

Department: CSE

Date: August 07-11, 2023



REPORT – ON
FIVE-DAY FACULTY DEVELOPMENT PROGRAM
ON



“DATA SCIENCE WITH PYTHON”

07th August – 11th August 2023

ORGANIZED BY

Department of Computer Science & Engineering

*Nalla Narasimha Reddy Group of Institutions
(UGC Autonomous)*

Organizers:

1. Dr. K. Srinivasa Babu, Professor, CSE
2. Dr. S. Sree Hari Raju, Associate Professor, CSE
3. Ms. P. Santhi Priya, Assistant Professor, CSE
4. Ms. M. Sonia, Assistant Professor, CSE

Resource Person: **K. Raghavendra Swamy**
Senior Technical Trainer
ICT Academy, Hyderabad.

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REGISTRATION FORM

A

Five-Day Faculty Development Program
on
“Data Science with Python”

07th August to 11th August 2023

1. Full Name: _____
2. Department: _____
3. Organization: _____
4. Contact No.: _____
5. Email Id: _____
6. Address for Communication

Signature of Applicant

Signature of the Sponsoring Authority
with seal

Chief Patrons

Sri Nalla Narasimha Reddy
Chairman

Nalla Narasimha Reddy Group of Institutions

Advisors

Dr. C. V. Krishna Reddy
Director, NNRESGI

Mr. Nalla Prashanth Reddy
Vice Chairman, NNRESGI

Dr. G. Janardhana Raju
Dean – School of Engineering, NNRESGI

Convener

Dr. K. Rameshwaraiiah
Professor & Head – CSE, NNRESGI

Coordinator

Dr. S. Sree Hari Raju
Assoc. Professor – CSE, NNRESGI

Organizers

Dr. K. Srinivasa Babu
Professor - CSE

Ms. P. Santhi Priya
Asst. Prof - CSE

Ms. M. Sonia
Asst. Prof - CSE

For further details contact:

Convener

Department of CSE, NNRESGI
Mobile: 9553977907 / 9951461662
Email id: hod.cse@nrg.edu.in,
sreehariraju.s@nrg.edu.in

A

**Five-Day Faculty Development
Program**

on

“Data Science with Python”

7th August to 11th August 2023

Organized by

Department of

Computer Science & Engineering



Convener

Dr. K. Rameshwaraiiah
Professor & Head-CSE



**NALLA NARASIMHA REDDY
EDUCATION SOCIETY'S GROUP OF
INSTITUTIONS INTEGRATED CAMPUS**

(UGC AUTONOMOUS)

Chowdariguda, Medchal (Dist),

Hyderabad. – 500088

Phone No.: 9985311103 / 9885294405

Website: www.nrg.edu.in

FDP Boucher PAGE -2



About the Institution

Nalla Narasimha Reddy Education Society is established and registered with a primary objective of educating young men and women; to prepare them for fast-changing national and international requirements; to fund the needy and promote research in the area of science and technology. Accordingly, an Integrated Contiguous Campus with multi-disciplinary Technical, Engineering, Pharmacy and Management programs under the banner of Nalla Narasimha Reddy Education Society's (NNRG) Group of Institutions is started. NNRG was established in the year 2009, affiliated to JNTU – Hyderabad, Approved by AICTE – New Delhi and PCI - New Delhi. The institution was established with the sole objective of providing world-class technical education.

This Institute is accredited by the National Assessment and Accreditation Council (NAAC) A+ and the National Board of Accreditation (NBA) for CSE, ECE. The UGC has recognized the college under section 2(f) of the UGC Act 1956 and ISO 9001:2015 certified. NNRG aims at being one of the most premier educational institutions in Telangana. Our plans are to produce the best quality students who would contribute optimum to the society, nation and the global world with latest trends and innovations. We intend to establish a system of Continuous Quality Improvement (CQI) processes that would evaluate the quality of education and training and improve the teaching-learning methods to ultimately lead the Institute to Excellence.

About the Organizing Department

The department of Computer Science and Engineering established in the year 2009. The growth of the Department of Computer Science & Engineering is taking strides in strength and in facilities every year.

The Department offers a four-year course of a Bachelor's Degree (B.Tech) in Computer Science and Engineering with an intake of 180 seats.

The Department is accredited by National Board of Accreditation (NBA) in the year 2018. The Department is known for its reputed faculty having expertise in diverse fields. The students are primarily trained here to leverage computer software and hardware efficiently. The students of the department actively participate in co-curricular and extra-curricular activities.

The Department collaborated with premier IT Industries for providing Internships, Guest Lectures and Workshops on Cutting Edge Technologies to the students. The department enforced association with professional societies like IEEE, CSI, ISTE, etc.

Location: 10 Kms from Uppal X Road.

Courses Offered:

The college offers B. Tech Program in CSE, CSE (AIML), CSE (DS), IT, ECE, CIVIL. The college offers B. Pharmacy and Management Programs. The college also offers a post-graduate program M. Tech in VLSI & Embedded Systems.

