Teksands High Impact Series

Data Science and Predictive Analytics Mastery

Course Duration: 20 Hours

Mode of Delivery: Online, LIVE, Instructor Led

20 Hours | 7 Modules | 4 Projects | Additional Resources | Certificate

- Python Language
- Exploratory Data Analysis
- Inferential Statistics
- Developing Visualisations
- Machine Learning Foundations
- Linear Regression with Project
- Logistic Regression with Project

INTENDED AUDIENCE

DEVELOPERS | TECH MANAGERS | LEADERS | ARCHITECTS | STUDENTS

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ABOUT THIS COURSE

Teksands High Impact Series is designed specifically for the busy professionals who would want to develop the maximum understanding on the topics in the shortest time possible. This course uses a completely practical based approach to run through as much as projects/code/demo as possible and explain both the concepts and coding/solutions parts on the go with the demo. The learners are then given additional projects as practice assignments for them to solve them on their own and solidify their understandings.

AUDIENCE

This LIVE Training Course is designed for Technology Professionals and Students wanting to develop a detailed understanding of the applications of Data Science and Predictive Algorithms in Machine Learning using the Python Programming Language.

This is also very suitable for Technology Managers and Leaders venturing into Data Science and Machine Learning areas to develop detailed understanding in a very quick timeframe.

Broadly, the course will be greatly useful for the following individuals or groups:

- **Business Professionals**
  - Business Persons with a General Interest on the application of Data Science, Predictive Analytics and Machine Learning
  - Managers Interested in Delivering a DS/ML/PA Project
- **Academic Professionals**
  - Machine Learning Students in an Undergraduate or Graduate Course
  - Researchers Interested in understanding this Field
  - Researchers Interested in Modelling Their Problem using ML/DS/PA
- **Engineering Professionals**
  - Programmers Interested in Learning and Implementing Algorithms
  - Developers Interested in Delivering One-Off Predictions
  - Engineers Interested In Developing Smarter Software products And Services
- **Data Professionals**
  - Data Scientists interested in Getting Better Answers to Business Questions
  - Data Analysts interested in Better Explaining Data

PRE-REQUISITE

This course uses the **Python** Language for Data Science and Machine Learning Solutions. Although Python is covered in good detail at the beginning, some prior exposure to Programming Languages will be helpful.

TEACHING METHODOLOGY

The Delivery method is **Online, Live Classes** led by Professional, Industry Experienced Instructors.

DURATION

20 Hours.

***Weekday Courses**: Over 2 Weeks, all Weekdays (Monday to Friday), 2 hour Sessions per day.*

***Weekend Courses**: Over 3 Weekends, Saturdays and Sundays, 3.5 hour Sessions per day.*

(Please check your specific course schedule)

PARTICIPANTS EQUIPMENT AND SOFTWARE REQUIREMENTS

1. Laptop with Windows 7, 8, 10 / MacOS / Linux
2. Internet Connectivity
3. Latest Chrome / Firefox Browser
4. Microsoft Excel
5. Python Version 3 or above (https://www.python.org/downloads/)
6. Anaconda Platform (https://www.anaconda.com/distribution/)

CERTIFICATION

Certificates will be issued to every learner based on attendance and successful completion of the Course Quizzes.

LEARNING GOALS

At the end of this course, the learner will be able to understand, analyse and create insights and develop decision/predictions out of business/organisational data using the Python Language, combined with advanced Exploratory Data Analysis techniques, Visualisation techniques and Machine Learning Models.

UNDERSTANDING DATA SCIENCE AND PREDICTIVE ANALYTICS

Data Science, Machine Learning and Predictive Analytics, subsets or branches of Artificial Intelligence have grown prominently in the last few years to solve a wide range of Business problems which were hitherto impossible to be solved through traditional programming methods. These fields have brought in transformational changes in the way business are looking at and using data to develop insights, making decisions and even predicting future.

Definitions of Data Science and Predictive Analytics from Wikipedia:

Data Science is an inter-disciplinary field that uses scientific methods, processes, algorithms and systems to extract knowledge and insights from many structural and unstructured data. Data science is related to data mining, machine learning and big data.

