SRI VENKATESWARA COLLEGE OF ENGINEERING

DEPARTMENT OF INFORMATION TECHNOLOGY

Four day Workshop on

"Walkthrough from AI & ML to XAI"

26.10.2022 to 29.10.2022

REPORT

Submitted to the principal

Noted;
Good

	Department of **Information Technology**		

REPORT OF FOUR DAYS WORKSHOP ON "WALKTHROUGH FROM AI & ML TO XAI"

Date: **26.10.2022 TO 29.10.2022**

Resource person:

External: Mr. Shanthababu Pandian,

AI & Data Analytics Lead,

Cognizant, UK.

Internal: Dr. A.Kala, AP/INT

Dr. P. Sharon Femi, AP/INT

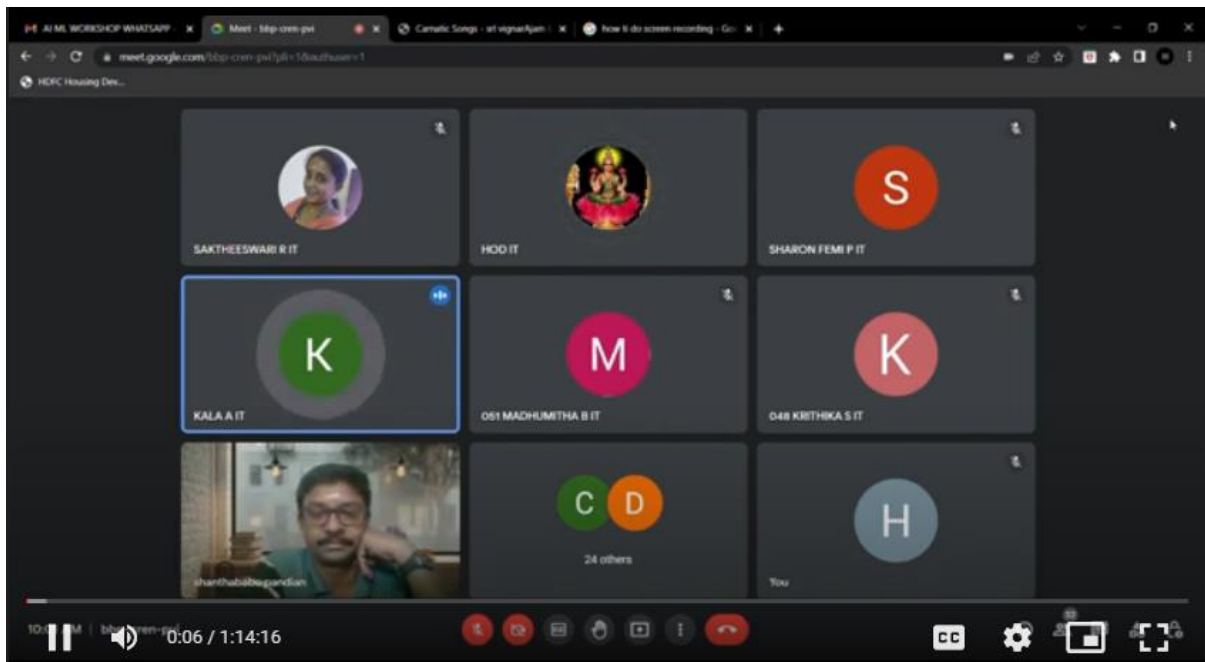Ms. R. Saktheeswari, AP/INT

Dr.D. Jayanthi, ASP/INT

Objectives:

- To understand the need for machine learning for various problem solving

- To study the various algorithms in machine learning

- To understand the latest trends in machine learning

About the programme:

