A.S.D.GOVT. DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited with 'B' Grade by NAAC)
(Affiliated to Adikavi Nannaya University)
Jagannaickpur, Kakinada.

DEPARTMENT OF COMPUTER SCIENCE

GUEST LECTURE

2023-2024

A.S.D.GOVT. DEGREE COLLEGE FOR WOMEN (A)

JAGANNAICKPUR, KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

2023- 2024

GUEST LECTURE

By

Mrs.T.Sudharani, M.Tech.
Associate Professor, Department of CSE,
Aditya Engineering College,
Surampalem.

Date : 06-04-2024

Topic : Machine Learning Algorithms

Conducted by

N.NAGA SUBRAHMANYESWARI, LECTURER IN COMPUTER SCIENCE

K.SURYA LAKSHMI,GUEST GUEST LECTURER IN COMPUTER SCIENCE

P.SVD BALLABAMBA, GUEST LECTURER IN COMPUTER APPLICATIONS

A.S.D.GOVT. DEGREE COLLEGE FOR WOMEN (A), KAKINADA

DEPARTMENT OF COMPUTER SCIENCE
Activity Register 2023-2024

Date	6/04/2024
Conducted through (DRC/JKC/ELF/NCC/NSS/ Departments etc.)	Department of Computer Science
Nature of Activity (Seminar/Workshop/Extn. Lecture etc.,)	Guest Lecture
Title of the Activity	**Machine Learning Algorithms**
Name of the Department/Committee	Computer Science
Details of Resource Persons (Name , Designation etc.,)	**Mrs.T.Sudharani** Associate Professor, Department of CSE , Aditya Engineering College, Surampalem
No.of students participated	60
Brief Report on the activity	To enable the students to learn machine learning algorithms.
Name of the Lecturers who Planned & conducted the activity	N.Naga Subrahmanyeswari, Lecturer in Computer Science K.Surya Lakshmi, Guest Lecturer in Computer Science P.SVD Ballabamba, Guest Lecturer in Computer Applications
Signature of the Dept.In-Charge/ Convener of the Committee	N.N.S.Eswari INCHARGE DEPT. OF COMPUTER SCIENCE ASDGOVT DEGREE COLLEGE (W) AUTONOMOUS KAKINADA
Signature of the Principal	V.N.... PRINCIPAL A.S.D.GOVT.DEGREE COLLEGE (W AUTONOMOUS KAKINADA
Remarks	

(* Brief Report of the activity has to be submitted along with evidences(Correspondence , Photographs, Paper Clippings, and Student Feedback etc).A separate record has to be prepared for each Academic year. The College Activity Register shall be with the Principal. All activities have to be recorded and the serial no of the activity has to be mentioned on the report of the activity.)

PERMISSION LETTER

To,
Dr. V.Anantha Lakshmi,
Principal,
A.S.D. Govt. Degree College for Women (A),
Kakinada.

From,
N.Naga Subrahmanyeswari,
Incharge - Department of Computer Science & Computer Applications,
A.S.D. Govt. Degree College for Women (A),
Kakinada.

        Sub: Request to organize Guest Lecture on "Machine Learning Algorithms" for II B.SC.(MPCS&MSCS) and II B.Com.(CA) on 06-04-2024 -Reg.

Respected Madam,

        The Department of Computer Science wishes to organize an Guest Lecture on "Machine Learning Algorithms" for II B.SC.(MPCS&MSCS) and II B.Com.(CA) on 06-04-2024, and the Resource Person is Mrs.T.Sudharani, Associate Professor, Department of CSE, Aditya Engineering College Surampalem. This activity shall enhance the knowledge of the Machine Learning Algorithms. Kindly do the needful.

        Thanking you, Madam.

        Yours faithfully,

N.N.S.Eswari
INCHARGE
DEPT. OF COMPUTER SCIENCE
ASD GOVT DEGREE COLLEGE (W) AUTONOMOUS
KAKINADA

A.S.D.GOVERNMENT DEGREE COLLEGE FOR WOMEN (A)

Affiliated to Adikavi Nannaya University
Jagannaickpur, Kakinada.

DEPARTMENT OF COMPUTER SCIENCE

CIRCULAR

Date: 03-04-2024

The Department of computer Science wishes to organize a Guest Lecture on "Machine Learning Algorithms" on 06-04-2024 in Seminar Hall for II B.SC.(MPCS&MSCS) and II B.Com.(CA) students to acquire basic knowledge about Machine Learning Algorithms and enhance their skills.

In-Charge of the Department   **Principal**

A.S.D.GOVT.DEGREE COLLEGE FOR WOMEN (A), KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

GUEST LECTURE

NAME OF THE GUEST **:** **Mrs.T.Sudharani**
Associate Professor,Department of CSE ,
Aditya Engineering College,
Surampalem.

