

PRODUCT CASE INTERVIEW

CHEAT SHEET

If you want to be a data scientist, especially one focused on analytics, then you have to be able to ace product case interviews.

Product case interviews are designed to measure your product sense. You need to be able to identify, define, and use metrics to measure a company's products. Demonstrating these skills proves that you can help the company make data-driven decisions.

However, knowing what you need to do in a product case interview is only half the battle. Product case interviews are tricky, even for experienced data scientists. The problems can be ambiguous, there are lots of different types of products you may be asked about, and there is far less practice available online compared to other technical interviews like SQL and coding.

That's what this cheat sheet is here to help fix! This sheet walks you through several sample problems and gives you steps for addressing those problems. By looking at clear examples, you'll be getting clarity about what to expect in a product case interview and practice developing answers.

The sample questions are broken into the six most common types of questions you will find in a product case interview:

*Measuring
Success*

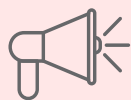
*Launch
or
Not*

*Diagnosing a
Problem*

*Improving a
Product*

*Making
Strategic
Decisions*

Measuring Success



Sample Questions

- Instagram is launching a Story feature. How can you tell it's doing well?
- If Uber is rolling out a referral program for riders, what metrics would you use to measure its success?

Steps

1

Understand the goal

2

Follow the user journey or funnel

3

Define metrics

What to do?

Understand the functionality of the feature

- What does the feature do?
- How is it used?
- Who is it for?

Understand the goal

- Make an educated guess and double-check with the interviewer
- Or ask the interviewer

User journey

- How do users see the feature?
- How do they navigate through the product?
- How do they interact with it?

Experience funnel

- Only a certain percentage of users will progress through each step of the funnel

Define 1 to 2 success metrics

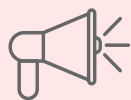
For A/B tests

- Define 1 guardrail metric

For two-sided/three-sided marketplace

- Define more metrics if the interviewer requires

Launch or Not



Sample Questions

- How would you set up an experiment to understand a feature change in Quora?
- How would you decide to launch it or not if engagement within a specific segment decreased while all the rest increased?
- What would you change in the Twitter app? How would you test if the proposed change is effective or not?

Steps

1

2

3

4

Design
experiments

5

Interpret results

What to do?

Same as Step 1-3 in “Measuring Success”

Experimental design steps

- Definitions of control and treatment groups
- Randomization unit
- Experiment run-time
- Common pitfalls and fixes
- Long-term monitoring

Launch if

- Success metrics are all practically and statistically significant
- No violation of assumptions
- No negative change of guardrail metrics

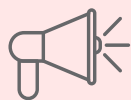
Do not launch if

- Violation of assumptions
- Negative change of guardrail metrics

Discuss trade-offs

- Unify both positive and negative impact to one metric
- Segmentation of positive and negative on user groups and features
- Discuss whether the overall result is desirable

Diagnosing a Problem



Sample Questions

- How to investigate a 10% drop of the friend requests on Facebook?
- Average ETA of Lyft/Uber rides is up by 3 minutes. How would you investigate this problem?
- Daily active users of Slack have gone down by 1%. How to investigate what happened? Is this something we should be concerned about?
- We have a referral program in Doordash, but the response rate is very low. How do you diagnose this problem?

Steps

1

Clarify the problem and the change of the metric

2

Clarify the timeframe for the change

3

Generic across multiple products OR specific to one product or feature

What to do?

Clarify:

- How things are defined
- How metrics are calculated
- How much were the changes

Sudden change or gradual change?

Sudden change:

- Anything happened internally within the company?
- Any external events or obvious market/traffic shifts?

Gradually change:

- Need more investigation

Have other related products/features experienced the same change?

- Narrow the scope and context of the problem

Steps

4

Segment users or product features

What to do?

Is the change associated with any user/product segments?

User segmentation:

- Geographic location
- Age group
- Device type
- Product/feature usage tier

Product segmentation:

- Specific feature enabled/disabled

5

Decompose the metric

Decomposed metrics based on how they are calculated

- Study change of each component
- Narrow down the cause of the change

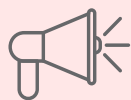
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Summarize

This shows the interviewer a clear structure.

- Summarize the investigation
- Conclude and discuss with the interviewer ideas about the causes

Improving a Product



Sample Questions

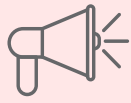
- How to improve user retention on Twitter?
- How to improve user engagement on Facebook?
- How to improve “What’s on your mind” posting on Facebook?
- How to improve WhatsApp, what feature would you add to it?

Steps

What to do?

| | | |
|---|--|--|
| 1 | Understand the goal | Understand the functionality of the feature <ul style="list-style-type: none">• Who is it for?• What is the ideal use case for the product? |
| 2 | Explain your approach | Be open and communicative about your thought process to your interviewer. |
| 3 | Identify product improvement opportunities | Go over the user journey and identify friction points <ul style="list-style-type: none">• Requires data that can reveal key user needs Analyze current users' behaviors to identify the needs of current users and the different needs of different user segments. |
| 4 | Identify a solution and prioritization | Prioritize solutions <ul style="list-style-type: none">• Judge solutions by overall cost-effectiveness• Select ideas that have the largest impact |
| 5 | Define metrics | Define 1 to 2 success metrics For A/B tests <ul style="list-style-type: none">• Define 1 guardrail metric |
| 6 | Summarize your overall approach | Tie everything together <ul style="list-style-type: none">• Outline the goal• Solutions• How to prioritize them |

Making Strategic Decisions



Sample Questions

- Back in 2016, there was no “story” feature in Instagram, how do we decide whether to launch this feature or not?
- What should the hourly rate for Instacart shoppers be?

Steps

1

Understand the goal

2

Strategic analysis

3

Summary

What to do?

Understand the functionality of the feature

- What does the feature do?
- How is it used?
- Who is it for?

Understand the goal

- Ask the interviewer
- Or make an educated guess and double-check with the interviewer

Use the 5Cs framework, think of

- Customers
- Company
- Collaborators
- Competitors
- Context

Tie everything together



Knowing how to prepare for product case interviews is challenging. Hopefully, these sample questions and steps have given you some practical insight into what you can expect in a product case interview and how you might approach the questions.

If you find this cheat sheet helpful and want to learn more, be sure to check out emmading.com which will give you all the resources, systems, and tips you need to ace acing data science interviews like a pro!

If you have any questions, feel free to reach out to info@datainterviewpro.com.

Best of luck with your interviews!

- Emma