As we outlined in the previous section, a lot of data science work can be classified as translation: taking a question and translating it into mathematical or statistical tests or taking statistical results and translating them into something everyone can understand.

Below we have a series of questions for you to translate into a technical plan. For each question, describe how you would make it testable and translate it from a general question into something statistically rigorous. Write your answers down in a shareable document and submit the link below.

1. You work at an e-commerce company that sells three goods: widgets, doodads, and fizzbangs. The head of advertising asks you which they should feature in their new advertising campaign. You have data on individual visitors' sessions ([activity on a website](https://en.wikipedia.org/wiki/Session_%28web_analytics%29), [pageviews](https://en.wikipedia.org/wiki/Page_view), and purchases), as well as whether or not those users [converted](https://en.wikipedia.org/wiki/Conversion_marketing) from an advertisement for that session. You also have the cost and price information for the goods.

Which product was the most purchased?

Which product has the most views?

Which product has the most clicks on the ad of any of the 3 products?

1. You work at a web design company that offers to build websites for clients. Signups have slowed, and you are tasked with finding out why. The [onboarding funnel](https://en.wikipedia.org/wiki/Funnel_analysis) has three steps: email and password signup, plan choice, and payment. On a user level you have information on what steps they have completed as well as timestamps for all of those events for the past 3 years. You also have information on [marketing spend](https://en.wikipedia.org/wiki/Marketing_spending) on a weekly level.

How much time are most users spending on the onboarding funnel process?

What is the percentage of users start the onboarding process but did not finish?

Was marketing spending consistent in the past 3 years?

1. You work at a hotel website and currently the website ranks search results by price. For simplicity's sake, let's say it's a website for one city with 100 hotels. You are tasked with proposing a better ranking system. You have session information, price information for the hotels, and whether each hotel is currently available.

What is the percentage the users also check out the non-available hotels in the ranking?

What is the percentage the users book the first 3 rankings when presented the old list?

1. You work at a social network, and the management is worried about [churn](https://en.wikipedia.org/wiki/Churn_rate) (users stopping using the product). You are tasked with finding out if their churn is atypical. You have three years of data for users with an entry for every time they've logged in, including the timestamp and length of session.

How many users logged in by day or month for the past three years?

How satisfied are the users with the network per the surveys conducted?

What is the length of the users user the site?