TOPIC **:** **Machine Learning Algorithms**

DATE **:** 6-04-2024

VENUE **:** **Seminar Hall**

N.N.S.Eswari
IN CHARGE
DEPT. OF COMPUTER SCIENCE
ASD GOVT DEGREE COLLEGE (W)AUTONOMOUS
KAKINADA

IN-CHARGE OF THE DEPARTMENT

A.S.D.GOVT.DEGREE COLLEGE FOR WOMEN (A) KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

INVITATION

The Department of Computer Science wishes to arrange A Guest Lecture
on
06-04-2024 at 11.00 A.M. in Seminar Hall

Subject: Machine Learning

Topic: Machine Learning Algorithms

BY

Mrs.T.Sudharani, M.Tech.
Associate Professor in Department of CSE,
Aditya Engineering College,
Surampalem

In-Charge of the Department   **Principal**

A.S.D.GOVT. DEGREE COLLEGE FOR WOMEN(A)

DEPARTMENT OF COMPUTER SCIENCE
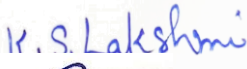
GUEST LECTURE

A Guest Lecture is conducted for the Students of II B.Sc.(M.P.CS & M.S.CS) II B.Com.(C.A.)

Name of the Guest   :   **Mrs.T.Sudharani M.Tech.**
Associate Professor,
Department of CSE,
Aditya Engineering College,
Surampalem.

TOPIC	VENUE	DATE	TIME	MODE OF DELIVERY
Machine Learning Algorithms	Seminar Hall	06-04-2024	11:00 AM TO 1:00 PM	Offline

Signatures of the Lecturers Attended:

1. N.N.S.Eswari
2. K.S.Lakshmi
3.

PRINCIPAL
A.S.D.GOVT.DEGREE COLLEGE (W
AUTONOMOUS
KAKINADA

Signature of the Principal

A.S.D.GOVT.DEGREE COLLEGE FOR WOMEN(A), KAKINADA
DEPARTMENTS OF COMPUTER SCIENCE
GUEST LECTURE
TOPIC: Machine Learning Algorithms

DATE: 6-04-2024   **VENUE:** Seminar Hall   **TIME: 11:00AM to 1:00PM**

S.NO.	REGD.NO.	NAME OF THE STUDENT	CLASS
1.	2241001	Jagadam Thanusri	II B.Sc(M.S.CS)
2.	2241002	Sape Naga Divya Jyothika	II B.Sc(M.S.CS)
3.	2241003	Seru Chinnari	II B.Sc(M.S.CS)
4.	2241004	Sirikolu Asha Jyothi	II B.Sc(M.S.CS)
5.	2241005	Doma Veeraveni	II B.Sc(M.S.CS)
6.	2241006	Kamireddy Sowmya Sri	II B.Sc(M.S.CS)
7.	2241007	Peddireddi Lakshmi Lalitha	II B.Sc(M.S.CS)
8.	2241008	Mattaparthi Ammulu	II B.Sc(M.S.CS)
9.	2241009	Palepu Mahalakshmi	II B.Sc(M.S.CS)
10.	2232001	Besetty Sri Ramya Priya	II B.Sc(M..P.CS)
11.	2232002	Bonam Bhavy Vijaya	II B.Sc(M.P.CS)
12.	2232003	Chennu Devi	II B.Sc(M.P.CS)
13.	2232005	Koppadi Kasthuri Mahalakshmi	II B.Sc(M.P.CS)
14.	2232006	Sangadi Ganga Mahalakshmi	II B.Sc(M.P.CS)
15.	2232007	Allu Durga Devi	II B.Sc(M.P.CS)
16.	2232009	Malladi Jnana Sri Vennela	II B.Sc(M.P.CS)
17.	2232011	Nathi Hemanthi Durga	II B.Sc(M.P.CS)
18.	2232012	Panthagada Anusha	II B.Sc(M.P.CS)
19.	2232016	BANDI GAYATHRI DEVI	II B.Sc(M.P.CS)
20.	2232017	Bangari Lalitha	II B.Sc(M.P.CS)
21.	2232018	Challapalli Pusha Bhavani	II B.Sc(M.P.CS)
22.	2232020	Chollangi Beby Sireesha	II B.Sc(M.P.CS)
23.	2232021	Chollangi Bhuvaneswari	II B.Sc(M.P.CS)
24.	2232023	Duli Divya Kumari	II B.Sc(M.P.CS)
25.	2232024	Duvvi Sai Veni	II B.Sc(M.P.CS)
26.	2232025	Geddam Kavya	II B.Sc(M.P.CS)
27.	2232026	Geddam Prasanna Kumari	II B.Sc(M.P.CS)
28.	2232027	Gummala Vijaya Lakshmi	II B.Sc(M.P.CS)
29.	2232028	Kondaalli Yasmitha Sneha Prabha	II B.Sc(M.P.CS)
30.	2232029	Kunche Sri Lakshmi	II B.Sc(M.P.CS)

