

Data Science

1. Module 1 - Python & Advanced Python (24hrs)

1.1.Introduction to Python

1.2. Data types

1.3.Operators

1.4.Conditional Statements

1.5.Looping statements

1.6.Control Statements

1.7.String Manipulation

1.8.Functions

1.9.Modules

1.10. Input-output

1.11. Exception Handling

- 1.12. OOPS Concepts
- 1.13. Regular Expressions
- 1.14. Multithreading
- 1.15. Functional Programming
- 1.16. Map, Reduce, Filter
- 1.17. List comprehension
- 1.18. Iter tools

2. Module 2 – Introduction to Statistics (10hrs)

2.1. Statistics

2.2. Types of analytics

2.3. Fundamental elements of statistics

2.3.1. Mean

2.3.2. Median

2.3.3. Mode

2.3.4. Variance

2.3.5. Standard deviation

2.3.6. Covariance and correlation

2.4. Research process

2.5. Presentation of data

2.5.1. Introduction

2.5.2. Numerical data

2.5.3. Categorical data

2.5.4. Bi-variate data

3. Module 3 – Probability Concepts (8 hrs)

3.1. Permutations and combinations

3.2. Unions and intersections

3.3. Random experiment

3.4. Sample space

3.5.Events

3.6.Probability axioms

3.7.Conditional probability

3.8.Bayes' theorem

3.9.Random variables

3.10. Discrete and continuous distributions

3.10.1. Uniform

3.10.2. Binomial

3.10.3. Poisson

3.10.4. Normal

4. Module 4 – Data Science and ML (30 hrs)

4.1.Libraries

4.1.1. Numpys

4.1.2. Pandas

4.1.3. Data Frame

4.1.4. Sci-kit

4.2.Exploratory Data Analytics using Python (EDA)

4.3.Data Wrangling

4.4.Data Visualization

4.5.Matplotlib

4.6.Seaborn

4.7.Hypothesis Testing

4.7.1.z-test

4.7.2 t-test

4.7.3.chi-square test

4.7.4.f-test

4.8.Machine Learning

4.8.1. Supervised Learning –

4.8.1.1.Regression

4.8.1.1.1. Simple Linear Regression

4.8.1.1.2. Logistic Regression

4.8.1.1.3. Multiple Linear Regression

4.8.1.1.4. Polynomial Regression

4.8.1.1.5. Decision Tree Regression

4.8.1.1.6. Evaluating Regression Model Parameters

4.8.1.2. Classification

4.8.1.2.1. K Nearest Neighbors (KNN)

4.8.1.2.2. Naive Bayes Classifier

4.8.1.2.3. Decision Tree Algorithm

4.8.1.2.4. Random Forest Algorithm, SVM

4.8.2. Unsupervised Machine Learning –

4.8.2.1. Introduction To Clustering Algorithms

4.8.2.2. K-Means Clustering

4.8.2.3. Elbow Method for the optimal value of k in K-Means

4.8.2.4. Hierarchical Clustering

5. Module 5 – Deep Learning and AI (18hrs)

5.8.Natural Language Processing(NLP)

5.9.NLTK

5.10. Neural Networks

5.10.1. CNN

5.10.2. RNN

5.10.3. LSTM

5.10.4. TFIDF,

5.10.5. Keras

5.10.6. Tensorflow,

5.11. Speech recognition

5.12. Object Detection

5.13. Open Computer Vision (OpenCV)

5.14. Optical Character Recognition (OCR)

6. Module 6 – Data Analytics (15hrs)

6.8. Microsoft Excel

6.9. SQL Commands

6.10. Data visualization – Power Bi

6.10.1. Data modeling

6.10.2. Dashboards options

6.10.3. visualization options

6.10.4. Excel Integration

6.10.5. Dax basics

7. Project