### Acceso a datos de series con posición e índices

- Si se inserta un ':' (dos puntos) delante de él, se extraerán todos los elementos de ese índice en adelante.
- Si se utilizan dos parámetros (con ':' entre ellos), se recuperan los elementos entre los dos índices (sin incluir el índice de detención)

```
In [1]: ▶ 1 import pandas as pd
             3
                s = pd.Series([1,2,3,4,5,6,7,8],index = ['a','b','c','d','e','f','g','h'])
   Out[1]: a
            b
            c
                 4
            d
            e
                 5
            f
                 6
                 7
            g
                 8
            dtype: int64
In [2]:  ▶ 1 print(f"Recupera el valor de la posición 2:\n {s[2]}")
             2 print(f"Recupera los primeros tres elementos de la serie:\n{s[:3]}")
             3 print(f"Recupera los últimos tres elementos de la serie:\n{s[-3:]}")
             4 | print(f"Recupera desde la posicion 1 hasta la 3. También llamado Corte por \
                      'indice entero implicito':\n{s[1:4]}")
             6 print(f"Recupera un solo elemento utilizando el valor de la etiqueta de índice:\n{s['a']}")
             7 print(f"Recupera múltiples elementos usando una lista de valores de \
                      etiquetas de índice. También llamada \
             9 'Indexación elegante':\n{s[['a','c','f']]}")
            10 print(f"Recupera los valores entre los índices indicados. También llamado \
            11 'Corte por indice explicato':\n{s['b':'f']}")
            Recupera el valor de la posición 2:
            Recupera los primeros tres elementos de la serie:
            b
            dtype: int64
            Recupera los últimos tres elementos de la serie:
            h
                8
            dtype: int64
            Recupera desde la posicion 1 hasta la 3. También llamado Corte por
                                                                                     'indice entero implicito':
            h
            d
            dtvpe: int64
            Recupera un solo elemento utilizando el valor de la etiqueta de índice:
            Recupera múltiples elementos usando una lista de valores de
                                                                             etiquetas de índice. También llamada 'Indexación elegante':
            а
                 3
            c
                 6
            dtype: int64
            Recupera los valores entre los índices indicados. También llamado 'Corte por índice explícito':
            c
            d
            е
                 5
                 6
            dtype: int64
```

- Cuando se corta con un índice explícito, s['b':'d'], el índice final se incluye en el segmento.
- Cuando se corta con índice implícito, s[1:4], el valor final del índice se excluye del segmento.

Indexadores: loc e iloc

dtype: int64

- si la serie tiene un índice entero explícito, una operación de indexación como s[1] usará los índices explícitos,
- mientras que una operación de corte como s[1:3] usará el índice implícito.

```
S
  Out[4]: 1
            а
        3
            b
           c
        dtype: object
print(f"Índice implícito al cortar:\n{s[1:3]}")
        Índice explícito al indexar:
        Índice implícito al cortar:
        3
           h
        5
           С
        dtype: object
        Debido a esta posible confusión en el caso de los índices de enteros, Pandas
        proporciona atributos que exponen una interfaz de corte particular a los datos en la Serie:
```

• El atributo loc que permite la indexación y el corte que siempre hace referencia al índice explícito:

• El atributo iloc permite la indexación y el corte que siempre hace referencia al índice implícito:

### Acceso a datos de dataframe con posición e índices

ároa

La indexación se refiere a las columnas, el corte (slicing) se refiere a las filas:

Out[10]:

|              | poblacion | aica   |
|--------------|-----------|--------|
| Buenos Aires | 8332521   | 423967 |
| Córdoba      | 7448193   | 695662 |
| Mendoza      | 1965112   | 141297 |
| Neuquén      | 1955607   | 170312 |
| Santa Fé     | 1281353   | 149995 |

noblación

Pasar un solo "índice" a un DataFrame accede a una columna:

```
In [12]: ► 1 provincias['Córdoba':'Neuquén']
   Out[12]:
                     población
                                área
              Córdoba
                      7448193 695662
                      1965112 141297
             Mendoza
                      1955607 170312
             Neuguén
In [13]:  ▶ 1 provincias[1:4]
   Out[13]:
                     población
                                área
             Córdoba
                      7448193 695662
                      1965112 141297
             Mendoza
                      1955607 170312
             Neuquén
         loc: selección de fila pasando la etiqueta
         Pasar un solo índice accede a una fila:
In [14]:  ▶ 1 provincias.loc['Mendoza']
   Out[14]: población
                         1965112
             área
                          141297
            Name: Mendoza, dtype: int64
         El resultado es una serie con etiquetas con el nombres de columna del DataFrame. Y el nombre de la serie es la etiqueta con la que se recupera:
Out[15]: pandas.core.series.Series
         Recuperamos los datos con el atributo de nombres de columna que son cadenas:
In [16]: ▶ 1 provincias.área
   Out[16]: Buenos Aires
                            423967
             Córdoba
                            695662
            Mendoza
                            141297
            Neuauén
                            170312
             Santa Fé
                            149995
             Name: área, dtype: int64
         Con el indexador loc podemos combinar el enmascaramiento y la indexación elegante:
In [17]: N 1 provincias.loc[:'Mendoza', :'población']
   Out[17]:
                         población
             Buenos Aires
                          8332521
                 Córdoba
                          7448193
                Mendoza
                          1965112
         iloc: selección de fila pasando la ubicación entera:
             In [18]: ▶
              5 df = pd.DataFrame(d)
              6 df
   Out[18]:
                uno dos tres cuatro
                 1.0
                               5.0
                      2
                          5
                2.0
                              NaN
                3.0
                               8.0
             d NaN
                      4
                               7.0
In [19]: ▶ 1 df.iloc[2]
   Out[19]: uno
                      3.0
                      3.0
             dos
             tres
                      6.0
             cuatro
                      8.0
             Name: c, dtype: float64
```

```
In [20]:  M 1 df.iloc[2:4]
Out[20]:
```

|   | uno | dos | tres | cuatro |
|---|-----|-----|------|--------|
| С | 3.0 | 3   | 6    | 8.0    |
| d | NaN | 4   | 7    | 7.0    |

Out[21]:

|              | población | área   |
|--------------|-----------|--------|
| Buenos Aires | 8332521   | 423967 |
| Córdoba      | 7448193   | 695662 |
| Mendoza      | 1965112   | 141297 |

Formato fila columna. Se pueden seleccionar modificar valores:

Out[22]:

|   | uno | dos | tres | cuatro |
|---|-----|-----|------|--------|
| а | 1.0 | 1   | 4    | 5.0    |
| b | 2.0 | 2   | 90   | NaN    |
| С | 3.0 | 3   | 6    | 8.0    |
| d | NaN | 4   | 7    | 7.0    |

### Selección de datos de Pandas

- Seleccionar datos por posición (.iloc)
- Seleccionar datos por etiqueta o por una declaración condicional (.loc)

Para verificar la estructura que devuelve la selección (Series o Dataframe) asignar a una variable la selección y posteriormente aplicar type().

