

Dashboarding Intern Skill Test - Q.ai

Home Assignment

The following exercise is designed to assess your analytical thinking and coding skills, with a focus on data visualizations.

The exercise should be solved using Python, and you may use any online resource **except for chatGPT and similar AI assistants**.

Submit your code and the answers to the following questions via email to assignments@q.ai within **24 hours** from getting it.

Ensure your answers are supported with data visualizations.

Part 1

The file task_1.csv contains summary statistics describing a sensor.

1. What can you infer about the data? Is there any identifiable structure?
2. Identify and discuss any potential anomalies or patterns in the data.
3. Provide visualizations for features you find significant.
4. What is the relationship between the features?
5. Visualize the relationship between energy SNR and contrast SNR.

Part 2

The files task_2_{1-6}.csv contain multiple summary statistics.

1. Identify the outlier and provide visualizations to support your findings.
2. Compare the identified outliers to the rest of the dataset. How do they differ?

Part 3

The file task_3.csv provides a different summary statistic, now showing only two features (energy SNR and contrast SNR) over time.

1. What can you say about the distribution of the different features?
2. Visualize the relationship between all three features (date, energy SNR, and contrast SNR).
3. Describe your insights from the data.

Part 4

The file task_4.csv also displays summary statistics for contrast SNR and energy SNR, now providing two values - mean and standard deviation - for different sensors.

1. What can you infer about the different sensors?
2. Are there any sensors that appear particularly similar or different?

Part 5

Create a dashboard based on the file task_4.csv, displaying the sensor's features over time. The goal of this dashboard is to be able to evaluate a single sensor over time and identify trends and changes in the energy SNR and contrast SNR values.