**PROJECT TITLE:**

SEMANTIC BASED SEARCH (COVID-19)

**TEAM MEMBERS:**

(add team members)

**GOALS AND OBJECTIVES:**

**MOTIVATION:**

The study of COVID-19 includes work in virology, epidemiology, and clinical medicine. Semantic search can help researchers make connections and get a greater grasp of the virus by facilitating the combination of knowledge from these disciplines. This initiative was likely inspired by the pressing need for current and accurate information about COVID-19. Researchers and healthcare practitioners can easily discover pertinent scientific literature and data to answer important questions concerning the pandemic with the aid of semantic-based search.

**SIGNIFICANCE:**

The importance of this initiative resides in its ability to speed up the research procedure through allowing users to conduct more contextually relevant information searches. Traditional keyword searches may overlook important information, whereas semantic search can catch the complex connections of words and concepts.

OBJECTIVES:

1. Create a semantic search engine that can comprehend both user queries and scientific papers' context and meaning.
2. Use semantic information to represent words and phrases using word embeddings to increase search accuracy.
3. Utilize information retrieval methods to quickly find scientific articles in the sizable CORD-19 dataset while making sure the papers are semantically related to user queries.
4. Utilize NLP techniques, such as tokenization, entity recognition, and syntactic analysis, to aid in the comprehension of user queries.
5. To make sure that only the most contextually significant results are shown, use semantic similarity metrics to rank and display retrieved content depending on their semantic relevancy to user queries.
6. Build an intuitive interface that makes it easier for researchers and medical professionals to enter inquiries and obtain the pertinent scientific literature.
7. Identify assessment metrics, such as precision, recall, and F1 score, to gauge the efficiency and precision of the semantic-based search system in locating important data from the CORD-19 dataset.

**FEATURES:**

The features of this project are,

Semantic Search Engine:

A powerful search engine that uses semantic analysis and word embeddings to produce precise and context-sensitive search results.

Query Expansion:

To improve search results, extend user searches automatically using synonyms or similar phrases.

Document Retrieval:

Semantic relevance to user queries is used to efficiently retrieve scientific publications from the CORD-19 dataset.

Interactive user interface:

An easy-to-use interface that allows users to enter scientific queries and quickly find pertinent data.

Semantic Analysis:

To achieve precise matching, in-depth semantic analysis is performed on both user searches and the content of scholarly papers.

Scalability:

Ensure that the system is capable of effectively handling an expanding dataset and rising user demand.

REFERENCES:

1. **<https://www.who.int/health-topics/coronavirus#tab=tab_1> is the website by who which gives all information about covid19**

# **<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9690240/> The Role of Natural Language Processing during the COVID-19 Pandemic: Health Applications, Opportunities, and Challenges**