Out[23]:

|   | order | rank     | discipline | yrs.since.phd | yrs.service | sex  | salary |
|---|-------|----------|------------|---------------|-------------|------|--------|
| 0 | 1     | Prof     | В          | 19            | 18          | Male | 139750 |
| 1 | 2     | Prof     | В          | 20            | 16          | Male | 173200 |
| 2 | 3     | AsstProf | В          | 4             | 3           | Male | 79750  |
| 3 | 4     | Prof     | В          | 45            | 39          | Male | 115000 |
| 4 | 5     | Prof     | В          | 40            | 41          | Male | 141500 |

|                 |          |       | Índice de columnas |            |               |             |        |        |  |  |
|-----------------|----------|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|
|                 |          | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |
|                 | _        | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |
|                 | 0        | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |
|                 | 1        | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |
|                 | 2        | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |
|                 | 3        | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |
|                 | 4        | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |
| as              | 5        | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |
| 軍               | 6        | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |
| Índice de filas | 7        | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |
| 픙               | 8        | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |
| <b>√=</b>       | 9        | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |
|                 | 10       | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |
|                 | 11<br>12 | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |
|                 | 12       | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |
|                 | 13       | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |
|                 | 14       | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |

### Seleccionar una fila

In [24]: ► datos.head(6)

Out[24]:

|   | order rai  |           | discipline yrs.since.phd |    | yrs.service | sex  | salary |
|---|------------|-----------|--------------------------|----|-------------|------|--------|
| ( | ) 1        | Prof      | В                        | 19 | 18          | Male | 139750 |
|   | 1 2        | Prof      | В                        | 20 | 16          | Male | 173200 |
| : | 2 3        | AsstProf  | В                        | 4  | 3           | Male | 79750  |
| ; | 3 4        | Prof      | В                        | 45 | 39          | Male | 115000 |
|   | <b>1</b> 5 | Prof      | В                        | 40 | 41          | Male | 141500 |
|   | 6          | AssocProf | В                        | 6  | 6           | Male | 97000  |

# Slicing en Pandas con iloc

```
In [25]: ► 1 datos.iloc[4]
   Out[25]: order
           rank
                             Prof
                            В
           discipline
           yrs.since.phd
                              40
                             41
           yrs.service
                            Male
           sex
           salary
                           141500
           Name: 4, dtype: object
In [26]: ► 1 type(datos.iloc[4])
   Out[26]: pandas.core.series.Series
```

• En esta selección pandas devuelve una Serie

|                 |    | Índice de columnas |           |            |               |             |        |        |  |  |
|-----------------|----|--------------------|-----------|------------|---------------|-------------|--------|--------|--|--|
|                 |    | 0                  | 1         | 2          | 3             | 4           | 5      | 6      |  |  |
|                 |    | order              | rank      | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |
|                 | 0  | 1                  | Prof      | В          | 19            | 18          | Male   | 139750 |  |  |
|                 | 1  | 2                  | Prof      | В          | 20            | 16          | Male   | 173200 |  |  |
|                 | 2  | 3                  | AsstProf  | В          | 4             | 3           | Male   | 79750  |  |  |
|                 | 3  | 4                  | Prof      | В          | 45            | 39          | Male   | 115000 |  |  |
|                 | 4  | 5                  | Prof      | В          | 40            | 41          | Male   | 141500 |  |  |
| as              | 5  | 6                  | AssocProf | В          | 6             | 6           | Male   | 97000  |  |  |
| E               | 6  | 7                  | Prof      | В          | 30            | 23          | Male   | 175000 |  |  |
| índice de filas | 7  | 8                  | Prof      | В          | 45            | 45          | Male   | 147765 |  |  |
| di Ö            | 8  | 9                  | Prof      | В          | 21            | 20          | Male   | 119250 |  |  |
| <b>.</b> ≡      | 9  | 10                 | Prof      | В          | 18            | 18          | Female | 129000 |  |  |
|                 | 10 | 11                 | AssocProf | В          | 12            | 8           | Male   | 119800 |  |  |
|                 | 11 | 12                 | AsstProf  | В          | 7             | 2           | Male   | 79800  |  |  |
|                 | 12 | 13                 | AsstProf  | В          | 1             | 1           | Male   | 77700  |  |  |
|                 | 13 | 14                 | AsstProf  | В          | 2             | 0           | Male   | 78000  |  |  |
|                 | 14 | 15                 | Prof      | В          | 20            | 18          | Male   | 104800 |  |  |

yrs.since.phd 8
yrs.service 4
sex Male
salary 81035
Name: 396, dtype: object

Podemos ingresar una lista, con un solo índice entero, cuando usamos iloc. Esto indexará una fila, pero la salida será diferente en comparación con el ejemplo anterior:

|     | order | rank     | discipline | yrs.since.phd | yrs.service | sex  | salary |
|-----|-------|----------|------------|---------------|-------------|------|--------|
| 396 | 397   | AsstProf | Α          | 8             | 4           | Male | 81035  |