S.NO.	REGD.NO.	NAME OF THE STUDENT	CLASS
31.	2232030	Kusireddy Aparna	II B.Sc(M.P.CS)
32.	2232031	Lanke Naga Lakshmi	II B.Sc(M.P.CS)
33.	2232032	Madi Ramya	II B.Sc(M.P.CS)
34.	2232033	Mallaadi Veeraveni	II B.Sc(M.P.CS)
35.	2232034	Pedasingu Veera Venkata Lakshmi	II B.Sc(M.P.CS)
36.	2232035	Penke Bala Veera Ganga Sindhu	II B.Sc(M.P.CS)
37.	2232036	Pikki Durga Bhavani	II B.Sc(M.P.CS)
38.	2223001	Medisetti Charishma	II B.Com(C.A.)
39.	2223002	Noor Asma	II B.Com(C.A.)
40.	2223003	Patta Kalyani	II B.Com(C.A.)
41.	2223004	Ramadi Padma	II B.Com(C.A.)
42.	2223006	Rayi Vimala	II B.Com(C.A.)
43.	2223007	Sigatapula Divya Chandini	II B.Com(C.A.)
44.	2223008	Eetakota Sravanthi	II B.Com(C.A.)
45.	2223009	Muchakarala Kalyani	II B.Com(C.A.)
46.	2223010	Mylapalli Nireesha	II B.Com(C.A.)
47.	2223011	Anaparthi Hemalatha	II B.Com(C.A.)
48.	2223012	Bonda Lakshmi Prasanna	II B.Com(C.A.)
49.	2223013	Chinthapalli Lavanya	II B.Com(C.A.)
50.	2223014	Chinthapalli Satya Veni	II B.Com(C.A.)
51.	2223015	Dadala Naga Jyothi	II B.Com(C.A.)
52.	2223021	Ginjala Gowri	II B.Com(C.A.)
53.	2223022	Kala Madhu Mani	II B.Com(C.A.)
54.	2223023	Kala Swathi	II B.Com(C.A.)
55.	2223024	Karri Swathi	II B.Com(C.A.)
56.	2223025	Konada Naveena	II B.Com(C.A.)
57.	2223026	Korukonda Satya Sri	II B.Com(C.A.)
58.	2223027	Lanka Ramya	II B.Com(C.A.)
59.	2223028	Majji Bhargavi	II B.Com(C.A.)
60.	2223029	Medisetti Veera Satya	II B.Com(C.A.)

REPORT OF THE ACTIVITY

Mrs.T.Sudharani Associate Professor in Department of CSE, Aditya Engineering College Suramplaem, has delivered a Guest Lecture on "Machine Learning Algorithms" to the students of II B.Sc. (M.P.CS & M.S.CS) and II B.Com. (C.A) on 06-04-2024 from 11A.M to 1P.M. Students attended the Guest Lecture in Seminar Hall. She expressed her views on the following topics

Introduction to Machine Learning Algorithms
Machine learning algorithms are computational models that allow computers to understand patterns and forecast or make judgments based on data without explicit programming. These algorithms form the foundation of modern artificial intelligence and are used in various applications, including image and speech recognition, natural language processing, recommendation systems, fraud detection, autonomous cars, etc.

This topic will cover all the essential algorithms of machine learning like *Support vector machine, decision-making, logistics regression, naive bayees classifier, random forest, k-mean clustering, reinforcement learning, vector, hierarchical clustering, etc.*

Types of Machine Learning Algorithms
There are four types of machine learning algorithms
- 1. Supervised Learning
    - A. Classification
        - Logistic Regression
        - Support Vector Machines (SVM)
        - k-Nearest Neighbors (k-NN)
        - Naive Bayes
        - Decision Trees
        - Random Forest
        - Gradient Boosting (e.g., XGBoost, LightGBM, CatBoost)
        - Neural Networks (e.g., Multilayer Perceptron)
    - B. Regression
        - Linear Regression
        - Ridge Regression
        - Lasso Regression
        - Support Vector Regression (SVR)
        - Decision Trees Regression
        - Random Forest Regression
        - Gradient Boosting Regression
        - Neural Networks Regression
- 2. Unsupervised Learning
    - A. Clustering
        - k-Means
        - Hierarchical Clustering
        - DBSCAN (Density-Based Spatial Clustering of Applications with Noise)
        - Gaussian Mixture Models (GMM)
    - B. Dimensionality Reduction
        - Principal Component Analysis (PCA)
        - t-Distributed Stochastic Neighbor Embedding (t-SNE)
        - Linear Discriminant Analysis (LDA)
        - Independent Component Analysis (ICA)
        - UMAP (Uniform Manifold Approximation and Projection)