The workshop began with an inaugural ceremony on 26/10/2022 with a prayer song rendered by Ms.Harini Padma, II year IT student, followed by a warm welcome address by Dr. P. Sharon Femi, AP/INT. Dr. V. Vidhya, HoD/ INT addressed the gathering and described the importance of Artificial Intelligence and Machine Learning in various fields. A short introduction of the chief guest and his achievements was delivered by Ms. R. Saktheeswari,
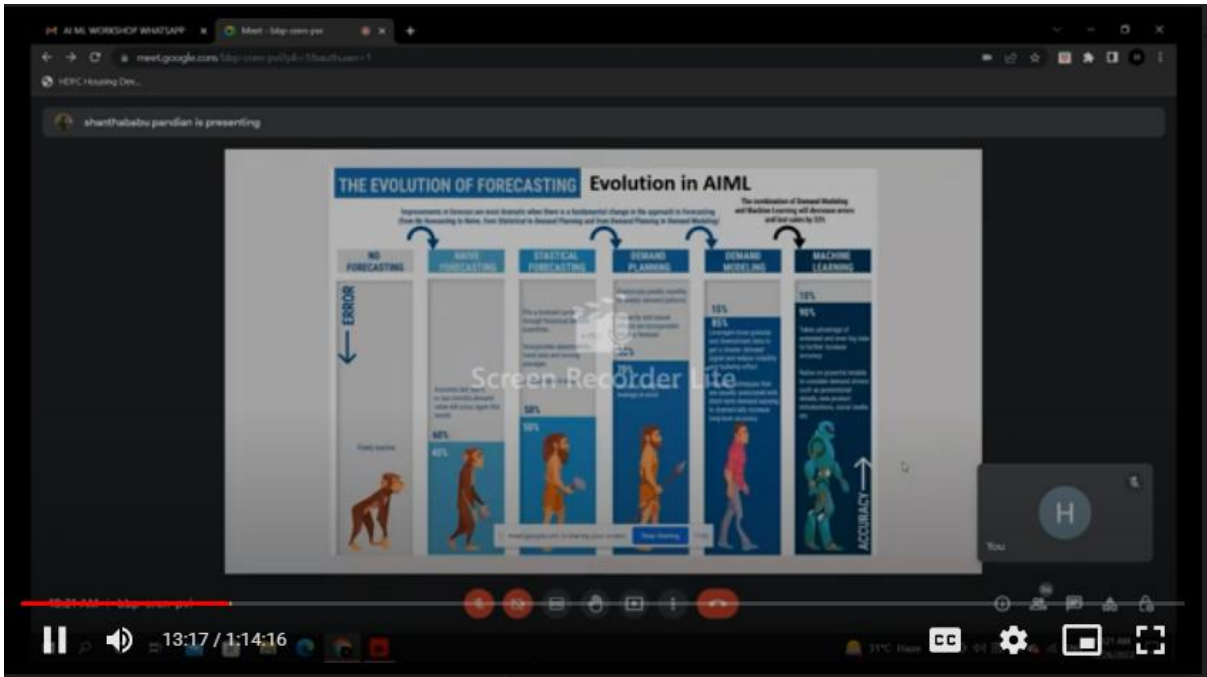
AP/INT. The session was handed over to the chief guest, Mr. Shanthababu Pandian, AI & Data Analytics Lead, Cognizant, UK.
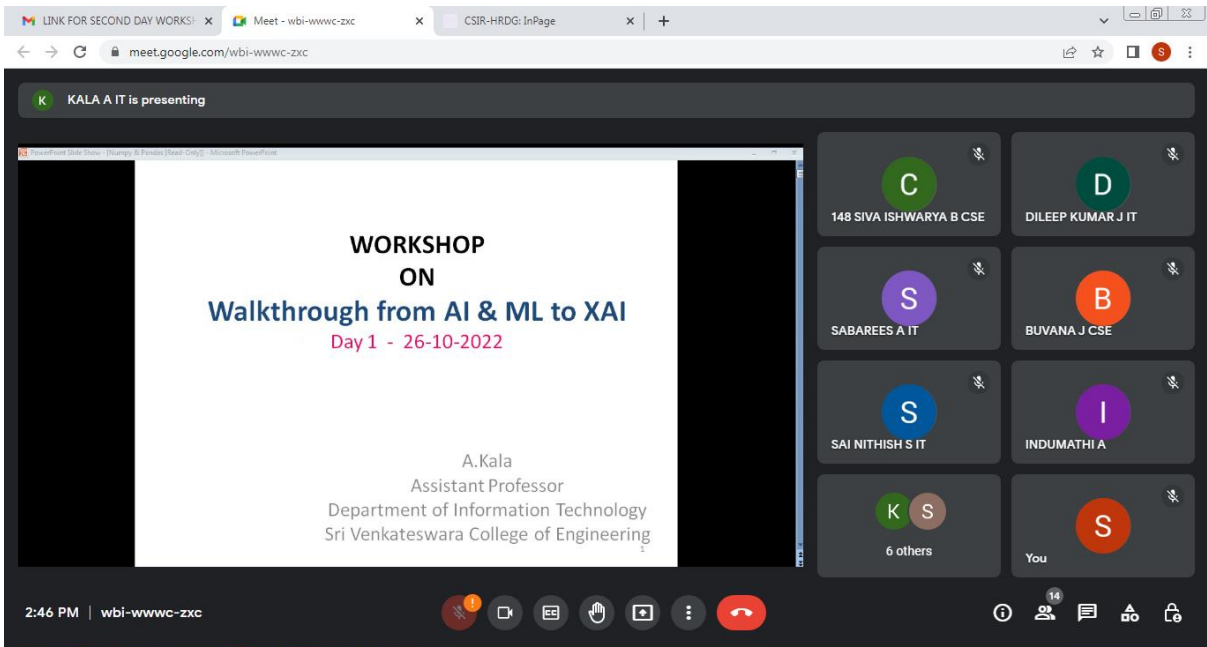

