Curso Exprés de pandas (Python 3)

Este cuaderno te guía de forma práctica por **pandas**, la librería estándar de Python para análisis de datos.

¿Qué es pandas?

pandas es una librería que facilita **cargar, limpiar, transformar, explorar y analizar** datos tabulares y etiquetados.

Elementos principales

- **Series**: vector unidimensional con **etiquetas** (índice). Piensa en una columna con nombre y posiciones.
- **DataFrame**: tabla de 2 dimensiones compuesta por varias Series alineadas por su índice (filas y columnas con nombres).
- **Index**: la **estructura de etiquetas** (para filas o columnas). Define cómo referimos y alineamos los datos.
- **GroupBy**: mecanismo para **agrupar** filas y aplicar **agregaciones**, **transformaciones** o **filtros** por grupo.

  > En este notebook encontrarás 80 ejercicios (20 de cada tema), con dificultad progresiva y salidas impresas cuando apliquen.

```
In [10]:  # Generar (o regenerar) el archivo CSV de ejemplo
          import numpy as np
          import pandas as pd

          np.random.seed(42)
          n_rows = 100
          ids = list(range(1, n_rows + 1))

          nombres_pool = [
              "Ana", "Luis", "María", "Carlos", "Sofía", "Diego", "Lucía", "Jorge", "Elena",
              "Valeria", "Miguel", "Fernanda", "Andrés", "Paola", "Ricardo", "Diana", "Héctor
              "Andrea", "Raúl", "Natalia", "Iván", "Gabriela", "Santiago", "Fabiola", "Mauric
              "Daniela", "Arturo", "Regina", "Marcos", "Aurora", "Tomás", "Mónica", "César",
              "Ximena", "Alberto", "Beatriz", "Isabel", "Rafael", "Pablo", "Inés", "Mateo", "
          ]
          ciudades = ["CDMX", "Puebla", "Monterrey", "Guadalajara", "Tlaxcala"]
          edades = np.random.randint(18, 61, size=n_rows)
          salarios = np.random.randint(10000, 50001, size=n_rows)
          nombres = np.random.choice(nombres_pool, size=n_rows, replace=True)
          ciudad_vals = np.random.choice(ciudades, size=n_rows, replace=True)

          df_ej = pd.DataFrame({
```

```
        "id": ids,
        "nombre": nombres,
        "edad": edades,
        "ciudad": ciudad_vals,
        "salario": salarios
    })

    df_ej.to_csv("datos_ejemplo.csv", index=False)
    print("Archivo 'datos_ejemplo.csv' creado con", len(df_ej), "filas.")
```

Archivo 'datos_ejemplo.csv' creado con 100 filas.

In [1]:
```
!pip install pandas
```

Requirement already satisfied: pandas in /home/orlando/.env/lib/python3.13/site-pack
ages (2.3.1)
Requirement already satisfied: numpy>=1.26.0 in /home/orlando/.env/lib/python3.13/si
te-packages (from pandas) (2.3.2)
Requirement already satisfied: python-dateutil>=2.8.2 in /home/orlando/.env/lib/pyth
on3.13/site-packages (from pandas) (2.9.0.post0)
Requirement already satisfied: pytz>=2020.1 in /home/orlando/.env/lib/python3.13/sit
e-packages (from pandas) (2025.2)
Requirement already satisfied: tzdata>=2022.7 in /home/orlando/.env/lib/python3.13/s
ite-packages (from pandas) (2025.2)
Requirement already satisfied: six>=1.5 in /home/orlando/.env/lib/python3.13/site-pa
ckages (from python-dateutil>=2.8.2->pandas) (1.17.0)

Cargar el dataset de ejemplo

In [3]:
```
import pandas as pd
df = pd.read_csv("netflix_titles.csv")
print(df.head())
```

```
    show_id     type                   title        director  \
0       s1    Movie    Dick Johnson Is Dead  Kirsten Johnson
1       s2  TV Show           Blood & Water             NaN
2       s3  TV Show               Ganglands  Julien Leclercq
3       s4  TV Show     Jailbirds New Orleans           NaN
4       s5  TV Show            Kota Factory             NaN

                                              cast        country  \
0                                              NaN  United States
1  Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...   South Africa
2  Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...            NaN
3                                              NaN            NaN
4  Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...          India

           date_added  release_year rating   duration  \
0  September 25, 2021          2020  PG-13     90 min
1  September 24, 2021          2021  TV-MA  2 Seasons
2  September 24, 2021          2021  TV-MA   1 Season
3  September 24, 2021          2021  TV-MA   1 Season
4  September 24, 2021          2021  TV-MA  2 Seasons

                                       listed_in  \
0                                  Documentaries
1     International TV Shows, TV Dramas, TV Mysteries
2  Crime TV Shows, International TV Shows, TV Act...
3                          Docuseries, Reality TV
4  International TV Shows, Romantic TV Shows, TV ...

                                     description
0  As her father nears the end of his life, filmm...
1  After crossing paths at a party, a Cape Town t...
2  To protect his family from a powerful drug lor...
3  Feuds, flirtations and toilet talk go down amo...
4  In a city of coaching centers known to train I...
```