Predictive Analytics encompasses a variety of statistical techniques from data mining, predictive modelling, and machine learning, that analyze current and historical facts to make predictions about future or otherwise unknown events.

USE CASES OF DATA SCIENCE AND PREDICTIVE ANALYTICS

Today, there are amazing applications of Data Science and Predictive Analytics in all spheres of Technology and Business. Massive amount of Automation and Efficiency are being possible in all tech and business domains. It has become almost imperative for every Technology Professional to have some level of understanding of the how to apply Data Science and Predictive Analytics in their field of work. The key reason behind it is that you need to understand and use the data in smart and meaningful ways to drive automation and decision making.

Some of the use cases spanning a number of domains are here:

Recommendation Systems: Your views and transactions on Netflix or Amazon are being analysed and subsequent view or purchase recommendations are displayed to you. This is done through analysis of all transactions of people and creating understanding of their view or purchase behaviours or likings by way of creating models and using these models to predict your next possible move. This is a huge money spinner for all digital businesses selling products and services over the net by understanding and predicting consumer behaviour and driving them towards a likely purchase.

Digital Advertisements: This is another area of Data Science/Prediction techniques that determine the next best advertisement that should be flashed to an individual based on their browsing and search history.

Fraud Detection: Analysing Credit Card or any financial transaction and based on their patterns, understand abnormalities to defect Fraudulent ones. Similar methods are applicable in many different areas, e.g. analysing email patterns to detect spam.

Logistics: For Airlines and Travel Companies, Delivery and Logistics Companies, Data Science and Predictive Algorithms are used to automatically decide on most efficient routes.

Customer Churn Prediction: For any Business, acquisition of new customers are always much more expensive than retaining existing ones. However, churn does happen. Based on Customer churn history and patterns, Predictive Algorithms can detect with a high degree of accuracy as to which customers may churn in future enabling businesses to take actions to retain them.

And there are many more use cases in every domain and that's what makes learning Data Science and Predictive Algorithms an absolute necessity to drive automation, efficiency and decision making in your area of work.

SKILLS DEMAND

With Data Science applications booming through businesses leading to saving costs, better profitability and driving newer business models and products, the demand for these skills have skyrocketed. Literally, every business today is after quality skilled professionals in Data Science and Analytics. Not only they are looking for Data Science and Predictive Analytics skills to create new solutions, but preferring these as must-have skills in all other fields to drive continuous automation and efficiency. Even Business and Operations personnel are today are equipping themselves with foundational knowledge in these areas to save costs through automation.

Some statistics:

70-80% Year on Year New Job Numbers Growth in Data Science and related skills
15-20% Year on Year Average Salary Growth in these fields
85% of the Companies are Investing and expanding their Data Science Teams rapidly
In 2020-21, there is a net shortage of 250,000+ skilled resources in these fields
2 Years is approximate Data Science Staff Tenure in companies

PROFESSIONS / JOB-ROLES IN DATA SCIENCE AND ANALYTICS SPACE

Data Science and Predictive Analytics has served a multitude of functions and job needs and a lot of Job Roles are created in organisations in the last few years. Some of the prominent Job Roles in this space are listed below:

Data Scientist: Data Scientists would have the responsibility of understanding and analysing all the data the organisation has and create Data Driven products and solutions to create businesses processes more efficient, drive automation, create decision systems, future prediction systems, etc.
Data Architect: Data Architects would typically analyse the organisational Data Schemas, design new schemas for newer data driven systems , tune existing data schemas, optimise organisational Mete Data and all data repositories including ETL Systems.
Data and Analytics Manager: Responsible for managing and leading Data initiatives in the organisation, including leadership in ETL programs, Decision Systems programs, leading analytics teams, etc.
Data Analyst: Data Analysts typically gather and analyse data within divisions and organisation for the purpose of building Insights and Analytics solutions and systems using a range of tools, techniques including statistics. This role is highly important for the leadership of any organisation to develop understanding of business trends.
Machine Learning Engineer: Responsible for developing sophisticated Machine Learning Models that are to create various Decision, Prediction, Classification, Clustering systems on Business Data.

