**CONTRIBUTION TO THE PROJECT**

**ANIL CHEPYALA:**

In this project, I have successfully completed the **data collection** and analyzing part which includes exploring and analyzing the dataset used to train and validate the model, including examining the distribution of real and fake videos, identifying any biases or imbalances, and pre-processing techniques such as data augmentation and normalization. In addition to this, I have also Conducted a literature review of deep fake detection methods and identified ResNeXt and CNN algorithms as potential candidates. Gathered and pre-processed a large dataset of real and fake videos for training the model. I have also Set up the development environment and installed the necessary libraries (PyTorch, NumPy, OpenCV).

**MAMATHA NARRI:**

As a part of the team, I was responsible for the **Model architecture** and **Hyperparameter tuning**. In this project, I have gathered the details of the ResNeXt and CNN architectures used in the project, such as understanding how the different layers and blocks work together, and considering variations or improvements to the models to improve performance. optimizing the hyperparameters of the ResNeXt and CNN models, such as learning rate, batch size, optimizer, and regularization, to improve the model's accuracy and generalization ability. In addition to this, I have also experimented with different architectures for the ResNeXt and CNN models, and trained and validated the models on a subset of the dataset. Conducted preliminary tests to evaluate the model's performance and identify areas for improvement. Tweaked the models' hyperparameters and adjusted the architecture to improve performance. Conducted additional tests to compare the performance of different model variations.

**BAVITHA RAAVI:**

As a part of my role in this project, my work includes the **evaluation of metrics**. I have selected the appropriate metrics to evaluate the performance of the deep fake detection model and discussed their strengths and weaknesses. Moreover, Integrated the ResNeXt and CNN models to create a complete deep fake detection model. Tested the integrated model on a sample dataset to verify that it is accurately detecting real and fake videos. Conducted additional tests to identify any issues with the integrated model and resolve them and also discussed potential future work and ways to extend the project.

**VISHAL KODAM:**

As an author of this report, I have given the **core idea** and designed the **model interpretability and adversarial attacks**. In this project, I have explored the methods for interpreting the deep fake detection model, such as analyzing the importance of different features or input frames, and understood how the model makes its predictions investigating potential adversarial attacks that could be used to fool the deep fake detection model, and exploring countermeasures to improve the model's robustness against such attacks. Fine-tuned the complete model based on the test results and identified areas for improvement.

Conducted a final evaluation of the model's performance and generated outputs. Compiled the results and findings into a project report and reviewed the project report and made any necessary revisions.

Finally, this project was a challenging but rewarding experience that involved extensive experimentation and fine-tuning to develop a high-quality deep fake detection model. The utilization of ResNeXt and CNN algorithms played a crucial role in enhancing the model's accuracy and robustness. However, to further improve the model's accuracy and generalization ability, future work could focus on expanding the dataset and exploring alternative architectures.

Overall, our project highlights the potential of data science approaches in detecting and mitigating the negative impacts of deep fake videos.