**Sensitivity Analysis Report**

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**Introduction:**

Sensitivity analysis is a crucial technique for assessing the robustness of models or decisions by evaluating how changes in input parameters influence the output. In this report, I conducted a sensitivity analysis on a dataset comprising initial columns: Ibat, Vbat, Tbat, cpu, gpu, brightness, and Wifi Tx. The objective was to determine which parameters demonstrate the highest sensitivity, thereby aiding decision-making processes and guiding further investigation.

**Approach:**

I employed Python code to compute the sensitivity of each column (Ibat, Vbat, Tbat, cpu, gpu, brightness, and Wifi Tx) and stored their respective values in Ibat\_sen, Vbat\_sen, Tbat\_sen, cpu\_sen, gpu\_sen, brightness\_sen, and Wifi Tx\_sen. The suffix "\_sen" denotes the sensitivity value of each respective column. Subsequently, I determined the field with the highest sensitivity value and stored it in the "major" field. The value in the "major" column signifies the parameter most sensitive to changes in other column values. Upon obtaining this data in an updated Excel worksheet, I analyzed the occurrence of values in the "major" column to identify parameters with higher sensitivity compared to changes in other values.

**Sensitivity Analysis Result Worksheet:**



**Sensitivity Analysis Result**

Bar Graph Explaining Sensitivity:

A graph with blue bars

Description automatically generated

In the above bar graph, Ibat\_sen demonstrates higher sensitivity compared to other values in the dataset.  
  
**Scatter plotting (Ibat sensitivity vs other columns):**  
A graph with blue dots

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A graph with blue dots

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**Conclusion:**

Through this sensitivity analysis, the **current (Ibat) emerged as a parameter with significant sensitivity**, providing valuable insights for decision-making and further analysis. By prioritizing parameters with higher sensitivity, such as current (Ibat), we can enhance the robustness and reliability of our models or decisions, thereby facilitating more informed and effective actions.