**Interview Questions for Entry-Level Data-Intensive Jobs**

**Thinking critically about essential skills and experience**



Food preparation for pao cai. Image by the author.

I teach data courses in an applied social sciences program, preparing students to work on various social and environmental problems in community-based agencies or government settings. My students are not preparing for a career in data science. Still, they will have data-intensive positions — e.g., data analyst, business intelligence (BI) manager, program evaluator, research coordinator, quality improvement coordinator, etc.

While a strong market demand exists for data skills, the best jobs are highly competitive. This article presents interview questions from my consulting work in the non-profit sector. I also ask these questions when I hire advanced students and recent graduates to join my research projects as analysts or coordinators. I provide rationales for each question to help employers of entry-level analysts get at helpful information about applicants. More significantly, though, the rationales can give students and analysts in training essential insights into market demands. With this insight, students can be more deliberate in how they spend their time.

***I see from your resume that you have skills working with different software applications. In what software environment are you most proficient in working with data? Walk me through your portfolio so I can better understand your skill level.***

I regularly see applicants providing a laundry list of software skills. A laundry list gives information about the applicant’s awareness and exposure to software, but not proficiency. For example, most students in my introductory data courses indicate that they “know” Excel. Yet, few know how to create a pivot table or use the VLOOKUP function.

What I find is that most applicants indicate that they are aware and have been exposed to different software applications but do not have proficiency. The most robust demonstration of proficiency is with some data product that can be shared — ideally, a collection of works organized as a professional portfolio. Regardless of the training, experience, or degree listed on their application, I screen out applicants who cannot provide a portfolio or some concrete example of their work.

For entry-level positions, I am often not seeking high levels of proficiency in a given software environment. Applicants proficient in working with data in a given software environment can quickly upskill in a different software environment, assuming they have a strong foundation in the principles of data.

***You have many portfolio examples that appear to be class assignments. Have you done any personal projects? I’m interested in knowing whether you have conceptualized and carried out a project independently.***

Personal projects are activities carried out to build skills and gain experience independently. Course assignments have fixed deadlines, a grading rubric, and content parameters. In other words, the course instructor defines the deliverables for class assignments. I’m interested in how much an applicant can make project decisions. Can the applicant independently conceptualize a project, break the project down into manageable steps, iterate on different solutions, solve unanticipated problems, and define when the project is complete? These types of decisions require many micro-level skills that take time to develop. Personal projects are an ideal way to build these critical micro-level skills.

Personal projects go beyond the requirements of a course, signaling an applicant’s commitment to engaged learning. Among applicants with skill deficits or gaps in experience, I still consider them for a position if they have a strong portfolio of work, especially personal projects. Personal projects are among the most vital indicators of intrinsic motivation and passion.

I routinely stress to students the importance of doing personal projects to build experience working with real-world data. Here are a couple of posts describing different ways to do this:

**[The ideal data source and activities for developing data skills: Yourself](https://towardsdatascience.com/the-ideal-data-source-and-activities-for-developing-data-skills-yourself-347e58a1567e" \t "_blank)**

**[An introduction to self-tracking and personal science](https://towardsdatascience.com/the-ideal-data-source-and-activities-for-developing-data-skills-yourself-347e58a1567e" \t "_blank)**

[towardsdatascience.com](https://towardsdatascience.com/the-ideal-data-source-and-activities-for-developing-data-skills-yourself-347e58a1567e" \t "_blank)

**[Portfolio Products to Showcase Your Data Skills](https://towardsdatascience.com/portfolio-products-to-showcase-your-data-skills-b573e538e094" \t "_blank)**

**[Adapting course activities to prepare for a competitive job market](https://towardsdatascience.com/portfolio-products-to-showcase-your-data-skills-b573e538e094" \t "_blank)**

[towardsdatascience.com](https://towardsdatascience.com/portfolio-products-to-showcase-your-data-skills-b573e538e094" \t "_blank)

***Tell me how you stay up to date with the field. What are the different social media sites and people you follow? Where do you go for information about the latest developments?***

This line of questioning connects to my interest in engaged learning. I want to know where and how applicants obtain information directly related to working with data. Different social media platforms can be excellent resources for getting assistance in solving problems. These questions help clarify their involvement with the broader field of professionals. I am indifferent to whether the applicant has a social media presence unless their messaging is incendiary or divisive.

