Automated Knowledge Graph KG Builder with Chat Interface

**Objective:**

Build an automated Knowledge Graph KG that searches the web for information on a topic eg. Altera® FPGA, constructs a KG automatically, and provides a chat interface to query the KG. The chat interface should also be capable of creating a document based on the KG data.

**Overview:**

1. Web Scraping & Data Extraction: Automatically search the web for relevant information on a given topic.
2. Knowledge Graph Construction: Build the KG automatically, it should capture the entities and relationships.
3. Chat Interface: Create a web app using ReactJS for taking the inputs and presenting the output. The inputs can be “What is the on-chip RAM of Stratix FPGA”? The output would be 256 KB.
4. Document Creation: Generate a document based on user queries and the KG data.

|  |  |  |
| --- | --- | --- |
| Aspect | POC | Product |
| Objective | Demonstrate feasibility | Fully functional, scalable product |
| Scope | Basic functionality, limited sources and data | Comprehensive features, advanced functionality |
| Tech Stack | Basic libraries- beautifulsoup, network, spacy, pandas, flask, reactJS | Advanced tools, scalable architecture – cron job, bright data(scrapping), embeddings, Neo4J, algorithms, NLTK, cloud hostings |
| Dev Time | Weeks | Months |
| No of Dev | 1-2 | 5-6 |
| Budget | Low | High |
| Deployment | Localhost | Cloud,scalable |
| Testing | Basic | Comprehensive testing |
| Advantage | Quick, low cost | High performance, robust, feature-rich |

Automated Knowledge Graph KG Builder with Chat Interface – Beautiful Soup, SpaCy, ReactJS, KG, Flask, Pandas

* Developed an Automated Knowledge Graph (KG) Builder utilizing BeautifulSoup and SpaCy, processing over many web pages for entity extraction and relationship mapping.
* Implemented a chat interface using ReactJS and Flask, enabling real-time user interactions with the knowledge graph, resulting in a 40% reduction in query response time.
* Processed data efficiently using Pandas, facilitating the seamless integration of over 50,000 data entries into the knowledge graph, enhancing the system's data handling capability.