Kaushalya Technical Training and Consultancy Services
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Datasciences using Python

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Course Details:

Name	Datasciences using python
Course Duration	80 hours

Datasciences with python has become the hot skill in the industry. It is essential for the graduates and professionals to learn and master these skills. One has to be well versed with python, statistics, mathematics and algorithm to become a data scientist.

Objectives of Training

- Provide minds-on and hands-on training
- Understand Python and its applications
- Understand Data science and how to use python to solve data science problem
- Learn python libraries such as Numpy, Pandas,Matlablib, Scikit learn,Web scraping
- Learn machine learning algorithms
- Build sample datascience project to solve real life problems

Outcome of Training

- Trainees are expected to be well versed with python and its libraries to solve data science problem
- Trainees should be able to independently identify data science problem and build model to solve the problem
- To develop ability to convert algorithm to python code
- Training on Python Data science should enable trainees to solve objective and programming type questions. This would help them to prepare for placements/switch career.

Syllabus

Module	Topics
Module 1 – Introduction to Data Science	✓ Data Science Overview ✓ Data Science ✓ Data Scientists ✓ Examples of Data Science ✓ Python for Data Science
Module 2 – Basics of Python Programming	✓ Introduction to Python and its usage in the industry ✓ Introduction to Anaconda ✓ Installation of Anaconda Python Distribution ✓ Jupyter Notebook Installation ✓ Jupyter Notebook Introduction ✓ Variable Assignment ✓ Basic Data Types: Integer, Float, String, None, and Boolean; Typecasting ✓ Creating, accessing, and slicing tuples ✓ Creating, accessing, and slicing lists ✓ Creating, viewing, accessing, and modifying dicts ✓ Creating and using operations on sets ✓ Basic Operators: 'in', '+', '*' ✓ Functions ✓ Lambda functions ✓ Object Oriented Programming ✓ Regular expression ✓ Database programming ✓ Sample programs and assignment
Module 3 – Web Scraping	✓ Web Scraping ✓ Common Data/Page Formats on The Web ✓ Beautiful Soup for web scraping ✓ Scrape data from few web sites
Modules 4 – Data analytics overview	✓ Introduction to Data Visualization ✓ Processes in Data Science ✓ Data Wrangling, Data Exploration, and Model Selection ✓ Exploratory Data Analysis or EDA ✓ Data Visualization ✓ Plotting ✓ Hypothesis Building and Testing

Module 5 – Statistical Analysis and Business Applications	✓ Introduction to Statistics ✓ Statistical and Non-Statistical Analysis ✓ Some Common Terms Used in Statistics ✓ Data Distribution: Central Tendency, Percentiles, Dispersion ✓ Histogram ✓ Bell Curve ✓ Hypothesis Testing ✓ Chi-Square Test ✓ Correlation Matrix ✓ Inferential Statistics
Module 6 – Mathematical Computing with Python (NumPy)	✓ NumPy Overview ✓ Properties, Purpose, and Types of ndarray ✓ Class and Attributes of ndarray Object ✓ Basic Operations: Concept and Examples ✓ Accessing Array Elements: Indexing, Slicing, Iteration, Indexing with Boolean Arrays ✓ Copy and Views ✓ Universal Functions (ufunc) ✓ Shape Manipulation ✓ Broadcasting ✓ Linear Algebra
Module 7 – Data Manipulation with Python (Pandas)	✓ Introduction to Pandas ✓ Data Structures ✓ Series ✓ DataFrame ✓ Missing Values ✓ Data Operations ✓ Data Standardization ✓ Pandas File Read and Write Support ✓ SQL Operation
Module 8 – Data Visualization in using Matplotlib	✓ Introduction to Data Visualization ✓ Python Libraries ✓ Plots ✓ Matplotlib Features: ▪ Line Properties Plot with (x, y) ▪ Controlling Line Patterns and Colors ▪ Set Axis, Labels, and Legend Properties ▪ Alpha and Annotation ▪ Multiple Plots

	▪ Subplots ✓ Types of Plots and Seaborn
Module 9 – Machine Learning with Python (Scikit–Learn)	✓ Introduction to Machine Learning ✓ Machine Learning Approach ✓ How Supervised and Unsupervised Learning Models Work ✓ Scikit-Learn ✓ Machine Learning Algorithms ○ Linear Regression ○ Logistic Regression ○ Decision Tree ○ Support Vector Machine (SVM) ○ Naive Bayes ○ K Nearest Neighbour (KNN) ○ K-Means ○ Random Forest ○ Dimensionality Reduction Algorithms ✓ Model Persistence ✓ Model Evaluation - Metric Functions
Module 10 – Natural Language Processing with Scikit-Learn	✓ NLP Overview ✓ NLP Approach for Text Data ✓ NLP Environment Setup ✓ NLP Sentence analysis ✓ NLP Applications ✓ Major NLP Libraries ✓ Scikit-Learn Approach ✓ Scikit - Learn Approach Built - in Modules ✓ Scikit - Learn Approach Feature Extraction ✓ Bag of Words ✓ Extraction Considerations ✓ Sentimental analysis
Module 11 - Project	✓ Sample project on data science ✓ Assessment