|                 |   |       | Indice de columnas |            |               |             |      |        |  |  |  |
|-----------------|---|-------|--------------------|------------|---------------|-------------|------|--------|--|--|--|
|                 |   | 0     | 1                  | 2          | 3             | 4           | 5    | 6      |  |  |  |
|                 | _   | order | rank               | discipline | yrs.since.phd | yrs.service | sex  | salary |  |  |  |
|                 | 0   | 383   | AssocProf          | A          | 8             | 5           | Male | 86895  |  |  |  |
|                 | 1   | 384   | Prof               | A          | 44            | 44          | Male | 105000 |  |  |  |
|                 | 2   | 385   | Prof               | A          | 27            | 21          | Male | 125192 |  |  |  |
|                 | 3   | 386   | Prof               | A          | 15            | 9           | Male | 114330 |  |  |  |
|                 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8 | 387   | Prof               | A          | 29            | 27          | Male | 139219 |  |  |  |
| as              | 5   | 388   | Prof               | A          | 29            | 15          | Male | 109305 |  |  |  |
| Índice de filas | 6   | 389   | Prof               | A          | 38            | 36          | Male | 119450 |  |  |  |
| ğ               | 7   | 390   | Prof               | A          | 33            | 18          | Male | 186023 |  |  |  |
| di ci           | 8   | 391   | Prof               | A          | 40            | 19          | Male | 166605 |  |  |  |
| Æ               | 9   | 392   | Prof               | A          | 30            | 19          | Male | 151292 |  |  |  |
|                 | 10  | 393   | Prof               | A          | 33            | 30          | Male | 103106 |  |  |  |
|                 | 11  | 394   | Prof               | Α          | 31            | 19          | Male | 150564 |  |  |  |
|                 | 12  | 395   | Prof               | Α          | 42            | 25          | Male | 101738 |  |  |  |
|                 | 11<br>12<br>13<br>14                      | 396   | Prof               | Α          | 25            | 15          | Male | 95329  |  |  |  |
|                 | 14  | 397   | AsstProf           | Α          | 8             | 4           | Male | 81035  |  |  |  |

### Seleccionar una celda específica

In [29]: • datos.iloc[9,5]

Out[29]: 'Female'

|          |    |       | Índice de columnas |            |               |             |        |        |  |  |
|----------|----|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|
|          |    | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |
|          | _  | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |
|          | 0  | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |
|          | 1  | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |
|          | 2  | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |
|          | 3  | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |
|          | 4  | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |
| as       | 5  | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |
| de filas | 6  | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |
| Ď        | 7  | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |
| Índice   | 8  | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |
| Ē        | 9  | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |
|          | 10 | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |
|          | 11 | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |
|          | 12 | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |
|          | 13 | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |
|          | 14 | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |

### Seleccionar múltiples filas

Out[30]:

|   | order | rank     | discipline | yrs.since.phd | yrs.service | sex  | salary |
|---|-------|----------|------------|---------------|-------------|------|--------|
| 7 | 8     | Prof     | В          | 45            | 45          | Male | 147765 |
| 2 | 3     | AsstProf | В          | 4             | 3           | Male | 79750  |
| ^ | 1     | Drof     | D          | 10            | 10          | Mala | 120750 |

|          |    |       | Índice de columnas |            |               |             |        |        |  |  |  |
|----------|----|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|--|
|          |    | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |  |
|          |    | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |  |
|          | 0  | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |  |
|          | 1  | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |  |
|          | 2  | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |  |
|          | 3  | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |  |
|          | 4  | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |  |
| as       | 5  | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |  |
| de filas | 6  | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |  |
| Ď        | 7  | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |  |
| Índice   | 8  | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |  |
| ᆖ        | 9  | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |  |
|          | 10 | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |  |
|          | 11 | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |  |
|          | 12 | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |  |
|          | 13 | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |  |
|          | 14 | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |  |

• En esta selección pandas devuelve un Dataframe

### Seleccionar parte de los datos de una fila

Out[31]: rank Prof discipline B yrs.since.phd 45 Name: 3, dtype: object

|            |    |       | Índice de columnas |            |               |             |        |        |  |  |
|------------|----|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|
|            |    | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |
|            | _  | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |
|            | 0  | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |
|            | 1  | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |
|            | 2  | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |
|            | 3  | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |
|            | 4  | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |
| filas      | 5  | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |
| ≡          | 6  | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |
| e de       | 7  | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |
| Índice     | 8  | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |
| <b>.</b> ≞ | 9  | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |
|            | 10 | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |
|            | 11 | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |
|            | 12 | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |
|            | 13 | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |
|            | 14 | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |

• En esta selección pandas devuelve una Serie

rank discipline yrs.since.phd yrs.service salary order sex Prof В 119250 20 Male В 9 10 Prof 18 18 Female 129000 12 10 11 AssocProf В 8 119800 Male 11 12 AsstProf В 7 79800 Male 12 AsstProf 77700

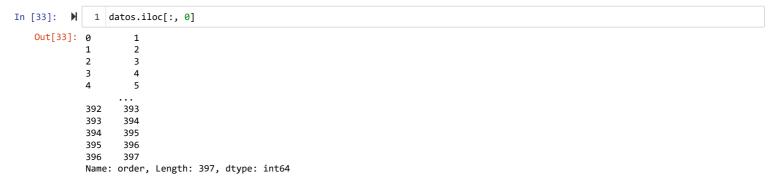
|            |    |       | Índice de columnas |            |               |             |        |        |  |  |  |
|------------|----|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|--|
|            |    | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |  |
|            |    | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |  |
|            | 0  | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |  |
|            | 1  | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |  |
|            | 2  | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |  |
|            | 3  | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |  |
|            | 4  | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |  |
| as         | 5  | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |  |
| de filas   | 6  | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |  |
| Ö          | 7  | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |  |
| Índice     | 8  | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |  |
| <b>.</b> ≘ | 9  | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |  |
|            | 10 | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |  |
|            | 11 | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |  |
|            | 12 | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |  |
|            | 13 | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |  |
|            | 14 | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |  |

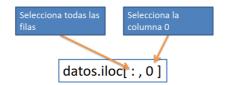
• Al seleccionar varias columnas o varias filas , las filas / columnas seleccionadas se ejecutarán desde el primer número hasta uno menos del segundo valor, por ejemplo, [1: 5] será 1, 2, 3, 4.

