



Data Analyst

Case Study

Welcome!

Thank you for devoting your time to this case study. We greatly appreciate it. With this case study, we aim to understand:

- Your approach to data analysis
- Your ability to understand the monetization in subscription business
- Your strengths and potential areas for improvement

Most important of all, this case study will help us create a conversation space where we can exchange our thoughts and expectations on a deeper level.

We assure you that we'll thoroughly review your solutions, but if you advance to the next round, we won't go over every detail of your presentation during the interview. So please make sure to include any important written or visual information in your presentation.

In this case, we have 4 questions for you to better see you in the following areas:

1. A/B Testing & Product Monetization
2. Data Reliability & Debugging
3. Business Intelligence & Data Visualization
4. Marketing Analytics

For each of the questions, you will use different dataset attached to the email you received along with this case study. You can find more detailed information about each dataset in this [page](#).

We use BigQuery as our data-warehouse, and you can upload the data files to BigQuery and use it for your SQL queries. To upload the files in BigQuery, you can follow these [steps](#).



Please feel free to choose how you deliver your results: a written report, a spreadsheet, a presentation, or anything with which you feel comfortable. Please explain your logic shortly and add your queries to the corresponding answers.

Try your best to answer questions as detailed as possible, and embrace a 'challenge accepted' attitude for all of the questions.

Deliverables

Think of this case study as a rehearsal of your Data Analyst journey in Codeway.

Please mind the brief, yet feel free to get creative & suggest further as much as possible.

Deadline: You have 10 days to submit your case study after you receive this brief. If you want additional time, be sure to write to us, we can extend the delivery time.

Before Beginning

Before beginning this case study, make sure you take a look at all of the [digital presence](#) of Codeway as much as possible, and try our apps.

Think of these questions as your first tasks after you take the job.



Q1 : Experiment

We highly value validating decisions with data, especially when making significant decisions. Therefore, we have conducted thousands of A/B tests to date.

For this part of the case, you will be working with a dataset named `dataset_experiment`. This dataset contains real data from an important monetization A/B test we conducted. Here is the information you will need for your analysis:

- The monetization strategy of this app is to maximize the user's revenue within their d365 (the user's own 365-day lifetime).
- As you will see when you explore the data, the users included in the test were those who first joined between October 2, 2022, and October 22, 2022. The entire dataset covers data from October 2, 2022, to December 30, 2022. We can assume that the analysis is being conducted at the end of the day on December 30, 2022.

Using the above information, we want you to conduct analyses for the following questions:

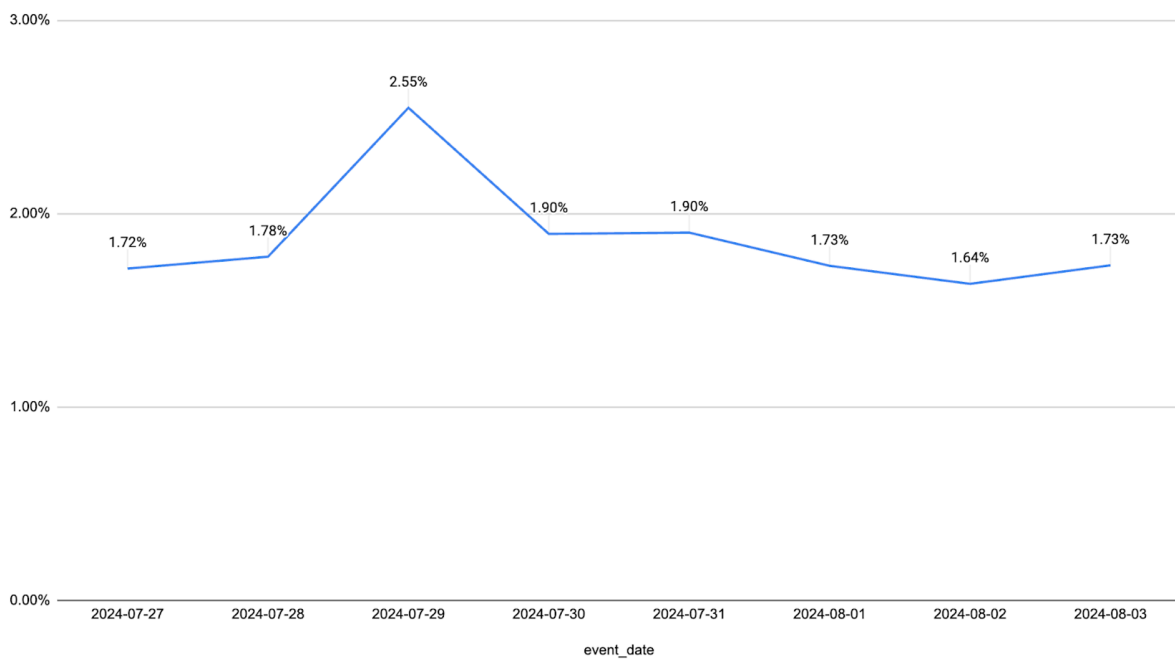
- a) Which variant is winning in LTV? Why? How would you interpret the difference between the variants?
- b) (Bonus) What would be your additional comments, if we change our strategy to d366 from d365?

Q2 : Debugging

All teams at Codeway use data in almost every decision-making process, and when they notice a change in the data they can't explain, we investigate it together because our data might be incorrect.



Purchaser User Rate



As seen in the chart above, there is a spike in the purchaser user rate metric on 2024-07-09. The Product and Marketing teams have asked whether this is due to a data-related issue since they confirmed no different actions were taken.

You can use the `data_reliability.csv` dataset in your analyses for this part of the case. Here is the information you will need for your analysis:

- Active User Count: In the given table, if a user has triggered any event on the relevant day, they can be considered an active user.
- Purchaser User Rate = $(\text{Purchase Event Count}) / (\text{Daily Active User Count})$

Using the above information, we want you to investigate the following questions:

a) Could you please investigate this request from the teams? Is there any problem? Can we be confident in the data?

b) If there is a data-related issue, what percentage of users has been affected? What might the problem be? Can you identify any common patterns among the affected users?"



Q3 : Dashboard

We can generate dozens, hundreds, or even thousands of metrics from any dataset. While some of these metrics provide important insights, others may be entirely meaningless. Well-defined metrics, combined with a clear visualization, can show the whole story of the current state of business in a snap.

Codeway has a new app called X. The Product team needs a dashboard to regularly monitor the metrics of the X app. We have shared some of the data from X app in the file named `dashboard_design.csv`.

Using the above information, can you create a dashboard using this data? You can use Looker Studio or Google Sheets to visualize the dashboard.

(Looker Studio is an easy-to-learn BI tool, but if you think you need a tutorial, check [this](#).)

Q4 : Marketing

We are down to the last question, and this time we're working with marketing. The Marketing team conducts its analyses by combining data from various sources, and in this question, we are expecting a similar analysis from you.

There are two datasets for this part of the case, `marketing_events` and `marketing_users`.

a. Please find the total revenue of users from Facebook, Apple Search Ads, and Organic platforms. We expect you to present your query results in the format below:

Row	Platform	Revenue
1	Apple Search	XXX
2	Facebook	XXX
3	Organic	XXX



b. Assuming the CPI for Apple is \$3.1, and for Facebook is \$1.3, please compare the performances of both platforms and share your insights.

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Dream, measure, build, repeat

Codeway