**Build a comprehensive Breast Implant Ontology leveraging GUDID and unstructured data sources.**

**Background:**

Breast implants (BI) have become a ubiquitous treatment in modern society — a common practice for cosmetic augmentation or medical reconstruction — but recently have experienced a withdrawal due to a serious complication they cause known as Breast Implant-Associated Anaplastic Large Cell Lymphoma (BIA-ALCL). BIA-ALCL is a T-cell lymphatic cancer, a non-Hodgkin’s lymphoma (enlarged lymph nodes near surface of the skin) in the breast tissue, due to poor implant insertion. Our overarching goal is to be able to determine possible relationships between BI structures with patient characteristics that correspond with BIA-ALCL. Within our three months, we could analyze and amalgamate data across several data sources to create a comprehensive ontology on breast implants.

**Objective:**

The objective of our specific project is to establish an extensive ontology for the management and comprehension of different breast implants and their product features, including but not exclusive to: manufacturer, brand, filling, profile, and so on.

**Method:**

The data on implant characteristics was gathered from a plethora of sources: including AccessGUDID, research articles, literature reviews, and more. This information was imported onto Excel, using Python with Pandas and NumPy libraries to help with data transformation. As several different sources included overlapping data, information was usually missing or inconsistent. Protégé was then used to help categorize each implant based on their properties to create a logical structure.

**Result and Discussion**