

Unidad Temática 1

Práctico Domiciliario 3

Inteligencia Artificial 1

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```
pip install researchpy

Requirement already satisfied: researchpy in /usr/local/lib/python3.10/dist-packages (0.3.5)
Requirement already satisfied: scipy in /usr/local/lib/python3.10/dist-packages (from researchpy) (1.10.1)
Requirement already satisfied: numpy in /usr/local/lib/python3.10/dist-packages (from researchpy) (1.23.5)
Requirement already satisfied: pandas in /usr/local/lib/python3.10/dist-packages (from researchpy) (1.5.3)
Requirement already satisfied: statsmodels in /usr/local/lib/python3.10/dist-packages (from researchpy) (0.14.0)
Requirement already satisfied: patsy in /usr/local/lib/python3.10/dist-packages (from researchpy) (0.5.3)
Requirement already satisfied: python-dateutil>=2.8.1 in /usr/local/lib/python3.10/dist-packages (from pandas->researchpy) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.10/dist-packages (from pandas->researchpy) (2023.3)
Requirement already satisfied: six in /usr/local/lib/python3.10/dist-packages (from patsy->researchpy) (1.16.0)
Requirement already satisfied: packaging>=21.3 in /usr/local/lib/python3.10/dist-packages (from statsmodels->researchpy) (23.1)

import pandas as pd
import numpy as np
import scipy.stats as st
import matplotlib.pyplot as plt
```

Preparación de los datos con el dataset de UCI

```
url = "https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.data"
column_names = ['sepal-length', 'sepal-width', 'petal-length', 'petal-width', 'class']
iris = pd.read_csv(url, names=column_names)
iris.head()
```

	sepal-length	sepal-width	petal-length	petal-width	class
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa

Analizando los datos

Media

```
# Media
iris.mean()

<ipython-input-8-7eed97565d6e>:1: FutureWarning: The default value of numeric_only in DataFrame.mean is deprecated. In a future ver
iris.mean()
sepal-length    5.843333
sepal-width     3.054000
petal-length    3.758667
petal-width     1.198667
dtype: float64
```

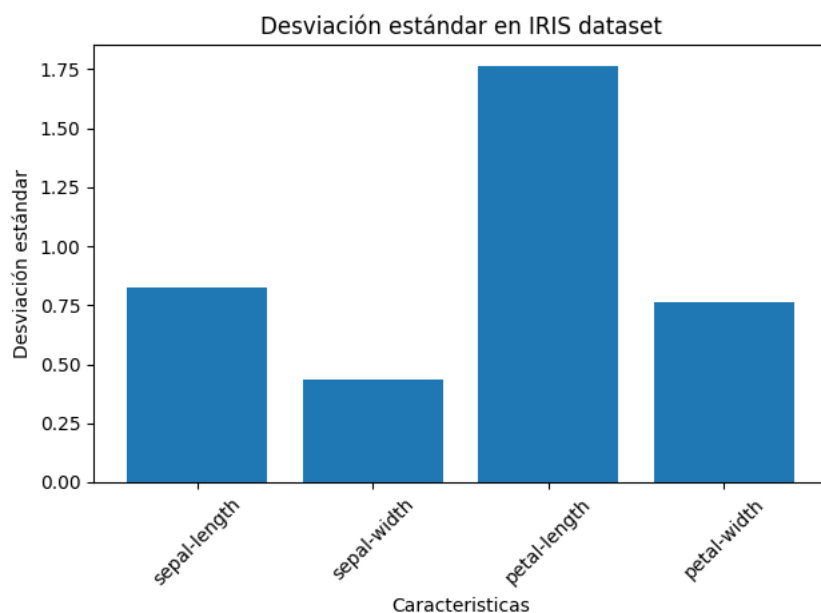
Desviación estándar

```
# Desviación estándar
iris.std()
```

```
<ipython-input-16-0a493418dfa7>:2: FutureWarning: The default value of numeric_only in DataFrame.std is deprecated. In a future ver
iris.std()
sepal-length    0.828066
sepal-width     0.433594
petal-length    1.764420
petal-width     0.763161
dtype: float64
```

```
iris_std = iris.iloc[:, :-1].std()
```

```
plt.bar(iris_std.index, iris_std.values)
plt.xlabel("Características")
plt.ylabel("Desviación estándar")
plt.title("Desviación estándar en IRIS dataset")
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()
```



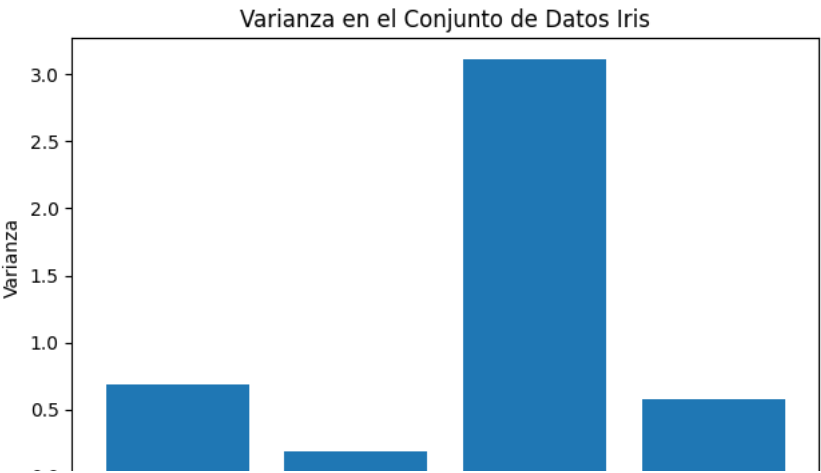
## ▼ Varianza

```
# Varianza
iris.var()
```

```
<ipython-input-14-d60937ddd51>:2: FutureWarning: The default value of numeric_only in DataFrame.var is deprecated. In a future ver
iris.var()
sepal-length    0.685694
sepal-width     0.188004
petal-length    3.113179
petal-width     0.582414
dtype: float64
```

```
iris_var = iris.iloc[:, :-1].var()
```

```
plt.bar(iris_var.index, iris_var.values)
plt.xlabel("Características")
plt.ylabel("Varianza")
plt.title("Varianza en el Conjunto de Datos Iris")
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()
```



▼ Contar los elementos de cada tipo

```
iris.groupby('class').size()

class
Iris-setosa      50
Iris-versicolor  50
Iris-virginica   50
dtype: int64
```

Link al Documento en Colaboratory

[Ver aquí](#)