

## Online workshop on “Data Science and Machine Learning Concepts”

<b>Date</b>	<b>01 &amp; 05 June 2021</b>
Organized by Department	<b>Computer Science and Applications St. Aloysius’ College, (Autonomous), Jabalpur</b>
Event Activities	1. Inauguration 2. Day – 1 Session I : Dr. Aparajita Jha  Day-2: Session II : Dr.  Day-3: Session III :  Day-4: Session IV :  Day-5: Session V :
Coordinator	Mrs. Sukhvinder Kaur Walia Mrs. Khushboo Gupta

We department of Computer Science and Applications, St. Aloysius' College, (Autonomous), Jabalpur has organized Five Days Online National Workshop on “Data Science and Machine Learning Concepts”

**DAY 1: 01 June 2021**

**Speaker : Dr. Aparajta Ojha**

**Number of Participants : 192**

Day 1- Session has been started by Dr Aparjita Ojha Madam. She gave details about Introduction to Data Science and Machine Learning, data of Covid- 19 and their explosion, Data analysis of Covid- 19 patients and how this diseases spread over the world. She also talked about major challenges related to data science and machine learning some of them are as follows : Real time and Internet data Processing ,Extracting useful information . Later she give brief about the following topics in their lecture are as follows :

What is actual learning of data?

