AI-Powered Distributed Research Article Summarization

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Motivation

- **Time Efficiency:**
  - Reading entire research papers is time-consuming. A summarization tool helps users quickly extract key insights without going through lengthy documents.

- **Accessibility:**
  - Many research articles contain complex language and technical terms. A summarization tool can simplify content, making it easier to understand.

- **Information Overload:**
  - With a vast amount of research being published daily, it is difficult to keep up. Summarization enables users to stay updated without spending hours reading.

Cont…

- **Improved Decision-Making:**
  - Professionals and students can make informed decisions faster by getting concise, relevant summaries instead of skimming through full papers.

- **Cross-Disciplinary Knowledge Sharing:**
  - Researchers from different domains can quickly understand work outside their expertise without deep-diving into every technical detail.

Target Market

- Academics,
- Students and
- Professionals in various fields.

The pain we are addressing

- **Information Overload:** Too many research papers, difficult to extract key insights.
- **Time Constraints:** Researchers lack time to read entire papers.
- **Lack of Personalization:** Generic abstracts do not always highlight the most relevant information.
- **Need for Distributed Computing:** Handling large-scale research data efficiently.

How we fix it

- **AI (NLP):**
  - Using NLP models like GPT-4, BART for generating concise research article summaries.
  - Custom Summary Option: Users can create their own summaries with AI assistance.
  - Real-Time News Aggregation: Uses APIs (Semantic Scholar, arXiv, PubMed) and Web Scraping.
  - Scalable Distributed Computing: Apache Kafka (real-time data streaming), Redis (caching), Kubernetes (auto-scaling), Docker (containerization).

Conceptualization and Justification

- **Concept:**
  - Generates high-quality summaries with contextual understanding.
  - Option to edit summaries makes it interactive and personalized.
  - Distributed Architecture: Ensures fast processing and handles high traffic efficiently.

- **Justification:** Solves key industry challenges
  - Information overload.
  - Efficiency.
  - Accessibility.

Market Research on Current Offerings & Limitations

- **Existing Solutions:**
  - Semantic Scholar, Connected Papers, Research Rabbit, Elicit.

- **Limitations:**
  - Lack of AI-powered summarization.
  - No user-customizable summaries.
  - Centralized processing leading to slow performance during high traffic.
  - Limited ability to extract key findings based on user preferences.

Target Market and Value Proposition

- **Target Market:**
  - Academics and
  - Students

- **Value Propositions:**
  - Fast & Accurate AI Summaries.
  - Customizable User Summaries.
  - Real-time Research Processing at Scale.
  - Seamless Access Across Devices.

Business Model (Revenue Generation)

- **Freemium Model:**
  - Free access with basic features.
- **Institutional Subscriptions:**
  - Universities and research organizations can subscribe for bulk access.
- **API Monetization:**
  - Paid API access for third-party integrations (academic platforms, research databases).

Team Members' Expertise and Contributions

- **Vaibhav Patel:**
- Expertise: React.Js, Next.Js, Javascript and HTML5.
- Contribution: Frontend Development, Frontend API Integration.
- **Deepan Kumar:**
- Expertise: Java, Express.js and Node.js
- Contribution: Distributed Servers, Backend API integration.
- **Ali Hassan:**
- Expertise: Node.js, SQL, MongoDB, React.js, Deployment
- Contribution: Integrate Hugging face AI Model, Database Management and Deployment.

Collaborative Tools for Development and Communication

- **GitHub (Required)**: Version control, code repository.
- **Microsoft Teams**: Team communication.

Research articles

- S. Alotaibi and M. A. Alshahrani, "Literature Review of Automatic Text Summarization: Research Trend, Dataset and Method," *2019 2nd International Conference on Computer Applications & Information Security (ICCAIS)*, pp. 1-6, 2019.

- S. Gupta and S. Gupta, "Survey on Automatic Text Summarization using NLP and Deep Learning," *2022 6th International Conference on Computing Methodologies and Communication (ICCMC)*, pp. 1-7, 2022.

- Y. Zhang, Y. Li, and X. Wang, "Research and Application of Automatic Text Summarization," *2022 IEEE 6th Advanced Information Technology, Electronic and Automation Control Conference (IAEAC)*, pp. 1-5, 2022.

THANK YOU!

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