Data Science Interviews

BitTiger DS501

Kinds of interviews

In general, there are 4 kinds of interviews before a company would give you an offer
1. **Take-home (Maybe)**
2. **Recruiter Phone Interview**
3. **Technical Phone Interview**
4. **Onsite Interview**

Some variants include the first round being a technical interview, multiple onsite interviews, or in rare cases multiple rounds of technical phone interviews.

Typically between each stage you have a couple of days to 3 weeks gaps. The expected waiting time between stages is closer to 1 week.

The whole process usually take from 3 to 6 weeks.

Take-home

It is paramount that you ace your take-home if you have a take-home. Acing the take-home would make the technical interviews down the road easier and more just about explaining what you have done for the take-home.
To ace the take-home:
- Figure out the main theme behind the assignment and add your own interpretation to the assignment
- Write clean code to solve the problem, make it object oriented and PEP8 compliant (if in Python)
- Write a documentation explaining what you have done, reasoning behind what you've done, and what else you could have done
- Alternatively write a presentation (especially if asked to)
- Offer extra insight / knowledge that is not being asked

Recruiter Phone Interview

Prior to doing the first phone interview, you should always ask if the interview is technical or not. If not, then most likely it will be a recruiter interview, otherwise see technical phone interview below. Most of you will pass the recruiter interview if you have spent more than half an hour preparing.
To pass the interview, you should:
- Read the job description and make sure you understand it

- **Be able to talk through your resume chronologically, from college to present**
- **Focus on the relevant data science experience in broad strokes**
- Do not focus on technical details
- **Important: Get an idea what the team does. If the recruiter does not know, then at least try to get the name of someone on the team, ideally the person who will be doing your technical interview**
- Also always ask when you are going to hear back
- If you are asked about if X to Y salary range is ok, do not say yes / no, unless it is very significantly less than what you have expected. Say it depends on other things and it is still too early to tell this is a good range

Technical Phone Interview

This round varies from company to company, **many companies will do a coding screen**. This round will be done by a data scientist or a software engineer.

If you have the name of the interviewer, google / linkedin that person to find out his background.

That will tell you what he/she knows and what he/she might ask.

Apart from the coding screen, the rest of the interview could draw from one or more elements from the list below:
- **Probability question**
    - Bayes theorem questions
    - Counting permutations and combination problems, given 5 coin flip, probability of observing at least 1 head
    - Distribution questions, usually Poisson, Binomial or Exponential
- **Coding screen**
    - Basic algorithms in sorting and searching, similar to the anagrams question
    - Data structure question about dictionary and list
    - Trade-offs between memory and speed
- **Product/business sense question**
    - How would you make suggestions about what we should change in the company
        - Your answer should be relevant to the role and easily implemented
        - This is an opportunity for you to show what analysis you would do as an analyst
        - Or what experiments you would run as an experimenter
        - You should visit the website / use the product of the company and be prepared to answer the question

- - ○ Basically questions will be surrounding acquisition, retention, referral, and measuring value of users
  - **Machine learning question (modeling)**
    - ○ Mostly logistic / linear regression at this stage unless you are going for specialist or machine learning engineer role
    - ○ Model comparison of the usages and characteristics between different machine learning algorithms

Onsite Interview

Most often that would be the last round. In addition to your technical skills, you have a be a cultural fit, i.e. they have to like working with you.

Dress code
- Button-down shirt and long jeans / dress

Rounds
- Mostly data scientists
- 1 product manager (maybe 1 VP)
- Maybe 1 software engineer.

Content-wise, it will be the same as the technical phone screen, except
- **More in depth questions**
  - ○ **Coding:** Use of Stack and Queues / Recursion problems / Dynamic programming (Very rare)
  - ○ **ML:** Details of logistic / linear, RF, SVM, Naive Bayes
  - ○ **Stats:** Statistical Power, Multiple Testing corrections, Bootstrapping
  - ○ **Behavioral:** Team work, your weaknesses and strengths, what you can improve on
- **More questions about details of your previous data science experience**
  - ○ What model did you use and why ?
  - ○ How does the data science work you do matter in a business context ?
  - ○ What assumptions are you making ?

Statistically speaking, unreasonable brain teasers do not come up very often.

If they do,
- Your thinking process is being assessed. Not how fast you are
- Stay calm
- Come up with the answer that pops first into your head (will not be the best solution)
- Vocalize almost every thought you have
- Scale down the problem to something you can count and simulate (from like 100 to 10)
- Get feedback before you try to go down one path too far
  - ○ Silence from the interviewer is also a form of feedback (probably wrong...)