Faysal Aziz

Data Analytics & Science

FA-0462

Software Development · Data & Analytics

Introduction

Course objective:

More often than not, learners have requirements for some form of data analytics and handling or management of data.. There are also instances where the learner works with data but is unaware of the recent changes and advancement in the world of data science. As a result, when advanced topics in analytics and data management are covered, they are able to grasp the concept, but unable to execute the tasks independently and efficiently.

Keeping that in mind, this course has been designed to cater to the needs of learners who are either new to data science or picking it up as an additional skill. This course will also delve into the various usages of data tools which are otherwise too technical.

Learners often view data science as a simple statistical tool and are unaware of the power that it possesses. It can serve as a supplementary predictive tool as well as a standalone Deep Learning alternative.

This course is here to alleviate those shortcomings and equip the learner with everything they need to know to apply their knowledge into their particular use cases. At the end of this course, the learner will have a working knowledge and executional skills of the following:

1. Review Data types.
2. Learn to classify and interpret data.
3. Understand different forms of data acquisition.
4. Data Extraction and conversion.
5. Learn statistical analytics of data.
6. Understand the usage of Normal Distribution, Standard Deviations, Continuous and Discrete Variables, sampling distribution, Central Limit Theorem and their practical usages.
7. Apply Hypothesis Testing for Means.
8. Apply Hypothesis Testing for Proportions.
9. Use Python to get the basics of Data Analytics.

10. Use simple scripting to present data.
11. Have the ability to visualize data and manipulate them using simple python.
12. Understand how data science delves into Machine Learning.
13. Have basic skills on how to use machine learning for predictions and analytics.
14. Visual Analytics.
15. Have decision making ability with all the data and the science behind it.

Training outline

1. Day 1: Statistics and Probability and tools to use for Data Analytics

2. Types of Data (Numerical, Categorical, Mean, Median, Mode).

3. Using mean, median, and mode in iPython.

4. Variation and Standard Deviation.

5. Probability Density Function; Probability Mass Function.

6. Common Data Distributions (Normal, Binomial, Poisson, etc).

7. Percentiles and Moments.

8. A Crash Course in matplotlib.

9. Advanced Visualization with Seaborn.

10. Covariance and Correlation.

11. Conditional Probability.

12. Bayes' Theorem.

13. Day 2: Real hands on Data Analytics

14. Basic Machine Learning (using Python).

15. Supervised vs. Unsupervised Learning, and Train/Test.

16. Using Train/Test to Prevent Overfitting a Polynomial Regression.

17. Bayesian Methods: Concepts.

18. Practice with:

19. Implementing a Spam Classifier with Naive Bayes.

20. K-Means Clustering.

21. Clustering people based on income and age.

22. Measuring Entropy.

23. Decision Trees: Concepts.

24. Decisions.

25. Assessment,

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