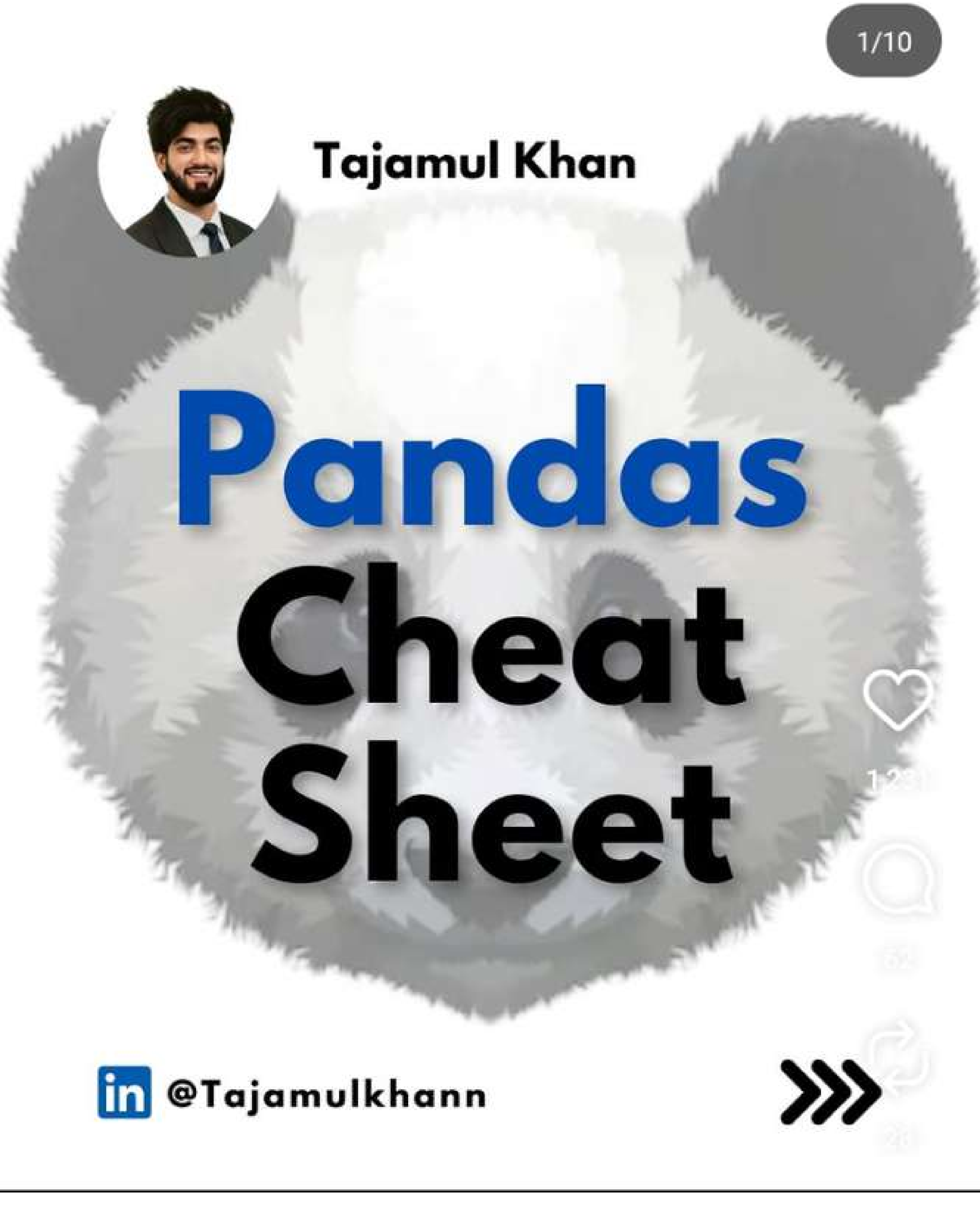

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Pandas Cheat Sheet

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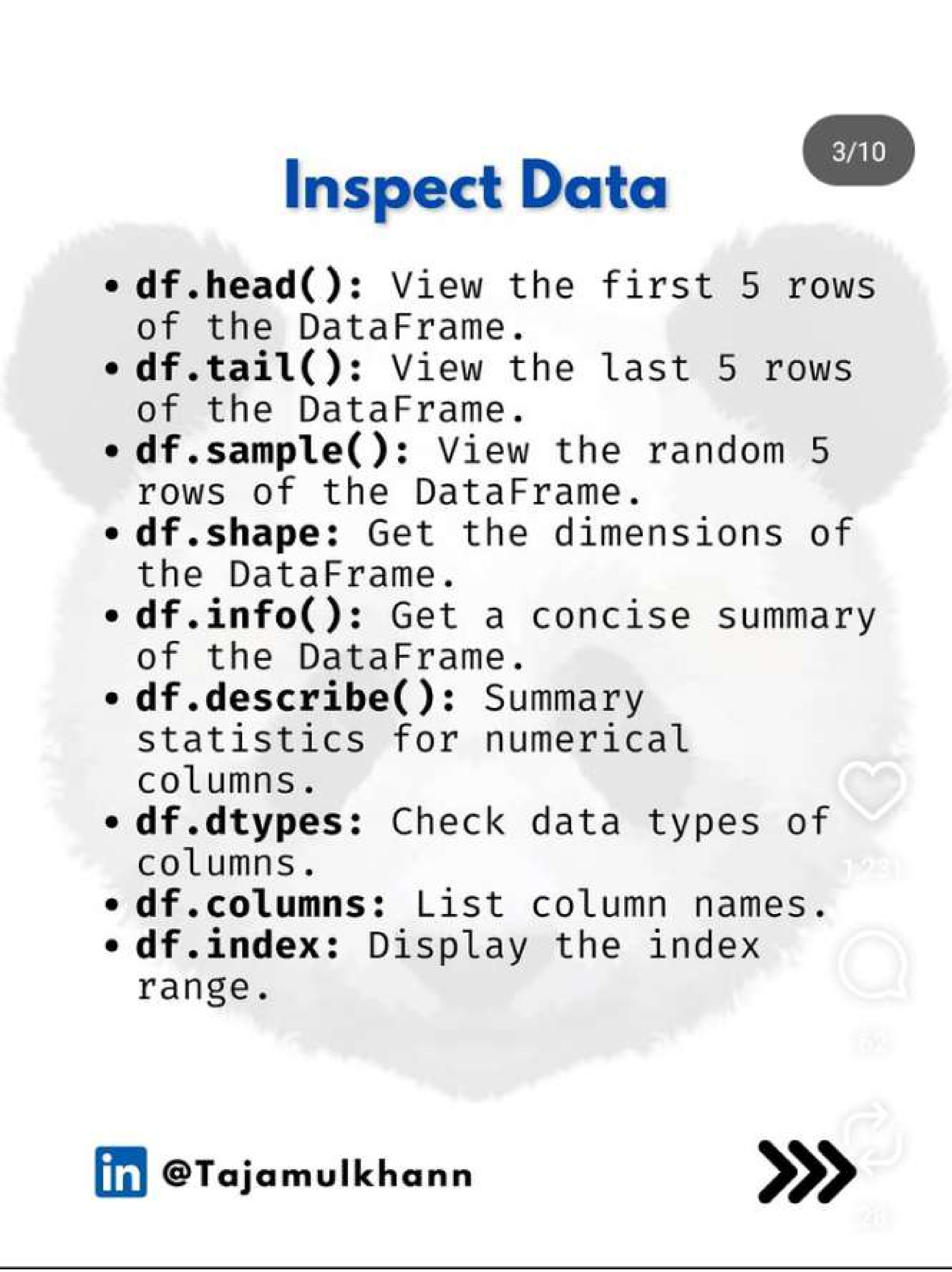
Import Export Data