About Workshop:

The main aim of organizing the fdp is to give the awareness and knowledge of "Data Science" to all the participants providing hands-on experience in terms of programming and modeling skills among the faculty participants for analysis and design of Python Based evaluation of models.

Course Contents

This program will focus on Data Science algorithms and helps to implement them in Python. It also gives exposure to visualization, and performance evaluation techniques using Python. The major topics to be covered are:

- ✓ Classification Models.
- ✓ Clustering Models.
- ✓ Regression Models.
- ✓ Matplotlib, Seaborn.
- ✓ Data distribution analysis, etc

Course Objectives:

- ✓ As a refreshment program for faculty to enhance their skills in Python.
- ✓ Faculty are trained to develop in-house Data Science projects.
- ✓ Faculty be able to gain knowledge and continue their research related to Data Science.
- ✓ To gain knowledge of how to do data predictions, analyze the predicted data

Resource Persons:

The resource persons is from ICT Academy.

Eligibility

Faculty from Department of CSE / CSE (AIML) / CSE (DS) / IT Engineering Disciplines.

Registration Fee: NIL

Google Form Registration Link:
<https://forms.gle/WNBM6ZskU3BNXTs36>

Event Dates:

07th Aug to 11th Aug, 2023

Important Information:

- ✓ Interested candidates shall submit the duly filled-in Registration Form.
- ✓ The applications will be short listed on first come first serve basis.
- ✓ Certificates will be issued to those faculty who attend all the sessions.

Introduction

The main aim of organizing this FDP was to give the awareness and knowledge of “Data Science” to faculty because Data science is an ever-evolving field, using algorithms and scientific methods to parse complex data sets. For any given complex data set, data analysis is to identify, analyze, and interpret trends or patterns which is helpful in filtering and cleaning data. Data Science is a multidisciplinary approach that combines principles and practices from the fields of mathematics, statistics, artificial intelligence, and computer engineering to analyze large amounts of data. This course builds confidence in using Python, preparing participants for more advanced study in Machine Learning, Artificial Intelligence, and Data Science.

Course Contents

This program will focus on picking the right complexity, preventing overfitting, regularization, assessing uncertainty, weighing trade-offs, and model evaluation.

The major topics to be covered are:

- ✓ Regression models (Linear, Multilinear, and Polynomial)
- ✓ Classification models (KNN, Logistic),
- ✓ Utilizing popular libraries such as Sklearn, Pandas, Matplotlib, and NumPy.
- ✓ Data analysis, data manipulation, and data visualization techniques
- ✓ Apply Python to advanced data science techniques

Course Objectives

- ✓ As a refreshment program for faculty to enhance their skills in Python.
- ✓ Faculty are trained to develop in-house Data Science projects.
- ✓ Faculty be able to gain knowledge and continue their research related to Data Science.
- ✓ To gain knowledge of how to do data predictions, and analyze the predicted data.

Faculty Development Program

Program Schedule

Day 1 - INAUGURATION	
07 th August 2023 10:00 AM – 10:30 AM	Venue: CC – IV, 1 st Floor, NNRG
Day 1 – Session 1	
07 th August 2023 10:30 AM – 01:00 PM	<ul style="list-style-type: none"> Python Fundamentals, Python Basic Concepts Variables and Constants, Control Structures of Python Array Implementation File Methods, Control Structures and Loops
01:00 PM – 02:00 PM	LUNCH
Day 1 – Session 2	
07 th August 2023 02:00 PM – 04:00 PM	<ul style="list-style-type: none"> Datatypes, Keywords, and Identifiers Lab: List, Tuples and its operations Sets, Dictionaries, and its operations String and String manipulation functions
Day 2 – Session 1	
08 th August 2023 09:30 AM – 01:00 PM	<ul style="list-style-type: none"> Global, Local, and Non-local variables, Global Keywords and Namespaces, Function and Operator. OOPS Concepts in Python Classes and Objects Lab: Inheritance and Multiple Inheritance
01:00 PM – 02:00 PM	LUNCH
Day 2 – Session 2	
08 th August 2023 02:00 PM – 04:00 PM	<ul style="list-style-type: none"> Exception Handling in Python Errors and Exceptions, Tryp, Except, and Finally, User-Defined Exceptions
Day 3 – Session 1	
09 th August 2023 09:30 AM – 01:00 PM	<ul style="list-style-type: none"> Numpy: Introduction to Numpy and its basic operations Numpy mathematical functions Advance indexing, iterating over Array Joint, Split, Search, Sort and Filter
01:00 PM – 02:00 PM	LUNCH
Day 3 – Session 2	
09 th August 2023 02:00 PM – 04:00 PM	<ul style="list-style-type: none"> Broadcasting Numpy arrays Stacking with NumPy Arrays and Broadcasting with NumPy Arrays Lab: Broadcasting Vector Quantization using Numpy
Day 4 – Session 1	
10 th August 2023 09:30 AM – 01:00 PM	<ul style="list-style-type: none"> Pandas: Introduction of Pandas Library, Series, Data Frames and Read Files using pandas Transformation of Data using Pandas Data cleaning, Working with missing data Boolean Indexing and Universal functions
01:00 PM – 02:00 PM	LUNCH

