ANALYTICS PATH

Online, Classroom & Corporate Trainings

BECOME AN EXPERT IN

DATA SCIENCE

Artificial Intelligence | Machine Learning | Deep Learning

PROGRAM HIGHLIGHTS

- Practical Hands-on Sessions
- Most Comprehensive Curriculum
- Real-world Skills + Project Portfolio (18+ Case Studies & Projects)
- Designed for the Industry
- Learn Data Science in just 20 weeks
- Top Faculty from the Industry

Learn Data Science Course that gets you HIRED!

www.analyticspath.com

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Tools & Technologies

Python for Data Science

- Python Programming Introduction
- Data Types and Data Structures
- Control Statements
- Functions
- User Defined Functions
- Python Packages
- Numpy, Pandas, Matplotlib

Machine Learning In Python

- Scikit-Learn
- Use Cases And Assignments

R-Programming

- R and R-Studio installation
- Data types and Data structures
- Arithmetic, logical operations
- Conditional statements
- Loops
- Packages and functions in R
- Data Frame operations
- Getting data into R from flat files
- Connecting to databases
- Data Inspection and Manipulation
- Data wrangling and data munging

Tableau – Data Visualization Tool

- Introduction to Tableau Desktop
- Connecting & Blending Data
- Data Manipulation
- Marks Card
- Calculated Fields, Table Calc & Parameters

Introduction to Data Science

Business Statistics

- Probability refresher
- **Descriptive Statistics**
- Measures of central tendency
- Measures of spread
- Distribution
- Different types of distributions : Normal, Binomial and Poisson
- Probability density functions
- Characteristics of normal distribution
- Sampling distribution
- **Inferential Statistics**
- Hypothesis testing (t-test, chi-square)
- Analysis of variance
- Measures of relationship : Correlation, covariance , associations and odds ratio

Exploratory Data Analysis and Visualization

- Summary Statistics
- Data Distributions
- Outlier Detection and Management
- Charts and Graphs
- One Dimensional Charts
  - Histogram • Barchart
- Two Dimensional
  - Scatter Plots • Box Plots
  - Bar Charts (Stack And Dodge)
- Multi-Dimensional Plots
- Inference and Variable Selection
- Fancy Charts-Bubble Charts, Word Clouds

Data Pre-Processing

- Data Types and Conversions
- Binning and Normalization
- Scaling
- Imputation

python tableau TensorFlow Keras R

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Machine Learning

Supervised Learning

Introduction

- Steps in Supervised Learning
- Regression and Classification
- Training, Validation and Testing
- Measures of Performance
- R-Square, Rmse for Regression
- Confusion Matrix
- Accuracy, Precision and Recall
- F-1 Score
- Sensitivity and Specificity
- Roc and Auc

Linear Regression

- Simple Linear Regression
- Cost Functions
- Sum of Least Squares
- Variable Selection
- Model Development and Improvement
- Model Validation and Diagnostics
- Gradient Descent Approach

Classification Logistic Regression

- Variable Selection Methods
- Forward, Backward and Stepwise
- Model Development and Validation
- Measurements of Accuracy
- Interpretation and Implementation

Decision Trees

- Rule Based Learning
- Construction of Rules
- Choosing Variables for Decision Nodes
- Measures of Impurity
- Entropy, Gini Index and Information Gain
- Overfitting and Pruning

Bagging And Random Forest

- Resampling Methods
- Resampling Methods without Replacement
- Resampling Methods with Replacement
- Random Forest

Boosting

- Gradient Boosting - GBM
- Extreme Gradient Boosting - Xgboost

Support Vector Machines

- Maximum Margin Classfier
- Support Vector Classifier
- Support Vector Machines
- Kernels - Linear and Non Linear

Cross Validation

- Leave One Out Cross Validation
- K-Fold Cross Validation
- Cross Validation Usage
- Bias and Variance

Unsupervised Learning

Clustering (Segmentation)

- Hierarchical clustering
- K-means clustering
- Cluster profiling

Dimensionality Reduction Techniques

- Principal Components Analysis
- Singular Value Decomposition(Svd)

Association Rules

- Market Basket Analysis
- APRIORI

Recommender Systems

- Content Based Recommender System
- Collaborative Filterting
  - User Based Collaborative Filtering
  - Item Based Collabarative Filtering
- Matrix Factorization






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Forecasting

- Time Series
- Components of Time Series
- Trend, Seasonality, Randomness
- Additive and Multiplicative
- Holt Winters
- Exponential Smoothing
- Arima
- Arimax

Text Mining

- Unstructured Data
- Text Analytics
- Cleaning Text Data :
  - Tokenization
  - Pre-Processing
- Sentiment Analysis
- Text Classification
- Distance Measures
- Natural Language Processing (NLP)
  - Topic Modeling
  - Named Entity Recognition
  - Feature Extraction

Probabilistic Methods Introduction

- Naive Bayes
- Joint and Condition Probabilities
- Classification Using Naive Bayes Approach

Proof Of Concepts And Use Cases

- Deploying Models on Production
- Machine Learning on Cloud Platforms
- Github (Version Control)

Capstone Project

Artificial Intelligence

Deep Learning

Artificial Neural Networks (ANN)

- Perceptron
- Activation Functions
- Single Layer Perceptron
- Forward & Backward Propogation
- Gradient Descent Optimization
  - Batch • Stochastic • Mini-batch
- Training & Epochs
- Multilayered Perceptron
- Dropout & Dropconnect

Convolutional Neural Newtowrks (CNN)

- CNN for Computer Vision
- Convolution Operation
- Filters & Feature Maps
- Pooling Operation
- Deep CNN
- Padding & Strides
- Training of CNN

Recurrent Neural Networks (RNN)

- Sequential networks
- RNN structure
- BPTT process
- Vanishing & Exploding Gradients
- LSTM
- Word Embedding
  - Glove
  - Word2Vec

Deep Learning Frameworks

- Tensorflow
- Keras

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