- **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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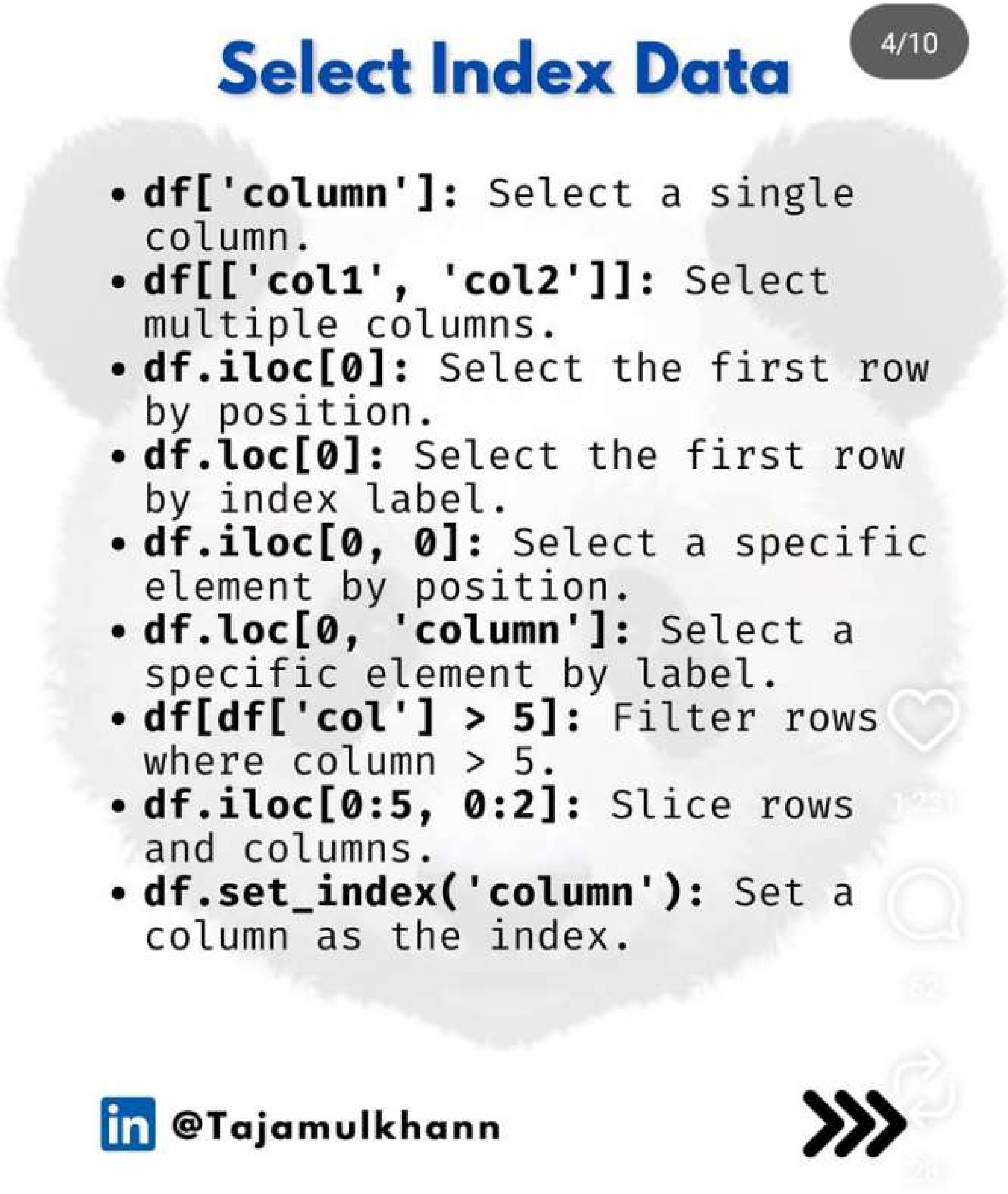

