

Data Analyst Technical Skills PDF Page

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PART 1: Page plan

Item	Decision
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Intent (anti-cannibalisation)	DEPTH ON TECHNICAL SKILLS with practice tasks. The tick-list is on the skills checklist page.
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SEO Title (44 chars):

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Meta Description (143 chars):

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Quick Answer

This page offers Uncodemy's data analyst technical skills guide as a PDF download. It goes into more depth than a checklist: for each technical area it explains what the skill actually involves, shows a small example and gives a practice task so that you can test yourself.

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Technical skills in context

Technical skills are the means by which an analyst turns a question into evidence. They are never the goal. A strong analyst uses just enough technique to answer the question correctly and clearly, and keeps the method simple so that others can follow it. Still, weak technical skills limit what questions you can answer and how fast you can work. This guide explains the main areas in depth and gives you tasks to practise. Work through them with real datasets rather than only reading.

SQL: the core language of data

SQL lets you retrieve and combine data from relational databases. At a minimum an analyst should be able to filter rows, aggregate with GROUP BY, join several tables correctly and use subqueries and common table expressions to build a calculation step by step. Beyond that, window functions allow rankings, running totals and comparisons with the previous row without collapsing the data. The key difficulty is not the syntax but thinking about the grain of each table and how a join changes the number of rows.

Practice task: top product in each category

Rank products by revenue within each category using a window function inside a CTE. Table names are examples.

```
WITH product_revenue AS (
  SELECT p.category, p.product_name, SUM(oi.quantity * oi.unit_price) AS revenue
  FROM order_items oi
  JOIN products p ON p.product_id = oi.product_id
  GROUP BY p.category, p.product_name
)
SELECT category, product_name, revenue
FROM (
  SELECT *, RANK() OVER (PARTITION BY category ORDER BY revenue DESC) AS rnk
  FROM product_revenue
)
WHERE rnk = 1;
```

Spreadsheets: speed and flexibility

Excel and Google Sheets remain the fastest way to inspect and shape small data. Skills that matter include lookup functions such as XLOOKUP or INDEX with MATCH, conditional functions such as SUMIFS and COUNTIFS, pivot tables, dynamic ranges and Power Query for repeatable cleaning. A good spreadsheet is auditable: inputs are separate from calculations, formulas are consistent down a column and important assumptions are written in cells rather than buried inside formulas.

Python for analysis

Python with pandas covers cleaning, reshaping, joining and summarising data, and it scales to files too large for a spreadsheet. Learn to read files, select and filter, group and aggregate, merge tables, handle dates and missing values, and plot with Matplotlib or Seaborn. Equally important is working in a reproducible way: use a notebook or script that someone else can run from top to bottom and get the same result.

Practice task: monthly revenue in pandas

Group orders by month and calculate revenue and order count. Column names are examples.

```
import pandas as pd

orders = pd.read_csv("orders.csv", parse_dates=["order_date"])
monthly = (orders[orders["status"] != "cancelled"]
          .assign(month=lambda d: d["order_date"].dt.to_period("M"))
          .groupby("month")
          .agg(orders=("order_id", "count"), revenue=("order_total", "sum"))
          .reset_index())

print(monthly)
```

BI tools and data modelling

Power BI and Tableau turn data into interactive dashboards. The visible part is the charts, but the real skill lies underneath: shaping a clean data model, usually a central fact table of events connected to dimension tables such as customers, products and dates, and then defining measures that calculate correctly under any filter. A dashboard built on a poor model gives wrong totals as soon as a user applies a slicer.

Statistics and analytical reasoning

You need enough statistics to avoid being fooled by data: summarising with the right measure, recognising skew and outliers, understanding sampling and uncertainty, interpreting correlation carefully and running basic tests such as a t-test or a chi-square test. Pair every technique with a question about whether the result is practically meaningful and not only statistically significant.

Self-test: can you do these without help?

Area	Task
SQL	Find customers who ordered in January but not in February
SQL	Calculate a running total of monthly revenue
Excel	Build a pivot table with a calculated field and a slicer
Python	Merge two tables and check for unmatched keys
BI	Create a measure for year-on-year growth that responds to filters

Common technical mistakes

- **Joins that multiply rows** and inflate totals.
- **Hard-coded numbers** inside formulas and queries.
- **Unreadable code** with no comments or sensible names.
- **Unchecked results:** no reconciliation with a source.
- **Over-engineering** a simple question.

Version control and documentation

Analysts increasingly use Git to track changes to queries and notebooks. At a basic level you should be able to create a repository, commit changes with clear messages, push to a remote and read a history. Even without Git, keep a simple habit of dated file names and a change log. Good documentation, such as comments in SQL, markdown notes in notebooks and a data dictionary, makes your work reusable by others and by your future self.

Reading error messages: a practical habit

Situation	What to do
Query returns no rows	Remove filters one at a time to find which one removes everything
Totals look too large	Check the grain and count rows after each join
Python raises a KeyError	Print the column names; check spelling and spaces
Dashboard number differs from Excel	Compare filters, date ranges and definitions first

Related Uncodemy resources

- [Data Analyst Skills Checklist PDF](#)
- [SQL for Data Analytics Guide PDF](#)
- [Python for Data Analytics Guide PDF](#)
- [Statistics for Data Analytics Guide PDF](#)

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- **Data Analytics course:** <https://uncodemy.com/course/data-analytics-training-course-in-noida>. URL verified on the live site.

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Frequently Asked Questions

What technical skills does a data analyst need?

SQL, spreadsheets, a BI tool, statistics and usually basic Python, along with data cleaning and data modelling concepts.

How good should my SQL be for a data analyst job?

Aim to write joins, aggregations, subqueries, CTEs and window functions confidently, and to explain how each query changes the row count.

Is Excel still important for data analysts?

Yes. It is widely used for quick analysis and communication, and skills such as pivot tables and Power Query are commonly expected.

What is data modelling in BI tools?

It is the design of the tables and relationships behind a dashboard, typically fact and dimension tables, so that measures calculate correctly under filters.

How do I practise technical skills?

Use real datasets, set yourself timed practice problems, build small projects and review your work against reference solutions.

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