ESCUELA POLITÉCNICA NACIONAL

REDES NEURONALES

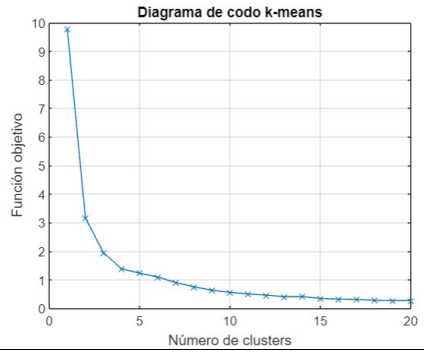
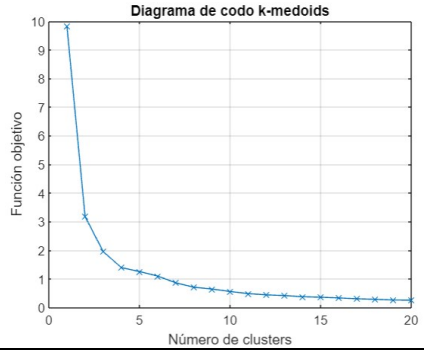
TAREA 9
(PARTE 1: Datasets 6 a 8)

David Fabián Cevallos Salas

2023-08-29

6. Dataset Ds3c3sc6

6.1 Estimación de parámetros

Algoritmo	Estimación de parámetros
k-means	k = 6
	
k-medoids	k = 6
	
DBSCAN	Mínimo Nro. de vecinos = 12 epsilon = 0,0122

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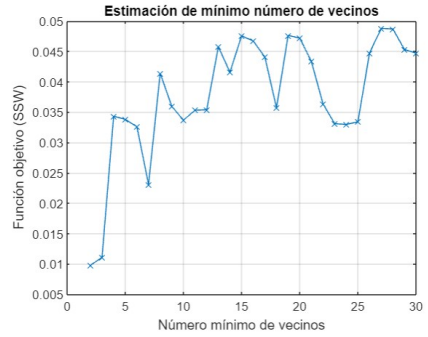

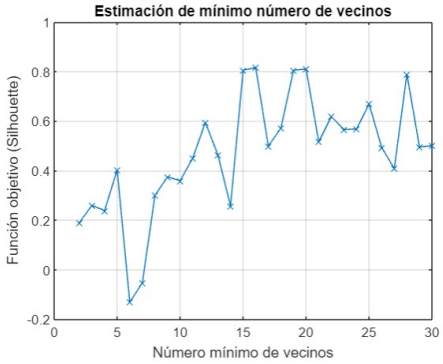

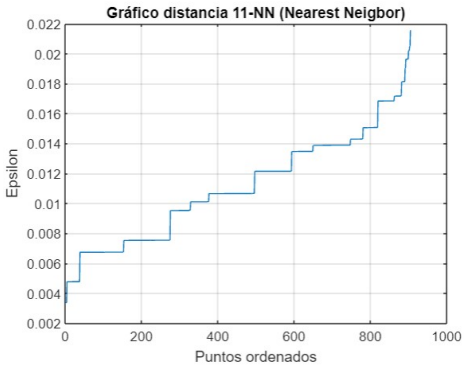

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<tr>
<td rowspan="2">Clustering Jerárquico</td>
<td>Nro. de clusters = 6
Average linkage</td>
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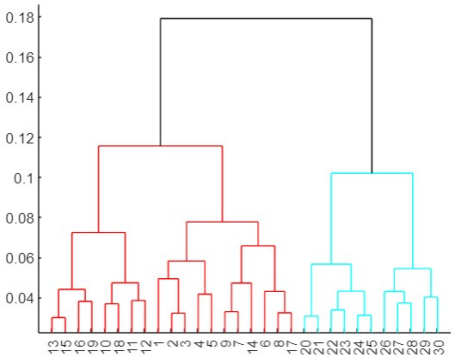