Select Index Data

- **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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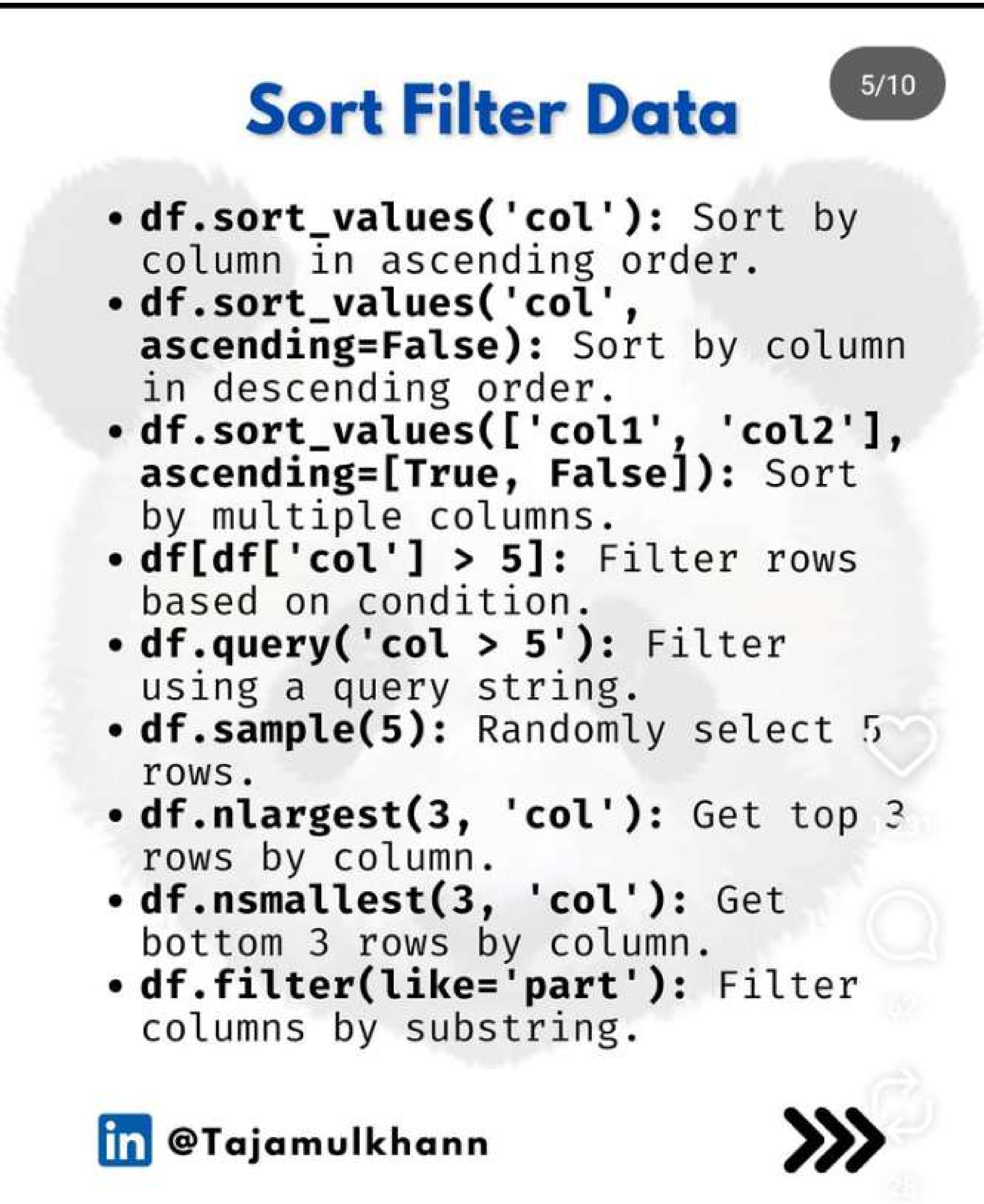

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Sort Filter Data

- **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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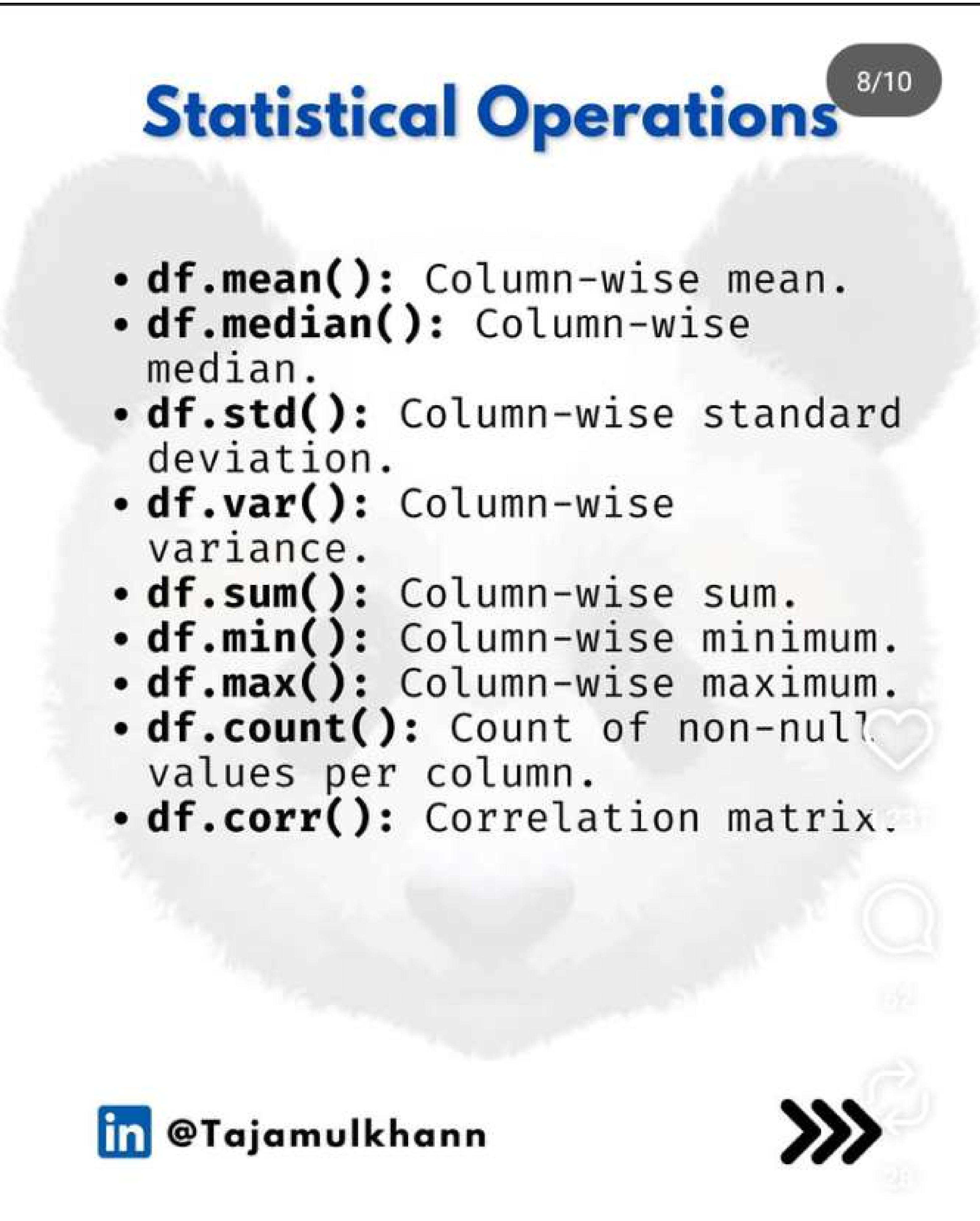
Group Data