Day 4 – Session 2	
10th August 2023 02:00 PM – 04:00 PM	<ul style="list-style-type: none"> Transformation of Data using Pandas: Group by, Working with Text Data Panda Series: Creating Pandas Series, Merging, Joining, Concatenation, Working with Date and Time using Pandas
Day 5 – Session 1	
11th August 2023 09:30 AM – 01:00 PM	<ul style="list-style-type: none"> Pandas: Randomly Sample Rows – Selecting Random Samples, Duplicate Data, Query method(), Categories, Vectorization in Python Matplot, Seaborn, and SciPy: Categories, Vectorization in Python, Statistics and Probability concepts for data science
01:00 PM – 02:00 PM	LUNCH
Day 5 – Session 2	
11th August 2023 02:00 PM – 03:30 PM	<ul style="list-style-type: none"> Matplot, Seaborn, and SciPy: Sampling and Types of Sampling Techniques, MATPLOTLIB, Subplots and Legends Plot Lines, Multiples, Opacity, Bar plots and their types, Pie chart, Seaborn and its styles and SciPy
Day 5 – VALEDICTORY	
11th August 2023 03:00 PM – 04:00 PM	Venue: CC - IV

The course is designed to provide knowledge on Data Science with Python, Python fundamentals, OOPS Concepts in Python, Concepts of Data visualization, and Machine Learning algorithms.

Outcome: Illustrate different concepts of visualization, Machine Learning Algorithms in Data Science.

Hardware Requirements

- i3 or above Processor is required.
- 4 GB or above RAM is recommended.
- Good Internet Connectivity
- OS – Windows 10 is Preferable
- Projector



NALLA NARASIMHA REDDY
Education Society's Group of Institutions–Integrated Campus
(Approved by AICTE & PCI, New Delhi & Affiliated to JNTUH, Accredited by NAAC with A+ Grade)
Chowdariguda (V), Korremula 'X' Road, Ghatkesar (M), Medchal-Malkajgiri (D), Hyderabad - 500088, Telangana.
(UGC AUTONOMOUS INSTITUTION)

School of Engineering
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

FDP No.
1,897

Organizing
ICTACADEMY

Faculty Development Program on
Data Science with Python

Date : 07 - 11 August 2023
Venue: CC-IV, 1st Floor, NNRG

Faculty Development Program Poster

FDP Participation List

SL No	Faculty Name	College Name
1	Dr. Abdul Ahad	Anurag University
2	G. Swetha	CMR Engineering College
3	Swathi Tamma	CMR Engineering College
4	Karla Rajkumar	Megha Institute of Engineering and Technology for Women
5	Sabbineni Venkateswara Rao	Megha Institute of Engineering and Technology for Women
6	Panchareddy Nishitha	MLR Institute of Technology
7	Soleti Navya	MLR Institute of Technology
8	Ch. Sudheer	Nalla Narasimha Reddy Group of Institutions
9	Cholleti Jyothi	Nalla Narasimha Reddy Group of Institutions
10	Gangadevi Manasa	Nalla Narasimha Reddy Group of Institutions
11	K. Ashok Kumar	Nalla Narasimha Reddy Group of Institutions
12	K. HariPriya	Nalla Narasimha Reddy Group of Institutions
13	Kasula Saidulu	Nalla Narasimha Reddy Group of Institutions
14	M. Pooja	Nalla Narasimha Reddy Group of Institutions
15	M. Praneeth Kumar	Nalla Narasimha Reddy Group of Institutions
16	M. Sonia	Nalla Narasimha Reddy Group of Institutions
17	Murthujavali B	Nalla Narasimha Reddy Group of Institutions
18	N. Samatha	Nalla Narasimha Reddy Group of Institutions
19	P. Ashwini	Nalla Narasimha Reddy Group of Institutions
20	P. Shiva Shankar	Nalla Narasimha Reddy Group of Institutions
21	Polisetty Santhi Priya	Nalla Narasimha Reddy Group of Institutions
22	T. Swathi	Nalla Narasimha Reddy Group of Institutions
23	Dr. B. Krishna	Neil Gogte Institute of Technology
24	Dr. P. Venkateswarlu	Neil Gogte Institute of Technology
25	A. Sethu Madhavi	Stanley College of Engineering and Technology for Women
26	N. Raga Chandrika	Stanley College of Engineering and Technology for Women
27	K. Devadas	Teegala Krishna Reddy Engineering College
28	P. Ratna Tejaswi	Teegala Krishna Reddy Engineering College
29	A. Shiva Rama Krishna	Pallavi Engineering College
30	Eedunuri Muralidhar Reddy	Pallavi Engineering College

Date: 14-08-2023

Academic Year: 2023-2024

Activity: Faculty Development Program on “Data Science with Python”

Consolidated Report

As per the schedule in the department’s academic plan, an FDP on “**Data Science with Python**” was conducted from **07-11-2023** to **11-08-2023** for faculty members. A total of 30 faculty members have actively participated in Faculty Development Program, which 15 faculty from the host institute and the remaining 15 members from other colleges. **K. Raghavendra Swamy**, Senior Technical Trainer, ICT Academy, Hyderabad is the resource person for the FDP.