In [7]: `df.columns`

Out[7]: Index(['show_id', 'type', 'title', 'director', 'cast', 'country', 'date_added',
       'release_year', 'rating', 'duration', 'listed_in', 'description'],
      dtype='object')

In [9]: `df.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8807 entries, 0 to 8806
Data columns (total 12 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   show_id       8807 non-null   object
 1   type          8807 non-null   object
 2   title         8807 non-null   object
 3   director      6173 non-null   object
 4   cast          7982 non-null   object
 5   country       7976 non-null   object
 6   date_added    8797 non-null   object
 7   release_year  8807 non-null   int64
 8   rating        8803 non-null   object
 9   duration      8804 non-null   object
 10  listed_in     8807 non-null   object
 11  description   8807 non-null   object
dtypes: int64(1), object(11)
memory usage: 825.8+ KB
```

In [8]: `df.describe()`

Out[8]:

	release_year
count	8807.000000
mean	2014.180198
std	8.819312
min	1925.000000
25%	2013.000000
50%	2017.000000
75%	2019.000000
max	2021.000000

In [11]: `df.head`

```
Out[11]: <bound method NDFrame.head of      show_id     type                   title
         director  \
         0         s1    Movie   Dick Johnson Is Dead   Kirsten Johnson
         1         s2  TV Show          Blood & Water               NaN
         2         s3  TV Show              Ganglands   Julien Leclercq
         3         s4  TV Show  Jailbirds New Orleans               NaN
         4         s5  TV Show           Kota Factory               NaN
         ...      ...      ...                    ...               ...
         8802   s8803    Movie                 Zodiac     David Fincher
         8803   s8804  TV Show            Zombie Dumb               NaN
         8804   s8805    Movie             Zombieland   Ruben Fleischer
         8805   s8806    Movie                   Zoom      Peter Hewitt
         8806   s8807    Movie                 Zubaan       Mozez Singh

                                                cast        country  \
         0                                       NaN  United States
         1     Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...   South Africa
         2     Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...            NaN
         3                                       NaN            NaN
         4     Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...          India
         ...                                     ...            ...
         8802  Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...  United States
         8803                                    NaN            NaN
         8804  Jesse Eisenberg, Woody Harrelson, Emma Stone, ...  United States
         8805  Tim Allen, Courteney Cox, Chevy Chase, Kate Ma...  United States
         8806  Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan...          India

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         3     September 24, 2021          2021  TV-MA    1 Season
         4     September 24, 2021          2021  TV-MA   2 Seasons
         ...                  ...           ...    ...         ...
         8802   November 20, 2019          2007      R    158 min
         8803        July 1, 2019          2018  TV-Y7   2 Seasons
         8804    November 1, 2019          2009      R     88 min
         8805    January 11, 2020          2006     PG     88 min
         8806        March 2, 2019          2015  TV-14    111 min

                                               listed_in  \
         0                                  Documentaries
         1      International TV Shows, TV Dramas, TV Mysteries
         2     Crime TV Shows, International TV Shows, TV Act...
         3                           Docuseries, Reality TV
         4      International TV Shows, Romantic TV Shows, TV ...
         ...                                          ...
         8802              Cult Movies, Dramas, Thrillers
         8803          Kids' TV, Korean TV Shows, TV Comedies
         8804                    Comedies, Horror Movies
         8805            Children & Family Movies, Comedies
         8806      Dramas, International Movies, Music & Musicals

                                              description
         0     As her father nears the end of his life, filmm...
         1     After crossing paths at a party, a Cape Town t...
```

```
         2          To protect his family from a powerful drug lor...
         3          Feuds, flirtations and toilet talk go down amo...
         4          In a city of coaching centers known to train I...
         ...                                                        ...
         8802   A political cartoonist, a crime reporter and a...
         8803   While living alone in a spooky town, a young g...
         8804   Looking to survive in a world taken over by zo...
         8805   Dragged from civilian life, a former superhero...
         8806   A scrappy but poor boy worms his way into a ty...

         [8807 rows x 12 columns]>
```

```
In [12]:  df.all
```

```
Out[12]: <bound method DataFrame.all of         show_id     type                                title
         director  \
         0          s1    Movie     Dick Johnson Is Dead   Kirsten Johnson
         1          s2  TV Show            Blood & Water               NaN
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         ...       ...      ...                      ...               ...
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