Inauguration

Day 1 (26.10.2022)

The first session of the workshop started with Mr. Shanthababu Pandian, giving a brief idea about Artificial Intelligence and Machine Learning. He explained about the increasing demand of AI and ML in the industry and discussed about the evolution of AI and ML in the computer field. He then gave an overview about what is AI with the help of a video about Sophia- the world's first AI robot. He then moved on with explaining about the various machine learning process – collection of data, data cleaning and feature engineering, model building, evaluation of model and model deployment. He also enlightened the students about the various application of AI like AI in vehicles for automated driving, predicting maintenance, predicting claimable insurance amount in vehicles, and also for entertainment purposes in vehicles. He then enlightened us about the various code snippets of jupyter notebook.
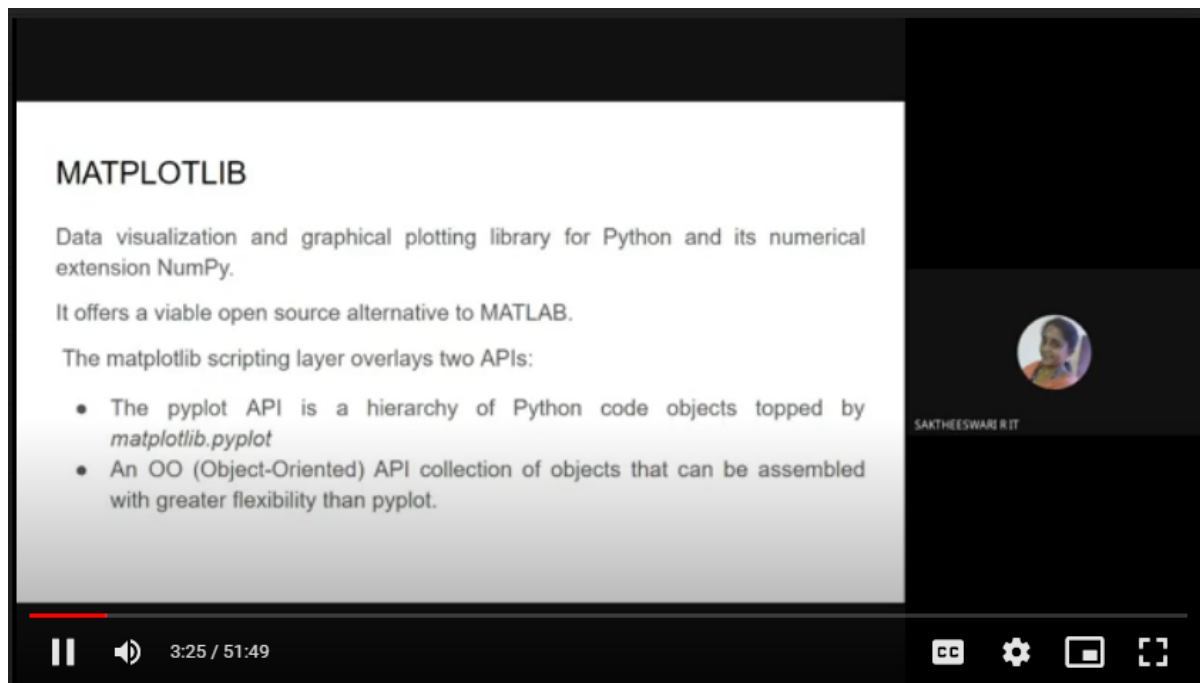
Session by Mr. Shanthababu Pandian, AI & Data Analytics Lead, Cognizant, UK.