Day 1 (07-08-2023): Inauguration of the FDP started at 10:00 AM, **Dr. K. Rameshwaraiiah – Convener & Head CSE**, started with a Keynote address by saying the importance of technology in day-to-day life and since we are in the teaching profession, how we need to update our knowledge with the latest technology and make the students practice with the technology, so that, they can be ready for industry requirements.

Dr. G. Janardhana Raju, Dean – SoE, NNRESGI addressed the gathering by saying about the importance of Technology in Day 2 Day life and the role of Python in Data Science.

Mr. Gouse Pasha, Relationship manager, ICT Academy, gave a glimpse about ICT Academy, when & where started, and what services it is providing for Educational Institutes across the country.

Dr. C. V. Krishna Reddy, Director, NNRESGI addressed the gathering by saying the role of the teacher in society and how the teacher needs to update their skills with the latest technology, so that, students can be updated. For students, more practical knowledge must be given so that they are industry-ready.

Ms. P. Santhi Priya, then read the trainer profile of **Mr. K. Raghavendra Swamy**, Senior Technical Trainer, ICT Academy followed by starting the session.

The trainer continued with the session topic of Python Fundamentals, Python Basic Concepts, Variables and Constants, Control Structures of Python, Array Implementation File Methods, Control Structures, and Loops in the Forenoon Session.



GPS Map Camera
Majarguda, Telangana, India
CM23+V38, Majarguda, Telangana 500088, India
Lat 17.40188°
Long 78.652648°
07/08/23 10:14 AM GMT +05:30

Dr. C. V. Krishna Reddy presented the plant to trainer



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CM23+V38, Majarguda, Telangana 500088, India
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Long 78.653012°
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Dr. K. Rameshwaraiah giving a Keynote address



GPS Map Camera
Hyderabad, Telangana, India
CM23+774, Korremula Rd, Hyderabad, Telangana 500088, India
Lat 17.400862°
Long 78.652901°
07/08/23 10:18 AM GMT +05:30

Dr. G. Janardhana Raju addressed the gathering



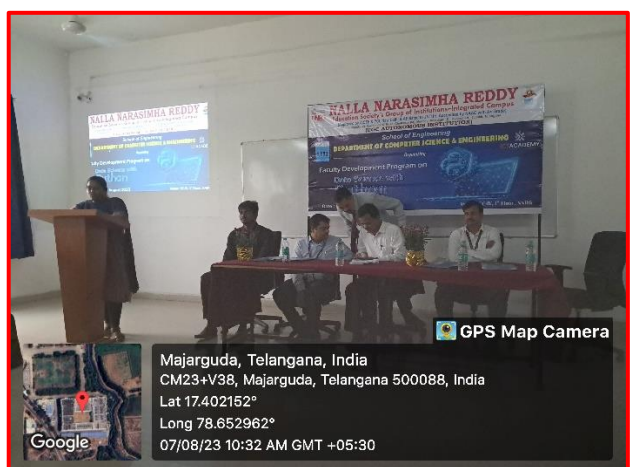
GPS Map Camera
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Mr. Gouse Pasha addressed the gathering



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CM23+V38, Majarguda, Telangana 500088, India
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Dr. C. V. Krishna Reddy addressed the gathering



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Ms. M. Sonia proposing vote of thanks



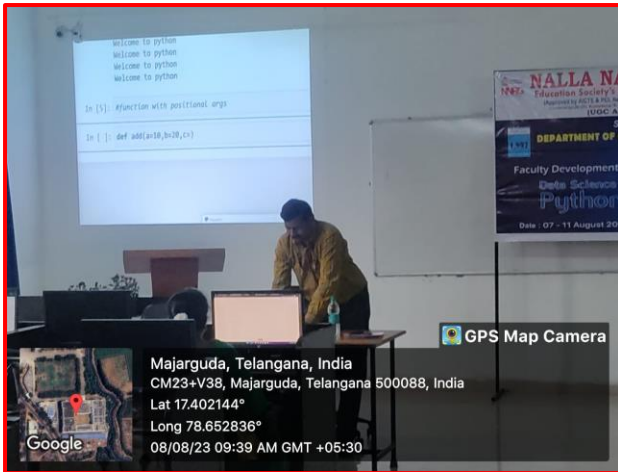
Mr. K. Raghavendra Swamy – Trainer, started the Session in Forenoon.

The trainer continued with the session topic of Datatypes, Keyboards, Identifiers, List, Tuples, its operations Sets, Dictionaries, operations String and String manipulations functions in the Afternoon Session.



Mr. K. Raghavendra Swamy – Trainer, continues the Session in Afternoon.

