# Project 5: The Hubness Phenomenon in High Dimensional Spaces

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# Project 5 Participants

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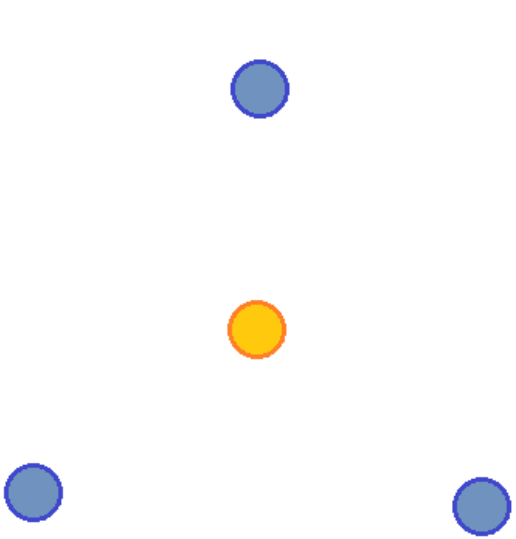
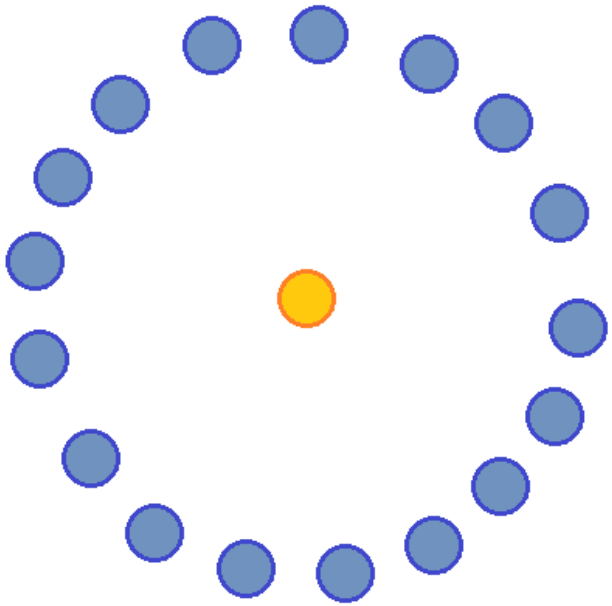
# Group 5 Overview

- Overview of concepts and datasets
- Question 1: Intrinsic dimensionality via hubness
  - Skewness vs. feature ranking - what is the right way to rank features?
  - Supervised vs. unsupervised methods
- Question 2: Hubs, density, clustering, and outliers
  - How does hubness relate to data density?
  - How are hubs distributed across clusters?
  - How do hubs relate to special points from various clustering methods (DBSCAN core points, outliers, etc.)?

