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, pageviews, and purchases), as well as whether or not those users converted from an advertisement for that session. You also have the cost and price information for the goods.

I want to use the page view data to see what items users are viewing the most. Then I compare this data set with the items purchased and determine which items are selling with the highest volume. For the items viewed we need to match up to the price that will have the most transactions within a given time period. The advertising campaign will be geared towards these items at the researched price points.

2) 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 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 on a weekly level.

Find out the average time spent on each step. Identify customers that are in a step one or more standard deviations above the mean time spent in a step. Have support staff assist customer with either technical or sales issues. For presales step, we need to develop survey on how best to meet user needs.

3) 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.

We need to look into the session information on what search filter the user accessed to view the list of available hotels. Provide a free form search text box to learn about what other hotel features users are looking for.

4) You work at a social network, and the management is worried about churn (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.

Use the log data to keep track of how often user logs in and determine average usage period. Identify users that are declining in usage. Survey users on how to provide better features to retain customers.