

A Report on Faculty Development Programme on Machine Learning using Python

(29th Nov 2018 to 5th Dec 2018)

Organised by

Department of Information Technology

Vasavi College of Engineering (Autonomous), Hyderabad

In association with NIT, Warangal.

Under the scheme of Electronics & ICT Academy

(Sponsored by Ministry of Electronics and Information Technology (MeitY), GOI)

Objective of the Faculty Development Programme:

The programme is designed to enhance the learning and research skills of the participants, to make them aware about modern analytical tools and methodologies. It provides an opportunity to acquire knowledge about current technological developments in relevant fields. The programme mainly focuses on Machine Learning algorithms and their applications with practical approach.

Outcomes of the Faculty Development Programme:

- 1) The participants would gain experience of how to work with data science, graph and social media analytics, as they may work with case studies related to them.
- 2) To gain mere knowledge between structured and unstructured databases.
- 3) To implement Map, Reduce Programming, R programming, unstructured data processing.
- 4) To acquire practical knowledge on different database tools like Spark, MongoDB, Cassandra, NoSQL Databases.

Contents of the Programme:

- Python programming: Introduction
- Vector and array manipulation
- Plotting, functions, input and output
- Hands on session using Python
- Machine Learning: Introduction
- Supervised Vs Unsupervised Learning
- Linear Regression
- Decision Trees, KNN
- Multilayer Neural Network, Back propagation
- Bayesian Networks, SVM
- Clustering: K Means
- Python API's for implementing Machine Learning Algorithms
- Case Studies using Python

Day 1 (29-11-2018)- INAUGURAL SESSION

FDP Session began with inauguration at 10:00 A.M., venue was Project Lab in R-Block, Department of Information Technology, Vasavi College of Engineering.

Dignitaries of the program were Dr. S.V. Ramana, Principal, Vasavi College of Engineering, Prof. K. Ram Mohan Rao, Head, Department of Information Technology and the honourable chief guest Mr. Sri Saya Srineevasulu, Industry Expert, Bangalore has graced the inaugural session by lighting of the lamp.

Mrs. S. Aruna, Associate Professor, Department of IT, VCE addressed the gathering by welcoming guests and all the participants who came from various places.

Dr. K. Ram Mohan Rao, Head, Department of Information Technology, VCE, enlightened the audience by relating current trends of Machine Learning and its purposes in terms of real time applications. He also proposed the objective of this faculty development program in concern to thrust areas of research as well as in relation with academics.

Principal Dr. S. V. Ramana, VCE congratulated all the participants and the organising team, Department of IT good luck.

Chief Guest of the day Mr. Sri Saya Srineevasulu, Industry Expert, Bangalore gave a primary motivation to all the participants regarding the faculty development program, role of EICT academy, encouraging recent trends to fulfil research-oriented industry-academicians.

Vote of thanks of the inaugural was proposed by Mrs. DRL Prasanna, Asst. Prof, FDP Coordinator.



Dr. K. Ram Mohan Rao, HOD-IT, proposing objective of the FDP.

Day 1 & Day 2 (29-11-2018, 30-11-2020 – THURSDAY, FRIDAY)

Day 1 and Day 2 handled by the same resource person

Agenda for Day1:

- 1) Object Oriented Programming with PYTHON: Creating Classes and Objects
- 2) Object Oriented Programming with PYTHON: Multithreading, Errors & Exception Handling
- 3) Database Connectivity with PYTHON: Establishing Database Connectivity MySQL, Oracle
- 4) Database Connectivity with PYTHON: Performing Database Transactions (Inserting, Deleting, and Updating the Database)

Agenda for Day2:

- 1) Advanced Features of Python
- 2) Comprehension and Generators
- 3) Modules, Packages, Standard Python Modules

Resource Person:

Mr. Saya Sreenivasulu has a total of 27+ years of experience in developing software products in large companies and start-ups in various roles. 2+ years of researching and continuously learning multiple topics in Data Science, Machine Learning and Deep Learning using Python, R and associated libraries. 5+ years of research in various Open Source Technologies. Actively contributed to hiring and building a core team of 20+ developers who studied in IITs and IISc through rigorous technical interview process. Currently working in **A Stealth-mode Startup** as a freelance Senior Technical Architect.

