Acing the Data Science Interview
MISSION

Help data scientists, machine learning engineers, and other data professionals prepare for their dream job through our course, coaching, and blog
Agenda

1. Research the Data Science Role
2. Benchmark Your Skills
3. Build a Daily Study Plan
4. Get Interview Feedback
Research the Data Science Role
Types of data science interviews

- SQL
- Machine Learning
- Python
- Product
- Probability
- Algorithms
- Statistics & A/B Testing
- System Design
Types of data science interview

1. Python/ Java Data structures > LeetCode
2. Data Engineering > SQL / NoSQL window function (lag/lead)
4. AB Testing > Bonferroni Correction, what happens with multiple metrics, OEC, MVT, Joint Distribution
5. Product Sense > health of a product, improving the product, root cause analysis
6. SWE System Design > Design Twitter
7. ML System Design > Design a Personalized News Feed Rank
8. Live Coding of data / modeling issue
9. Writing algorithms from scratch
10. Behavioral Interviews
11. Data Science Concepts
12. MLE Concepts such as NER, Deep Learning
Interview timeline and logistics

**Google Data Scientist Interview**

Example Timeline:

- **30 Minutes**
  - Initial Screen
  - Chat with the recruiter to learn more about the role and the recruiter learns more about your skills

- **60 Minutes**
  - Technical Screen
  - Work through coding problems. Also involves technical discussions about previous work; dive into what problems you faced and your approach to solving them

- **5 Hours**
  - Onsite Interview
  - Comprised of five 1-on-1 interviews with data scientists covering computational statistics, algorithms, experimentation, modeling and behavioral questions

- **$$$**
  - Receive an OFFER!!!
Different Kind of Roles
Product Analyst

<table>
<thead>
<tr>
<th>Metrics for Product growth/health</th>
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<td>Ex: Our MAU, DAU are down by 10%</td>
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<td>Focus on immediate commercial outcome</td>
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Data Analyst

<table>
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<th>Pretty much a Data Analyst</th>
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<tr>
<td>Ex: derive insights for all different kinds of users across the board</td>
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<td>Focus on long term outcome</td>
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Data Scientist

- Extract knowledge and insights from structured and unstructured data
- Use data to help company make decisions
- Is a scientist
  - engineering isn’t a top priority

Machine Learning Engineers

- ML models learn from data
  - ML is part of data science
- Develop models to turn data into products
- Is an engineer
  - engineering is a top priority
Research

Find the answers for fundamental questions and expand the body of theoretical knowledge.

Ex: develop a new learning method for unsupervised transfer learning

Focus on long term outcome

Applied research

Find solutions to practical problems

Ex: develop techniques to make that new learning method work on a real world dataset

Focus on immediate commercial outcome
Benchmark Your Skills
5. What is denormalization?

Denormalization is the opposite of normalization; redundant data is added to speed up complex queries that have many tables that need to be joined. Optimization of the performance of a database is attempted by minimizing redundant copies of data.

6. What are Joins?

Join in SQL is used to combine two or more tables based on a related column between them. There are various types of Joins, and it depends on the relationship between tables.

There are four types of Joins:

- Inner Join
- Left Join
- Right Join
- Full Join

7. Explain different types of SQL joins.
Problem Statement:
Let’s say we have a table representing a company payroll schema. Due to an ETL error, the ‘employees’ table instead of updating the salaries every year when doing compensation adjustments, did an insert instead. The head of HR still needs the current salary of each employee.

- Assume no duplicate combination of first and last names. (I.E. No two John Smiths)

Question:
Write a query to get the current salary for each employee.
Problem Statement:
Let's say you work for a social media company that has just done a launch in a new city. Looking at weekly metrics, you see a slow decrease in the average number of comments per user from January to March in this city.

The company has been consistently growing new users in the city from January to March.

Question:
What are some reasons on why the average number of comments per user would be decreasing and what metrics would you look into?
3

Build a Daily Study Plan
“In the gym, if you experience no stimulus, your muscles won’t grow. If you step under 10,000 pounds, your body will break.”

James Clear
Atomic Habits
Author
Exit survey data from members of Interview Query
1. Make solving questions easy
2. Solve one question a day
3. Practice on increasingly harder problems
4 Get Interview Feedback
What questions can I answer for you?
Thank you

Jay Feng
CEO
www.interviewquery.com
Headline introducing what’s on your slide

You can include a sentence or two here to provide more context, but remember to keep it short and snappy!
Big statement with supporting points and icon

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“Input your quote here”

John Doe
Senior Analytics Manager,
HSBC
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100%

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Source: DataCamp
Headline introducing what’s on your slide

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Source: DataCamp

7 in 10
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Source: DataCamp
Headline introducing the slide content

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What questions can I answer for you?
Icons for use in slides in large size

TIP: Right click, choose "format" and set brightness to 100% to make any of these icons white
Icons for use in slides in small size

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