**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 withdrawals due to a serious complication known as Breast Implant-Associated Anaplastic Large Cell Lymphoma (BIA-ALCL). BIA-ALCL is a rare T-cell lymphatic cancer, which causes enlarged lymph nodes near the surface of the skin in the breast tissue due to implant insertion. It’s also categorized as a non-Hodgkin’s lymphoma by the World Health Organization, and groups like the Plastic Surgery Foundation (PSF) and National Comprehensive Cancer Network (NCCN) have published information to provide diagnoses and preventative measures. However, there is still limited understanding of what causes this disease to occur.

**Objective:**

The objective of our project was to create an extensive ontology for the management and comprehension of different breast implants and their product features, including but not exclusive to: manufacturer, brand, filling, and so on. The ontology will help FDA determine possible relationships between BI structures and patient symptoms that correspond with BIA-ALCL.

**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**

Within our two months, we could analyze and amalgamate data across several data sources to create a comprehensive ontology on breast implants.