***Tell me about your experience managing a project.***

Applicants seeking an entry-level position do not have many project management opportunities. Even without formal experience, I look for indicators that help clarify their thoughts about managing activities toward a broader project deliverable. People do not like to be micromanaged in their day-to-day work. As a supervisor or mentor, I don’t want to be a micromanager. My interest is in creating a team where we have a common understanding of project goals and deliverables. Again, personal projects are an excellent way to help fill this void in experience.

***Describe your approach to prioritizing project tasks.***

This question relates to project management. But, I am trying to understand the applicant’s ability to differentiate between being *busy* and *productive.* When working with data, a full day of work can pass quickly. However, logging a whole work day does not mean the work has meaningfully advanced a given project. With this question, I want to know what systems the applicant uses to monitor their productivity. Can applicants recognize when they spend too much time on a given task and may require some guidance? Does the applicant acknowledge the importance of starting tasks well before project deadlines, allowing sufficient time to address potential unanticipated roadblocks? Time is among the most valuable resources that require careful and ongoing management.

***I see you have strong technical skills. What “content” area do you consider your strength? Do you have any work examples showing how you integrated your technical skills and content area?***

To work with data effectively requires context. Having content expertise helps you understand the meaning and value of data. Without context, an analyst risks blindly running analyses without a clear understanding of what and why something is important. An applicant’s content area may not align precisely with the position. However, the applicant should be able to articulate the importance of integrating technical skills with a given content area. Demonstrating this understanding builds my confidence that the applicant can grow into the position.

***Describe to me your strategies for solving data problems.***

This question is crucial for new analysts. When I ask this question, I want to understand how they approach problems they haven’t previously encountered. I certainly allow time for new analysts to explore different solutions. Exploration also has to be balanced with efficiency and project resources. Can the applicant articulate an efficient approach? What sites do they use? Do they have experience posting questions to social media — and, if so, are they aware of best practices? How long will they work on a problem before deciding to ask for help?

Here is a short article I wrote on this problem-solving. Entry-level data analysts should be aware of these essential strategies.

**[Solving data problems](https://towardsdatascience.com/solving-data-problems-22ab8ac792bd" \t "_blank)**

**[A beginner’s guide](https://towardsdatascience.com/solving-data-problems-22ab8ac792bd" \t "_blank)**

[towardsdatascience.com](https://towardsdatascience.com/solving-data-problems-22ab8ac792bd" \t "_blank)

***Why do you enjoy working with data? What excites you?***

This line of questioning helps me understand the applicant’s fit for the position. I want to work with people passionate about high-quality work and learning new content and skills. I want to know that person’s passion.

***Do you enjoy cleaning and preparing data?***

Of course, I do not expect every activity to be enjoyable. But, the one deal breaker for me is statements suggesting they do not enjoy data cleaning and preparation. If you have read the data science literature, I am sure you will have seen comments — and debates — we devote about 80% of time and resources to data cleaning and preparation. That estimate holds for all of my projects. Unfortunately, many people regard data cleaning and preparation as mundane, low-level work. That is far from the truth. The quality of the data determines the success of a data project. Data cleaning and preparation involve a high level of skills and creativity. If the applicant doesn’t enjoy this type of work, I will have minimal confidence they will take it seriously and give it their best effort.

**Next steps**

The data field is growing rapidly, with a demand for entry-level data professionals. Whether an employer or an applicant, I offer these interview questions and rationales to help you think critically about interviews for entry-level data-intensive positions. Feel free to use the comment section to provide other interview questions that you have asked or been asked.