- **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.

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

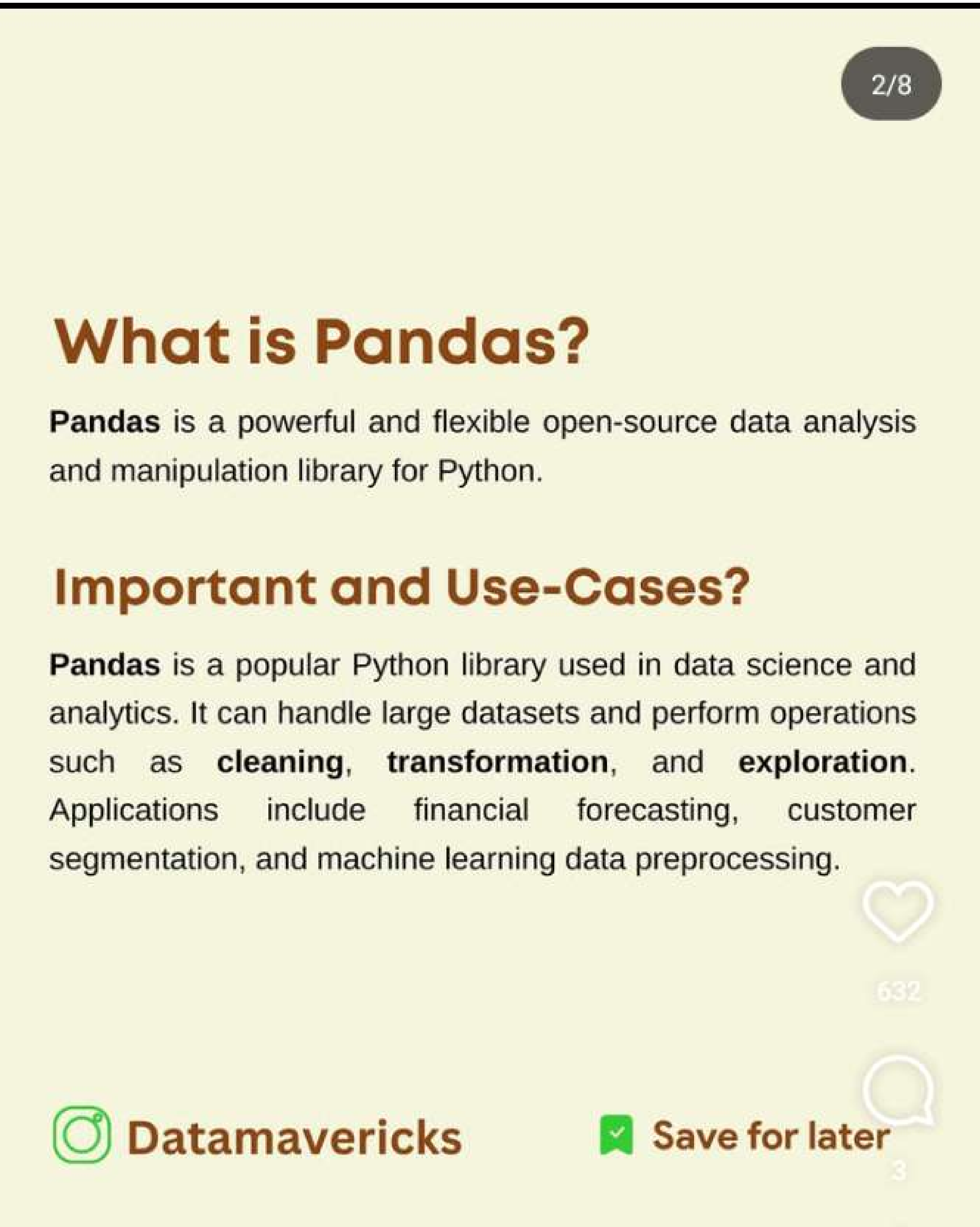
- **df.plot(kind='line'):** Line plot.
- **df.plot(kind='bar'):** Vertical bar plot.
- **df.plot(kind='barh'):** Horizontal bar plot.
- **df.plot(kind='hist'):** Histogram.
- **df.plot(kind='box'):** Box plot.
- **df.plot(kind='kde'):** Kernel density estimation plot.
- **df.plot(kind='pie', y='col'):**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

Python Pandas

Cheat Sheet

Datamavericks

Save for later



What is Pandas?

