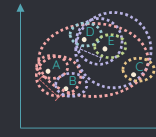


# PARTITION AROUND MEDOIDS

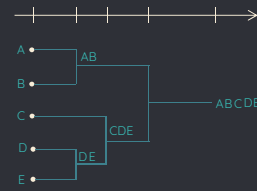
VINICIUS MANVAILER  
REN R 690

## CLUSTERING TECHNIQUES

### HIERICHICAL CLUSTERING

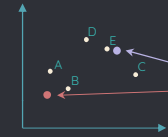


AGGLOMERATIVE

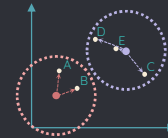


DIVISIVE

### PARTITION CLUSTERING



MEDOIDS



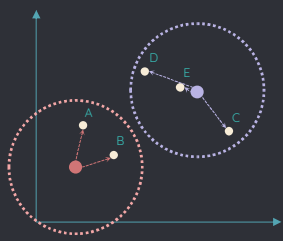
$$D = \sum_{k=1}^K \sum_{i \in C_k} \sum_{j \in C_k} D_{ij}$$

VISUAL INTUITION

### K-means Algorithm

VISUAL INTUITION

<https://www.naftaliharris.com/blog/visualizing-k-means-clustering/>



MEDOIDS STARTING POSITION

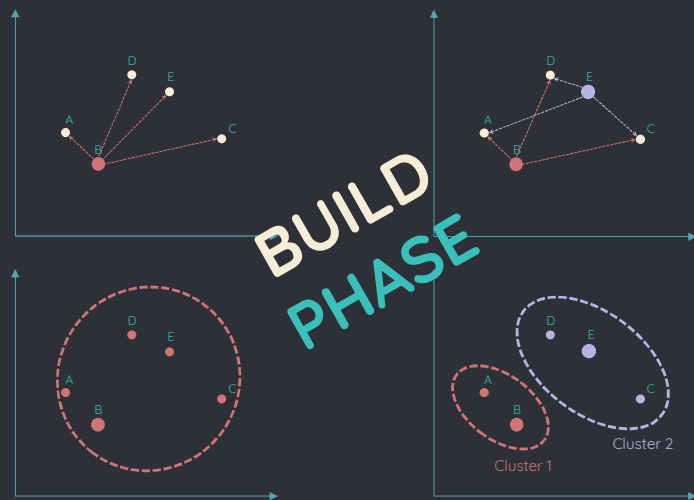
$$D = \sum_{k=1}^K \sum_{i \in C_k} \sum_{j \in C_k} D_{ij}$$

VISUAL INTUITION

### PAM Algorithm

VISUAL INTUITION

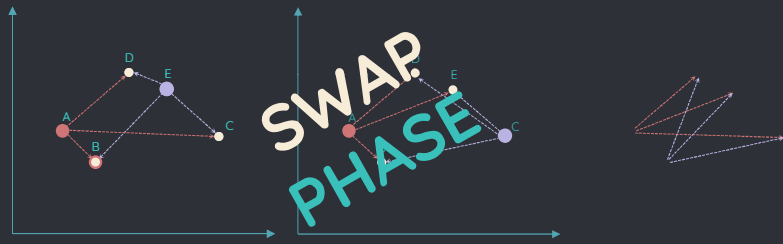
K = 2



**BUILD PHASE**

# PAM Algorithm

VISUAL INTUITION



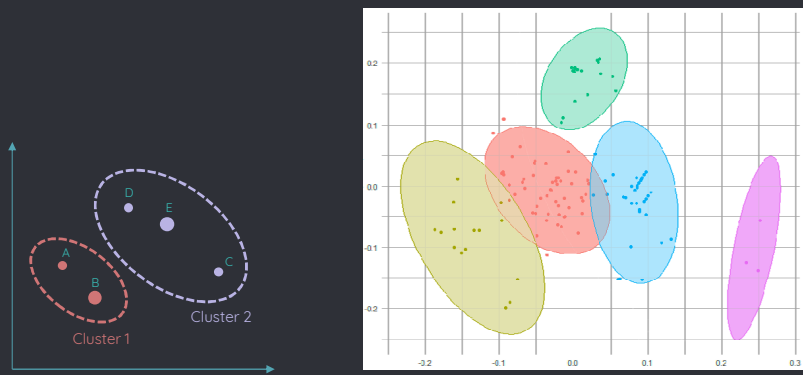
# DISSIMILARITY



	Obs A	Obs B	Obs C	Obs D		Obs N
Obs A	0	2	4	3	• • •	$A_n$
Obs B	2	0	8	8	• • •	$B_n$
Obs C	4	8	0	6	• • •	$C_n$
Obs D	3	8	6	0	• • •	$D_n$
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
Obs N	$A_n$	$B_n$	$C_n$	$D_n$	• • •	0

# CHECKING THE CLUSTERS

DISCRIMINANT ANALYSIS



# TESTING THE CLUSTERS

SILHOUETTE PLOTS