In the 2 day sessions handled by Saya Sreenivasulu sir went on with complete hands-on session in Python starting with basic concepts of object oriented programming concepts to advanced concepts like Comprehension and Generators and finally ended with Database connectivity by performing all the database transactions like inserting, deleting, and updating the database.



Mr. Saya Sreenivasulu delivering the lecture

Day 3 (01-12-2018 - SATURDAY)

Agenda for the day:

- 1) Introduction to Machine Learning; Supervised Vs Unsupervised Learning, Examples
- 2) Overview of Classification & Clustering
- 3) Link Prediction
- 4) SVM and PCA
- 5) Bayesian Networks

Resource Person:

Dr. B Nagesh Bhattu, Assistant Professor, Department of Computer Science, NIT Tadepalligudem. He also worked in IDRBT for 5 years as a Training Banking Personnel and Teaching M.Tech Students and guiding research students. His areas of interest are Machine learning, Text mining, data mining.

Day 3 session started with Introduction to Machine Learning and all the topics were covered in detailed with appropriate examples and ended with Bayesian Networks concept.



Dr. B Nagesh Bahhu delivering the lecture

Day 4 & Day 5 (03-12-2018, 04-12-2020 – MONDAY, TUESDAY)

Two-day session is handled by the same expert person

Agenda for the day:

- 1) Overview of Machine Learning packages in Python
- 2) Python APIs for Machine learning Implementation
- 3) Hands-on using Scipy
- 4) Hands-on using Matplotlib
- 5) Case studies using Python.

Resource Person:

Mr. Anup Kelkar, Experienced Chief Information Officer with a demonstrated history of working in the information services industry. Skilled in Guest Lecturing, Python, MongoDB, R, Machine Learning, Business Analytic, Requirements Analysis, and Oracle Database. Strong information technology professional with a Master of Technology (M.Tech.) focused in Computer Science and Engineering from Visvesvaraya National Institute of Technology.

Day 4 and Day 5 Sessions were completely Hands-on sessions went on with the introduction to the concepts of Machine Learning packages in Python and explained very well with the help of a case study using Python.



Day 6 (04-12-2018 - WEDNESDAY)

Agenda for the day:

- 1) Data Analytics using Pandas
- 2) Demos and hands-on using Machine Learning package-Bokeh/Seaborn
- 3) Demos and hands-on using Machine Learning package-Bokeh/Seaborn

Resource Person:

Mr. Surya Putchala is an entrepreneur with a zeal to create Analytics products that bring significant improvements in Business Performance. Passionate about areas related to Data Science, Artificial Intelligence/Machine Learning, High Performance Cluster Computing and Algorithms. Provided thought leading, practical, cutting edge solutions in the areas of BI and Analytics to transform Fortune 500 Clients. Achieved demonstrable results for many clients through consulting and solving complex decision-making environments. Currently the vision behind the comprehensive Data Science Platform called - "ZettaMine". Earlier, architected commercial Analytical Applications for Customer Insight (Capptix) , Product MDM (epaCUBE) and Procurement Optimization (SolPro). His Specialties: Data Science (Machine Learning, Statistical Analysis, Artificial Intelligence, Natural Language Processing), Big Data (Hadoop, Spark, Storm, NoSQL), Technology Transformations (Strategy, Value Articulation, Architecture, Assessments, Portfolio analysis and rationalization), Information Management, Innovation, evangelism and Entrepreneurship.

Session went with valuable information about the case studies in Machine Learning and Data Science and shared about his work and relation with Industry.

The Faculty Development Programme was concluded exam followed by Valedictory function, the dignitaries who graced the occasion were Mr. Krishna Murthy Garu Secretary, Dr. S.V. Ramana, Principal, Vasavi College of Engineering, Prof. K. Ram Mohan Rao, Head, Department of Information Technology, VCE and the chief guest Mr. Surya Putchala, CEO ZettaMine. Program was initiated by Prof. K. Ram Mohan Rao, who addressed the gathering by congratulating all the participants for attending the workshop. Later textbooks distribution to the participants was done by Dr. S.V. Ramana, followed by the feedback of the participants regarding the 6-day Faculty Development Programme. Finally vote of thanks was proposed by FDP coordinator Ms. DRL Prasanna, to all the dignitaries, participants, supporting teaching and non-teaching staff of Department of IT, VCE.