Pandas is a powerful and flexible open-source data analysis and manipulation library for Python.

Important and Use-Cases?

Pandas is a popular Python library used in data science and analytics. It can handle large datasets and perform operations such as **cleaning**, **transformation**, and **exploration**. Applications include financial forecasting, customer segmentation, and machine learning data preprocessing.

Datamavericks

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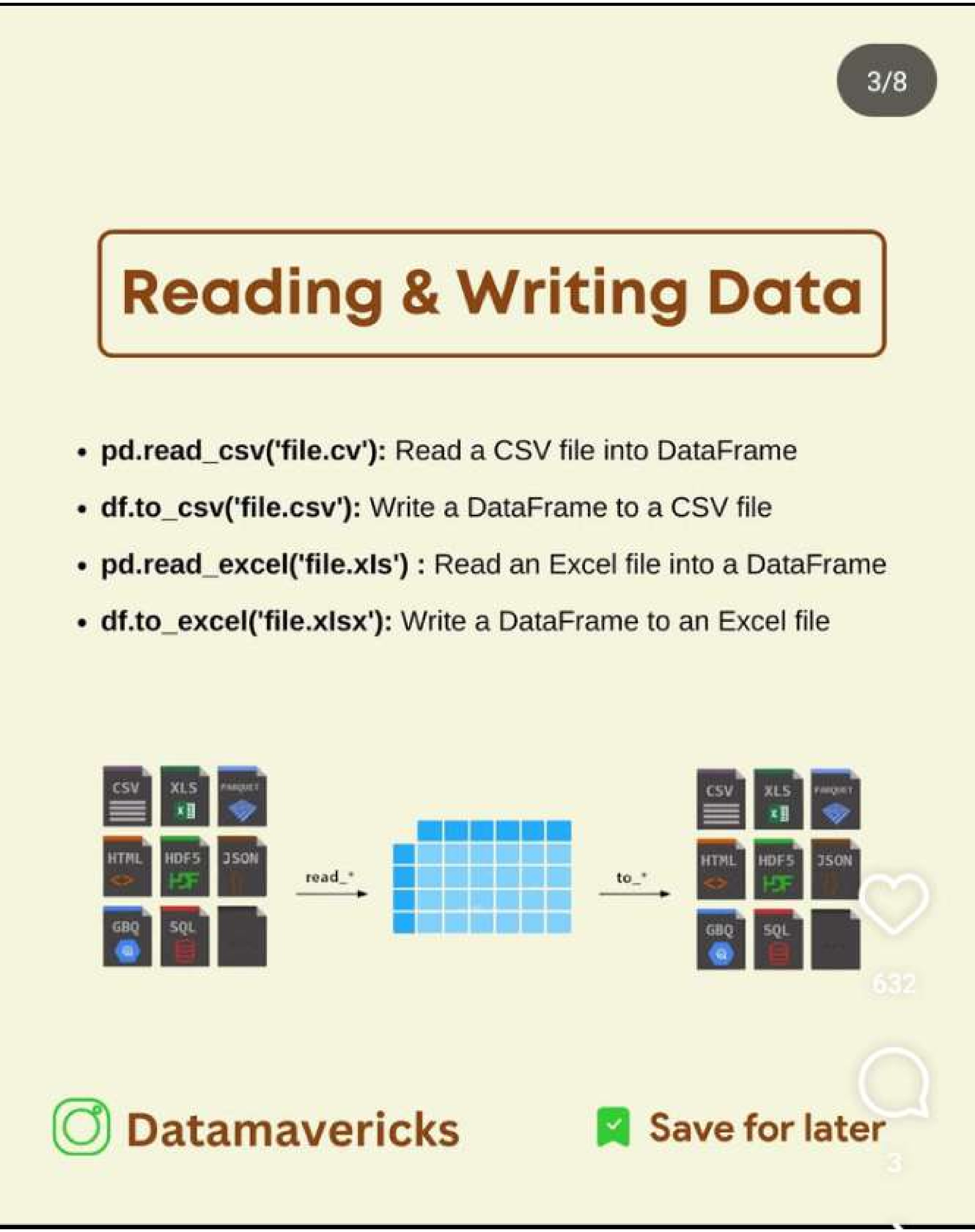

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Reading & Writing Data

- **pd.read_csv('file.cv'):** Read a CSV file into DataFrame
- **df.to_csv('file.csv'):** Write a DataFrame to a CSV file
- **pd.read_excel('file.xls') :** Read an Excel file into a DataFrame
- **df.to_excel('file.xlsx'):** Write a DataFrame to an Excel file