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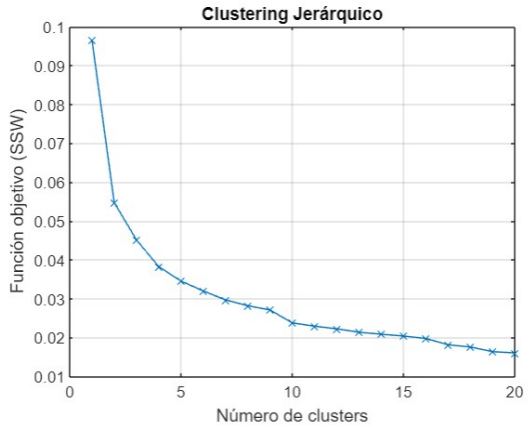
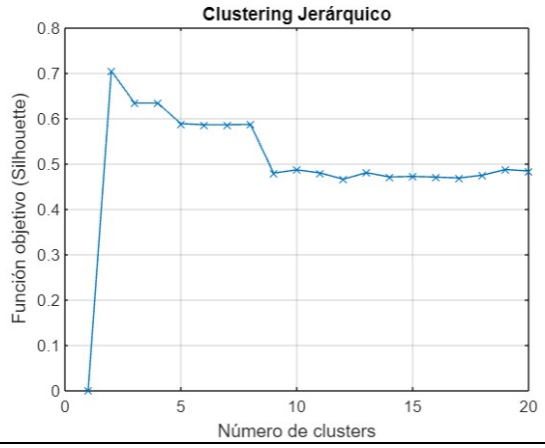
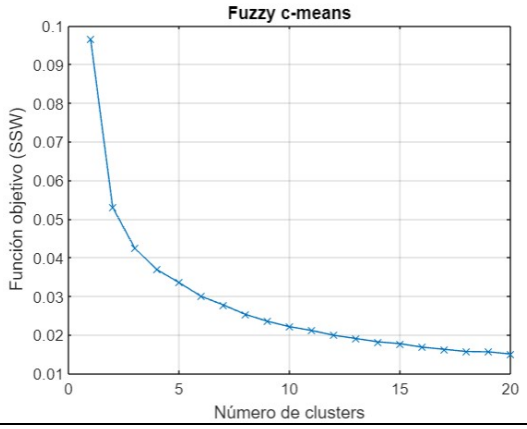
<tr><td></td><td> 


</td></tr>
<tr><td rowspan="2">Fuzzy c-means</td><td>c = 6</td></tr>
<tr><td> 
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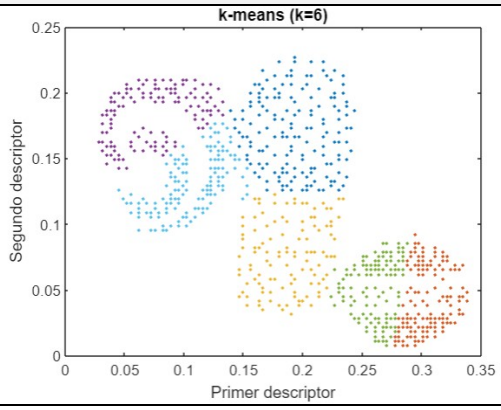
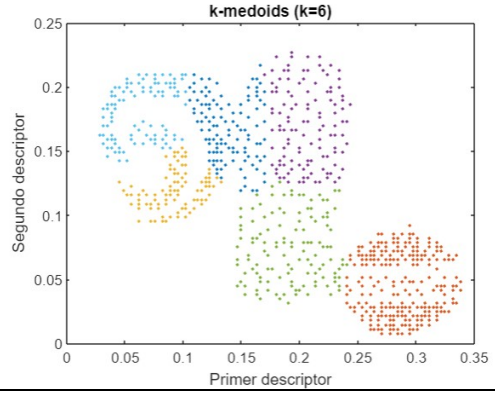
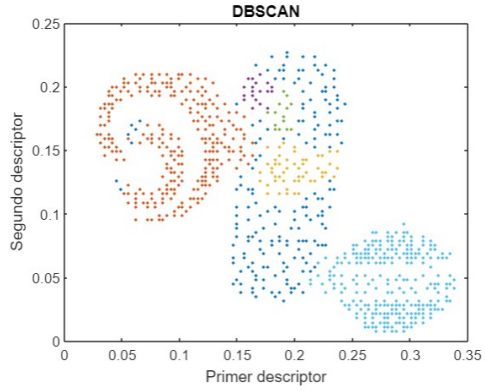
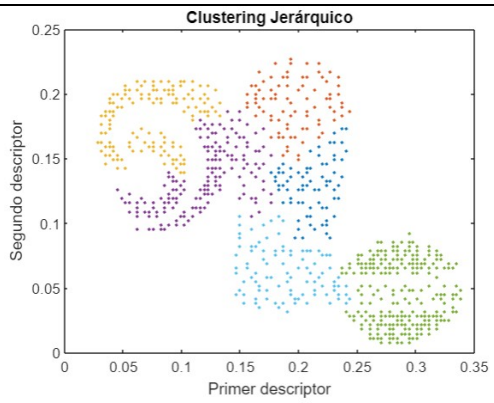
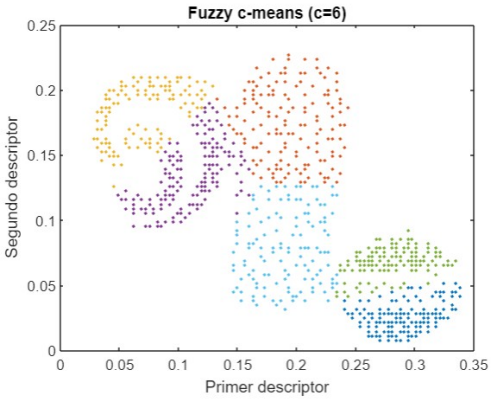
6.2 Visualización de clusters

