

Centro Universitario de Ciencias Exactas e Ingenierías



INRO

Sistemas Inteligentes IV

Actividad 6

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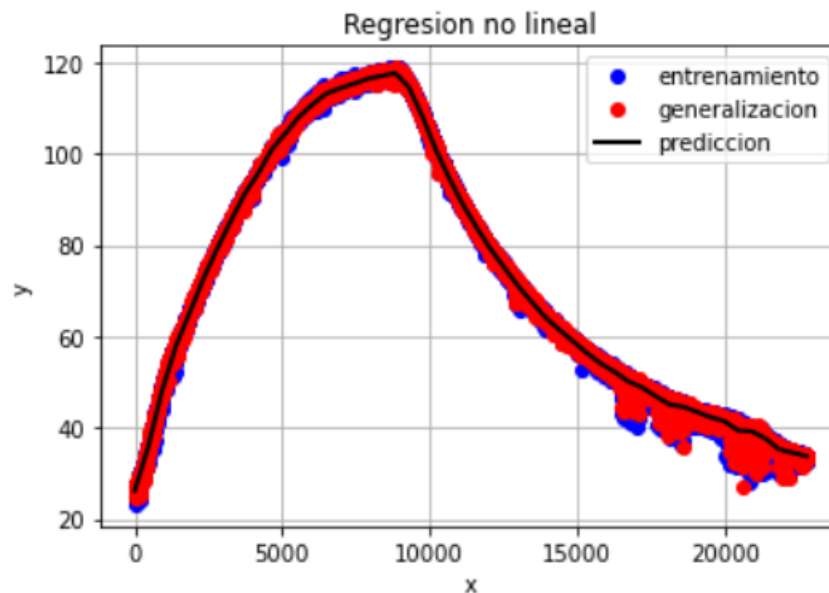
220839961

Objetivo: Utilizar herramientas de *SKLEARN* para resolver problemas de regresión y clasificación.

