Descripció

Aprèn a gestionar paràmetres amb Python.

In [171…

```python
import numpy as np
import pandas as pd

from sklearn.linear_model import LinearRegression
from sklearn.preprocessing import StandardScaler
from sklearn.preprocessing import MinMaxScaler
```

Nivell 1

- **Exercici 1**

Agafa un conjunt de dades de tema esportiu que t'agradi i normalitza els atributs categòrics en dummy. Estandaritza els atributs numèrics amb StandardScaler.

Se importa un dataset con los resultados de los mundiales del League of Legends de 2021. Incluye datos catégoricos (equipos, jugadores campeones usados y resultado) y numéricos (muertes, asistencias, oro ganado, daño, etc).

In [172…

```python
raw_df = pd.read_csv('lol2021.csv')
raw_df
```

Out[172…

	Team	Player	Opponent	Position	Champion	Kills	Deaths	Assists	Creep Score	Gold Earned	Champion Damage Share	Kill Participation	Wards Placed	Wards Destroyed
0	UOL	Boss	GS	Top	Camille	4	5	3	188	11107	0.17	0.78	8	
1	GS	Crazy	UOL	Top	Gwen	3	1	9	217	12201	0.20	0.52	10	
2	UOL	Ahahacik	GS	Jungle	Trundle	2	4	5	156	9048	0.15	0.78	8	
3	GS	Mojito	UOL	Jungle	Talon	5	4	10	194	11234	0.23	0.65	12	
4	UOL	Nomanz	GS	Mid	Leblanc	1	3	4	216	9245	0.29	0.56	6	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
215	BYG	Maoan	UOL	Mid	Ryze	4	4	2	356	15558	0.23	0.32	24	
216	UOL	Argonavt	BYG	Adc	Senna	1	3	9	58	9554	0.16	0.71	35	
217	BYG	Doggo	UOL	Adc	Draven	10	2	4	353	20546	0.38	0.74	15	
218	UOL	Santas	BYG	Support	Wukong	0	4	7	200	10354	0.11	0.50	16	
219	BYG	Kino	UOL	Support	Rakan	0	5	9	41	9304	0.06	0.47	49	

220 rows × 20 columns

Se normaliza los datos de muertes y torretas contruidas

In [173…

```python
ss = StandardScaler()

Xstd = ss.fit_transform(raw_df[['Kills', 'Wards Placed']].values)
Xstd
```

Out[173…

```
array([[ 0.50155703, -0.73062203],
       [ 0.11302694, -0.6030531 ],
       [-0.27550316, -0.73062203],
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       [-0.66403326, -0.85819095],
       [ 0.89008713, -0.15656186],
       [-0.66403326, -0.79440649],
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       [-0.66403326, -0.02899294],
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       [-0.27550316, -0.28413079],
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       [-0.27550316, -0.0927774 ],
       [ 0.89008713, -0.34791525],
       [ 1.66714733, -0.66683756],
       [ 1.27861723, -0.15656186],
       [-1.05256335, -0.22034633],
       [ 1.27861723, -0.6030531 ],
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       [-0.66403326,  0.99155847],
       [ 2.83273762, -0.28413079],
       [-1.05256335, -0.22034633],
       [-1.05256335,  1.88454094]])
```

In [174…

```python
print (Xstd.mean())
print (Xstd.std())
```

```
5.652044489000796e-17
1.0
```

In [175…

```python
x = raw_df[['Kills', 'Creep Score', 'Gold Earned']]
mms = MinMaxScaler()
Xn = mms.fit_transform(x)
```

In [176…

```python
Xn.min(axis=0)
```

Out[176…

```
array([0., 0., 0.])
```

In [177…

```python
Xn.max(axis=0)
```

Out[177…

```
array([1., 1., 1.])
```

Se muestra un nuevo DF con los datos categórigos tratados con libreria Dummie, generando nuevas columnas para los equipos y los resultados del torneo.

In [178…

```python
dummies = pd.get_dummies(raw_df, columns=["Team", "Result"])

print("Original DataFrame:")
raw_df
```

```
Original DataFrame:
```

Out[178…

	Team	Player	Opponent	Position	Champion	Kills	Deaths	Assists	Creep Score	Gold Earned	Champion Damage Share	Kill Participation	Wards Placed	Wards Destroyed
0	UOL	Boss	GS	Top	Camille	4	5	3	188	11107	0.17	0.78	8	
1	GS	Crazy	UOL	Top	Gwen	3	1	9	217	12201	0.20	0.52	10	
2	UOL	Ahahacik	GS	Jungle	Trundle	2	4	5	156	9048	0.15	0.78	8	
3	GS	Mojito	UOL	Jungle	Talon	5	4	10	194	11234	0.23	0.65	12	
4	UOL	Nomanz	GS	Mid	Leblanc	1	3	4	216	9245	0.29	0.56	6	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
215	BYG	Maoan	UOL	Mid	Ryze	4	4	2	356	15558	0.23	0.32	24	
216	UOL	Argonavt	BYG	Adc	Senna	1	3	9	58	9554	0.16	0.71	35	
217	BYG	Doggo	UOL	Adc	Draven	10	2	4	353	20546	0.38	0.74	15	
218	UOL	Santas	BYG	Support	Wukong	0	4	7	200	10354	0.11	0.50	16	
219	BYG	Kino	UOL	Support	Rakan	0	5	9	41	9304	0.06	0.47	49	

220 rows × 20 columns

In [179…

```python
print("DataFrame with Dummies:")
dummies
```

```
DataFrame with Dummies:
```

Out[179…

	Player	Opponent	Position	Champion	Kills	Deaths	Assists	Creep Score	Gold Earned	Champion Damage Share	...	Team_DFM	Team_GS	Team_HLE
0	Boss	GS	Top	Camille	4	5	3	188	11107	0.17	...	0	0	0
1	Crazy	UOL	Top	Gwen	3	1	9	217	12201	0.20	...	0	1	0
2	Ahahacik	GS	Jungle	Trundle	2	4	5	156	9048	0.15	...	0	0	0
3	Mojito	UOL	Jungle	Talon	5	4	10	194	11234	0.23	...	0	1	0
4	Nomanz	GS	Mid	Leblanc	1	3	4	216	9245	0.29	...	0	0	0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
215	Maoan	UOL	Mid	Ryze	4	4	2	356	15558	0.23	...	0	0	0
216	Argonavt	BYG	Adc	Senna	1	3	9	58	9554	0.16	...	0	0	0
217	Doggo	UOL	Adc	Draven	10	2	4	353	20546	0.38	...	0	0	0
218	Santas	BYG	Support	Wukong	0	4	7	200	10354	0.11	...	0	0	0
219	Kino	UOL	Support	Rakan	0	5	9	41	9304	0.06	...	0	0	0

220 rows × 30 columns

Nivell 2

- **Exercici 2**

Continua amb el conjunt de dades de tema esportiu que t'agradi i aplica l'anàlisi de components principals.

Nivell 3

- **Exercici 3**

Continua amb el conjunt de dades de tema esportiu que t'agradi i normalitza les dades tenint en compte els outliers.