All the roles above and the plethora of roles this space is offering are growing rapidly in demand and skills shortfall is even expanding leading to high salaries for every skilled personnel in these fields.

Given “Data is the new Fuel”, demand for professionals in these fields in the many years to come will continue to expand unabated creating massive opportunities for data professionals.

COURSE OVERVIEW

This LIVE course, “Data Science and Predictive Analytics Mastery” will provide 20 hours of intense content to our Learners.

1. **Basics of Python Language** - helps learners to understand the Language Elements of Python and data structures including Pandas and Numpy Libraries. This will enable you to code Machine Learning solutions covered in subsequent chapters.

2. **Exploratory Data Analysis** – learn to make meaning of the data in context of the problem statement and solution. Run a gamut of tools on your data to identify patterns and anomalies, take corrective action to cleanse them before feeding your data to the algorithms.

3. Learn the art of **creating professional Visualisation** for advanced technical analysis of your Input Data. Master Visualisations using two strong libraries – Matplotlib and Seaborn.

4. **Statistics** - Learn Descriptive and Inferential Statistics and their application to Analytics and Machine Learning. Learn to understand data distributions and patterns, rules, inferences and treatments of various distributions. Learn to apply advanced statistical concepts like Hypothesis testing on your data to make complex decisions on a population of data by testing samples.

5. Learn to apply **Linear Regression Algorithm** techniques on prediction problems walking through a real-world project.

3. Learn to apply the **Logistic Regression Algorithm** to understand the foundations of Classification techniques.

The course is completely based on practical approaches of teaching. Learners will have intense exposure to real code and data while learning the concepts on the go. We will also provide you all the codes used in training and also additional problems for you to work on and practice.

The course includes a detailed insight into the how Data is Analysed, Prepared and Presented for Data Science challenges and also incorporates two Machine Learning Algorithms to solve Prediction and Classification problems using Python in a total of 20 hours to give the maximum value to our learners out of their busy schedule.

REAL-LIFE PROJECTS

The following real-life projects will be undertaken as part of the Course:

1. **Exploratory Data Analysis** – you will learn how to perform Univariate and Bivariate Analysis of data from a Micro-Credit organisation to determine what attributes from their credit transactions are influencing the probability of Default by borrowers.
2. **Prediction of a Regression Related problem** – e.g. Car Price or House Price prediction given historical transaction data. You will learn how the Linear Regression algorithm learns patterns and helps predict new Car or House price based on parameters given.
3. **Customer Churn Analysis** – e.g. Predict which customers are likely to leave the current provider based on their behavioural data from past. We will look at a Telecom or Insurance industry case study.

COURSE STRUCTURE

Teksands High Impact Series – Data Science and Predictive Analytics Mastery using Python: 20 Hours. Course structure as follows:

Topics	Hours (20)
Introduction to Python - Python Language elements - Python Data Structures - Working with Numpy and Pandas Libraries	4
Advanced Exploratory Data Analysis - Data Collection and Data Organisation - Understanding Features and Data - Analysis of Patterns - Finding Data Issues - Cleansing Data	3
Data Visualisations using Matplotlib and Seaborn - Understanding Types of Visualisations - Creating Visualisations using Matplotlib Library - Advanced Visualisations using Seaborn	3
Understanding Statistics for Machine Learning and Data Science - Introduction to Statistics - Descriptive Statistics - Normal Distribution - Central Limit Theorem - Understanding Probability - Hypothesis Testing	2
Introduction to Machine Learning - Real Life Use Cases - Types of Learning Algorithms - Measuring Model Accuracy - Using Hyperparameters to Optimise Model Performance	2
Linear Regression with Demo and Assignment - Real Life Use Cases of Linear Regression - Understanding Linear Regression Concepts - Walk through Complete Real Life Industry Project - Measuring Model Accuracy - Real Life Industry Assignment	3
Logistic Regression with Demo and Assignment - Real Life Use Cases of Logistic Regression - Understanding Logistic Regression Concepts - Walk through Complete Real Life Industry Project - Measuring Model Accuracy - Real Life Industry Assignment	3

For more Information, please visit teksands.ai/courses or reach out to us on info@teksands.ai