### Seleccionar columnas

In [32]: | datos.iloc[8:13]

Out[32]:





|            |           |       | Indice de columnas |            |               |             |        |        |  |  |  |
|------------|-----------|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|--|
|            |           | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |  |
|            | _         | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |  |
|            | 0         | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |  |
|            | 1         | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |  |
|            | 2         | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |  |
|            | 3         | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |  |
|            | 4         | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |  |
| filas      | 5         | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |  |
| E E        | 6         | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |  |
| e de       | 7         | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |  |
| Índice     | 8         | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |  |
| <b>-</b> = | 9         | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |  |
|            | 10        | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |  |
|            | 11        | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |  |
|            | <b>12</b> | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |  |
|            | 13        | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |  |
|            | 14        | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |  |

```
139750
173200
   Out[34]: 0
                 79750
          3
                115000
          4
                141500
               ...
103106
          392
          393
                150564
          394
                101738
          395
                 95329
          396
                81035
          Name: salary, Length: 397, dtype: int64
```

|    |   | Indice de columnas   |   |   |   |   |  |  |  |  |
|----|---|--|---|---|---|---|--|--|--|--|
|    | 0   | 1  | 2   | 3   | 4   | 5   | 6  |  |  |  |
|    | order   | rank   | discipline  | yrs.since.phd   | yrs.service   | sex   | salary   |  |  |  |
| 0  | 1   | Prof   | В   | 19  | 18  | Male  | 139750   |  |  |  |
| 1  | 2   | Prof   | В   | 20  | 16  | Male  | 173200   |  |  |  |
| 2  | 3   | AsstProf   | В   | 4   | 3   | Male  | 79750  |  |  |  |
| 3  | 4   | Prof   | В   | 45  | 39  | Male  | 115000   |  |  |  |
| 4  | 5   | Prof   | В   | 40  | 41  | Male  | 141500   |  |  |  |
| 5  | 6   | AssocProf  | В   | 6   | 6   | Male  | 97000  |  |  |  |
| 6  | 7   | Prof   | В   | 30  | 23  | Male  | 175000   |  |  |  |
| 7  | 8   | Prof   | В   | 45  | 45  | Male  | 147765   |  |  |  |
| 8  | 9   | Prof   | В   | 21  | 20  | Male  | 119250   |  |  |  |
| 9  | 10  | Prof   | В   | 18  | 18  | Female  | 129000   |  |  |  |
| 10 | 11  | AssocProf  | В   | 12  | 8   | Male  | 119800   |  |  |  |
| 11 | 12  | AsstProf   | В   | 7   | 2   | Male  | 79800  |  |  |  |
| 12 | 13  | AsstProf   | В   | 1   | 1   | Male  | 77700  |  |  |  |
| 13 | 14  | AsstProf   | В   | 2   | 0   | Male  | 78000  |  |  |  |
| 14 | 15  | Prof   | В   | 20  | 18  | Male  | 104800   |  |  |  |
|    | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11 | 0 1<br>1 2<br>2 3<br>3 4<br>4 5<br>5 6<br>6 7<br>7 8<br>8 9<br>9 10<br>10 11<br>11 12<br>12 13<br>13 | 1 Prof 2 Prof 3 AsstProf 4 Prof 5 Frof 6 AssocProf 7 Prof 8 Prof 9 10 Prof 11 AssocProf 12 AsstProf 12 AsstProf 14 AsstProf 15 AsstProf 16 AssocProf 17 AsstProf 18 AsstProf 18 AsstProf 19 AsstProf 10 AsstProf 11 AssocProf 12 AsstProf | 1 Prof B 2 Prof B 3 AsstProf B 3 AsstProf B 4 Frof B 5 Frof B 6 AssocProf B 7 Prof B 8 Prof B 9 Prof B 10 Prof B 11 AssocProf B 12 AsstProf B 13 AsstProf B 14 AsstProf B | 1 Prof B 19 2 Prof B 20 3 AsstProf B 45 4 5 Prof B 40 5 6 AssocProf B 30 6 7 Prof B 30 7 8 Prof B 42 8 9 Prof B 42 9 10 Prof B 18 11 AssocProf B 12 12 AsstProf B 7 13 AsstProf B 7 14 AsstProf B 7 14 AsstProf B 7 15 AsstProf B 7 16 AsstProf B 12 17 AsstProf B 7 18 AsstProf B 7 19 AsstProf B 7 10 AsstProf B 1 12 11 AsstProf B 7 12 AsstProf B 1 12 13 AsstProf B 1 12 | 1 Prof B 19 18 2 Prof B 20 16 3 AsstProf B 4 3 4 Prof B 45 39 4 5 Prof B 40 41 5 6 AssocProf B 30 23 8 Prof B 30 23 8 Prof B 30 23 8 Prof B 45 45 8 9 Prof B 45 45 9 Prof B 45 45 10 Prof B 18 18 11 AssocProf B 12 20 11 AssocProf B 12 8 12 8 13 AsstProf B 7 2 13 AsstProf B 7 2 14 AsstProf B 1 1 1 | 1 Prof B 19 18 Male 2 Prof B 20 16 Male 3 AsstProf B 4 3 Male 4 Prof B 45 39 Male 5 Prof B 40 41 Male 5 Assocrof B 40 41 Male 5 Assocrof B 5 6 Assocrof B 5 6 6 6 Male 7 Prof B 30 23 Male 6 7 Prof B 30 23 Male 7 8 Prof B 45 45 Male 8 9 Prof B 45 45 Male 9 Prof B 18 18 Female 10 Prof B 18 18 Female 11 Assocrof B 12 8 Male 11 Assocrof B 7 2 Male 11 AsstProf B 7 2 Male 11 Male 12 AsstProf B 7 2 Male 13 AsstProf B 1 1 1 Male 14 AsstProf B 2 0 Male |  |  |  |

# Seleccionar parte de filas y una columna

| In [35]: ▶ | 1 | <pre>datos.iloc[1:5, 3]</pre> |
|------------|---|-------------------------------|
| Out[35]:   | 1 | 20                            |
|            | 2 | 4                             |
|            | 3 | 45                            |
|            | 4 | 40                            |

Name: yrs.since.phd, dtype: int64

|                 |          |       | Índice de columnas |            |               |             |        |        |  |
|-----------------|----------|-------|--------------------|------------|---------------|-------------|--------|--------|--|
|                 |          | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |
|                 |          | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |
|                 | 0        | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |
|                 | 1        | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |
|                 | 2        | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |
|                 | <b>3</b> | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |
|                 | 4        | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |
| S               | 5        | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |
| ≡               | 6        | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |
| Índice de filas | 7        | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |
| dic             | 8        | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |
| <u>.=</u>       | 9        | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |
|                 | 10       | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |
|                 | 11       | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |
|                 | 12       | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |
|                 | 13       | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |
|                 | 14       | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |

• En esta selección pandas devuelve una Serie

Seleccionar todas las filas y un rango de columnas

rank discipline yrs.since.phd yrs.service sex Prof В 19 18 Male 1 В 20 16 Male Prof 2 AsstProf В 3 Male Prof В 45 39 Male Prof 40 41 Male ... 392 Prof 33 30 Male 393 Prof Α 31 19 Male Prof 42 25 Male 394 25 395 Prof Α 15 Male 396 AsstProf 8 4 Male

