

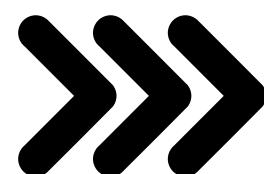


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# Pandas Cheat Sheet



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# Import Export Data

- **pd.read\_csv(filename)**: Read data from a CSV file.
- **pd.read\_table(filename)**: Read data from a delimited text file.
- **pd.read\_excel(filename)**: Read data from an Excel file.
- **pd.read\_sql(query, connection\_object)**: Read data from a SQL table/database.
- **pd.read\_json(json\_string)**: Read data from a JSON formatted string, URL, or file.
- **pd.read\_html(url)**: Parse an HTML URL, string, or file to extract tables to a list of DataFrames.
- **pd.DataFrame(dict)**: Create a DataFrame from a dictionary (keys as column names, values as lists).
- **df.to\_csv(filename)**: Write to a CSV file.
- **df.to\_excel(filename)**: Write to an Excel file.
- **df.to\_sql(table\_nm, connection\_object)**: Write to a SQL table.
- **df.to\_json(filename)**: Write to a file in JSON format.



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# Inspect Data

- **df.head():** View the first 5 rows of the DataFrame.
- **df.tail():** View the last 5 rows of the DataFrame.
- **df.sample():** View the random 5 rows of the DataFrame.
- **df.shape:** Get the dimensions of the DataFrame.
- **df.info():** Get a concise summary of the DataFrame.
- **df.describe():** Summary statistics for numerical columns.
- **df.dtypes:** Check data types of columns.
- **df.columns:** List column names.
- **df.index:** Display the index range.



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# Select Index Data

- `df['column']`: Select a single column.
- `df[['col1', 'col2']]`: Select multiple columns.
- `df.iloc[0]`: Select the first row by position.
- `df.loc[0]`: Select the first row by index label.
- `df.iloc[0, 0]`: Select a specific element by position.
- `df.loc[0, 'column']`: Select a specific element by label.
- `df[df['col'] > 5]`: Filter rows where column > 5.
- `df.iloc[0:5, 0:2]`: Slice rows and columns.
- `df.set_index('column')`: Set a column as the index.



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# Cleaning Data

- **df.isnull():** Check for null values.
- **df.notnull():** Check for non-null values.
- **df.dropna():** Drop rows with null values.
- **df.fillna(value):** Replace null values with a specific value.
- **df.replace(1, 'one'):** Replace specific values.
- **df.rename(columns={'old': 'new'}):** Rename columns.
- **df.astype('int'):** Change data type of a column.
- **df.drop\_duplicates():** Remove duplicate rows.
- **df.reset\_index():** Reset the index.



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# Sort Filter Data

- **df.sort\_values('col')**: Sort by column in ascending order.
- **df.sort\_values('col', ascending=False)**: Sort by column in descending order.
- **df.sort\_values(['col1', 'col2'], ascending=[True, False])**: Sort by multiple columns.
- **df[df['col'] > 5]**: Filter rows based on condition.
- **df.query('col > 5')**: Filter using a query string.
- **df.sample(5)**: Randomly select 5 rows.
- **df.nlargest(3, 'col')**: Get top 3 rows by column.
- **df.nsmallest(3, 'col')**: Get bottom 3 rows by column.
- **df.filter(like='part')**: Filter columns by substring.



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# Group Data

- **df.groupby('col')**: Group by a column.
- **df.groupby('col').mean()**: Mean of groups.
- **df.groupby('col').sum()**: Sum of groups.
- **df.groupby('col').count()**: Count non-null values in groups.
- **df.groupby('col')['other\_col'].max()**: Max value in another column for groups.
- **df.pivot\_table(values='col', index='group', aggfunc='mean')**: Create a pivot table.
- **df.agg({'col1': 'mean', 'col2': 'sum'})**: Aggregate multiple columns.
- **df.apply(np.mean)**: Apply a function to columns.
- **df.transform(lambda x: x + 10)**: Transform data column-wise.



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# Merge Join Data

- **pd.concat([df1, df2]):** Concatenate DataFrames vertically.
- **pd.concat([df1, df2], axis=1):** Concatenate DataFrames horizontally.
- **df1.merge(df2, on='key'):** Merge two DataFrames on a key.
- **df1.join(df2):** SQL-style join.
- **df1.append(df2):** Append rows of one DataFrame to another.
- **pd.merge(df1, df2, how='outer', on='key'):** Outer join.
- **pd.merge(df1, df2, how='inner', on='key'):** Inner join.
- **pd.merge(df1, df2, how='left', on='key'):** Left join.
- **pd.merge(df1, df2, how='right', on='key'):** Right join.



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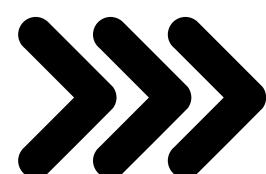


# Statistical Operations

- **df.mean()**: Column-wise mean.
- **df.median()**: Column-wise median.
- **df.std()**: Column-wise standard deviation.
- **df.var()**: Column-wise variance.
- **df.sum()**: Column-wise sum.
- **df.min()**: Column-wise minimum.
- **df.max()**: Column-wise maximum.
- **df.count()**: Count of non-null values per column.
- **df.corr()**: Correlation matrix.



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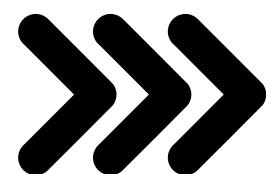


# Data Visualization

- **df.plot(kind='line')**: Line plot.
- **df.plot(kind='bar')**: Vertical bar plot.
- **df.plot(kind='barh')**: Horizontal bar plot.
- **df.plot(kind='hist')**: Histogram.
- **df.plot(kind='box')**: Box plot.
- **df.plot(kind='kde')**: Kernel density estimation plot.
- **df.plot(kind='pie', y='col')**: Pie chart.
- **df.plot.scatter(x='c1', y='c2')**: Scatter plot.
- **df.plot(kind='area')**: Area plot.



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