**Tech Stack for Virtual Assistant**

**Backend:**

* **Language: Python**
  + **Primary language for implementing the backend logic and handling requests.**
* **Web Framework: FastAPI or Flask**

**Natural Language Processing (NLP):**

* **Library: Hugging Face Transformers**
  + **Utilized for implementing large language models (LLMs) like for intent recognition and response generation. Many free models available. We can use DistilBERT, TinyGPT, T5.**
* **We can also explore NLTK and spaCy.**

**Data Storage:**

* **Database: PostgreSQL**
  + **Stores structured data, user interaction logs, and product documentation.**
* **Search Engine: Elasticsearch**
  + **Used for indexing and retrieving documents quickly based on user queries.**

**Document Retrieval Tool:**

* **Libraries: Sentence-BERT/Flag Embedding for embeddings, FAISS or Elasticsearch for efficient searching and retrieval of product user guides.**

**Generic Tool:**

* Handles common queries
* Simple intents
* Responds with predefined responses/generated from natural language

**Email Integration Tool:**

* Retrieves data from user guides
* Uses embeddings and search
* Summarizes info
* Generates responses
* **Libraries: smtplib for sending emails, and APIs for Google Calendar and Microsoft Graph to manage scheduling and meeting invites.**

**API Tool:**

* Interacts with external APIs
* Processes API responses
* Generates responses
* **Flask or FastAPI: Lightweight web frameworks for building APIs in Python.**
* **Swagger/OpenAPI: Tools for designing and documenting RESTful APIs.**