397 rows × 5 columns

Out[36]:

|             |    |       |             | Índ        | dice de columr | nas         |        |        |
|-------------|----|-------|-------------|------------|----------------|-------------|--------|--------|
|             |    | 0     | 0 1 2 3 4 5 |            |                |             |        |        |
|             |    | order | rank        | discipline | yrs.since.phd  | yrs.service | sex    | salary |
|             | 0  | 1     | Prof        | В          | 19             | 18          | Male   | 139750 |
|             | 1  | 2     | Prof        | В          | 20             | 16          | Male   | 173200 |
|             | 2  | 3     | AsstProf    | В          | 4              | 3           | Male   | 79750  |
|             | 3  | 4     | Prof        | В          | 45             | 39          | Male   | 115000 |
|             | 4  | 5     | Prof        | В          | 40             | 41          | Male   | 141500 |
| fillas      | 5  | 6     | AssocProf   | В          | 6              | 6           | Male   | 97000  |
| <b>=</b>    | 6  | 7     | Prof        | В          | 30             | 23          | Male   | 175000 |
| Índice de f | 7  | 8     | Prof        | В          | 45             | 45          | Male   | 147765 |
| 픙           | 8  | 9     | Prof        | В          | 21             | 20          | Male   | 119250 |
| <b>√</b> ≘  | 9  | 10    | Prof        | В          | 18             | 18          | Female | 129000 |
|             | 10 | 11    | AssocProf   | В          | 12             | 8           | Male   | 119800 |
|             | 11 | 12    | AsstProf    | В          | 7              | 2           | Male   | 79800  |
|             | 12 | 13    | AsstProf    | В          | 1              | 1           | Male   | 77700  |
|             | 13 | 14    | AsstProf    | В          | 2              | 0           | Male   | 78000  |
|             | 14 | 15    | Prof        | В          | 20             | 18          | Male   | 104800 |

La tabla sigue...

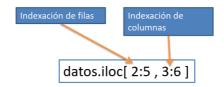
• En esta selección pandas devuelve un Dataframe

### Seleccionar subconjuntos de celdas

In [37]: ► 1 datos.iloc[2:5, 3:6]

Out[37]:

|   | yrs.since.phd | yrs.service | sex  |
|---|---------------|-------------|------|
| 2 | 4             | 3           | Male |
| 3 | 45            | 39          | Male |
| 4 | 40            | 41          | Mala |



|                 |    |       | indice de columnas |            |               |             |        |        |  |  |  |  |
|-----------------|----|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|--|--|
|                 |    | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |  |  |
|                 | _  | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |  |  |
|                 | 0  | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |  |  |
|                 | 1  | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |  |  |
|                 | 2  | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |  |  |
|                 | 3  | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |  |  |
|                 | 4  | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |  |  |
| 98              | 5  | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |  |  |
| E               | 6  | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |  |  |
| e d             | 7  | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |  |  |
| Índice de filas | 8  | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |  |  |
| <b>√=</b>       | 9  | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |  |  |
|                 | 10 | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |  |  |
|                 | 11 | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |  |  |
|                 | 12 | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |  |  |
|                 | 13 | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |  |  |
|                 | 14 | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |  |  |

# Slicing en Pandas con loc

In [38]: ► I import pandas as pd 2 datos = pd.read\_csv('archs/salarios.csv') 3 datos.loc[3]

Out[38]: order

rank B 45 39 discipline yrs.since.phd yrs.service Male sex 115000 salary Name: 3, dtype: object

In [39]: N 1 datos.loc[[3]]

Out[39]:

order rank discipline yrs.since.phd yrs.service sex salary 4 Prof В 45 39 Male 115000

In [40]: 1 type(datos.loc[[3]])

Out[40]: pandas.core.frame.DataFrame

|          |    |       | Índice de columnas |            |               |             |        |        |  |  |  |
|----------|----|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|--|
|          |    | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |  |
|          |    | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |  |
|          | 0  | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |  |
|          | 1  | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |  |
|          | 2  | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |  |
|          | 3  | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |  |
|          | 4  | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |  |
| filas    | 5  | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |  |
| <b>=</b> | 6  | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |  |
| e de     | 7  | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |  |
| Índice   | 8  | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |  |
| Æ        | 9  | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |  |
|          | 10 | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |  |
|          | 11 | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |  |
|          | 12 | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |  |
|          | 13 | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |  |
|          | 14 | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |  |

### Seleccionar subconjunto

In [41]: ▶ 1 datos.loc[1:5]

Out[41]:

|   | order | rank      | discipline | yrs.since.phd | yrs.service | sex  | salary |
|---|-------|-----------|------------|---------------|-------------|------|--------|
| 1 | 2     | Prof      | В          | 20            | 16          | Male | 173200 |
| 2 | 3     | AsstProf  | В          | 4             | 3           | Male | 79750  |
| 3 | 4     | Prof      | В          | 45            | 39          | Male | 115000 |
| 4 | 5     | Prof      | В          | 40            | 41          | Male | 141500 |
| 5 | 6     | AssocProf | В          | 6             | 6           | Male | 97000  |

|           |    |       | Índice de columnas |            |               |             |        |        |  |  |
|-----------|----|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|
|           |    | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |
|           |    | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |
|           | 0  | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |
|           | 1  | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |
|           | 2  | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |
|           | 3  | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |
|           | 4  | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |
| filas     | 5  | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |
| E .       | 6  | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |
| e d       | 7  | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |
| Índice de | 8  | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |
| <b>√=</b> | 9  | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |
|           | 10 | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |
|           | 11 | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |
|           | 12 | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |
|           | 13 | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |
|           | 14 | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |

# In [42]: N 1 datos.loc[[1, 3, 7, 10, 13]]

# Out[42]:

|    | order | rank      | discipline | yrs.since.phd | yrs.service | sex  | salary |
|----|-------|-----------|------------|---------------|-------------|------|--------|
| 1  | 2     | Prof      | В          | 20            | 16          | Male | 173200 |
| 3  | 4     | Prof      | В          | 45            | 39          | Male | 115000 |
| 7  | 8     | Prof      | В          | 45            | 45          | Male | 147765 |
| 10 | 11    | AssocProf | В          | 12            | 8           | Male | 119800 |
| 13 | 14    | AsstProf  | В          | 2             | 0           | Male | 78000  |

|            |    |       | Índice de columnas |            |               |             |        |        |  |  |
|------------|----|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|
|            |    | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |
|            |    | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |
|            | 0  | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |
|            | 1  | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |
|            | 2  | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |
|            | 3  | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |
|            | 4  | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |
| SB         | 5  | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |
| de filas   | 6  | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |
| ğ          | 7  | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |
| Índice     | 8  | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |
| <b>.</b> ⊑ | 9  | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |
|            | 10 | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |
|            | 11 | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |
|            | 12 | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |
|            | 13 | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |
|            | 14 | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |

### Seleccionar con nombres de columnas

In [43]: ► 1 datos.loc[:, 'rank'] Out[43]: 0 1 Prof 2 AsstProf 3 4 Prof Prof 392 Prof 393 Prof 394 395 Prof Prof 396 AsstProf Name: rank, Length: 397, dtype: object

|        |    |       | Índice de columnas |            |               |             |        |        |  |  |
|--------|----|-------|--------------------|------------|---------------|-------------|--------|--------|--|--|
|        |    | 0     | 1                  | 2          | 3             | 4           | 5      | 6      |  |  |
|        |    | order | rank               | discipline | yrs.since.phd | yrs.service | sex    | salary |  |  |
|        | 0  | 1     | Prof               | В          | 19            | 18          | Male   | 139750 |  |  |
|        | 1  | 2     | Prof               | В          | 20            | 16          | Male   | 173200 |  |  |
|        | 2  | 3     | AsstProf           | В          | 4             | 3           | Male   | 79750  |  |  |
|        | 3  | 4     | Prof               | В          | 45            | 39          | Male   | 115000 |  |  |
|        | 4  | 5     | Prof               | В          | 40            | 41          | Male   | 141500 |  |  |
| filas  | 5  | 6     | AssocProf          | В          | 6             | 6           | Male   | 97000  |  |  |
| Ē      | 6  | 7     | Prof               | В          | 30            | 23          | Male   | 175000 |  |  |
| e de   | 7  | 8     | Prof               | В          | 45            | 45          | Male   | 147765 |  |  |
| Índice | 8  | 9     | Prof               | В          | 21            | 20          | Male   | 119250 |  |  |
| 트      | 9  | 10    | Prof               | В          | 18            | 18          | Female | 129000 |  |  |
|        | 10 | 11    | AssocProf          | В          | 12            | 8           | Male   | 119800 |  |  |
|        | 11 | 12    | AsstProf           | В          | 7             | 2           | Male   | 79800  |  |  |
|        | 12 | 13    | AsstProf           | В          | 1             | 1           | Male   | 77700  |  |  |
|        | 13 | 14    | AsstProf           | В          | 2             | 0           | Male   | 78000  |  |  |
|        | 14 | 15    | Prof               | В          | 20            | 18          | Male   | 104800 |  |  |

La tabla sigue...

# Out[44]:

|   | rank      | yrs.service |
|---|-----------|-------------|
| 1 | Prof      | 16          |
| 2 | AsstProf  | 3           |
| 3 | Prof      | 39          |
| 4 | Prof      | 41          |
| 5 | AssocProf | 6           |

#### order rank discipline yrs.since.phd yrs.service sex 1 Prof B 19 18 Male 139750 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 2 Prof 3 AsstProf 16 Male 3 Male 20 173200 79750 45 39 Male 115000 141500 6 Male 97000 7 Prof 8 Prof 9 Prof 10 Prof 30 23 Male 175000 45 45 Male 147765 21 18 20 Male 18 Female 119250 129000 11 AssocProf 12 8 Male 119800 12 AsstProf 2 Male 79800 13 AsstProf 1 Male 77700 14 AsstProf 0 Male 78000 15 Prof 18 Male 104800 20

Out[45]:

|   | rank      | discipline | yrs.since.phd | yrs.service |
|---|-----------|------------|---------------|-------------|
| 1 | Prof      | В          | 20            | 16          |
| 2 | AsstProf  | В          | 4             | 3           |
| 3 | Prof      | В          | 45            | 39          |
| 4 | Prof      | В          | 40            | 41          |
| 5 | AssocProf | В          | 6             | 6           |

|            |    | Índice de columnas |           |            |               |             |        |        |  |
|------------|----|--------------------|-----------|------------|---------------|-------------|--------|--------|--|
|            |    | 0                  | 1         | 2          | 3             | 4           | 5      | 6      |  |
|            | _  | order              | rank      | discipline | yrs.since.phd | yrs.service | sex    | salary |  |
|            | 0  | 1                  | Prof      | В          | 19            | 18          | Male   | 139750 |  |
|            | 1  | 2                  | Prof      | В          | 20            | 16          | Male   | 173200 |  |
|            | 2  | 3                  | AsstProf  | В          | 4             | 3           | Male   | 79750  |  |
|            | 3  | 4                  | Prof      | В          | 45            | 39          | Male   | 115000 |  |
|            | 4  | 5                  | Prof      | В          | 40            | 41          | Male   | 141500 |  |
| filas      | 5  | 6                  | AssocProf | В          | 6             | 6           | Male   | 97000  |  |
| ≡          | 6  | 7                  | Prof      | В          | 30            | 23          | Male   | 175000 |  |
| e de       | 7  | 8                  | Prof      | В          | 45            | 45          | Male   | 147765 |  |
| Índice     | 8  | 9                  | Prof      | В          | 21            | 20          | Male   | 119250 |  |
| <b>-</b> ≘ | 9  | 10                 | Prof      | В          | 18            | 18          | Female | 129000 |  |
|            | 10 | 11                 | AssocProf | В          | 12            | 8           | Male   | 119800 |  |
|            | 11 | 12                 | AsstProf  | В          | 7             | 2           | Male   | 79800  |  |
|            | 12 | 13                 | AsstProf  | В          | 1             | 1           | Male   | 77700  |  |
|            | 13 | 14                 | AsstProf  | В          | 2             | 0           | Male   | 78000  |  |
|            | 14 | 15                 | Prof      | В          | 20            | 18          | Male   | 104800 |  |

