**Project Proposal: AI-Powered News Summarization**

**1. Title:** AI-Powered News Summarization Using LLMs

**2. Team Members:**

* Hamza Naeem (22K-4424)
* Ahsan Ali (22K-4176)

**3. Overview:** This project develops an AI system that summarizes trending news based on user interests, leveraging LLMs to extract key information efficiently.

**4. Objectives:**

* Extract key points from news articles.
* Personalize summaries based on user preferences.
* Fine-tune LLMs (T5, Longformer, GPT) for summarization.
* Ensure factual accuracy and coherence.
* Deploy a working prototype.

**5. Technologies:**

* **LLMs:** T5, Longformer, GPT models.
* **Data:** Common Crawl, CNN/Daily Mail, BBC News.
* **Tools:** Python (TensorFlow, PyTorch, Hugging Face), Flask/FastAPI, Streamlit.
* **Evaluation:** ROUGE Score, BERTScore.

**6. Methodology:**

1. **Data Collection:** Extract and preprocess news articles.
2. **Model Training:** Fine-tune LLMs for summarization.
3. **Personalization:** Implement user preference tracking.
4. **Evaluation:** Optimize for accuracy and coherence.
5. **Deployment:** Build a web app for real-time summaries.

**7. Challenges:**

* Ensuring factual accuracy.
* Managing bias in summaries.
* Optimizing for real-time use.

**8. Applications:**

* AI-powered journalism.
* Personalized news feeds.
* Research assistance.
* Misinformation detection.

**9. Conclusion:** This project enhances news consumption by delivering concise, personalized summaries through advanced LLMs, making information more accessible and efficient.