Pandas

1. Pandas is a Python library for data manipulation and analysis.
2. It provides two main data structures, Series (1-dimensional) and DataFrame (2-dimensional).
3. Pandas can read data from various sources such as CSV, Excel, SQL databases, and web scraping.
4. Pandas also supports data visualization through integration with Matplotlib.
5. It has built-in methods for handling missing data, time series data, and text data.

Series

1. A pandas Series is a one-dimensional labeled array that can hold any data type (integers, floats, strings, etc.).
2. It is similar to a Python list or NumPy array, but with added functionality for indexing and labeling.
3. Series can be created from various data sources such as lists, NumPy arrays, dictionaries.
4. The index of a Series is a sequence of labels that can be customized.
5. Series can be sliced and indexed by both position and label.
6. operations can be performed on the entire Series at once without the need for loops.
7. Pandas offers many built-in methods for data manipulation and analysis on Series, including arithmetic operations, statistical analysis, and data alignment.
8. Series can be used as input to many pandas functions, including the creation of DataFrames.

DataFrame

1. A pandas DataFrame is a two-dimensional labeled data structure that can hold any data type (integers, floats, strings, etc.).
2. It is similar to a spreadsheet or SQL table, but with added functionality for indexing and labeling.
3. DataFrames can be created from various data sources such as lists, dictionaries, NumPy arrays, and CSV/Excel files.

4. DataFrames have both row and column labels, which can be customized.
5. DataFrames can be sliced and indexed by both position and label, on both rows and columns.
6. Pandas offers many built-in methods for data manipulation and analysis on DataFrames.
7. DataFrames support vectorized operations, meaning that operations can be performed on entire columns or rows at once without the need for loops.
8. Pandas also offers many functions for handling missing data, reshaping data, and data cleaning.

REFs:
Pandas Tutorial: DataFrames in Python | DataCamp
Pandas_Cheat_Sheet.pdf (pydata.org)