Day 2 (08-08-2023): The trainer revised the previous day's topic and continued with the Day 2 session 1 topics Global, Local, Non-local Variable, Global Keywords and Namespaces, Function, Operator, OOPS Concepts in Python, Classes, Objects, Inheritance, and Multiple Inheritance, in the Forenoon Session.

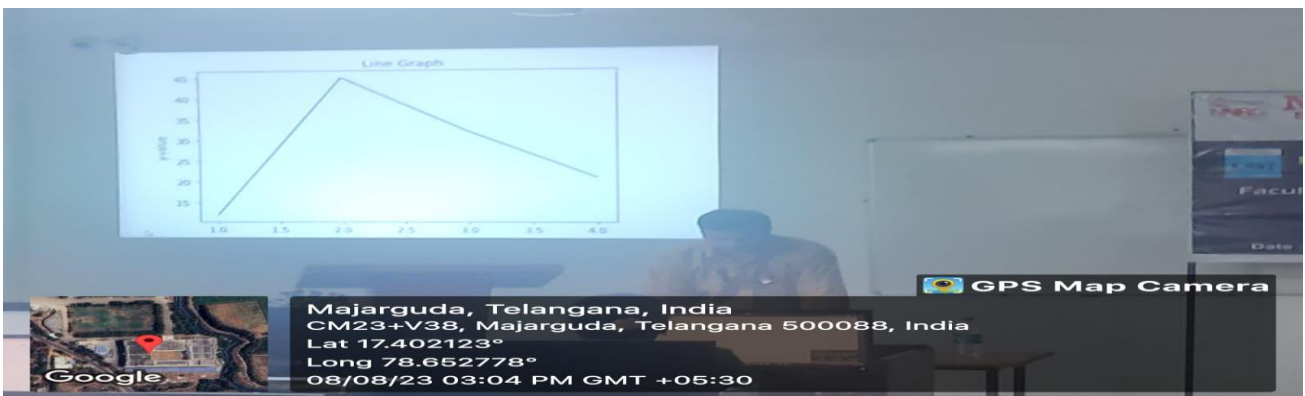
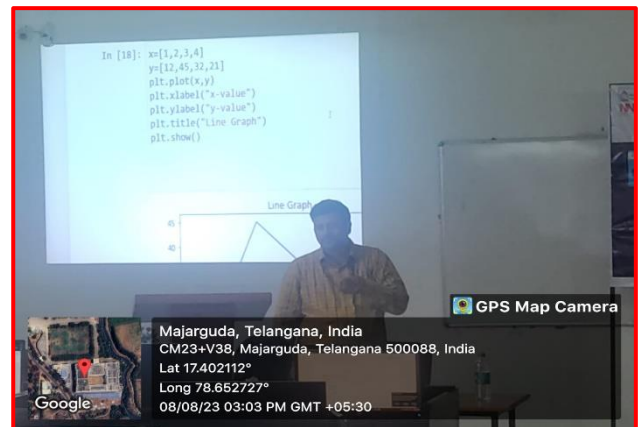
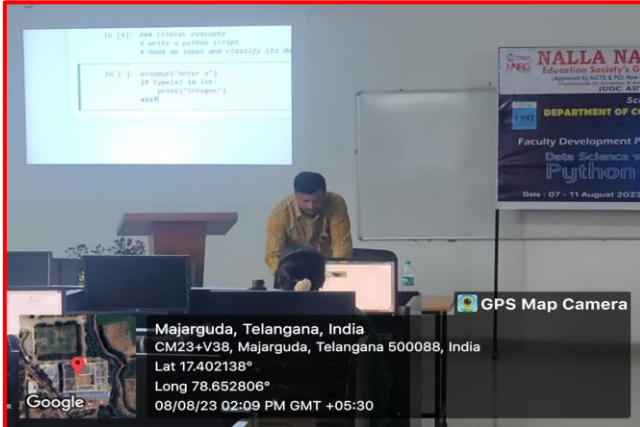


Trainer has started Day 2 Session 1



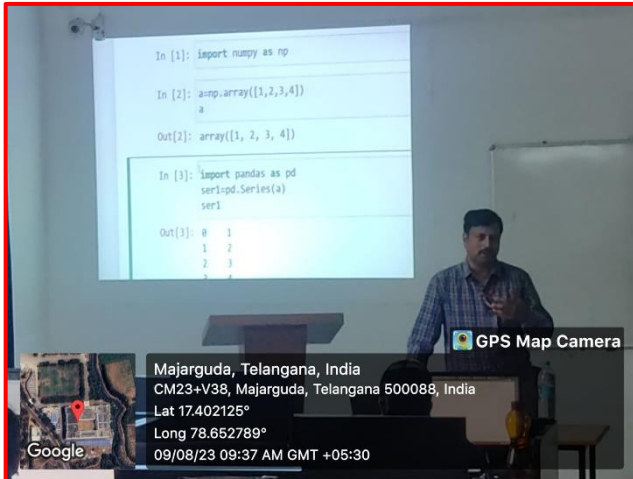
Participant's practicing the task given

The trainer continued the session with topics of Exception Handling in Python, Errors and Exceptions, Tryp, Except, Finally, and User-Defined Exceptions in the Afternoon Session of Day 2.



