Course Name : Data Science and Machine Learning using Python (4 weeks)

@ 4 Hours daily

Day 1	**Introduction** • Conceptual introduction to computer Programming • Python- Introduction, History, installation • Various development environments for Python, the concept of data types, variables, assignments, immutable variables • Numerical types, arithmetic operators and expressions, comments
Day 2	**Programming Constructs** • Strings , List/Arrays, Functions and Printing • String Methods, Concatenation, formatting Strings • Numbers- Numeric Operations, Functions Conditions and loops –if/else, while, for • Nested for loops • Functions • Pass, break, continue
Day 3	**Data Structures** • Lists, Tuples and basic list operators, replacing, inserting, removing an element searching and sorting lists • Dictionaries • dictionary literals, adding and removing keys, accessing and replacing values; traversing dictionaries
Day 4-5	**NumPy** • Array types • Computation on NumPy Arrays – Universal functions • Aggregations: Min, Max, etc. • Computation on Arrays: broadcasting • Fancy indexing, sorting arrays • Structured Data, using csv files.
Day 6-8	**Pandas** • Introduction, Pandas objects • Data indexing and selection • Ufunc, Hierarchial Indexing • Combining Datasets- Merge and join • Importing Data from various sources (csv, txt, excel, access etc) • Introduction exploratory data analysis (EDA), Data wrangling • Database Input (Connecting to database) • Viewing Data objects - subsetting, methods • Exporting Data to various formats

Day 9-10	**Matplotlib** • Visualization with Matplotlib • Simple line plots, scatter plots • Density and Contour plots – visualizing a 3D functions • Multiple subplots • Tkinter User Interface, Controls, Properties, Events, Displaying graph.
Day 11-14	**Machine Learning** • Introduction, Categories, Role/Future Scope • Introducing Scikit-learn • Hyperparameters and Model Validation • Feature Engineering • Linear Regression, Vector Machine
Day 15-18	**Machine Learning** • Decision Tree • k-means clustering • Multi Class Classification-Logistic Regression, k Nearest Neighbour • Decision Trees and Random Forests
Day 19-20	**Text Analysis** • Regular Expressions • Natural Language Processing, NLTK • Stemming, Lemmatization, Tokenization, Text Classification, Sentiment Analysis • Image Processing

Total No. of Hours: 80
No. of Theory Hours: 36
No. of Practical Hours: 44
Course Fee : Rs. 8500/- + GST as per prevailing rates i.e. 18%

For further details please contact :

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