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## Pandas Cheat Sheet – Quick Reference

import pandas as pd

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### 1. Reading & Writing Data

#### Read CSV:

```
df = pd.read_csv("data.csv")
```

#### Read Excel:

```
df = pd.read_excel("data.xlsx")
```

#### Write CSV:

```
df.to_csv("output.csv", index=False)
```

#### Write Excel:

```
df.to_excel("output.xlsx", index=False)
```

💡 Use `index=False` to avoid saving row numbers.

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### 2. Data Exploration

#### First rows:

```
df.head()
```

#### Last rows:

```
df.tail()
```

#### Shape (rows, cols):

```
df.shape
```

#### Column names:

```
df.columns
```

#### Data types:

```
df.dtypes
```

#### Summary statistics:

```
df.describe()
```

💡 Helps quickly understand dataset structure.

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### 3. Data Cleaning

#### Rename columns:

```
df.rename(columns={"old": "new"}, inplace=True)
```

#### Drop column:

```
df.drop("col_name", axis=1, inplace=True)
```

#### Drop row:

```
df.drop(0, axis=0, inplace=True) # drops first row
```

#### Replace values:

```
df.replace({"old_value": "new_value"}, inplace=True)
```

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#### **4. Filtering Data**

##### **Single condition:**

```
df[df["Age"] > 30]
```

##### **Multiple conditions:**

```
df[(df["Age"] > 30) & (df["City"] == "Delhi")]
```

##### **Filter with list:**

```
df[df["City"].isin(["Delhi", "Mumbai"])]
```

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#### **5. Handling Missing Values**

##### **Check missing:**

```
df.isnull().sum()
```

##### **Drop missing:**

```
df.dropna(inplace=True)
```

##### **Fill missing:**

```
df.fillna(0, inplace=True)
```

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#### **6. Interpolation**

##### **Linear fill:**

```
df["Sales"] = df["Sales"].interpolate(method="linear")
```

##### **Time-based fill:**

```
df["Sales"] = df["Sales"].interpolate(method="time")
```

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#### **7. Sorting & Aggregation**

##### **Sort values:**

```
df.sort_values("Age", ascending=True) -> If I am put ascending =False so its arrange the values into the Descending order.
```

##### **Group and aggregate:**

```
df.groupby("City")["Sales"].mean()
```

##### **Value counts:**

```
df["City"].value_counts()
```

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