# News and Research Summary Hub - Documentation

## Project Flow

1. The user enters a search query (e.g., 'Climate change').  
2. The application fetches news articles relevant to the query using the NewsAPI.  
3. The application fetches research papers from arXiv API using the same query.  
4. The retrieved articles and papers are passed to the summarization model.  
5. The facebook/bart-large-cnn model generates concise summaries.  
6. The summarized content is displayed to the user on the web interface.  
7. The user has the option to download the summary as a DOCX report.  
8. The process ensures relevant, accurate, and timely insights.

## Model Details

We use the facebook/bart-large-cnn model from Hugging Face for text summarization. This model is a pre-trained transformer-based summarization model that provides high-quality abstractive summaries.

### Why This Model?

BART (Bidirectional and Auto-Regressive Transformers) is specifically designed for text generation and summarization. It can generate concise and meaningful summaries by understanding context effectively.

## APIs Used

1. NewsAPI: Fetches real-time news articles from various sources based on user queries.  
2. arXiv API: Retrieves research papers relevant to the search query.  
3. Tavily API: Enhances search capability by retrieving accurate information.  
4. Groq API: Used for processing and improving the summarization tasks.

### Why These APIs?

These APIs ensure real-time access to up-to-date information from both news and research sources. They allow InsightSnap to provide valuable insights from different domains.

## Key Performance Indicators (KPIs)

1. Precision: Measures how relevant the retrieved articles and papers are to the search query.  
 - Metric: Percentage of relevant articles and papers retrieved.  
2. Summarization Quality: Evaluates the accuracy and readability of the summaries.  
 - Metric: User feedback on a scale of 1-5.  
3. Response Time: Tracks the time taken to fetch, summarize, and generate the report.  
 - Metric: Average response time in seconds.  
4. Usability: Assesses the ease of use and user experience.  
 - Metric: User feedback score on a scale of 1-5.

## Conclusion

InsightSnap integrates AI-powered summarization with real-time data retrieval to provide quick, insightful reports. By leveraging state-of-the-art models and APIs, the system ensures high accuracy, relevance, and usability.