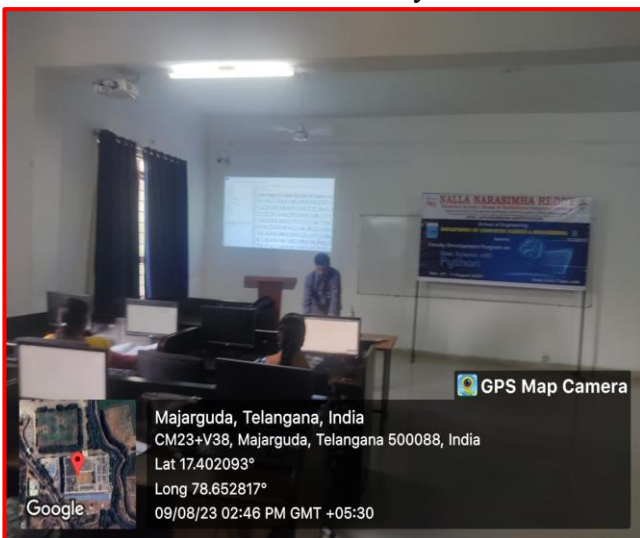
Trainer continued the Session 2 of Day 2

Day 3 (09-08-2023): The trainer revised the previous day's topic and continued with the Day 3 session 1 topics NumPy: Introduction to NumPy and its basic operations, NumPy mathematical functions, Advance indexing, iterating over Array Joint, Split, Search, Sort, and Filter in the Forenoon Session.

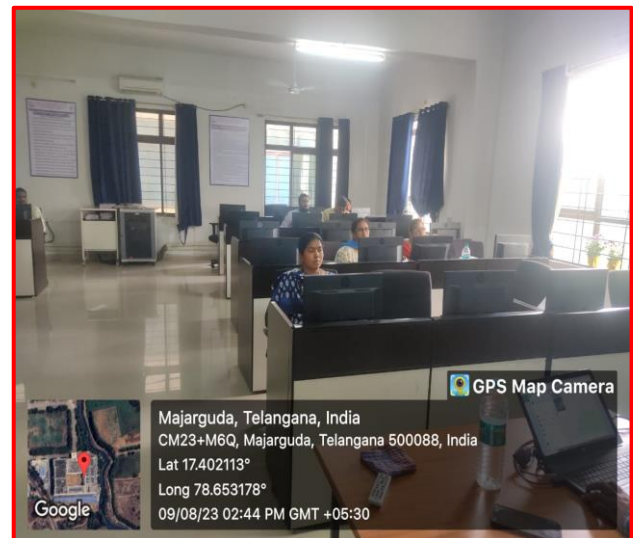


Trainer has started Day 3 Session 1

The trainer continued the session with topics of Broadcasting NumPy Arrays, Stacking with NumPy Arrays, and Broadcasting with NumPy Arrays, Lab: Broadcasting Vector Quantization using NumPy in the Afternoon Session of Day 3.