Algoritmo	Visualización de clusters
k-means	
k-medoids	
DBSCAN	 (5 clústeres en total más un cluster de anomalías) (182 observaciones anómalas)

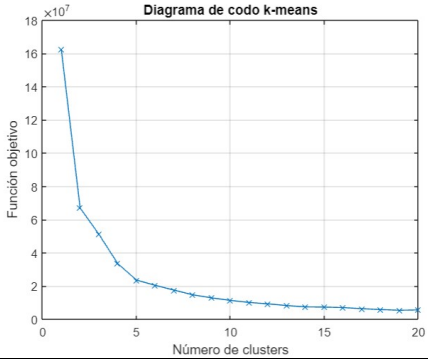
Clustering Jerárquico	
Fuzzy c-means	

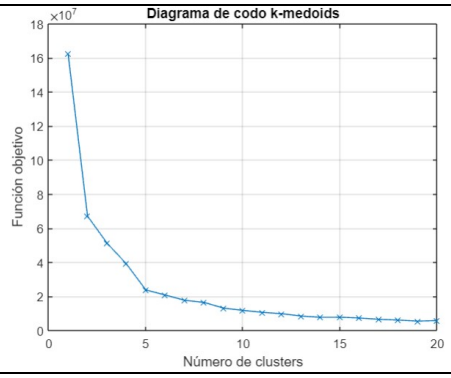
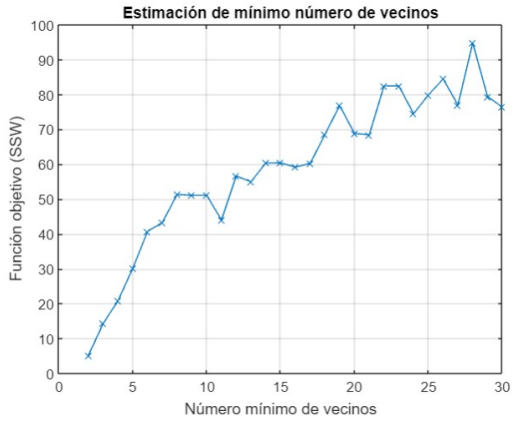
6.3 Métricas

	k-means	k-medoids	DBSCAN	Clustering Jerárquico	Fuzzy c-means
SSW	0,0307	0,0308	0,0354	0,0320	0,0299
SSB	0,0922	0,0927	0,1014	0,0924	0,0920
WB-index	1,9949	1,9896	1,7432	2,0761	1,9534
Silhouette	0,5302	0,6343	0,5936	0,5851	0,5534