The second session was delivered by Dr.A.Kala, AP/INT. This session touched upon the packages specific to Data Science and Machine Learning. She explained the numpy and pandas package with various examples. The students were given with a set of problems related to numpy and pandas packages.
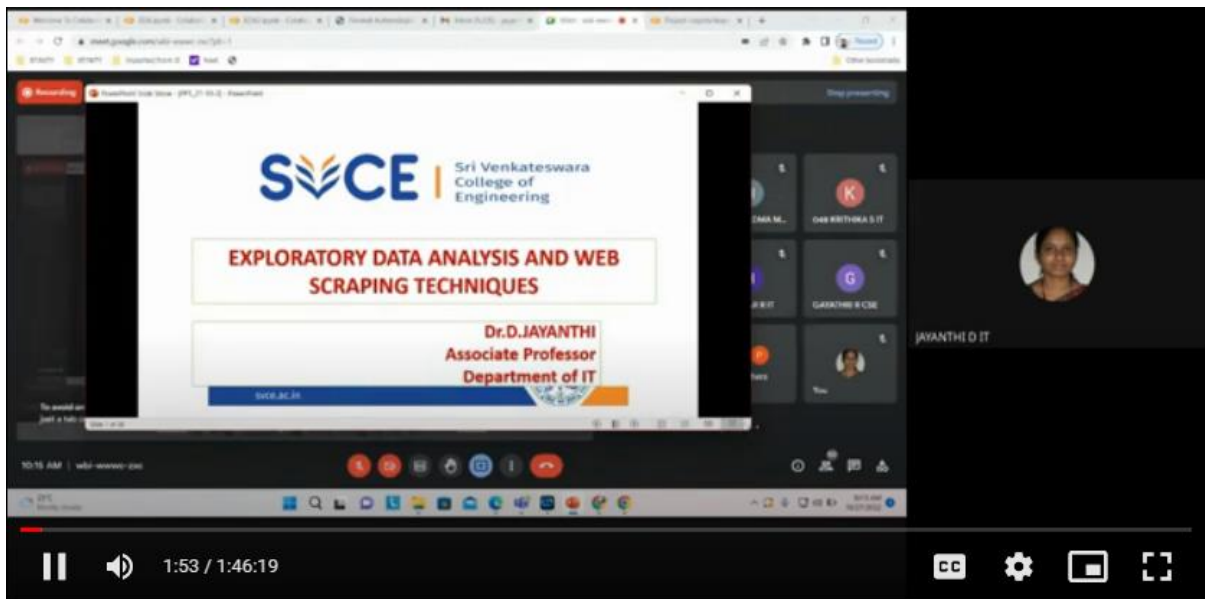

Session by Dr.A.Kala, AP/INT

The third session of the workshop was conducted by Ms. R.Saktheeswari, AP/INT. She started her session by enlightening the students with difference between categorical variables and quantitative variables. She demonstrated various code snippets explaining about the different ways of displaying the data with the help of matplotlib.