Machine Learning Algorithms

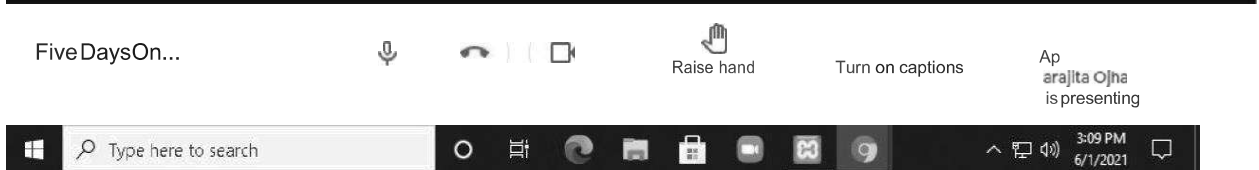
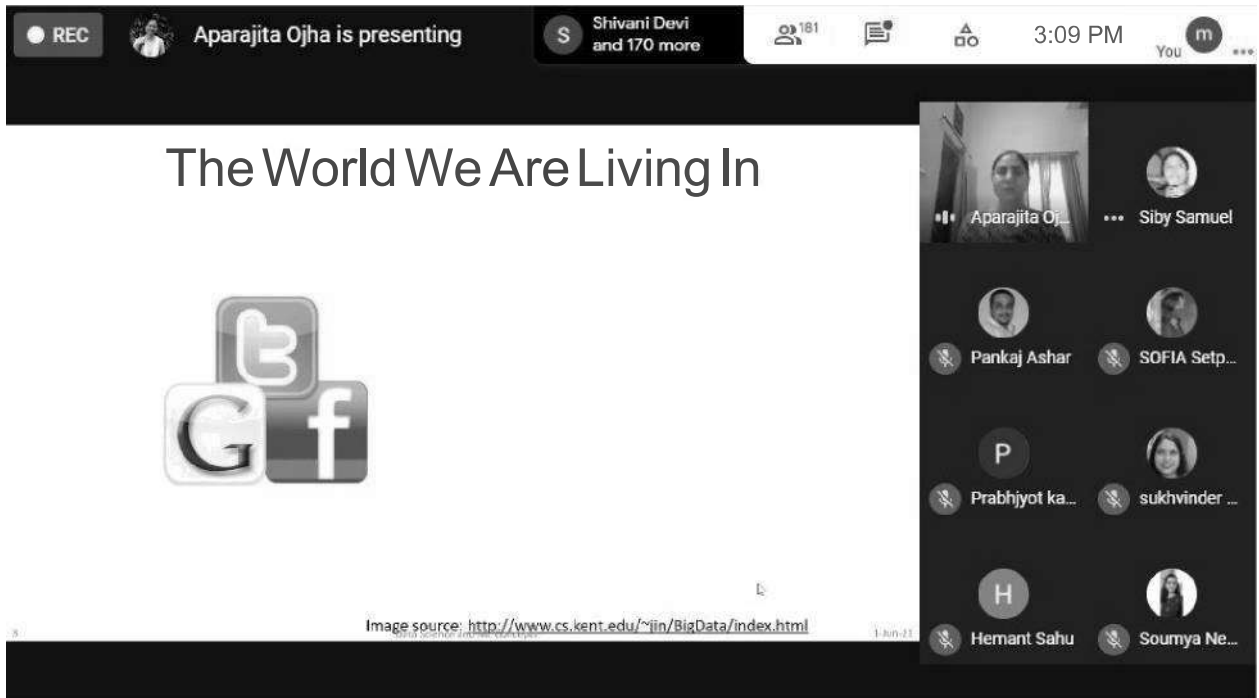
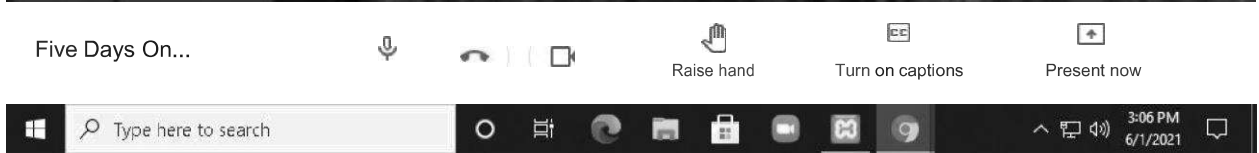
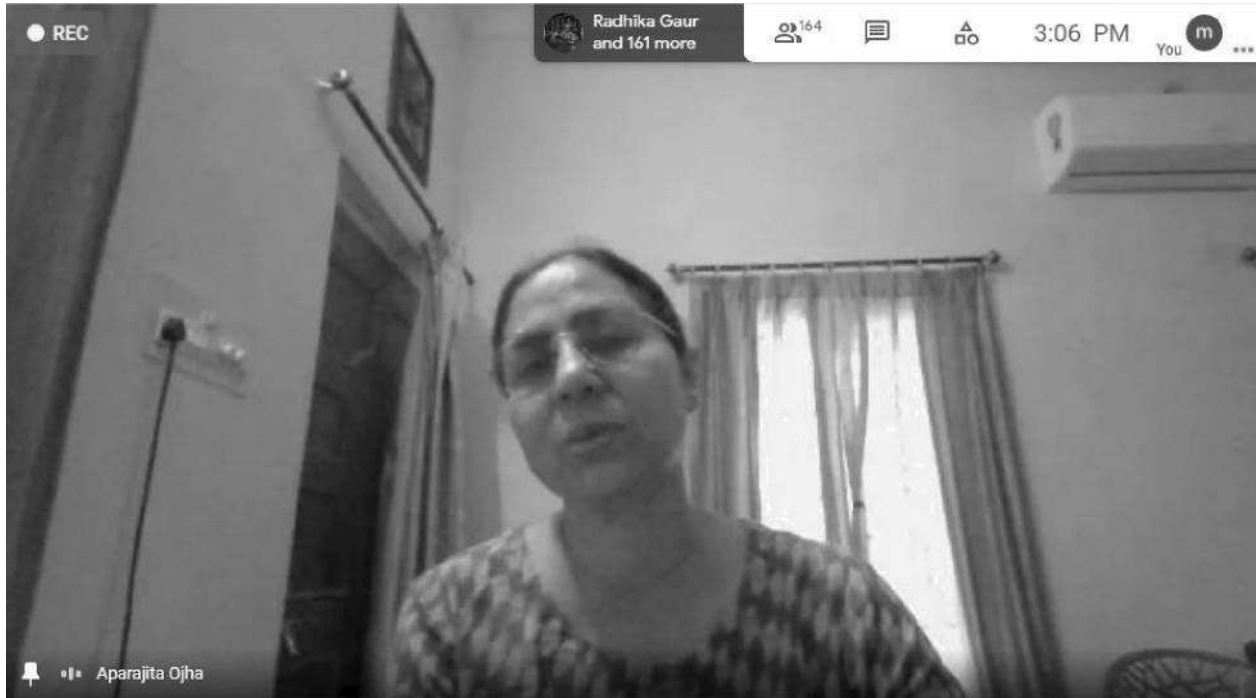
Types of Clustering

