**1. Pandas for Data Processing:**

Pandas is a Python library that provides high-performance, easy-to-use data structures, such as DataFrame, and data analysis tools. It is built on top of NumPy, another popular Python library for numerical computing. The key data structure in Pandas is the DataFrame, a two-dimensional table that can store heterogeneous data types and handle missing values. Here are some key concepts in Pandas:

**DataFrame:** A two-dimensional, tabular data structure with labeled axes (rows and columns). It is similar to a spreadsheet or SQL table.

**Series:** A one-dimensional labeled array capable of holding any data type.

**Index:** An immutable array that labels the rows or columns of a DataFrame.

**Operations**: Pandas provides a wide range of functions and methods for data manipulation, cleaning, and analysis. These include merging, reshaping, slicing, indexing, and statistical operations.

**Example:**  
import pandas as pd

**# Creating a DataFrame from a dictionary**

**data = {'Name': ['Alice', 'Bob', 'Charlie'],**

**'Age': [25, 30, 35],**

**'City': ['New York', 'San Francisco', 'Los Angeles']}**

**df = pd.DataFrame(data)**

**print("DataFrame:")**

**print(df)**

**2. Reading CSV Data using Pandas:**

The pd.read\_csv() function in Pandas is used to read data from a CSV (Comma Separated Values) file into a DataFrame. The function provides various parameters to customize the import process, such as specifying delimiters, handling missing values, skipping rows, and more.

**# Reading CSV data into a DataFrame**

**file\_path = 'data.csv'**

**df = pd.read\_csv(file\_path)**

**print("DataFrame after reading CSV:")**

**print(df)**

This code reads the data from the CSV file specified in file\_path and stores it in a Pandas DataFrame named df. You can adjust the parameters of read\_csv() based on the specifics of your CSV file.

**3. Read Data from CSV Files to Pandas Dataframes:**

The process of reading data from CSV files involves creating a Pandas DataFrame to hold the data. Once the data is loaded, you can use various DataFrame methods and attributes to explore and manipulate the data.

**4. Filter Data in Pandas DataFrame using query:**

The query method in Pandas allows you to filter rows of a DataFrame using a query expression similar to SQL. This method provides a concise and readable way to filter data based on specified conditions.

**# Filtering data where Age is greater than 30**

**filtered\_df = df.query('Age > 30')**

**print("\nDataFrame after filtering:")**

**print(filtered\_df)**

This code creates a new DataFrame, filtered\_df, containing only the rows where the 'Age' column is greater than 30.