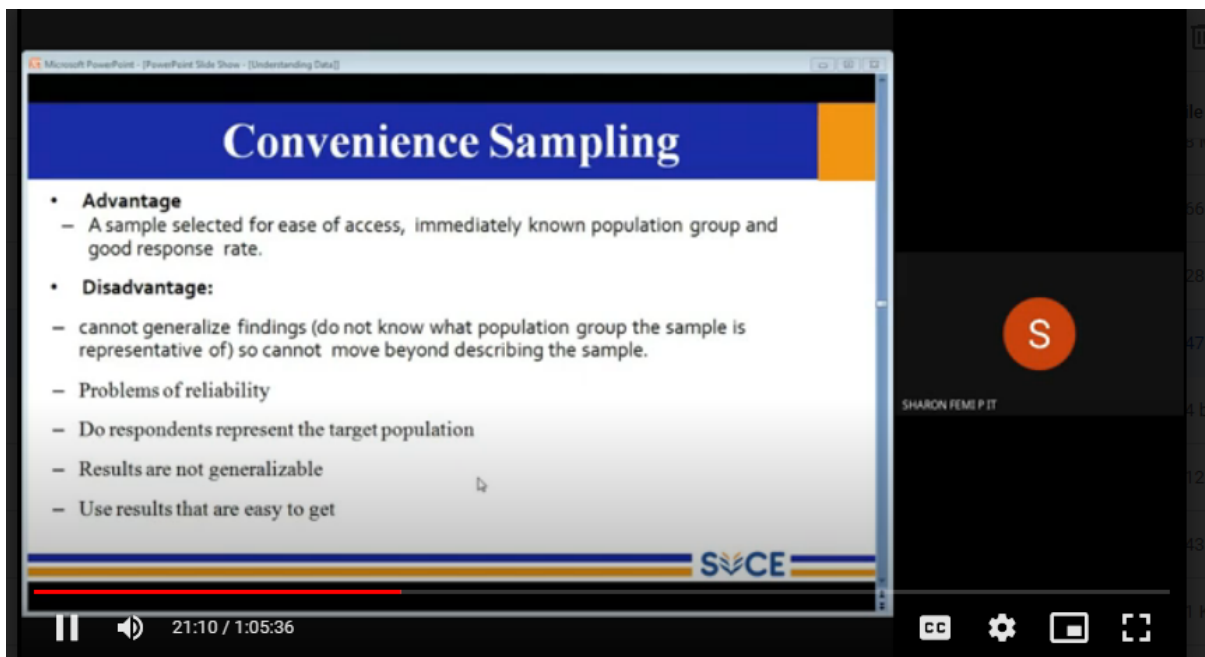**Session by Ms.R.Saktheeswari, AP/INT**

Day 2 (27.10.2022)

The second day of the workshop was handled by Dr. D. Jayanthi, ASP/INT. She began her session by explaining about the Exploratory Data Analysis (EDA) and emphasized the importance of EDA. She elaborated on how EDA helps in making the right questions that gives right answers to make right decision. She also briefed about the data manipulation, data scrapping and data wrangling and also about the various steps involved in all these processes. She also discussed about the various anomalies that may arise and how to tackle them.
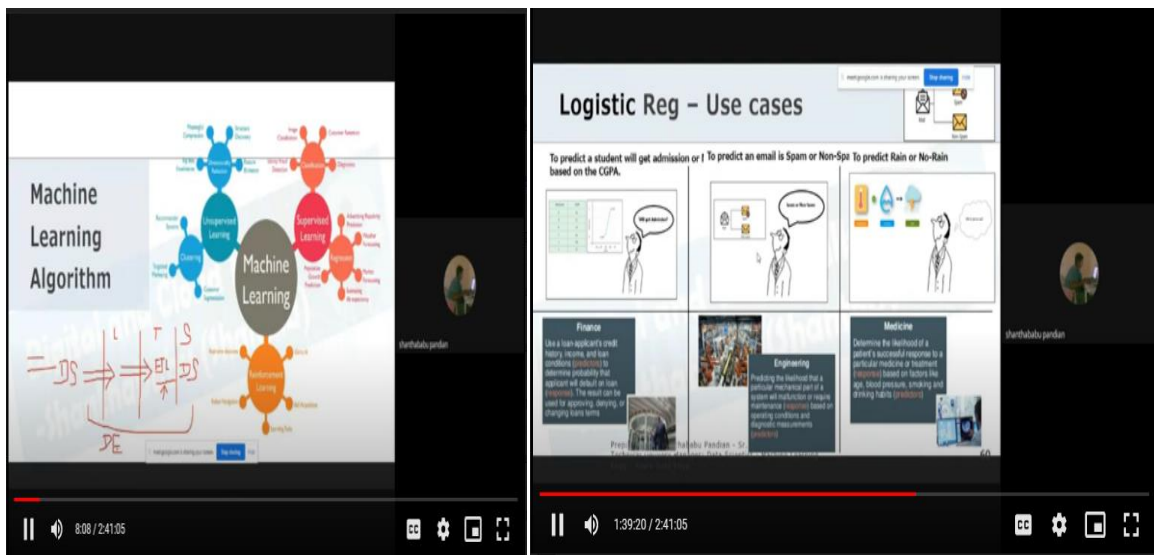
Session by Dr.D.Jayanthi, ASP/INT

The afternoon session was handled by Dr. P. Sharon Femi, AP/INT on the statistics and probability in Data Science. She began her session with an overview about the various statistical methods employed with AI and ML to manipulate with the dataset and produce models. She discussed about the measures of central tendency that are used to describe the distribution of data using a single value. She also briefed about Skewness that measures the shape of the distribution.