- o C. Association
    - o Apriori Algorithm
    - o Eclat Algorithm

- 3. Reinforcement Learning
    - o A. Model-Free Methods
        - o Q-Learning
        - o Deep Q-Network (DQN)
        - o SARSA (State-Action-Reward-State-Action)
        - o Policy Gradient Methods (e.g., REINFORCE)
    - o B. Model-Based Methods
        - o Deep Deterministic Policy Gradient (DDPG)
        - o Proximal Policy Optimization (PPO)
        - o Trust Region Policy Optimization (TRPO)
    - o C. Value-Based Methods
        - o Monte Carlo Methods
        - o Temporal Difference (TD) Learning

- 4. Ensemble Learning
    - o Bagging (e.g., Random Forest)
    - o Boosting (e.g., AdaBoost, Gradient Boosting)
    - o Stacking

1. Supervised Learning

Supervised learning involves training a model on labeled data, where the desired output is known. The model learns to map inputs to outputs based on the provided examples.

A. Classification
1. Logistic Regression

- **Description:** Logistic regression models the probability of a binary outcome using a logistic function. It outputs probabilities and classifies instances by setting a threshold (usually 0.5).
- **Key Points:**
    - o Simple and easy to implement.
    - o Assumes linear relationship between the input features and the log-odds of the outcome.
    - o Works well for binary classification problems.
- **Applications:** Email spam detection, disease diagnosis, credit scoring.

2. Support Vector Machines (SVM)

- **Description:** SVMs find the hyperplane that best separates different classes by maximizing the margin between them.
- **Key Points:**
    - o Effective in high-dimensional spaces.
    - o Works well for both linear and non-linear classification using kernel trick.
    - o Sensitive to the choice of kernel and regularization parameter.
- **Applications:** Image classification, text categorization, bioinformatics.

3. k-Nearest Neighbors (k-NN)

- **Description:** k-NN classifies instances based on the majority class among the k-nearest neighbors in the feature space.
- **Key Points:**
    - o Simple and intuitive.
    - o No explicit training phase, making it a lazy learner.
    - o Sensitive to the choice of k and the distance metric.
- **Applications:** Recommender systems, pattern recognition, anomaly detection.

4. Naive Bayes
- **Description:** Naive Bayes uses Bayes' theorem with the assumption of feature independence to classify instances.
- **Key Points:**
    - Fast and efficient.
    - Performs well with high-dimensional data.
    - Assumption of feature independence might not hold in all cases.
- **Applications:** Text classification, sentiment analysis, spam filtering.

5. Decision Trees
- **Description:** Decision trees split data into subsets based on the value of input features, creating a tree-like model of decisions.
- **Key Points:**
    - Easy to interpret and visualize.
    - Can handle both numerical and categorical data.
    - Prone to overfitting without proper pruning.
- **Applications:** Risk assessment, fraud detection, customer segmentation.

6. Random Forest
- **Description:** Random forest is an ensemble of decision trees that improves accuracy and controls overfitting by averaging multiple trees trained on different subsets of data.
- **Key Points:**
    - Reduces overfitting compared to individual decision trees.
    - Handles large datasets with higher dimensionality.
    - Requires more computational resources.
- **Applications:** Financial forecasting, image classification, healthcare diagnostics.

Resource Person **Mrs.T.Sudharani** explaining Machine Learning Algorithms

Student enthusiastically listening to the Guest Lecture

DEPARTMENT OF COMPUTER SCIENCE

FEEDBACK ON THE GUEST LECTURE

Name of the Participant:

1. How satisfied are you with the overall quality of the lecture?

   A. Very Satisfied
   B. Satisfied
   C. Neutral
   D. Unsatisfied

2. Did the lecture enhance your knowledge on the topic?

   A. Strongly Agree
   B. Agree
   C. Neutral
   D. Disagree

3. How relevant was the content of the lecture to your curriculum needs?

   A. Extremely Relevant
   B. Very Relevant
   C. Moderately Relevant
   D. Slightly Relevant

4. Do you feel the lecture provided practical insights that you can apply?

   A. Strongly Agree
   B. Agree
   C. Neutral
   D. Disagree

5. Any additional comments or suggestions?

   _____

Signature of the Participant