7. Dataset Complex9

7.1 Estimación de parámetros

Algoritmo	Estimación de parámetros
k-means	k = 9
	

k-medoids	k = 9
	
DBSCAN	Mínimo Nro. de vecinos = 11 epsilon = 13,4544
	 

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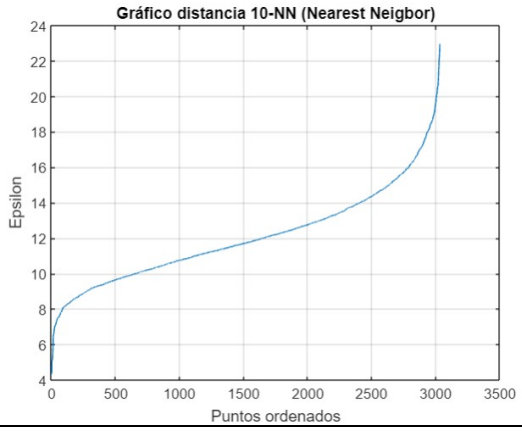
<tr><td></td><td> 
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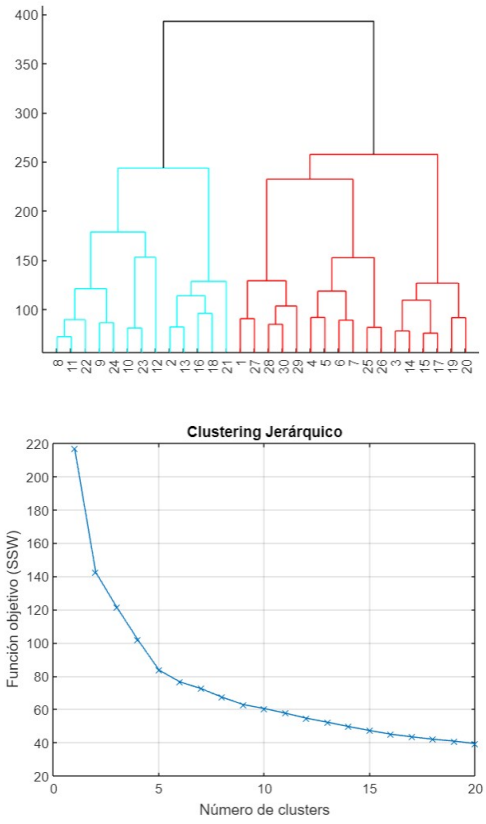
<tr><td rowspan="2">Clustering Jerárquico</td><td>Nro. de clusters = 9
Average linkage</td></tr>
<tr><td> 
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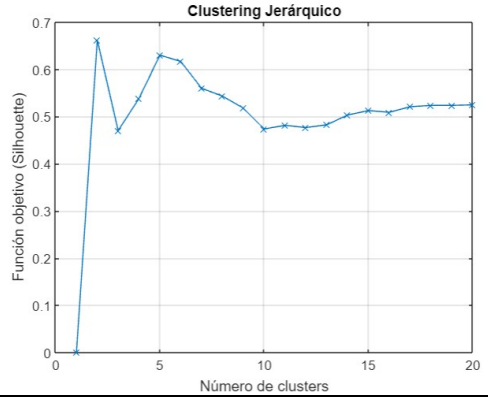
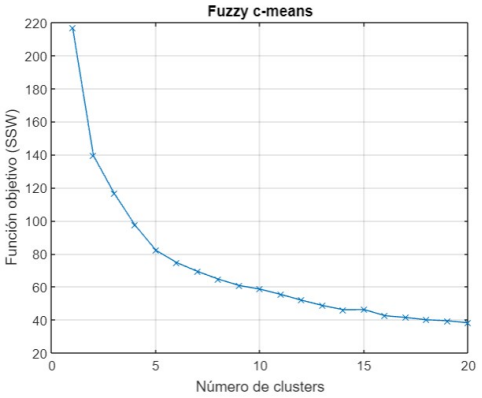
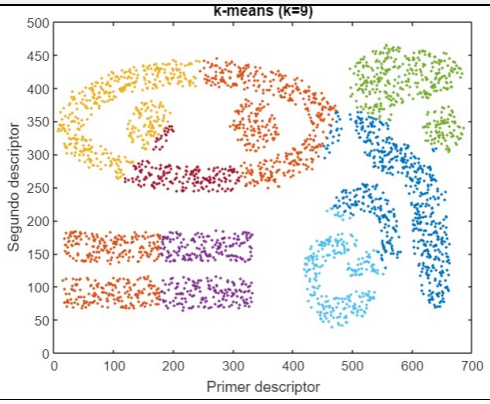
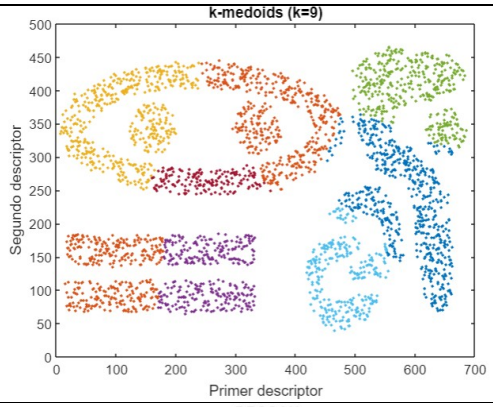
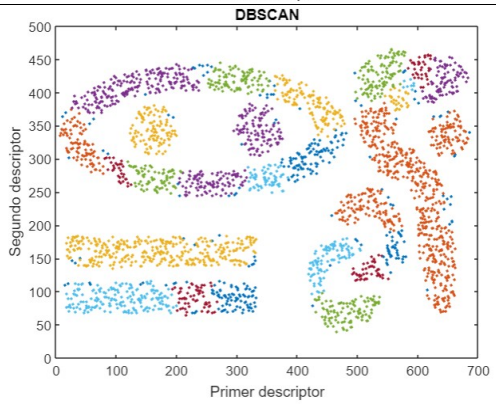
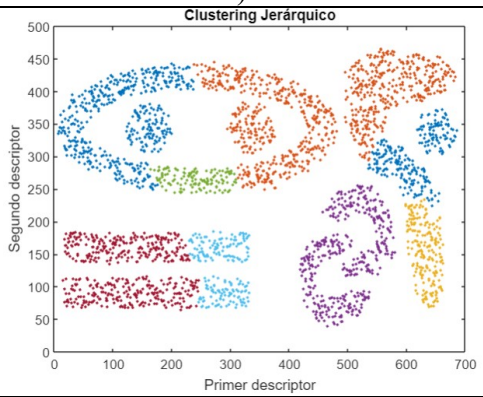
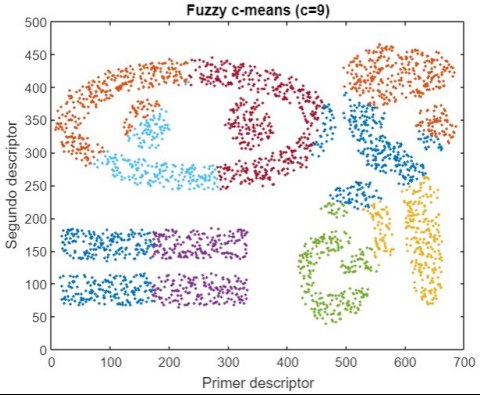
	
