**Fraud Detection in Streaming Services - Entertainment Sector**

Pooja Joshi & E.Code [E25007]

# Overview :

# In today's session, we focused on developing a comprehensive framework for detecting fraudulent activities within streaming services in the entertainment sector. The discussion covered the implementation of anomaly detection systems, feature engineering, and model optimization techniques.

# Objective:

· To establish an effective fraud detection system using user behavior analysis.

· To enhance the dataset with additional features for improved model accuracy.

· To outline next steps for further development of the detection framework.

# Assigned Task(s) :

· **Develop Initial Code for Anomaly Detection**: Implement algorithms to identify unusual patterns in user behavior.

· **Enhance the Dataset**: Add new features such as timestamps and user segmentation for better analysis.

· **Analyze User Feedback**: Incorporate user feedback on detected anomalies to improve model accuracy.

· **Visualize Data and Metrics**: Create visual representations of data trends and model performance metrics.

· **Prepare Next Steps**: Outline future tasks and goals for the ongoing development of the fraud detection system.

# Task Details :

### Task 1: Initial Code Development

* **Status**: Completed
* **Details**:
  + Developed a code structure for detecting anomalies in user behavior.
  + Integrated timestamp and user segmentation into the dataset for time-series analysis.

### Task 2: Dataset Enhancement

* **Status**: Completed
* **Details**:
  + Added a timestamp column to the dataset.
  + Implemented user segmentation to differentiate between new and returning users.

### Task 3: User Feedback Analysis

* **Status**: In Progress
* **Details**:
  + Created a mechanism to analyze user feedback on detected anomalies.
  + Set up a system to calculate accuracy rates based on feedback provided by users.

### Task 4: Data Visualization

* **Status**: In Progress
* **Details**:
  + Designed visualizations to display trends in user attendance and sentiment over time.
  + Created charts to show model performance metrics such as precision, recall, and accuracy.

# 

# 

# 

**Progress :**

**Accomplishments**:

* + Successfully implemented an initial fraud detection model using an anomaly detection algorithm.
  + Enhanced the dataset to support more advanced analyses, including user feedback integration and real-time processing.

**Metrics**:

* + Analyzed the initial dataset with a sample size of 5 records, showcasing different user sentiments and behaviors.

### Visualization of User Sentiment Over Time

| **Date** | **Attendance Count** | **Sentiment** |
| --- | --- | --- |
| 2023-01-01 | 7715 | Positive |
| 2023-01-02 | 7715 | Negative |
| 2023-01-03 | 7715 | Positive |
| 2023-01-04 | 7712 | Positive |
| 2023-01-05 | 7703 | Negative |

# Challenges and Solutions :

· **Challenges Faced**:

* Encountered errors related to missing columns in the dataset (e.g., 'timestamp').
* Issues with integrating user feedback and calculating accuracy rates for detected anomalies.

· **Solutions Implemented**:

* Added a timestamp column to the dataset to facilitate time-series analysis.
* Developed a more robust feedback analysis mechanism to improve model learning from user input

# Next Steps :

· **Upcoming Tasks**:

* Develop a data pipeline for automated fraud detection.
* Optimize the anomaly detection model through hyperparameter tuning and testing different algorithms.

· **Goals**:

* Set a target to achieve a minimum accuracy rate of 90% in fraud detection by the next session.
* Prepare a comprehensive visualization of the fraud detection metrics for stakeholder review.

# Conclusion :Today's tasks focused on establishing a foundation for fraud detection in streaming services. Significant progress was made in developing the initial code and enhancing the dataset. Key challenges were addressed with viable solutions.

# Summary: **Acknowledgments**: Thank the audience for their time and attention.

# Instructions:

1. Use Google Docs. Single Column
2. TNR stands for Times New Roman: B - Bold
3. Use images as required with proper references
4. Use charts, tables as per your requirement.
5. Number of Pages: 2 to 8 for each task report.