Sümeyye Baş

1. **Project Name :** Fake News Detection with Artificial Intelligence

2. **Overview**

   a. The initiative addresses the growing problem of false information spreading quickly on the internet due to unreliable sources. With an emphasis on the young to middle-aged active population, the goal is to develop an AI model for evaluating the accuracy of news articles. By enabling users to independently confirm the accuracy of news reports, the project tackles the negative effects of misinformation, including political division and cyberbullying. It offers a user-friendly fact-checking tool and closes the divide between technology and awareness, promoting a more critical and resilient society in the digital age.

3. **Background**

   a. The widespread reach of online platforms has resulted in an increase in false information and biased content in recent years, affecting not just the internet but the whole information landscape. Unchecked news can travel quickly through many online platforms, which has led to a number of societal difficulties. One such issue is the rapid transmission of unconfirmed information, which has eroded public trust in news sources. Since they are among the most frequent internet users, the young and middle-aged are especially affected by this trend, which has had a big influence on public opinion and decision-making. The project proposal recognizes the need of addressing these problems and aims to improve the performance of current models by using artificial intelligence. The objective is to confirm the veracity of news articles on different websites so that people may make educated decisions about the information they come across in the wider digital world.

4. **Key Objectives / Business Objectives**

   a. **Research Question**
      i. In what ways may the current artificial intelligence models for online fake news detection be improved to better combat disinformation?

   b. **Key Steps**
      i. Determine particular needs and difficulties in online news verification.
      ii. Analyze recent research and methods for news verification and the identification of deception online.
      iii. Try out new strategies to improve the model's performance.
      iv. Design an intuitive interface for user-friendly news article input and verification results.

5. **Methods and Workflow**

a. The methodology and workflow for this project draw inspiration and guidance from the Kaggle project, "Predicting Politifact's Verdict" by SophieB [https://www.kaggle.com/code/sophieb/predicting-politifact-s-verdict]. This source provides valuable insights into the challenges of news verification, contributing to the development of an effective and robust model.

b. **Datasets and Data Sources**

   The main dataset for this project will come from Politifact, a nonprofit organization based in the United States that specializes in analyzing assertions made by prominent personalities on internet. A special "Truth-O-Meter" grading system, which goes from "True" to "Pants on Fire," is used by Politifact to assess the veracity and context of the claims. The varied Politifact dataset includes a range of ratings, including:

   1. TRUE
   2. MOSTLY TRUE
   3. HALF TRUE
   4. MOSTLY FALSE
   5. FALSE
   6. PANTS ON FIRE

c. **Modeling**

   Model development will make use of cutting-edge machine learning and natural language processing techniques. The methods used in the Kaggle project will inform the strategy, which will concentrate on improving the f1 score. To maximize the performance of the model, methods like feature engineering, model ensembles, and hyperparameter tuning will be investigated.

d. **Further Suggestions**

   By integrating novel methodologies and maintaining up to date with developments in the domain, the project will consistently investigate additional improvements to the model. For continuous improvement, partnerships with subject-matter experts and involvement in pertinent research communities will be taken into account.

e. **Deliverables**

   The project's goal is to deliver an intuitive user interface along with a fully built and proven news verification model.