Fuzzy c-means	c = 9 

7.2 Visualización de clusters

Algoritmo	Visualización de clusters
k-means	

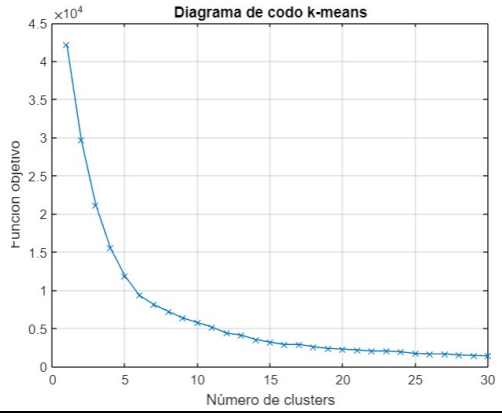
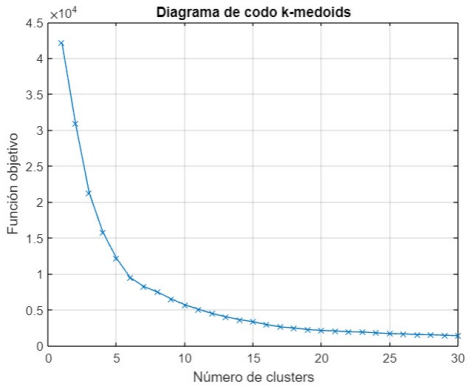
k-medoids	
DBSCAN	 (27 clústeres en total más un cluster de anomalías) (113 observaciones anómalas)
Clustering Jerárquico	
Fuzzy c-means	

7.3 Métricas

	k-means	k-medoids	DBSCAN	Clustering Jerárquico	Fuzzy c-means
SSW	60,4643	60,5320	43,9858	62,7905	60,4357
SSB	210,8405	210,8772	213,1166	210,0179	210,4528
WB-index	2,5810	2,5834	5,5726	2,6908	2,5845
Silhouette	0,5861	0,5831	0,2452	0,5179	0,5785

8. Dataset Rings

8.1 Estimación de parámetros

Algoritmo	Estimación de parámetros
k-means	k = 16 
k-medoids	k = 16 
DBSCAN	Mínimo Nro. de vecinos = 23 epsilon = 1,7702

