

Take Home Assessment

This assessment is meant to evaluate the candidate's business acumen as well as their quality of work and their technical skills. It is divided into two separate sections.

Instructions

Please follow the guidelines below:

- You need to complete this test in a maximum of 3 days from the day you receive it.
- Submit the results through Greenhouse.
- Your deliverable must be self-contained, so please include any files that are needed to run your process, notebooks, pdfs, csv, code files, etc.

What we value:

- Follow the instructions and do everything from the checklist
- Clear, coherent and concise written communication
- Clean coding style
- Efficient solutions to the problems given
- Through understanding of our business and data

Part 1

1. Think of what could be the **three** most important KPIs for Client. For each metric, answer the following:
 - a. Why is this metric important?
 - b. How is this metric calculated?
2. Choose one of the three metrics from the previous questions (Metric X) to answer the following:
 - a. Suppose that there was a drop in Metric X, explain briefly how you would approach the analysis and what your recommendations would be.
 - b. Provide, if applicable, a couple of metrics or dimensions that could be used to understand Metric X better
3. Suppose that you are an Analyst at Client, propose **three** examples of analyses that you would conduct to contribute to the business performance.
4. Choose **only one** of your example analyses and answer the following:
 - a. What data would you require?
 - b. What is the value for the business in doing this analysis?
 - c. Briefly describe how you would approach this analysis

- d. Provide a list of recommendations or outcomes that would come from the analysis

Part 2

In the final part of the technical assessment you can prove your programming, analytical & data visualization skills. Please handle it with utmost care. The dataset [ha_data_assesement.csv](#) consists of listings in Italy with the following structure:

city	The city where the listing is located
category	Private Room, Shared Room, Apartment, Studio
country_code	Country code of the listing
created_at	Timestamp of listing creation
price	Monthly rent in Euros
furnished	Is the listing furnished [Yes/No]
total_size	Size in square meter of the property
registration_possible	If it's possible to use listing's address for registering at the city's municipality. Is there a washing machine available in the property Is there a tv available in the property Is there a balcony available in the property
washing_machine	
tv	
balcony	
garden	Is there a garden available in the property
terrace	Is there a terrace available in the property

For this task choose a tool of your preference and execute these 2 tasks:

Task 1

Clean the dataset, provide code and explain the steps (Either SQL or any programming language)

Task 2

Write SQL queries and create a graphical representation for the following topics and interpret the results:

- Rolling average of median monthly rental price development over time
- Geographical distribution & defining cities of interest
- Any other insights that you find valuable to report

Task 3

Choose **one** of the cities in the data set, and provide a brief analysis of the situation of the city, including possible hypothesis for its performance and recommendations.