Results

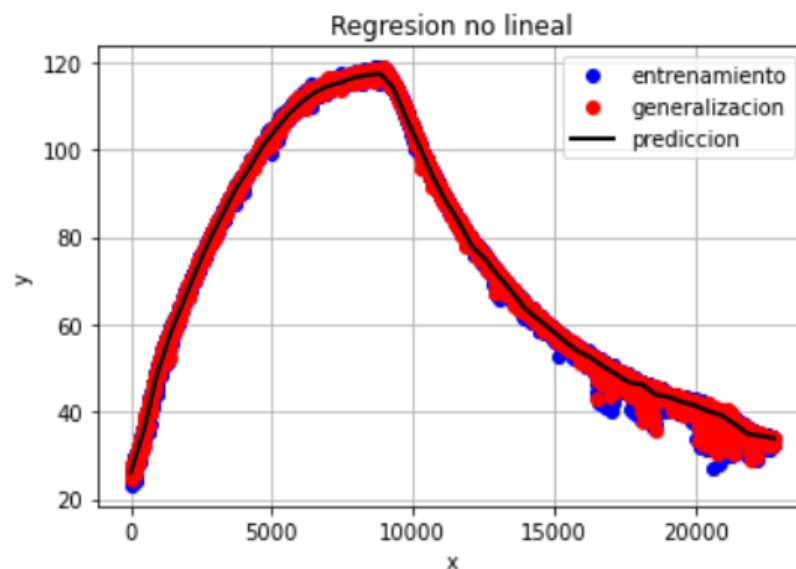
Regression

- K-nearest neighbors



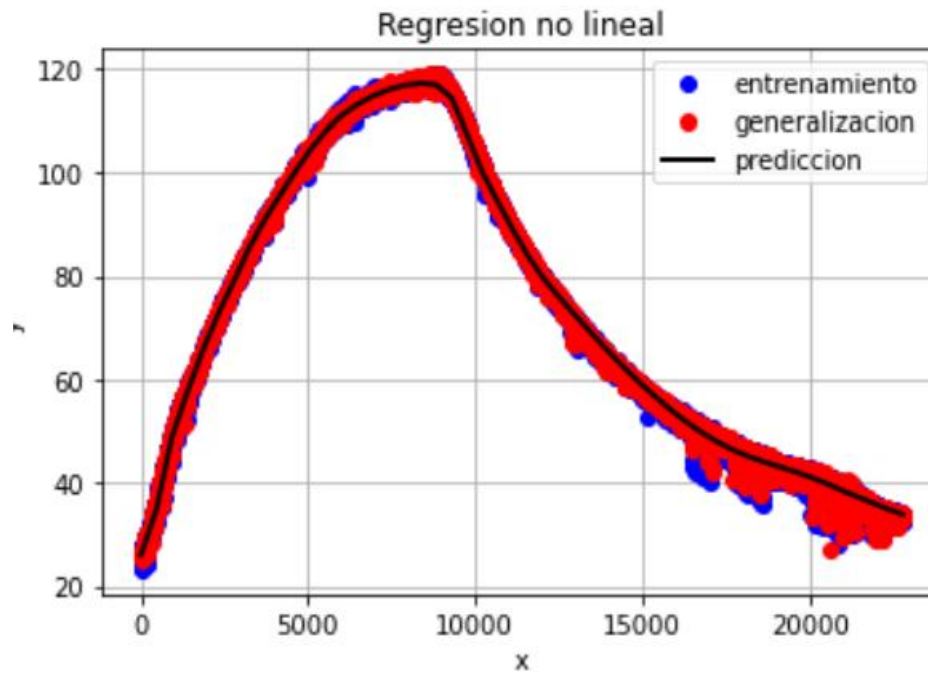
```
Train score: 0.9991359689338392  
Test score: 0.999042909106441
```

- Decision tree



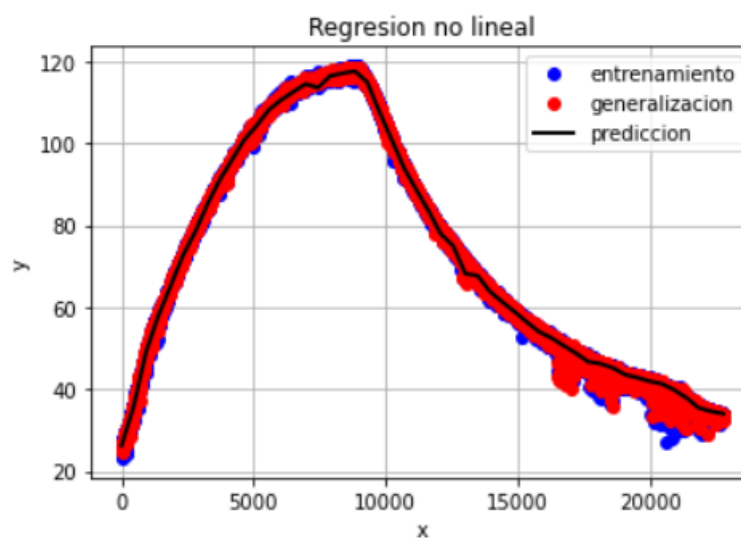
```
Train score: 0.9997449054273071  
Test score: 0.9984339479028254
```

- **Multilayer Perceptron**



```
Train score: 0.9986804930555188
Test score: 0.9986350349530833
```

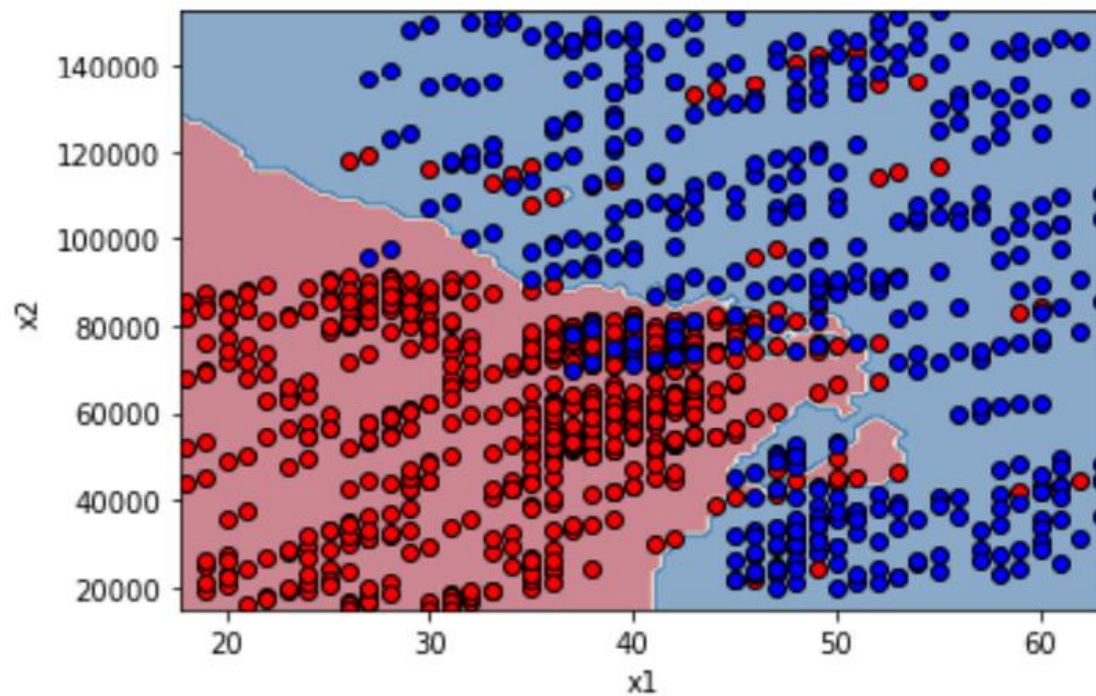
- **Support Vectorial Machine**



```
Train score: 0.9975966213517634
Test score: 0.9976639206010667
```