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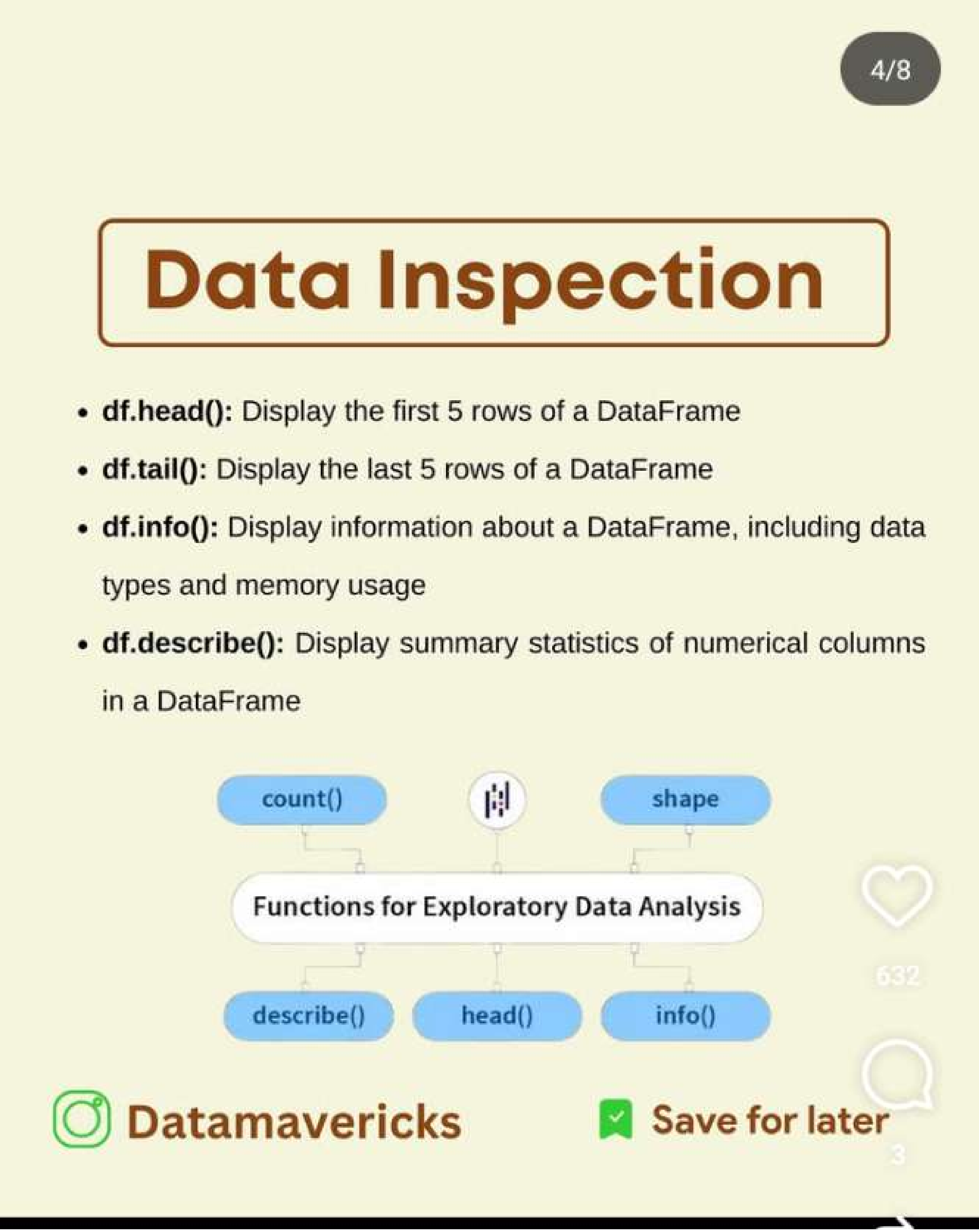

Data Inspection

- **df.head():** Display the first 5 rows of a DataFrame
- **df.tail():** Display the last 5 rows of a DataFrame
- **df.info():** Display information about a DataFrame, including data types and memory usage
- **df.describe():** Display summary statistics of numerical columns in a DataFrame

count()

shape

Functions for Exploratory Data Analysis

describe()

head()

info()

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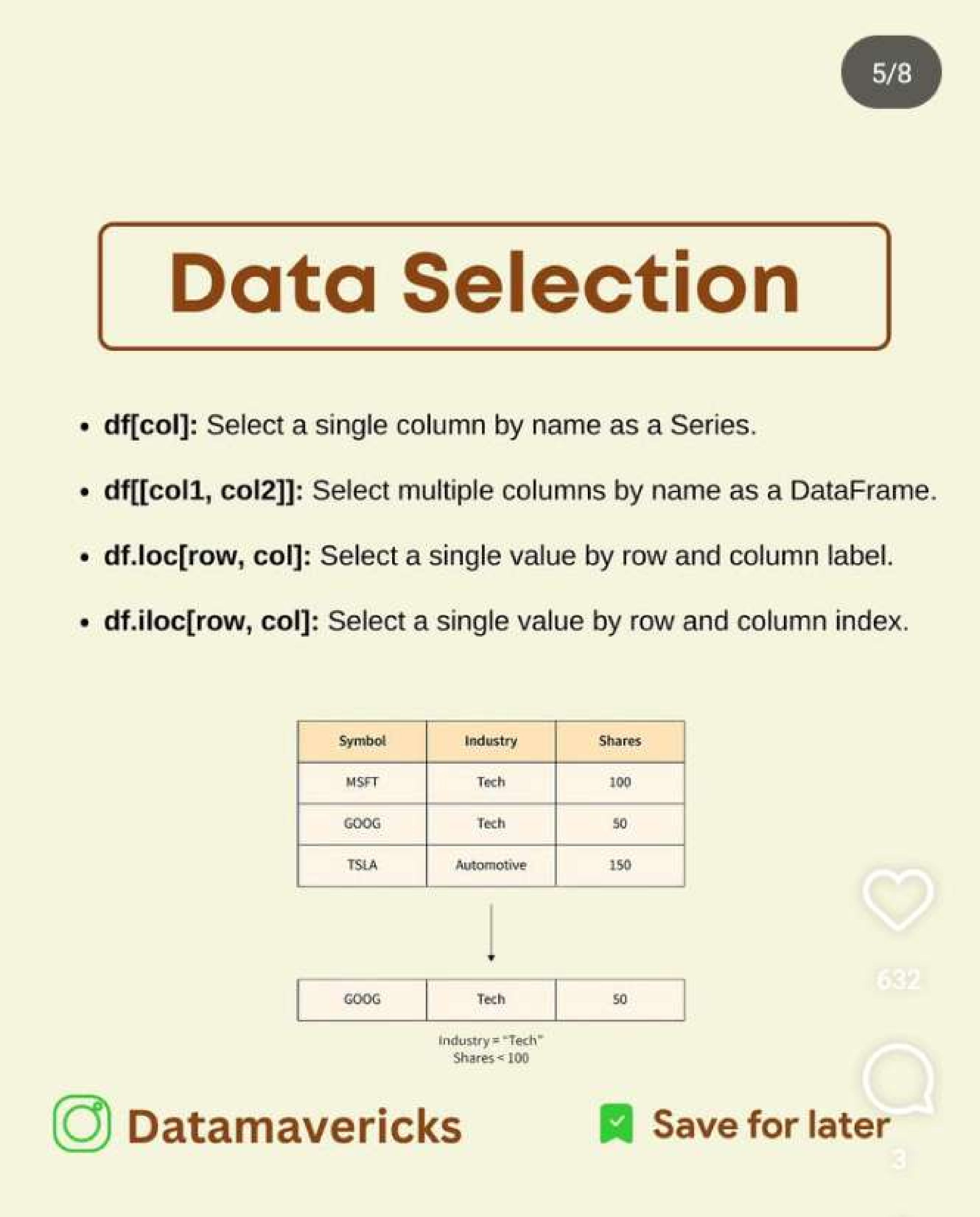