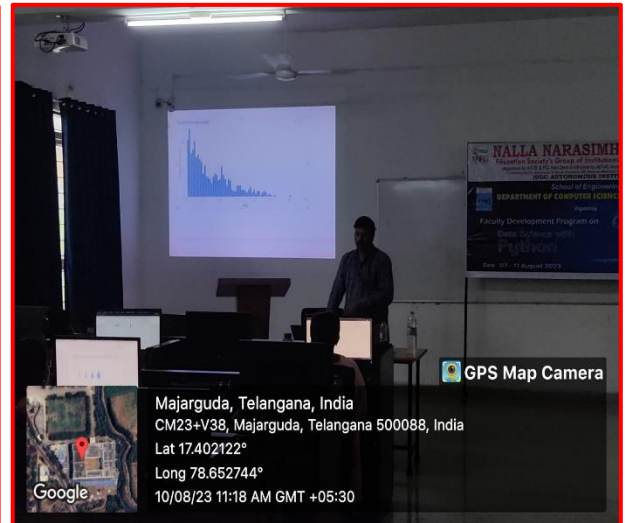


Trainer continued the Session 2 of Day 3

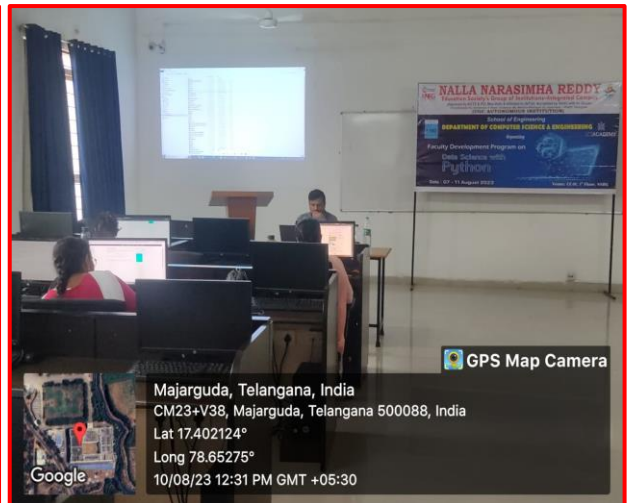
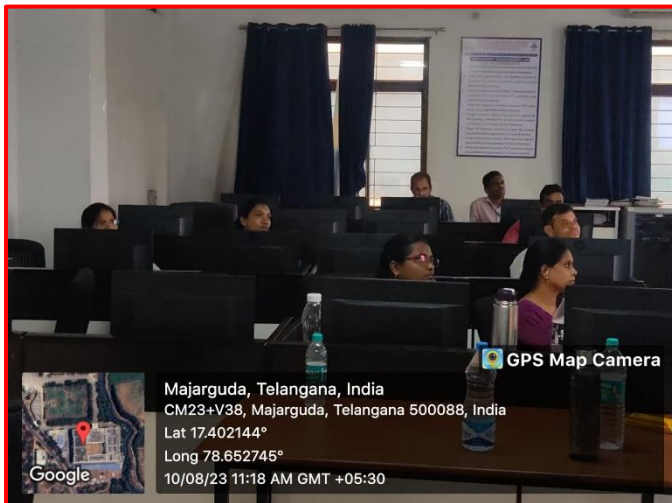


Participant's practicing the task given

Day 4 (10-08-2023): The trainer revised the previous day's topic and continued with the Day 4 session 1 concepts of Pandas: Introduction to Pandas Library, Series, Data Frames, and Read files using Pandas, Transformation of Data using Pandas, Data Cleaning, Working with missing data Boolean Indexing and Universal functions.

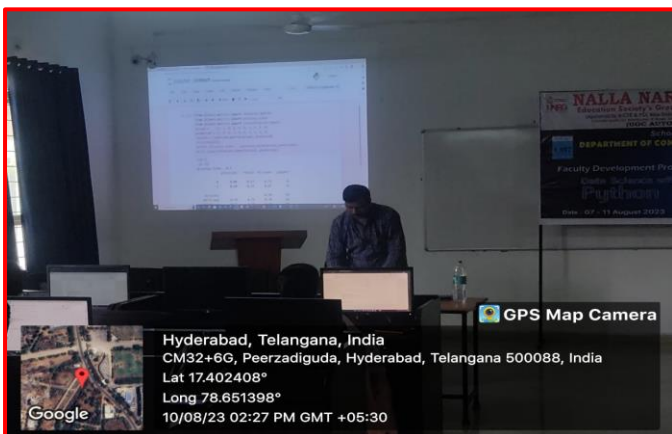


Trainer has started Day 4 Session 1

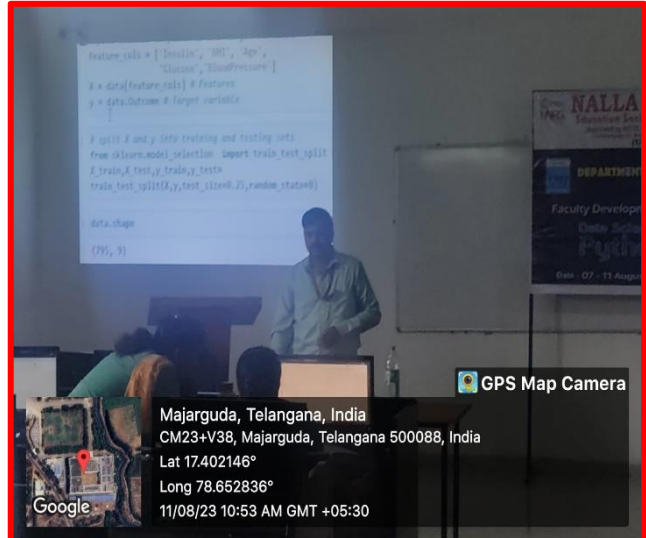
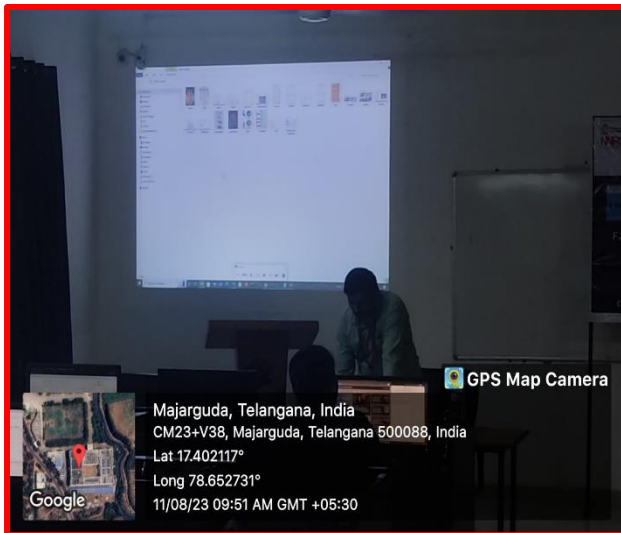


