



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

GUEST LECTURE REPORT

Topic	:	Clustering Techniques in Data Mining
Resource Person	:	Mr. Nahar Singh, Head of Data & ML
Date	:	17 October 2025
Venue	:	Data Science Lab
Number of Students:		145
Department	:	AI & DS – V SEM (A&B)

1. Introduction

The Department of Artificial Intelligence & Data Science organized a guest lecture titled “Clustering Techniques in Data Mining” on 17 October 2025. The session was delivered by Mr. Nahar Singh, an industry expert and the Head of Data & Machine Learning. The objective of the lecture was to provide students with practical insights into clustering algorithms, their applications, and real-world implementation strategies used in modern data-driven systems.

2. Speaker Profile

Mr. Nahar Singh is a seasoned professional with extensive experience in data analytics, machine learning, and enterprise-scale AI systems. His expertise spans developing scalable ML pipelines, managing large datasets, and applying advanced clustering techniques across domains such as finance, retail, and manufacturing.

3. Session Highlights

a. Introduction to Clustering

- Definition and purpose of clustering in data mining
- Difference between supervised and unsupervised learning
- Role of clustering in exploratory data analysis

b. Clustering Algorithms Discussed

- K-Means Clustering: intuition, centroid selection, limitations
- Hierarchical Clustering: agglomerative vs. divisive approaches
- DBSCAN: density-based clustering and noise handling
- Gaussian Mixture Models (GMM): soft clustering approach
- Real-time use cases: anomaly detection, segmentation, pattern recognition

c. Practical Demonstration

Mr. Singh demonstrated how clustering models are trained and evaluated using:

- Python-based tools (NumPy, SciPy, scikit-learn)
- Visualization techniques for cluster validation
- Elbow method and silhouette score

d. Industry Applications

- Customer segmentation in marketing
- Fraud detection in financial systems
- Supply chain optimization
- Personalized recommendations

4. Student Engagement

Students actively participated by asking questions related to:

- Choosing optimal clustering algorithms
- Handling high-dimensional data
- Interpreting clusters for business insights
- Best practices for preprocessing and normalization

5. Outcomes of the Session

The guest lecture helped students to:

- Gain a strong conceptual understanding of clustering techniques
- Understand real-world ML workflows from an industry perspective
- Learn how clustering is integrated into AI-based decision systems
- Enhance practical knowledge for projects and placements

6. Conclusion

The session was insightful, informative, and highly beneficial for students pursuing AI & Data Science. The department thanked Mr. Nahar Singh for sharing his expertise and motivating students toward advanced data mining research and career opportunities in Machine Learning.



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Department of Artificial Intelligence & Data Science.

GUEST LECTURE ON

CLUSTERING TECHNIQUES IN DATA MINING



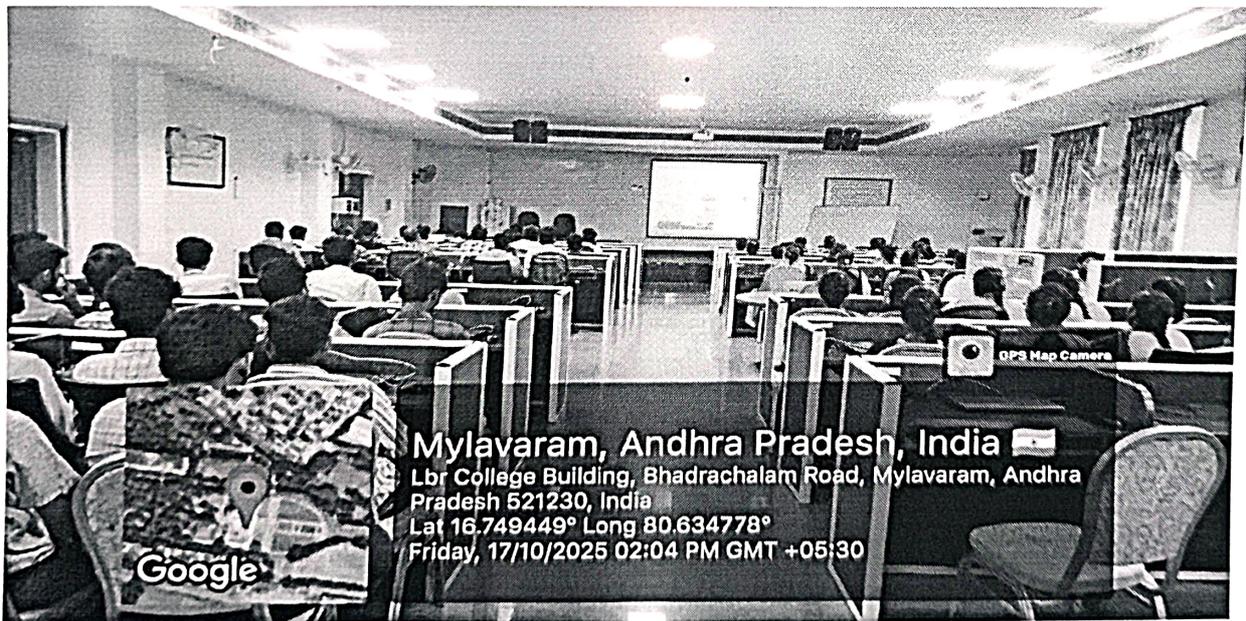
MR. NAHAR SINGH
HEAD DATA & ML





DATE: 17.10.2025
VENUE: DATA SCIENCE LAB





Organized by

Dr. Ch. Rajendra Babu

M. Kishore Kumar

Head of the Department

Dr. P. Bhagath