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Data Selection

- **df[col]:** Select a single column by name as a Series.
- **df[[col1, col2]]:** Select multiple columns by name as a DataFrame.
- **df.loc[row, col]:** Select a single value by row and column label.
- **df.iloc[row, col]:** Select a single value by row and column index.

Symbol	Industry	Shares
MSFT	Tech	100
GOOG	Tech	50
TSLA	Automotive	150

↓

GOOG	Tech	50

Industry = "Tech"
Shares < 100

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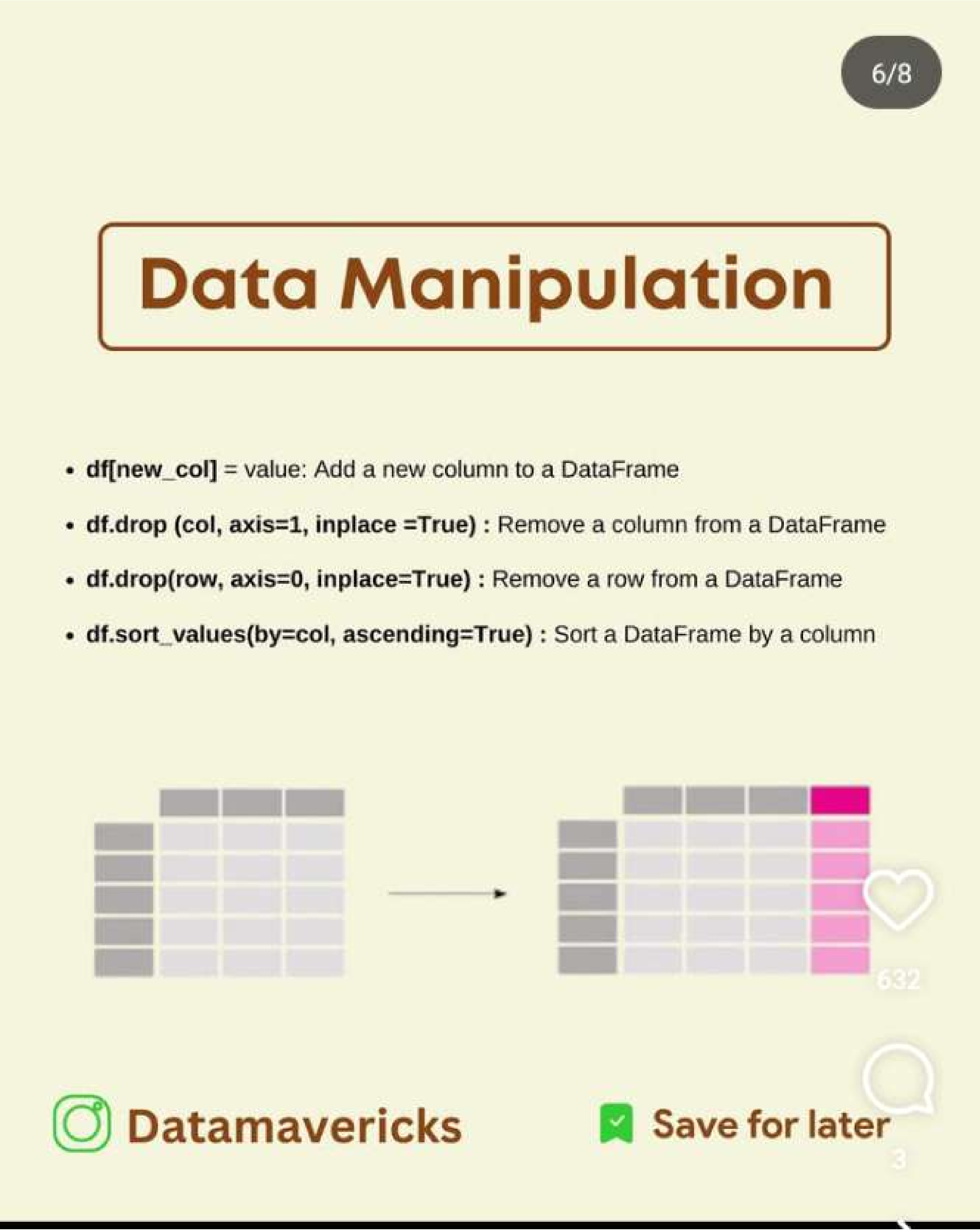

Data Manipulation

- **df[new_col]** = value: Add a new column to a DataFrame
- **df.drop (col, axis=1, inplace =True) :** Remove a column from a DataFrame
- **df.drop(row, axis=0, inplace=True) :** Remove a row from a DataFrame
- **df.sort_values(by=col, ascending=True) :** Sort a DataFrame by a column

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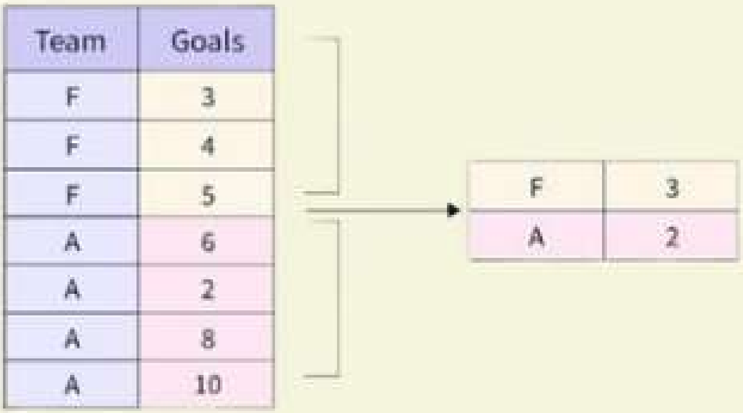
Save for later

