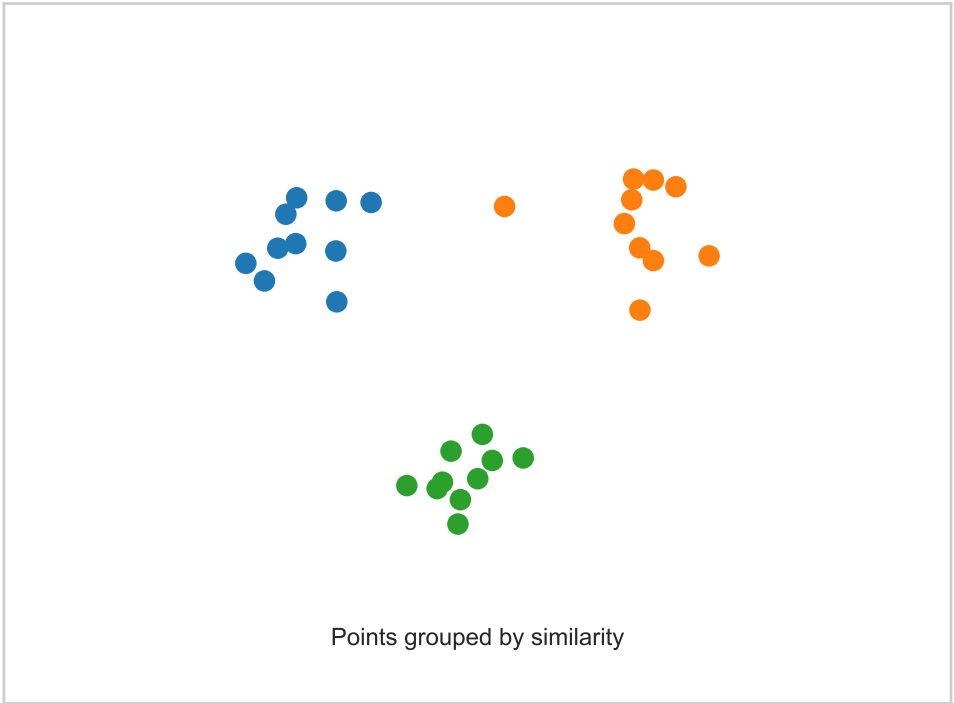
A Visual Introduction for Beginners

## What is Clustering?



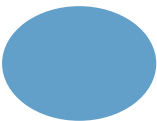
Before: Mixed Data

## After Clustering



After: Organized Groups

## Example: Student Projects



Tech Projects  
*(Apps, Websites)*



Art Projects  
*(Paintings, Music)*



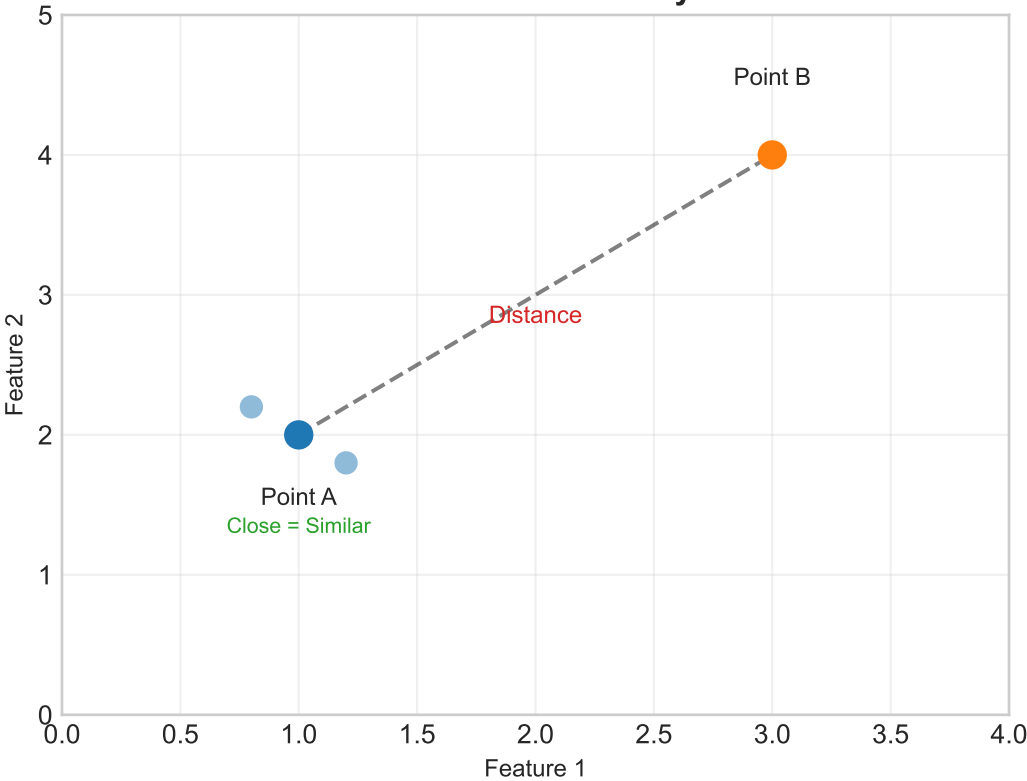
Science Projects  
*(Lab work, Research)*

## How Computers See Data

Item	Feature 1	Feature 2
A	3.2	1.5
B	3.1	1.6
C	8.5	7.2
D	8.7	7.1

Similar numbers = Same group

## Distance = Similarity



Key Idea: Clustering finds natural groups by looking at which items are similar (close together)

## Clustering Process

1. Start with data points
2. Measure distances
3. Find close neighbors
4. Form groups
5. Check if good groups
6. Done!