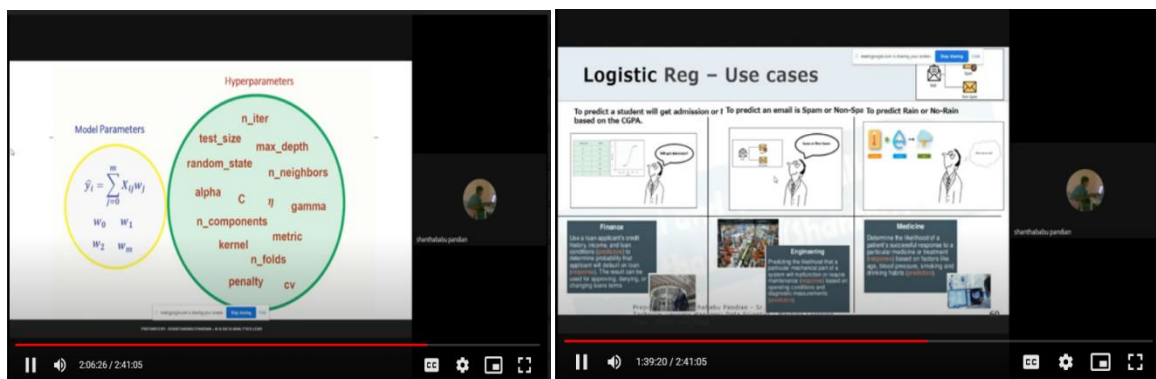**Session by Dr.P.Sharon Femi, AP/INT**

Day 3 (28.10.2022)

On third day, session was started by Mr. Shanthababu Pandian. The speaker conceptualized about the types of the machine learning techniques. He explained about supervised learning algorithms that identifies the features explicitly and bring out predictions or classification. He discussed about the unsupervised learning algorithms that learns on the data by finding implicit patterns. Later he elaborated on the regression analysis and its classification. He demonstrated the linear regression and the multivariable linear regression with code snippets. He also covered the logistic regression and classification algorithms like the decision tree classifier and K- Nearest Neighbor classifier.

Session by Mr. Shanthababu Pandian

In the afternoon session, he covered the significance of Model Parameters and its Optimizing Techniques in Machine Learning with suitable Case Study. He elaborated on the steps for hyperparameter tuning like the model selection, reviewing the parameters, selecting and searching, cross validating and assessing the score of the model. He gave an overview about the time-series analysis with real time examples.
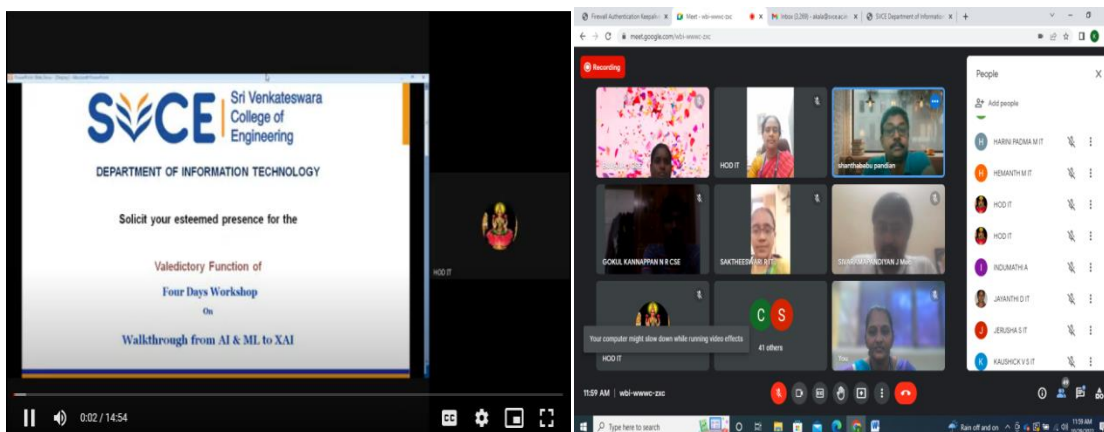