Grouping

- **df.groupby(col).sum():** Group a DataFrame by a column and compute the sum of each group
- **df.groupby(col).median():** Group a DataFrame by a column and compute the median of each group
- **df.groupby(col).max():** Group a DataFrame by a column and compute the maximum of each group
- **df.groupby(col).first():** Group a DataFrame by a column and return the first row of each group
- **df.groupby(col).size() :** Group a DataFrame by a column and return the size of each group



Team	Goals
F	3
F	4
F	5
A	6
A	2
A	8
A	10

F	3
A	2

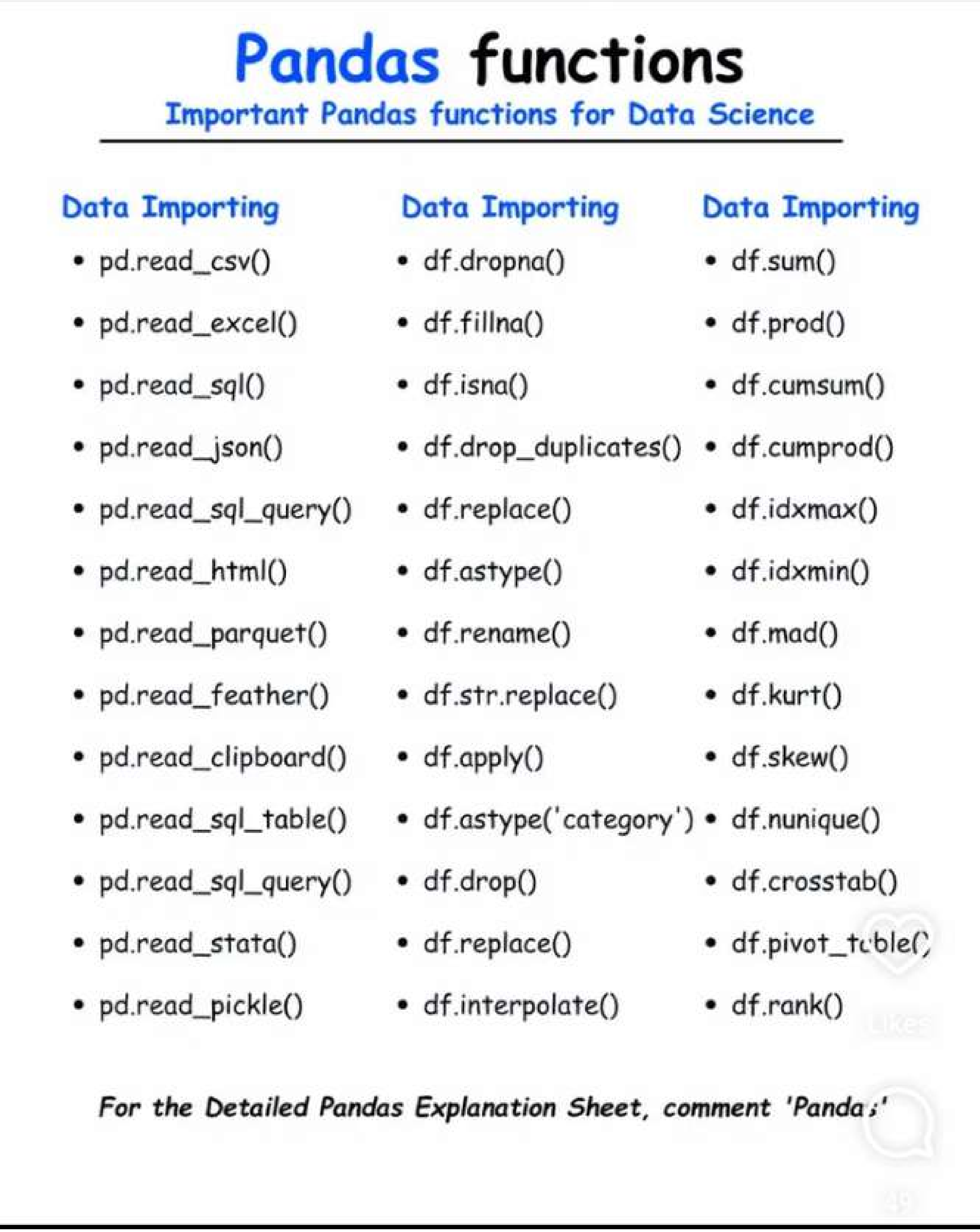
Min Value in each Group

632

Datamavericks

Save for later

3



Pandas functions

Important Pandas functions for Data Science

Data Importing

- pd.read_csv()
- pd.read_excel()
- pd.read_sql()
- pd.read_json()
- pd.read_sql_query()
- pd.read_html()
- pd.read_parquet()
- pd.read_feather()
- pd.read_clipboard()
- pd.read_sql_table()
- pd.read_sql_query()
- pd.read_stata()
- pd.read_pickle()

Data Importing

- df.dropna()
- df.fillna()
- df.isna()
- df.drop_duplicates()
- df.replace()
- df.astype()
- df.rename()
- df.str.replace()
- df.apply()
- df.astype('category')
- df.drop()
- df.replace()
- df.interpolate()

Data Importing

- df.sum()
- df.prod()
- df.cumsum()
- df.cumprod()
- df.idxmax()
- df.idxmin()
- df.mad()
- df.kurt()
- df.skew()
- df.nunique()
- df.crosstab()
- df.pivot_table()
- df.rank()

For the Detailed Pandas Explanation Sheet, comment 'Pandas'