

Python for Data Analytics Guide PDF Page

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Intent (anti-cannibalisation)	PYTHON FOR ANALYSTS OVERVIEW. pandas, NumPy and Python cleaning each have their own deeper page.
Why not thin	Explainer-style sections, FAQs and cross-links make the page useful even without a download
Schema	WebSite, Organization, Breadcrumb, CollectionPage, FAQPage (only FAQs visible on the page). PDF ItemList provided commented, to enable after titles are final
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SEO Title (46 chars):

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Meta Description (134 chars):

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Quick Answer

This page offers Uncodemy's Python for data analytics guide as a PDF download. Python lets analysts clean, combine, summarise and chart data in a repeatable way. The guide explains the setup, the core pandas operations, a first visualisation and good habits for notebooks, with examples you can run on a small file.

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Why analysts use Python

Python is a general-purpose language with a rich ecosystem for data work. Analysts use it when a task is too large or too repetitive for a spreadsheet, when it needs careful cleaning, or when the work should be repeatable by simply running a script again. Its libraries cover tables with pandas, numbers with NumPy, charts with Matplotlib and Seaborn, and statistics with SciPy and statsmodels. You do not need to become a software engineer to benefit from it. A small set of operations, used consistently, covers a surprising share of analyst tasks.

The core libraries

Library	What it does	Typical use
pandas	Tables called DataFrames	Load, clean, filter, group and merge data
NumPy	Fast numeric arrays	Calculations and the foundation under pandas
Matplotlib	Plotting	Line, bar, scatter and histogram charts
Seaborn	Statistical charts on top of Matplotlib	Distributions and comparisons with less code
SciPy and statsmodels	Statistics	Tests, regression and distributions
Jupyter	Notebooks	Mixing code, results and notes

Getting started

1. Install Python, or a distribution such as Anaconda, and open Jupyter or an editor.
2. Create a project folder with a data subfolder and a notebook.
3. Load a small CSV file into a pandas DataFrame.
4. Inspect it: shape, types, missing values and a sample of rows.
5. Clean and summarise it, then draw one chart.
6. Write a short markdown note describing what you found.

A first analysis in pandas

Load a CSV, check it, filter, group and sort. The file and column names are examples.

```
import pandas as pd

df = pd.read_csv("orders.csv", parse_dates=["order_date"])

print(df.shape)
print(df.info())
print(df.isna().sum())

valid = df[df["status"] != "cancelled"]

by_city = (valid.groupby("city")["order_total"]
            .agg(orders="count", revenue="sum", avg="mean")
            .sort_values("revenue", ascending=False)
            .round(2))
print(by_city.head(10))
```

Merging tables and checking the result

Join orders to customers, and verify that the row count did not change unexpectedly.

```
orders = pd.read_csv("orders.csv")
customers = pd.read_csv("customers.csv")

merged = orders.merge(customers, on="customer_id", how="left", validate="many_to_one")

print(len(orders), len(merged))          # should be equal
print(merged["city"].isna().sum(), "orders without a matching customer")
```

A simple chart with Matplotlib

Monthly revenue as a line chart with labelled axes and a finding-style title.

```
import matplotlib.pyplot as plt

monthly = (valid.set_index("order_date")["order_total"]
            .resample("MS").sum())

ax = monthly.plot(figsize=(7, 3), color="#F1582D")
ax.set_title("Monthly revenue")
ax.set_ylabel("Revenue")
ax.spines[["top", "right"]].set_visible(False)
plt.tight_layout()
plt.show()
```

Notebook habits

- Run the notebook from top to bottom before sharing it to be sure it works.
- Put imports and file paths at the top.
- Use markdown cells to explain each section and the conclusions.

- Keep functions small and named clearly, and avoid copying code blocks.
- Do not leave passwords or private data in a notebook.
- Save the environment details, such as library versions, in a requirements file.

Excel, SQL and pandas: the same idea in three tools

Task	Excel	SQL	pandas
Filter rows	Filter or FILTER()	WHERE	df[df[col] == x]
Total by group	Pivot table	GROUP BY	df.groupby(col).sum()
Combine tables	XLOOKUP	JOIN	df.merge()
Sort	Sort	ORDER BY	sort_values()

Common mistakes

- **Silent merges** that duplicate rows: use validate and compare counts.
- **Modifying a slice** of a DataFrame and getting warnings: copy explicitly.
- **Not parsing dates**, which leaves them as text.
- **Loops over rows** when a vectorised operation would be faster and shorter.
- **One giant cell** of code that cannot be reviewed.

Next steps

After the basics, learn reshaping with pivot and melt, time-series operations, string cleaning and plotting with Seaborn. Then apply them to a complete project: pick a dataset, write the business question, clean, analyse, chart and write up. The ability to read other people's notebooks is also valuable, since much of real work is understanding and extending existing code.

Learning Python alongside real questions

Instead of studying Python in the abstract, start with a question about a dataset you care about, such as which month had the highest sales or how delivery times differ by city. Look up only the commands you need, run them, and write down what you learned. Over a few weeks you will collect a personal library of patterns for loading, filtering, grouping, merging and plotting. This question-first approach keeps motivation high and gives you working examples to reuse.

Common pandas errors and what they mean

Error	Likely cause	Fix
KeyError	Column name misspelled or has extra spaces	Print df.columns and strip names
SettingWithCopyWarning	Changing a slice of another DataFrame	Use .copy() or .loc for assignment
ValueError when merging	Key columns have different types	Convert both to the same type
Unexpected NaN after merge	Keys do not match	Check unmatched keys with indicator=True

Python libraries for analysts: when to use each

Library	Use it for
pandas	Tables, cleaning, grouping and joining
NumPy	Fast numeric arrays and maths
Matplotlib and seaborn	Charts for exploration and reports
SciPy and statsmodels	Statistical tests and models
Jupyter	Notebooks that mix code, charts and notes

Habits that make Python analysis trustworthy

- Keep raw data read-only and write results to new files.
- Re-run notebooks from top to bottom before sharing.
- Put repeated steps into functions.
- Check row counts after every merge or filter.

Related Uncodemy resources

- [Python Pandas for Data Analysis PDF](#)
- [Python NumPy for Data Analysis PDF](#)
- [Python Data Cleaning PDF](#)
- [Data Analytics EDA Guide PDF](#)

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Frequently Asked Questions

Do data analysts need Python?

Not every role requires it, but Python is increasingly valuable for cleaning, automation and larger datasets, and many job descriptions list it.

What is pandas used for?

Pandas provides DataFrames for loading, cleaning, filtering, grouping, merging and summarising tabular data.

Should I learn Python or SQL first?

SQL first is usually better for analyst roles because most business data is in databases. Python is a strong second skill.

What is a Jupyter notebook?

A notebook is a document that mixes code, results, charts and notes, widely used for exploring data and sharing analysis.

How do I avoid wrong results when merging data?

Use the validate option in pandas, compare row counts before and after, and check for unmatched keys.

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