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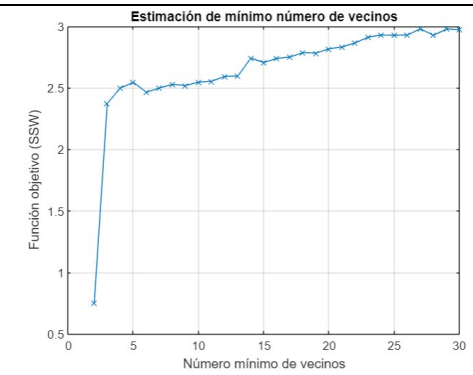
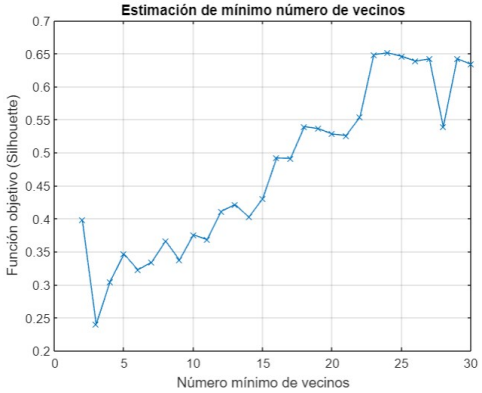
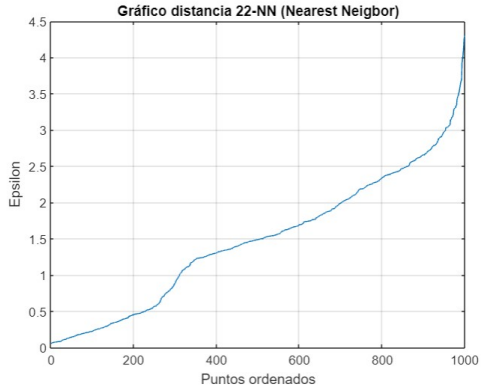
<tr><td></td><td> 