# Seleccionar con el nombre de una columna un dato determinado

Out[46]:

|     | order | rank | discipline | yrs.since.phd | yrs.service | sex  | salary |
|-----|-------|------|------------|---------------|-------------|------|--------|
| 0   | 1     | Prof | В          | 19            | 18          | Male | 139750 |
| 1   | 2     | Prof | В          | 20            | 16          | Male | 173200 |
| 3   | 4     | Prof | В          | 45            | 39          | Male | 115000 |
| 4   | 5     | Prof | В          | 40            | 41          | Male | 141500 |
| 6   | 7     | Prof | В          | 30            | 23          | Male | 175000 |
|     |       |      |            | •••           |             |      |        |
| 391 | 392   | Prof | Α          | 30            | 19          | Male | 151292 |
| 392 | 393   | Prof | Α          | 33            | 30          | Male | 103106 |
| 393 | 394   | Prof | Α          | 31            | 19          | Male | 150564 |
| 394 | 395   | Prof | Α          | 42            | 25          | Male | 101738 |
| 395 | 396   | Prof | Α          | 25            | 15          | Male | 95329  |

266 rows × 7 columns

|                 |    | Índice de columnas |           |            |               |             |        |        |  |
|-----------------|----|--------------------|-----------|------------|---------------|-------------|--------|--------|--|
|                 |    | 0                  | 1         | 2          | 3             | 4           | 5      | 6      |  |
|                 |    | order              | rank      | discipline | yrs.since.phd | yrs.service | sex    | salary |  |
|                 | 0  | 1                  | Prof      | В          | 19            | 18          | Male   | 139750 |  |
|                 | 1  | 2                  | Prof      | В          | 20            | 16          | Male   | 173200 |  |
|                 | 2  | 3                  | AsstProf  | В          | 4             | 3           | Male   | 79750  |  |
|                 | 3  | 4                  | Prof      | В          | 45            | 39          | Male   | 115000 |  |
|                 | 4  | 5                  | Prof      | В          | 40            | 41          | Male   | 141500 |  |
| SP              | 5  | 6                  | AssocProf | В          | 6             | 6           | Male   | 97000  |  |
| ij.             | 6  | 7                  | Prof      | В          | 30            | 23          | Male   | 175000 |  |
| Índice de filas | 7  | 8                  | Prof      | В          | 45            | 45          | Male   | 147765 |  |
| ğ               | 8  | 9                  | Prof      | В          | 21            | 20          | Male   | 119250 |  |
| <u>.=</u>       | 9  | 10                 | Prof      | В          | 18            | 18          | Female | 129000 |  |
|                 | 10 | 11                 | AssocProf | В          | 12            | 8           | Male   | 119800 |  |
|                 | 11 | 12                 | AsstProf  | В          | 7             | 2           | Male   | 79800  |  |
|                 | 12 | 13                 | AsstProf  | В          | 1             | 1           | Male   | 77700  |  |
|                 | 13 | 14                 | AsstProf  | В          | 2             | 0           | Male   | 78000  |  |
|                 | 14 | 15                 | Prof      | В          | 20            | 18          | Male   | 104800 |  |

La tabla sigue...

# Seleccionar filas usando múltiples condiciones

# Out[47]:

|     | order | rank         | discipline | yrs.since.phd | yrs.service | sex  | salary |
|-----|-------|--------------|------------|---------------|-------------|------|--------|
| 188 | 189   | AssocProf    | В          | 28            | 28          | Male | 106300 |
| 194 | 195   | AssocProf    | В          | 48            | 53          | Male | 90000  |
| 260 | 261   | AssocProf    | Α          | 41            | 33          | Male | 88600  |
| 285 | 286   | AssocProf    | Α          | 49            | 49          | Male | 81800  |
| 200 | 300   | \\ eeoc\Prof | ۸          | 45            | 30          | Male | 70700  |

|                |     |       |           | Ín         | dice de column | as          |        |        |
|----------------|-----|-------|-----------|------------|----------------|-------------|--------|--------|
|                |     |       |           |            |                |             |        |        |
|                |     | 0     | 1         | 2          | 3              | 4           | 5      | 6      |
|                |     | order | rank      | discipline | yrs.since.phd  | yrs.service | sex    | salary |
|                |     | 187   | AssocProf | В          | 13             | 10          | Female | 103750 |
|                |     | 188   | Prof      | В          | 18             | 10          | Male   | 107500 |
|                | 188 | 189   | AssocProf | В          | 28             | 28          | Male   | 106300 |
|                |     | 190   | Prof      | В          | 25             | 19          | Male   | 153750 |
|                |     |       |           |            |                |             |        |        |
|                |     | 193   | Prof      | В          | 19             | 18          | Male   | 122100 |
|                |     | 194   | AssocProf | В          | 19             | 19          | Male   | 86250  |
|                | 194 | 195   | AssocProf | В          | 48             | 53          | Male   | 90000  |
|                |     | 196   | AssocProf | В          | 9              | 7           | Male   | 113600 |
|                |     | 197   | AsstProf  | В          | 4              | 4           | Male   | 92700  |
|                |     |       |           |            |                |             |        |        |
|                |     | 259   | AsstProf  | A          | 9              | 3           | Male   | 73800  |
| ndice de filas |     | 260   | Prof      | A          | 32             | 30          | Male   | 92550  |
| ē              | 260 | 261   | AssocProf | A          | 41             | 33          | Male   | 88600  |
| ĕ              |     |       | Prof      | A          | 45             | 45          | Male   | 107550 |
| ī              |     | 263   | Prof      | A          | 31             | 26          | Male   | 121200 |
|                |     | ·     |           |            |                |             |        |        |
|                |     | 284   | Prof      | A          | 45             | 43          | Male   | 155865 |
|                |     | 285   | AssocProf | A          | 8              | 6           | Male   | 88650  |
|                | 285 | 286   | AssocProf | A          | 49             | 49          | Male   | 81800  |
|                |     | 287   | Prof      | A          | 28             | 27          | Male   | 115800 |
|                |     | 288   | AsstProf  | A          | 2              | 0           | Male   | 85000  |
|                |     |       |           |            |                |             |        |        |
|                |     | 298   | Prof      | A          | 17             | 11          | Male   | 148800 |
|                |     | 299   | Prof      | A          | 49             | 43          | Male   | 72300  |
|                | 299 | 300   | AssocProf | A          | 45             | 39          | Male   | 70700  |
|                |     | 301   | Prof      | A          | 39             | 36          | Male   | 88600  |
| _              |     | 302   | Prof      | A          | 27             | 16          | Male   | 127100 |

