IA - 2

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Roll Number of Student 1	22BPC156
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Roll Number of Student 2	22BCP131
Project Title	Combating Digital Misinformation: Deepfake Detection Using Deep Neural Networks
Name of the Supervisor (Mentor) at PDEU	Dr. Samir Patel
Week Number	Week 11

Progress made in Week:

Week 11 was dedicated to formally presenting the project's culmination during the **Internal Assessment (IA-2)**. We presented the final pipeline and performance metrics to the assigned evaluator, Dr. Sujit Kumar Das.

1. Final Results Presentation and Metrics Showcase

We successfully showcased the robust performance of the Optuna-optimized XceptionNet model, demonstrating its ability to meet the project objectives:

- **Key Performance Metrics:** The model's reliability was confirmed with strong metrics on the test set:
  - **Recall:** 0.94
  - **F1-Score:** 0.93
  - **Accuracy:** 0.93
  - **Precision:** 0.92
- **ROC Analysis:** Presented the **ROC Curve (TPR/FPR)** to confirm high discriminatory power.
- **Final Outcomes:** Highlighted the key deliverables, including Generalization, Optimized Performance, and a Deployable Model

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2. Evaluator Feedback and New Directives

Dr. Das provided critical feedback to elevate the project's academic depth and practical utility:

- **Academic Rigor:** Instructed the team to **read up-to-date and fresh research papers** around deepfake detection work.

- **Deployment and User Interface:** Directed the team to **deploy the final model** and **create a website for end-users** to interact with the detection system.

Future Steps:

Based on the evaluator's feedback, the project scope shifts entirely to advanced research and deployment.

- **Advanced Research:** Dedicate time to reviewing the latest literature in deepfake detection (e.g., temporal coherence, frequency analysis, or transformer-based approaches) to identify potential enhancements for future work.
- **Deployment Phase:** Begin developing the deployment structure:
    - Setup the model serving environment (e.g., using Flask/Gunicorn on AWS).
    - Design and develop a simple, functional **web interface (GUI)** where users can upload a video and receive the model's prediction.

Hetanshi Bhatt	**Kunal Solanki**	**Samir Patel**
		
Name and Signature of Student 1	**Name and Signature of Student 2**	**Name and Signature of Supervisor (Mentor)**