CLOUD VISION TECHNOLOGIES

# Data Science With Python

**The Best Training Institute in Hyderabad**

# Datascience with Python

## Lesson 1

### Course Introduction :

1.1 Course Introduction

1.2 Demo Jupyter Lab Walk - Through

## Lesson 2

### Introduction to Data Science :

2.1 Learning Objectives

2.2 Data Science Methodology

2.3 From Business Understanding to Analytic Approach

2.4 From Requirements to Collection

2.5 From Understanding to Preparation

2.6 From Modeling to Evaluation

2.7 From Deployment to Feedback

2.8 Key Takeaways

## Lesson 3

# Python Libraries For Data Science :

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3.2 Python Libraries for Data Science

3.3 Import Library into Python Program

3.4 Numpy

3.5 Demo Numpy

3.6 Fundamentals of Numpy

3.7 Numpy Array Shapes and axes Part A

3.8 Numpy Array Shapes and axes Part

3.9 Arithmetic Operations

3.10 Conditional Statements in Python

3.11 Common Mathematical and Statistical Functions in NumPy

3.12 Indexing and Slicing in Python Part A

3.13 Indexing and Slicing in Python Part B

3.14 Introduction to Pandas

3.15 Introduction to Pandas Series

3.16 Querying a Series

3.17 Pandas Dataframe

3.18 Introduction to Pandas Panel

3.19 Common Functions in Pandas

3.20 Statistical Functions in Pandas

3.21 Date and Timedelta

3.22 IO Tools

3.23 Categorical Data

3.24 Working with Text Data

3.25 Iteration

3.26 Plotting with Pandas

3.27 Matplotlib

3.28 Demo Matplotlib

3.29 Data Visualization Libraries in Python Matplotlib

3.30 Graph Types

3.31 Using Matplotlib to Plot Graphs

3.32 Matplotlib for 3d Visualization

3.33 Using Matplotlib with Other Python Packages

3.34 Data Visualization Libraries in Python Seaborn An Introduction

3.35 Seaborn Visualization Features

3.36 Using Seaborn to Plot Graphs

# Lesson 4

## Statistics :

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4.2 Introduction to Linear Algebra

4.3 Scalars and vectors

4.4 Dot product of Two Vectors

4.5 Linear Independence of Vectors

4.6 Norm of a Vector

4.7 Matrix

4.8 Matrix Operations

4.9 Transpose of a Matrix4.10 Rank of a Matrix

4.11 Determinant of a matrix and Identity matrix or operator

4.12 Inverse of a matrix and Eigenvalues and Eigenvectors

4.13 Calculus in Linear Algebra

4.14 Importance of Statistics for Data Scienc

4.15 Common Statistical Terms

4.16 Types of Statistics

4.17 Data Categorization and types of data

4.18 Levels of Measurement

4.37 Probability Distribution Uniform Distribution

4.38 Probability Distribution Bernoulli Distribution

4.39 Probability Density Function and Mass Function

4.40 Cumulative Distribution Function

4.41 Central Limit Theorem

4.42 Bayes Theorem

4.43 Estimation Theory

4.44 Point Estimate using Python

4.45 Distribution

4.46 Kurtosis Skewness and Student's T- distribution

4.47 Hypothesis Testing and mechanism

4.48 Hypothesis Testing Outcomes Type I and II Error

4.49 Null Hypothesis and Alternate Hypothesis

4.50 Confidence Intervals

4.51 Margin of Errors

4.52 Confidence Levels

4.53 T test and P values Using Python4.54 Z test and P values Using Python

4.55 Comparing and Contrastin T test and Z-tests

4.56 Chi Squared Distribution

## Lesson 5

# Data Wrangling :

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5.2 Data Exploration Loading Files Part A

5.3 Data Exploration Loading Files Part B

5.4 Data Exploration Techniques Part A

5.5 Data Exploration Techniques Part B

5.6 Seaborn

5.7 Demo Correlation Analysis

5.8 Data Wrangling

5.9 Missing Values in a Dataset

5.10 Outlier Values in a Dataset

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5.12 Data Manipulation

5.13 Functionalities of Data Object in Python Part A

5.14 Functionalities of Data Object in Python Part B

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## Lesson 6

### Feature Engineering :

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6.2 Introduction to Feature Engineering

6.3 Encoding of Catogorical Variables

6.4 Label Encoding

6.5 Techniques used for Encoding variables

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## Lesson 7

### Exploratory Data Analysis :

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7.3 Plots and Subplots

7.4 Assignment 01 Pairplot Demo

7.5 Assignment 02 Pie Chart Demo

7.6 Key Takeaways

# Lesson 8

## Feature Selection :

8.1 Learning Objectives

8.2 Feature Selection

8.3 Regression

8.4 Factor Analysis

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8.6 Key Takeaways

# Machine Learning

## Lesson 1

### Course Introduction :

1.1 Course Introduction

1.2 Demo Jupyter Lab Walk - Through

## Lesson 2

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2.2 Relationship between Artificial Intelligence, Machine Learning, and Data Science: Part A

2.3 Relationship between Artificial Intelligence, Machine Learning, and Data Science: Part B

2.4 Definition and Features of Machine Learning

2.5 Machine Learning Approaches

2.6 Key Takeaways

## Lesson 3

## Supervised Learning Regression and Classification :

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3.3 Supervised Learning: Real Life Scenario

3.4 Understanding the Algorithm

3.5 Supervised Learning Flow

3.6 Types of Supervised Learning: Part A

3.7 Types of Supervised Learning: Part B

3.8 Types of Classification Algorithms

3.9 Types of Regression Algorithms: Part A

3.10 Regression Use Case

3.11 Accuracy Metrics

3.12 Cost Function

3.13 Evaluating Coefficients

3.14 Demo: Linear Regression

3.15 Challenges in Prediction

3.16 Types of Regression Algorithms: Part B

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## Lesson 4

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4.2 Decision Tree: Classifier

4.3 Decision Tree: Examples

4.4 Decision Tree: Formation

4.5 Choosing the Classifier

4.6 Overfitting of Decision Trees

4.7 Random Forest Classifier Bagging and Bootstrapping

4.8 Decision Tree and Random Forest Classifier

4.9 Demo: Horse Survival

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## Lesson 5

## Unsupervised Learning :

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5.3 Example and Applications of Unsupervised Learning

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5.6 Hierarchical Clustering: Example

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5.9 Optimal Number of Clusters

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6.3 Time Series Pattern Types: Part A

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6.8 Demo: Air Passengers I

6.9 Time Series Models: Part A

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## Lesson 7

# Ensemble Learning :

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## Lesson 8

## Recommender Systems :

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8.3 Purposes of Recommender Systems

8.4 Paradigms of Recommender Systems

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8.8 Association Rule: Mining Market Basket Analysis

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8.11 Apriori Algorithm Example: Part B

8.12 Apriori Algorithm: Rule Selection

8.13 Demo: User Movie Recommendation Model

8.14 Key Takeaways

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