# Out[48]:

|     | yrs.since.phd | yrs.service | sex  |
|-----|---------------|-------------|------|
| 188 | 28            | 28          | Male |
| 194 | 48            | 53          | Male |
| 260 | 41            | 33          | Male |
| 285 | 49            | 49          | Male |
| 299 | 45            | 39          | Male |

|                 |     | Índice de columnas |                   |            |               |             |              |        |
|-----------------|-----|--------------------|-------------------|------------|---------------|-------------|--------------|--------|
|                 |     |                    |                   |            |               |             |              |        |
|                 |     | 0                  | 1                 | 2          | 3             | 4           | 5            | 6      |
|                 |     | order              | rank              | discipline | yrs.since.phd | yrs.service | sex          | salary |
|                 |     |                    | AssocProf         | В          | 13            | 10          | Female       | 103750 |
|                 |     | 188                | Prof              | В          | 18            | 10          | Male         | 107500 |
|                 | 188 | 189                | AssocProf         | В          | 28            | 28          | Male         | 106300 |
|                 |     | 190                | Prof              | В          | 25            | 19          | Male         | 153750 |
|                 |     | ****               |                   |            |               |             |              |        |
|                 |     |                    | Prof              | В          | 19            |             | Male         | 122100 |
|                 |     |                    | AssocProf         | В          | 19            |             | Male         | 86250  |
|                 | 194 |                    | AssocProf         | В          | 48            |             | Male         | 90000  |
|                 |     |                    | AssocProf         | В          | 9             |             | Male         | 113600 |
|                 |     | 197                | AsstProf          | В          | 4             | 4           | Male         | 92700  |
|                 |     |                    |                   |            |               |             |              | 7222   |
| US.             |     |                    | AsstProf          | A          | 9             |             | Male         | 73800  |
| #               |     |                    | Prof              | A          | 32            |             | Male         | 92550  |
| Indice de filas | 260 |                    | AssocProf         | A          | 41            |             | Male         | 88600  |
| 횰               |     |                    | Prof              | A          | 45            |             | Male         | 107550 |
| 置               |     | 263                | Prof              | A          | 31            | 26          | Male         | 121200 |
|                 |     |                    | D                 |            | 45            | 40          |              | 155865 |
|                 |     |                    | Prof<br>AssocProf | A          | 45<br>8       |             | Male<br>Male | 88650  |
|                 | 285 |                    | AssocProf         | A          | 49            |             | Male         | 81800  |
|                 | 203 |                    | Prof              | A          | 28            |             | Male         | 115800 |
|                 |     |                    | AsstProf          | A          | 28            |             | Male         | 85000  |
|                 |     | 200                | Asstrict          |            | -             | •           | Marc         | 03000  |
|                 | ŀ   | 298                | Prof              | A          | 17            | 11          | Male         | 148800 |
|                 |     |                    | Prof              | A          | 49            |             | Male         | 72300  |
|                 | 299 |                    | AssocProf         | A          | 45            |             | Male         | 70700  |
|                 |     | 301                | Prof              | A          | 39            | 36          | Male         | 88600  |
|                 |     | 302                | Prof              | A          | 27            | 16          | Male         | 127100 |

# Agregando columna y dato según una condición

2 datos

# Out[50]:

|     | order | rank     | discipline | yrs.since.phd | yrs.service | sex  | salary | Antigüedad |
|-----|-------|----------|------------|---------------|-------------|------|--------|------------|
| 0   | 1     | Prof     | В          | 19            | 18          | Male | 139750 | NaN        |
| 1   | 2     | Prof     | В          | 20            | 16          | Male | 173200 | NaN        |
| 2   | 3     | AsstProf | В          | 4             | 3           | Male | 79750  | NaN        |
| 3   | 4     | Prof     | В          | 45            | 39          | Male | 115000 | Jubilable  |
| 4   | 5     | Prof     | В          | 40            | 41          | Male | 141500 | Jubilable  |
|     |       |          |            |               |             |      |        |            |
| 392 | 393   | Prof     | Α          | 33            | 30          | Male | 103106 | Jubilable  |
| 393 | 394   | Prof     | Α          | 31            | 19          | Male | 150564 | NaN        |
| 394 | 395   | Prof     | Α          | 42            | 25          | Male | 101738 | NaN        |
| 395 | 396   | Prof     | Α          | 25            | 15          | Male | 95329  | NaN        |
| 396 | 397   | AsstProf | Α          | 8             | 4           | Male | 81035  | NaN        |

397 rows × 8 columns

|                 |    | Índice de columnas |           |            |               |             |        |        |            |
|-----------------|----|--------------------|-----------|------------|---------------|-------------|--------|--------|------------|
|                 |    | 0                  | 1         | 2          | 3             | 4           | 5      | 6      |            |
|                 | _  | order              | rank      | discipline | yrs.since.phd | yrs.service | sex    | salary | Antigüedad |
|                 | 0  | 1                  | Prof      | В          | 19            | 18          | Male   | 139750 | NaN        |
|                 | 1  | 2                  | Prof      | В          | 20            | 16          | Male   | 173200 | NaN        |
|                 | 2  | 3                  | AsstProf  | В          | 4             | 3           | Male   | 79750  | NaN        |
|                 | 3  | 4                  | Prof      | В          | 45            | 39          | Male   | 115000 | Jubilable  |
|                 | 4  | 5                  | Prof      | В          | 40            | 41          | Male   | 141500 | Jubilable  |
| as              | 5  | 6                  | AssocProf | В          | 6             | 6           | Male   | 97000  | NaN        |
| ≣               | 6  | 7                  | Prof      | В          | 30            | 23          | Male   | 175000 | NaN        |
| indice de filas | 7  | 8                  | Prof      | В          | 45            | 45          | Male   | 147765 | Jubilable  |
|                 | 8  | 9                  | Prof      | В          | 21            | 20          | Male   | 119250 | NaN        |
| ≘               | 9  | 10                 | Prof      | В          | 18            | 18          | Female | 129000 | NaN        |
|                 | 10 | 11                 | AssocProf | В          | 12            | 8           | Male   | 119800 | NaN        |
|                 | 11 | 12                 | AsstProf  | В          | 7             | 2           | Male   | 79800  | NaN        |
|                 | 12 | 13                 | AsstProf  | В          | 1             | 1           | Male   | 77700  | NaN        |
|                 | 13 | 14                 | AsstProf  | В          | 2             | 0           | Male   | 78000  | NaN        |
|                 | 14 | 15                 | Prof      | В          | 20            | 18          | Male   | 104800 | NaN        |

La tabla sigue...