Classification

- K-nearest neighbors



Train score: 0.9253333333333333

Test score: 0.896

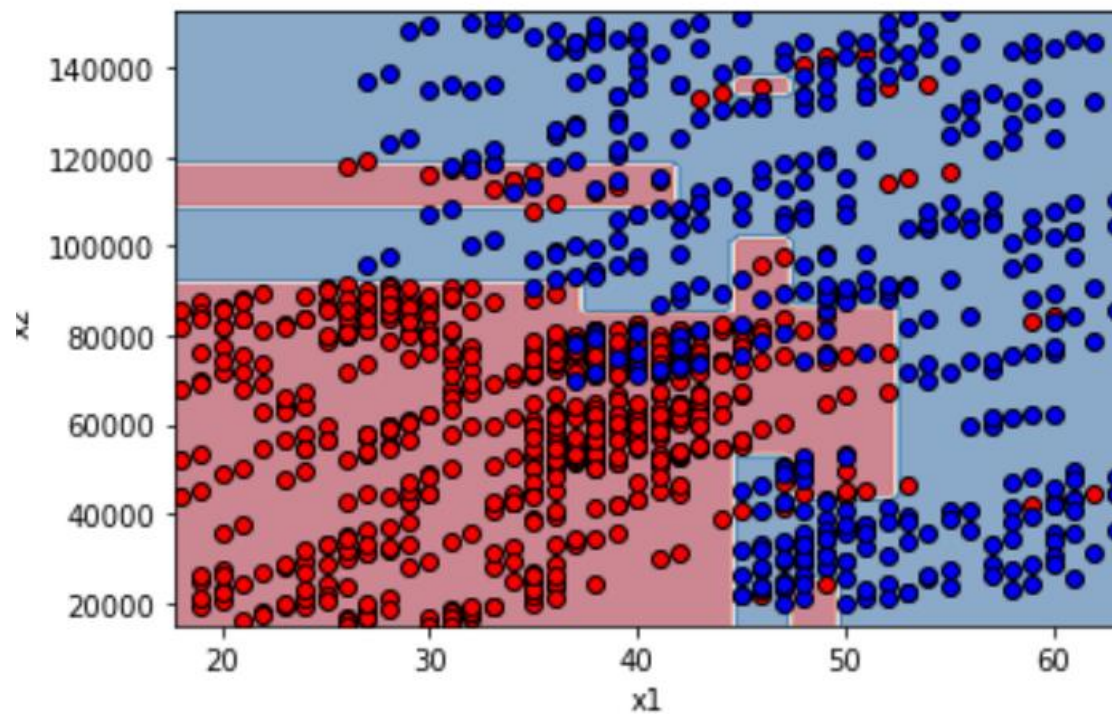
Metrics:

	precision	recall	f1-score	support
0	0.94	0.92	0.93	598
1	0.88	0.92	0.90	402
accuracy			0.92	1000
macro avg	0.91	0.92	0.92	1000
weighted avg	0.92	0.92	0.92	1000

