

Summary Report and Potential Insights

Summary Report – Task 1:

1. Tagging Approach

For Task 1,

I was provided with a dataset containing free-text entries under the columns **Complaint**, **Cause**, and **Correction**.

Objective:

The objective was to tag each row using predefined categories from the Taxonomy sheet across five fields:

- **Root Cause**
- **Symptom_Condition**
- **Symptom_Component**
- **Fix_Condition**
- **Fix_Component**

Two example rows were already tagged in the dataset, which served as reference points to guide the tagging process.

2. Tagging Methodology:

To maintain consistency and accuracy:

- I **manually reviewed each row** and matched the relevant field(s) with exact terms from the **Taxonomy** sheet.
- For **Root Cause**, I focused on the *Cause* column, identifying the underlying issue such as improper installation, missing parts, or damage.
- For **Symptom_Condition** and **Symptom_Component**, I analyzed the *Complaint* column to understand both the nature of the issue (e.g., "leak", "broken", "crushed") and the component involved (e.g., "hose", "connector").
- For **Fix_Condition** and **Fix_Component**, I referred to the *Correction* column to understand the action taken (e.g., "replaced", "tightened") and the component addressed.

Enhancement with Data Validation Dropdowns:

To streamline the tagging process and minimize errors, I implemented **Data Validation dropdown lists** in each tagging column using the predefined values from the Taxonomy sheet.

Benefits of Using Data Validation:

- **Improved Accuracy:** Prevents manual typing errors and ensures only valid taxonomy terms are used.
- **Consistency:** Guarantees uniform category selection across all rows.
- **Efficiency:** Reduces time spent searching or referencing the taxonomy manually.
- **Data Integrity:** Helps maintain structured, clean data ideal for downstream analysis and reporting.

Handling Ambiguity: Where descriptions were unclear, I selected the **closest relevant taxonomy term** using contextual understanding and guidance from the example rows.

3. Potential Insights

Repetitive Failures Around Connectors and Seals

A noticeable number of complaints involve **leaking, loose, or open connectors** — especially bulkhead connectors, couplers, and o-rings. This pattern may suggest recurring issues related to either **improper installation** or **poor sealing practices** during assembly or maintenance.

- **High Frequency of Simple Fixes**
Many issues are resolved with basic actions like “tightening,” “replacing,” or “installing” relatively small components (e.g., clips, connectors, hoses). This suggests that a large proportion of failures could be **prevented through improved quality checks or more robust assembly training**.
- **Installation Errors as a Common Root Cause**
Tags like “Incorrect Installation” and “Loose Component” appeared frequently under **Root Cause**, highlighting human error as a major contributor. This presents an opportunity to reinforce standard operating procedures or introduce validation steps at key points in the installation workflow.
- **High Overlap Between Symptom and Fix Components**
In many cases, the same component appears in both the **Symptom_Component** and **Fix_Component** fields — indicating that problems are often **isolated and specific**, rather than systemic. This insight could support a move toward **targeted inventory stocking** of frequently failing parts to reduce downtime.
- **Complaints Often Centered Around Leaks**
Tags like “Leak” under **Symptom_Condition** is highly prevalent. This may indicate a need for closer inspection of **hydraulic or fluid-carrying systems**, or a review of design tolerances and materials used in sealing components.