Difference between the rows and the columns in the dataset we are dealing with in the python?

Rows:

- Horizontal arrangements of data.
- Each row represents a single entity or observation within the dataset.
- Can contain different data types (numbers, text, dates, etc.).

Example: In a dataset of customers, each row might represent a specific customer, with their name, email, address, and purchase history.

Columns:

- Vertical arrangements of data.
- Each column represents a specific feature or attribute of the entities in the dataset.
- Usually contain the same data type within a column.

Example: In the customer dataset, columns could be "Name", "Email", "Address", "Purchase Date", "Product Name", and "Price".

Key Differences:

- Orientation: Rows go horizontally, columns go vertically.
- Representation: Rows represent individual entities, columns represent features.
- Data Types: Rows can have mixed types; columns usually have a single type.

Example in Python using Pandas:

```python
import pandas as pd
# Create a DataFrame (a common dataset structure in Python)
data = {'Name': ['Alice', 'Bob', 'Charlie'],
        'Age': [25, 30, 35],
        'City': ['New York', 'London', 'Paris']}
df = pd.DataFrame(data)

# **Accessing rows and columns:**
# **Select a row (index 1, which is the second row):**
row = df.iloc[1]
print(row)  # Output: Name    Bob
            #       Age     30
#       City   London
```

```
# Select a column (named "Age"):
column = df['Age']
print(column) # Output: 0    25
              #       1    30
              #       2    35
```