Participants listening to the lectures

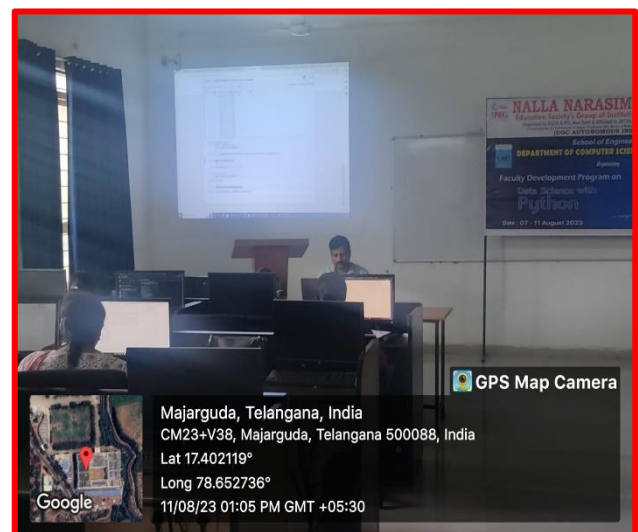
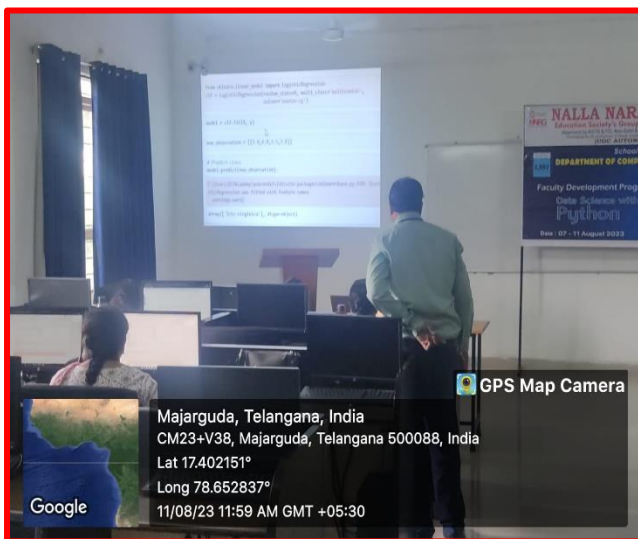
The trainer continued the session with topics of Transformation of Data using Pandas: Group by, Working with Text Data, Panda Series: Creating Pandas Series, Merging, Joining, concatenation, Working with Date, and Time using Pandas in the Afternoon Session of Day 4.



Day 5 (11-08-2023): The trainer revised the previous day's topic and continued with the Day 4 session 1 concepts of Pandas: Randomly Sample Rows – Selecting Random Samples, Duplicate Data, Query method (), Categories, Vectorization in Python, Matplot, Seaborn, and SciPy: Categories, Vectorization in Python, Statistics and Probability concepts for data science.

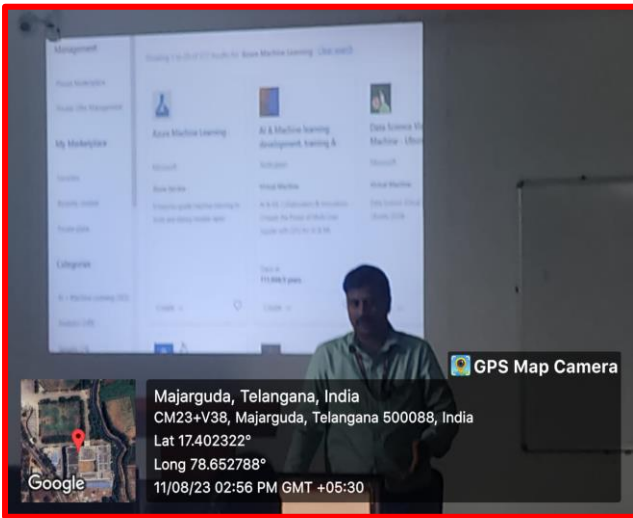


Trainer has started Day 5 Session 1



The trainer clarified the doubts of the Participants

The trainer continued the session with topics of Matplot, Seaborn, and SciPy: Sampling and Types of Sampling Techniques, MATPLOTLIB, Subplots, and Legends. Plot Lines, Multiples, Opacity, Bar plots, and their types, Piechart, Seaborn and its styles, and SciPy.



Participants listening to the lectures

VALEDICTORY PHOTOS



Ms. P. Santhi Priya started the Valedictory Session



Dr. K. Rameshwaraiah, Convener & Head-CSE, concluded the FDP by giving a glimpse of 5-days session

Participation Certificates





Mr. B. Gopal Reddy, State Head – TS & AP, Congratulated all participants for the successful completion of FDP and receiving certificates.



Participants Group Photo

B. H.

HEAD-CSE