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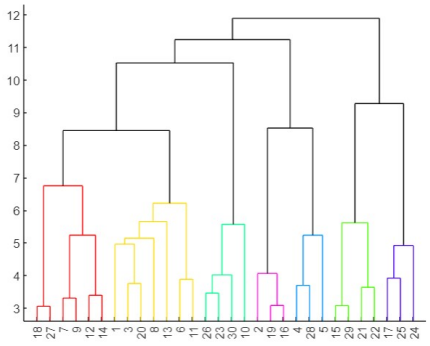
<tr><td rowspan="2">Clustering Jerárquico</td><td>Nro. de clusters = 16
Average linkage</td></tr>
<tr><td>  </td></tr>
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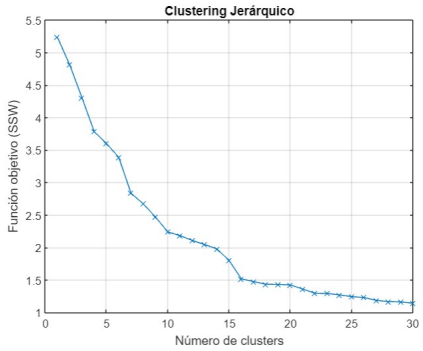
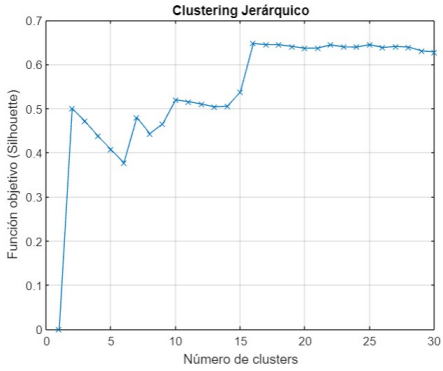
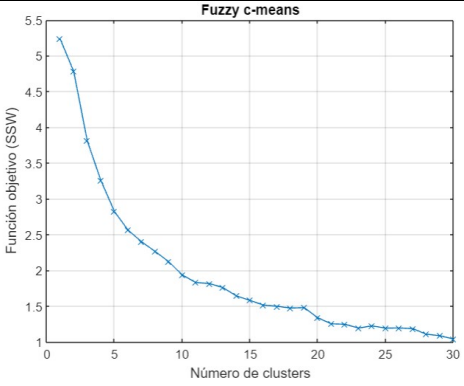
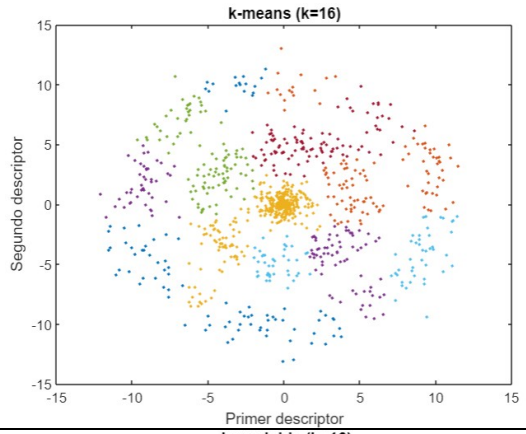
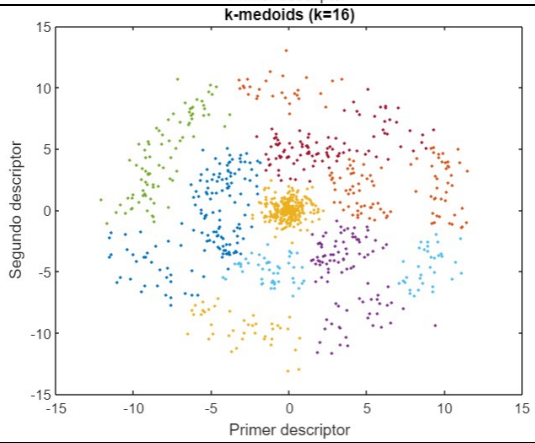
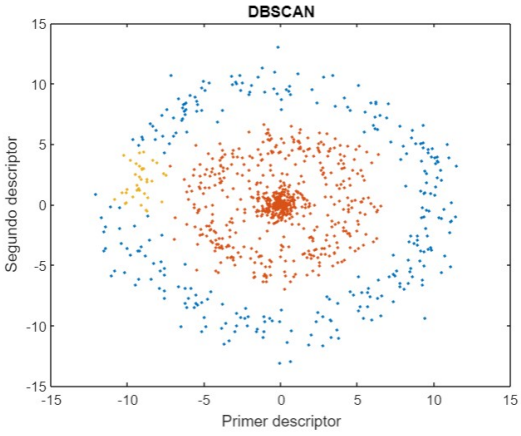
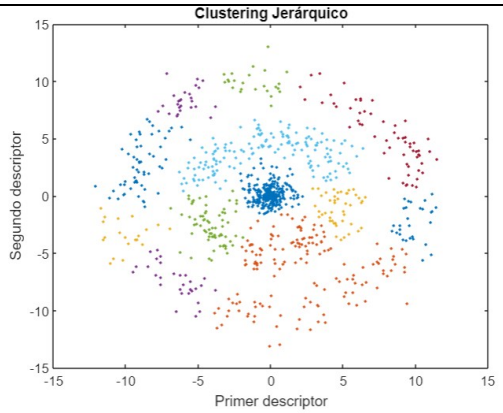
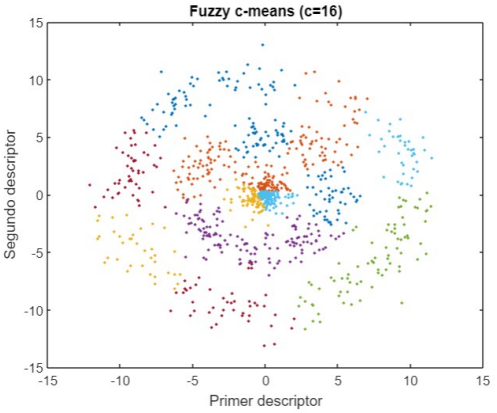
	 
Fuzzy c-means	c = 16 

8.2 Visualización de clusters

Algoritmo	Visualización de clusters
k-means	
k-medoids	
DBSCAN	 (2 clústeres en total más un cluster de anomalías) (280 observaciones anómalas)

Clustering Jerárquico	
Fuzzy c-means	

8.3 Métricas

	k-means	k-medoids	DBSCAN	Clustering Jerárquico	Fuzzy c-means
SSW	1,5138	1,4227	2,9111	1,5165	1,4939
SSB	4,8630	4,8784	0,8809	4,8486	5,0273
WB-index	4,9807	4,6661	6,6095	5,0043	4,7546
Silhouette	0,6476	0,6948	0,6484	0,6471	0,5016