K- Means Clustering

Performance of different clustering algorithm

Idea of Support Vector

Introduction to Data

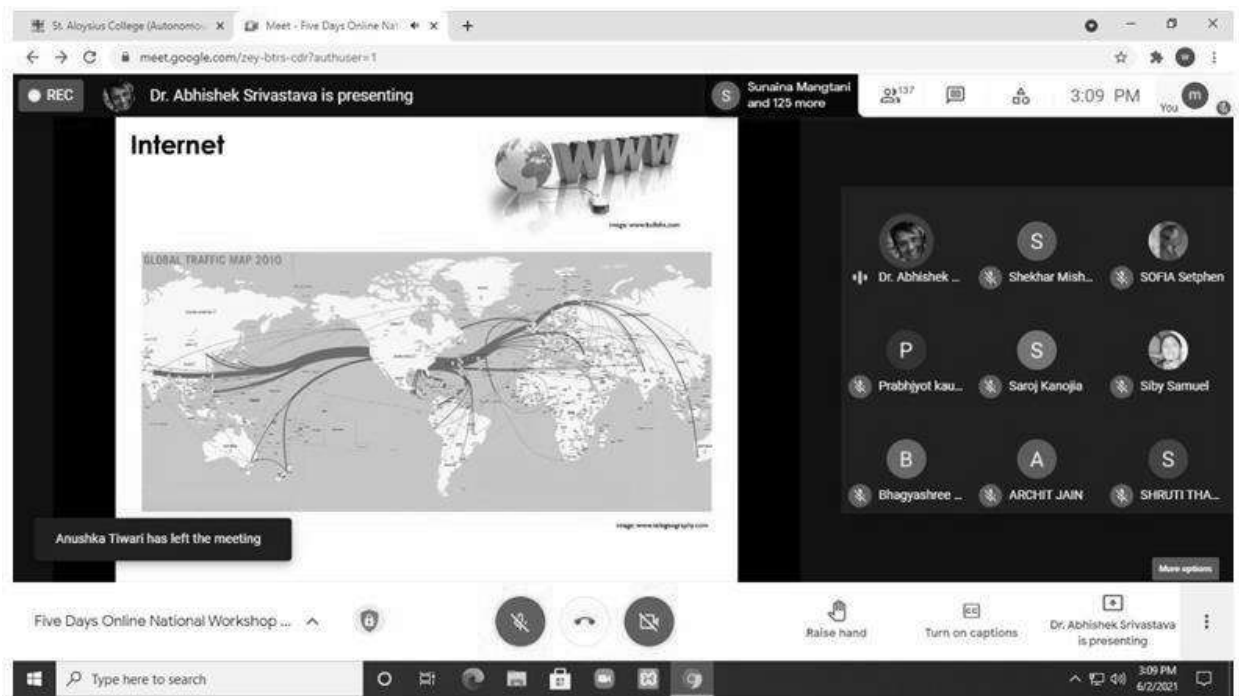


## DAY 2: 02 June 2021

**Speaker : Dr. Abhishek Shrivastava**

**Number of Participants : 137**

Day 2- Session has been started by Dr Abhishek Shrivastava . He gave details about Internet of Things, What is the basic difference between Internet and WWW, Growth of IOT, What IOT today. Later he also showed demo of his device that sense the temperature. He also covered the detail about web application and web services, Mash up of Things and communication protocols. He gave detailed about his research project which is “Effective Power Management in varied Environment” that shows making use of machine learning algorithm in IOT environment.