Confusion matrix:

```
[[548  50]
 [ 32 370]]
```

- Decision tree



Train score: 0.9226666666666666

Test score: 0.912

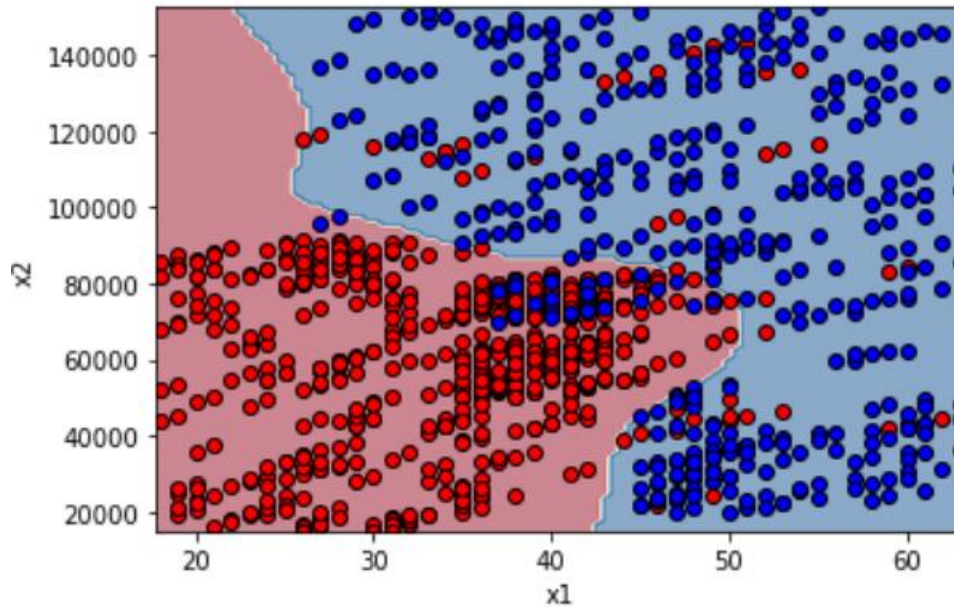
Metrics:

	precision	recall	f1-score	support
0	0.93	0.94	0.93	598
1	0.91	0.89	0.90	402
accuracy			0.92	1000
macro avg	0.92	0.91	0.92	1000
weighted avg	0.92	0.92	0.92	1000

Confusion matrix:

```
[[563 35]
 [ 45 357]]
```

- Support Vectorial Classification



Train score: 0.916

Test score: 0.912

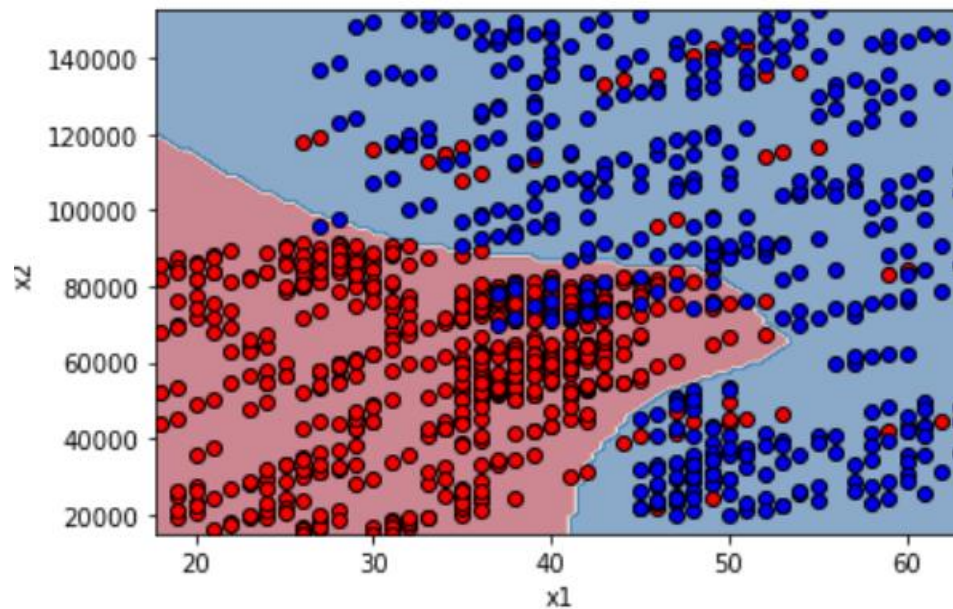
Metrics:

	precision	recall	f1-score	support
0	0.95	0.91	0.93	598
1	0.87	0.93	0.90	402
accuracy			0.92	1000
macro avg	0.91	0.92	0.91	1000
weighted avg	0.92	0.92	0.92	1000

Confusion matrix:

```
[[542  56]
 [ 29 373]]
```


- **Multilayer Perceptron**



```

Train score 0.92
Test score 0.908
Metricas:

```

	precision	recall	f1-score	support
0	0.94	0.92	0.93	598
1	0.88	0.92	0.90	402
accuracy			0.92	1000
macro avg	0.91	0.92	0.91	1000
weighted avg	0.92	0.92	0.92	1000

```

Confusion matrix:
[[548  50]
 [ 33 369]]

```

Conclusión

Esta actividad fue muy interesante ya que utilizamos varias estrategias para resolver los mismos problemas y vimos las ventajas y desventajas de cada una además de ver aplicaciones reales de los mismos.