**Task 1 - Data Tagging**

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**Assignment Files –** ([link](https://drive.google.com/drive/folders/1tiJ0XCZorPyZqyQzWGeD8SUvCFQER3dv?usp=sharing))

**My Portfolio Website –** ([link](https://bhushan0016.github.io/My-Portfolio-website/))

**Approach to Tagging:**

To ensure accurate tagging of the dataset, I carefully reviewed each **Complaint, Cause, and Correction** and manually assigned them to the most appropriate predefined categories.

1. **Understanding the Dataset**

* The dataset contained free-text data where customers described issues in their own words.
* A separate taxonomy sheet provided predefined categories for:
* **Root Cause** – The underlying reason for the issue.
* **Symptom Condition & Symptom Component** – How the issue presented itself.
* **Fix Condition & Fix Component** – How the issue was resolved.

1. **Manual Review & Categorization**

* I read through each complaint carefully and identified **key terms** related to symptoms and failures.
* I cross-checked these terms against the categories in the taxonomy sheet and selected the best match.
* When multiple categories seemed relevant, I assigned **up to three possible matches** to ensure accuracy.

1. **Handling Ambiguous Cases**

* In cases where the complaint description was unclear, I referred to the **Cause** and **Correction** columns for additional context.
* If a complaint didn’t perfectly match any category, I selected the closest one based on **common industry terms and logical reasoning**.
* For missing information, I used **previously identified patterns** to make informed decisions.

**Insights from the Tagged Data:**

* **Common Issues & Failures**: The most frequent **Root Causes** indicate patterns of recurring failures. Addressing these issues can significantly reduce the number of complaints.
* **Troubleshooting Improvements**: Identifying frequent **Symptom Conditions & Components** can help in creating a better troubleshooting guide for technicians.
* **Most Effective Fixes**: By analyzing **Fix Conditions & Components**, we can understand which solutions work best and should be prioritized in future repairs.
* **Preventive Measures**: By addressing **high-frequency issues early**, businesses can reduce future failures and improve overall product reliability.
* **Better Decision-Making**: Structuring the data this way makes it easier to track patterns, improve service response times, and enhance the overall customer experience.

**Recommendation:**

**1. Root Cause Identification & Prevention**

* **Address recurring root causes** by improving product design, materials, or manufacturing processes.
* Conduct **regular inspections and maintenance** to catch failures before they escalate.
* Train employees on **common failure patterns** to prevent human errors.

**2. Enhancing Troubleshooting & Repairs**

* Develop a **step-by-step troubleshooting guide** based on the most common symptoms to help technicians diagnose issues faster.
* Standardize **repair procedures** by focusing on the most effective fixes identified in the dataset. Ensure **technicians have easy access** to past complaints and fixes to avoid repeating ineffective repairs.

**3. Quality & Process Improvement**

* Implement **quality control measures** to prevent frequently reported issues from recurring.
* Track which **Fix Conditions & Components** are used most often to streamline inventory management.
* Improve customer communication by **providing clearer instructions** on how to avoid or resolve common issues.

**4. Predictive Maintenance & Proactive Solutions**

* Schedule **preventive maintenance** for components that frequently fail to extend product lifespan.
* Use historical data to identify **seasonal or regional trends** in failures and adjust maintenance schedules accordingly.
* Improve **warranty and service policies** based on commonly reported issues.

**5. Customer Experience & Feedback**

* Develop a **knowledge base or FAQ section** for customers to troubleshoot minor issues on their own.
* Implement a **feedback loop** where customer complaints are analyzed regularly to improve products and services.
* Ensure faster response times by **prioritizing repairs based on high-frequency complaints**.