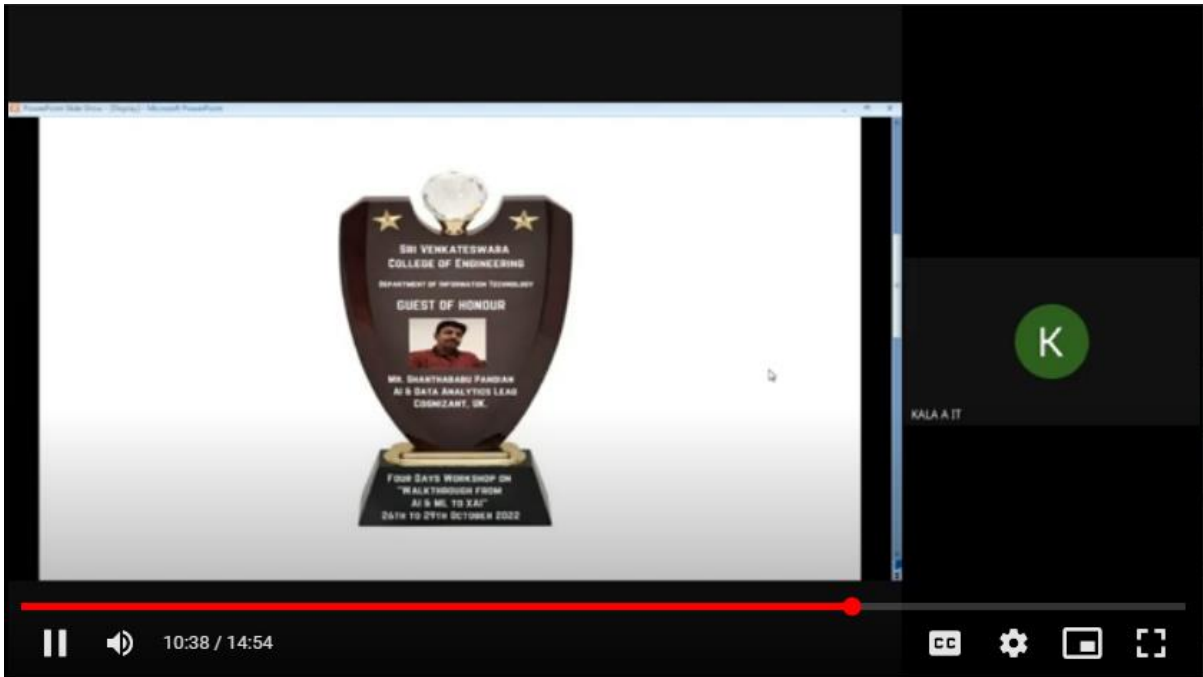**Session by Mr. Shanthababu Pandian**

Day 4 (29.10.2022)

The fourth day of the workshop started with Mr.Shanthababu Pandian explaining about the various roles of AI and ML engineers. He stressed on the various roles in the field like the data scientist, data analyst, data architect, data engineer, database administrator, business analyst, statistician, data & analytics manager and their importance and relationship between each of them. He briefed about MLOps for Machine Learning Engineering. He also gave an introduction about XAI and how it plays a major role in the AI and ML field in the forthcoming years.

Valedictory

The workshop was concluded with a valedictory ceremony on 29th October, 2022 for which Mr.Shanthababu Pandian, AI & AI & Data Analytics Lead, Cognizant, UK was the chief guest. The welcome presidential address was given by Dr.V.Vidhya. The chief guest appreciated the sincere efforts of SVCE to come up with such an event and the enthusiastic involvement by the participants. He congratulated all participants for being active learners and wished them to be experts in AI/ML and to be industry-ready. The participants gave their feedback on the workshop. The chief guest was felicitated with an e-memento on behalf of SVCE. The event was concluded with a vote of thanks delivered by Dr. A.Kala, AP/INT. Interested faculty along with students were present in this workshop.

Valedictory of the Workshop

Felicitation of Chief guest with e- memento.

Certificates were issued to the participants during the guest lecture "An overview of Machine Learning design patterns" by Mr.Shanthababu Pandian held on 07-11-2022.

Distribution of Certificates to Participants

Participant details

Total Number of Participants : 74

Number of students   : 57

Number of faculty   :17

Outcome:

- Gained knowledge on analyzing the appropriate machine learning approach for various types of problems

- Explored the opportunities and challenges in AI & ML

- Motivated to build products for real-time case studies using AI & ML

- Imparted knowledge on current trends in XAI

Workshop Coordinators   **HOD/INT**

Dr.V.Vidhya, Prof/INT   Dr.V.Vidhya
Dr. A.Kala, AP/INT
Dr. P. Sharon Femi, AP/INT
Ms.R. Saktheeswari, AP/INT