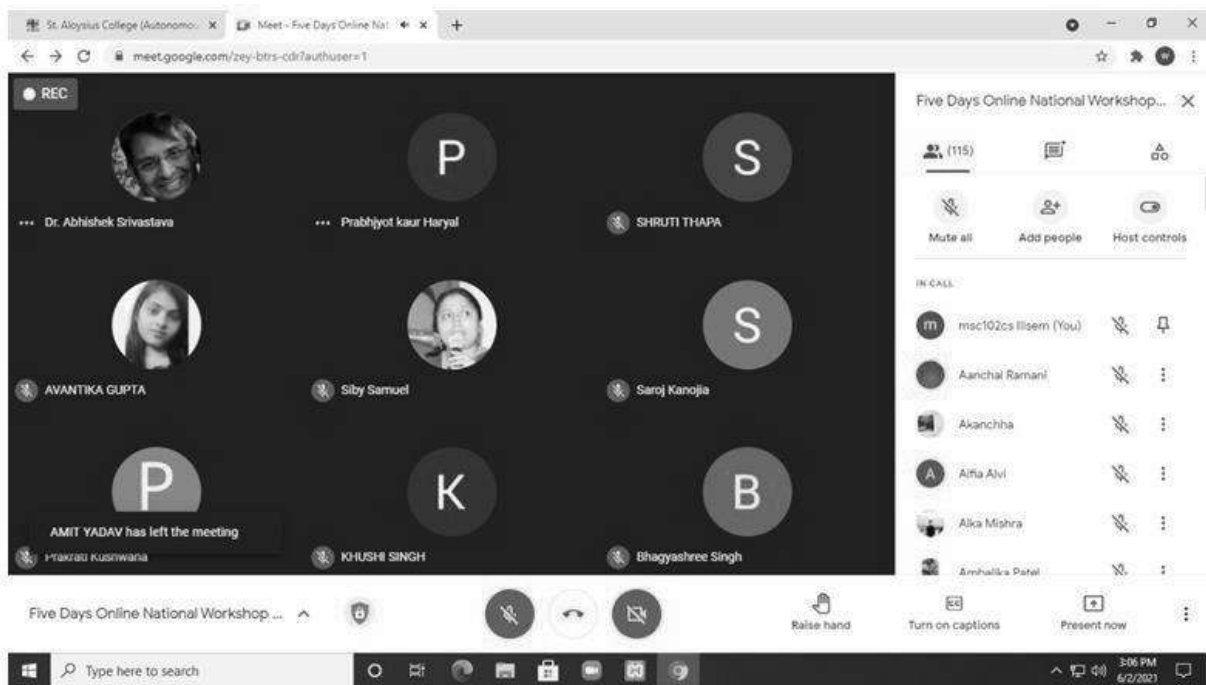


## DAY 3: 03 June 2021

**Speaker : Dr. Tarun Sexsena**

**Number of Participants : 112**

Day 3 - Session has been started by Tarun Sexsena, He gave details about Data Preprocessing for machine learning models and normalization. He covered tasks to be performed for data Preprocessing that is Data Cleaning, Integration, transformation, reduction and discretization using Jupyter Notebook



**DAY 4: 04 June 2021**

**Speaker : Dr. Puneet Gupta**

**Number of Participants : 110**

Day 4 - Session has been started by Dr. Puneet Gupta. He gave details about the topic Dimensionality Reduction and the pillars of Machine Learning/Artificial Intelligence /Deep Learning that is Supervised and unsupervised learning. He also explained distance between point and a plane, what is variance captured by projections, reconstructing of Data, PCA algorithm, Non-linear dimensionality reduction, locally linear embedding, Stochastic Neighbor embedding

**What is variance captured by projections**

Consider projecting  $\mathbf{x}_n \in \mathbb{R}^d$  on 1-D,  $\mathbf{u}_i \in \mathbb{R}^d$ .  
 Projection of  $\mathbf{x}_n$  along  $\mathbf{u}_i$  is  $\mathbf{u}_i^T \mathbf{x}_n$

Mean of projected data :  

$$\bar{\mu} = \frac{1}{N} \sum_{n=1}^N \mathbf{u}_i^T \mathbf{x}_n = \mathbf{u}_i^T \left( \frac{1}{N} \sum_{n=1}^N \mathbf{x}_n \right) = \mathbf{u}_i^T \bar{\boldsymbol{\mu}}$$

Variance of projected data :  

$$\frac{1}{N} \sum_{n=1}^N (\mathbf{u}_i^T \mathbf{x}_n - \bar{\mu})^2 = \frac{1}{N} \sum_{n=1}^N (\mathbf{u}_i^T \mathbf{x}_n - \mathbf{u}_i^T \bar{\boldsymbol{\mu}})^2$$

$$= \frac{1}{N} \sum_{n=1}^N \mathbf{u}_i^T (\mathbf{x}_n - \bar{\boldsymbol{\mu}})^2 = \mathbf{u}_i^T \mathbf{S} \mathbf{u}_i$$

where  $\mathbf{S} = \frac{1}{N} (\mathbf{x}_n - \bar{\boldsymbol{\mu}}) (\mathbf{x}_n - \bar{\boldsymbol{\mu}})^T$  is  $D \times D$  covariance matrix

**DAY 5: 05 June 2021**

**Speaker : Dr. Shraddha Masih**

**Number of Participants : 104**

Last day of five days online workshop was started by Dr. Shraddha Masih. She gave details about Classification and Clustering. She also brief about Data science Process and how data science is conducted by doing planning and preparation of data, by building a data model, by evaluating the model, by deployment of model, by Monitoring the model. She also covered detailed about support vector machine. After that her student Ms. Pranali Mugdal apply classification and clustering algorithm on Iris dataset using Google Colab.

REC    Pranali Mudgal is presenting



Shradha Masih



Pranali Mudgal



Presentation  
Pranali Mudgal



119 others



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