# Hubness - how many nodes have me as a near neighbor?





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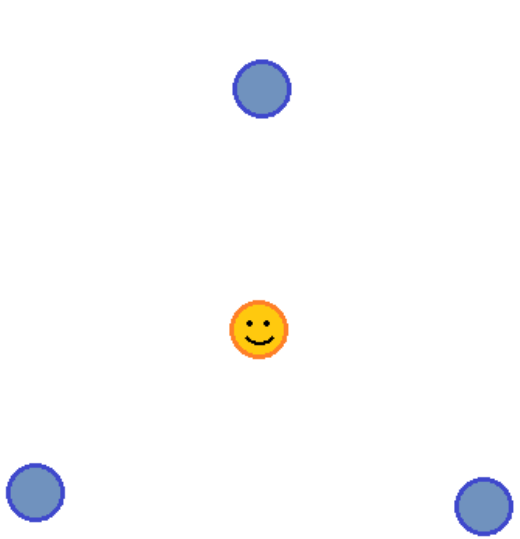
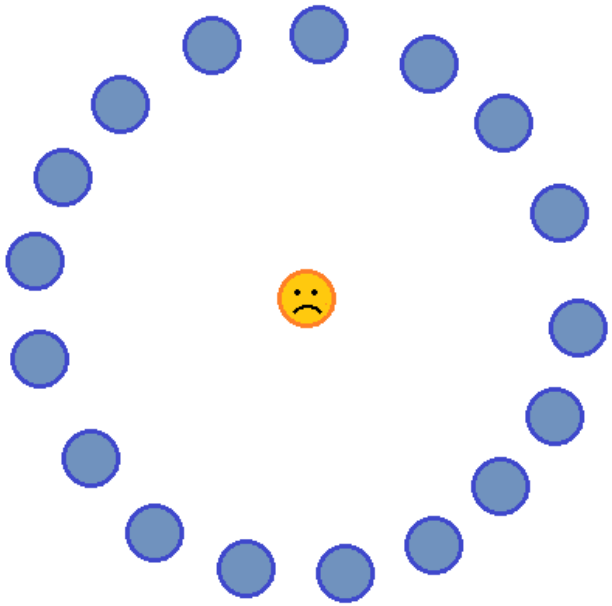
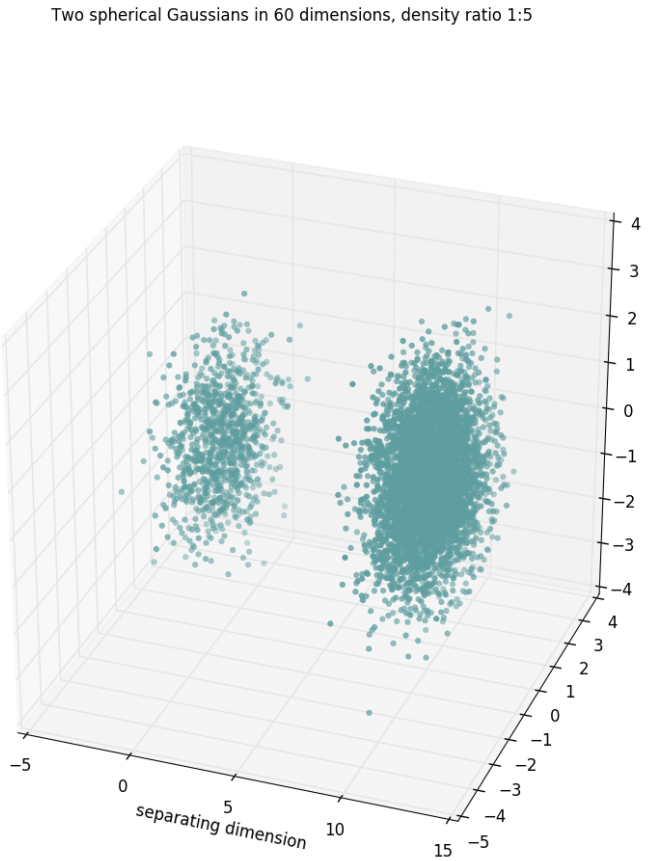
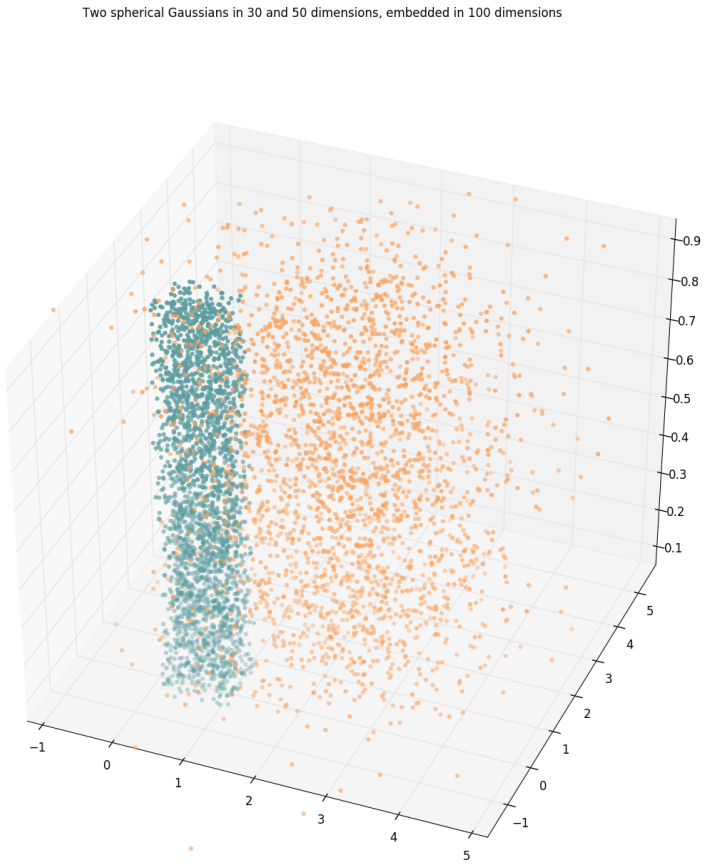




# Synthetic data – density difference



# Synthetic data – dimensionality difference



# Real-world data: spam classification