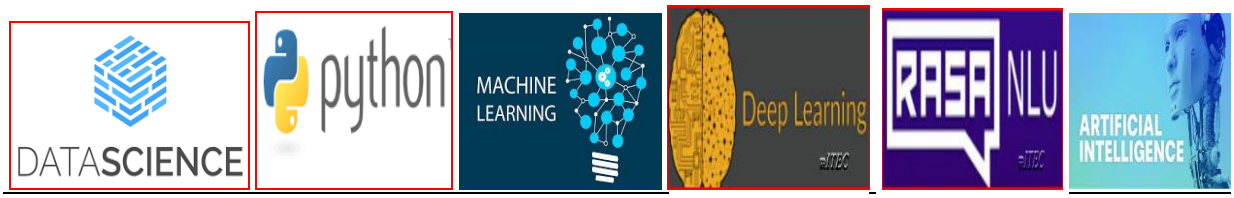


1. Level 01: Basic with Python

1. Python Introduction
2. Anaconda Introduction
3. Anaconda Installation
4. Working with spyder
5. Working with jupyter notebooks
6. Creating github id
7. Working with github repository
8. Python as calculator
9. Data Types
    1. Int
    2. Float
    3. Complex
    4. Str
    5. Bool
10. Converting one data type to other data type
11. List
    1. Define python list
    2. Read list items
    3. Nested lists
    4. Memory allocation of lists
12. Operators
    1. Comparison operators
    2. Boolean operators
    3. Numpy Boolean Operators
    4. Filtering data frame using comparison Operators
13. Control Flows
    1. if … elif … elif … else
    2. While Loop:
    3. For Loop
    4. Nested loops
    5. Enumerate function

2. Level 02: Advanced python

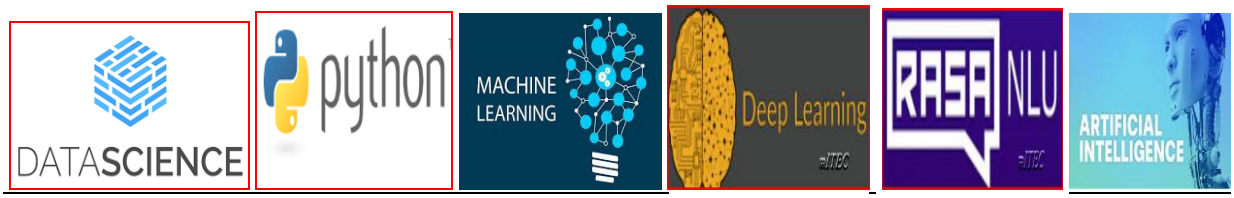
1. Functions
    1. System defined Functions
    2. User Defined Functions (UDFs)
    3. Tuple
    4. Scope of objects in functions
    5. Nested Functions
    6. Default and flexible arguments
2. Methods
    1. List object methods
    2. String object methods
3. Class
4. Modules
5. Packages
    1. User Defined Packages
    2. System defined Packages

6 Dictionary
    1. Get India population using list
    2. Create simple dictionary

6. Lambda functions
7. Syntax Errors and Exceptions
8. Iterables & Iterators
    1. List iterators
    2. String iterators
    3. Range iterators
    4. Dictionary iterators
9. List comprehensions
    1. Simple list comprehensions
    2. List comprehensions to replace nested loops
    3. List comprehensions with condition
10. Generators

3. Level 03: Python packages for Data science

1. NumPy package
    1. Python list vs Numpy list
    2.
    3. Why Numpy List
    4. What is ndarray
    5. Reading numpy list
    6. Converting python list to numpy list
    7. Working with basic statistics
2. Pandas (powerful Python data analysis toolkit)
    1. Introduction
    2. Slicing Dataframe
    3. Filtering Dataframe
    4. Transforming Dataframe
    5. Advanced indexing
    6. Stack and unstack
    7. Groupby and aggregations
3. Matplotlib data visualization
    1. Line Chart
    2. Scatter Chart
    3. Histogram Chart
    4. Multiple plots on single axis
    5. Different line plots on distinct axes using axes
    6. Different line plots on distinct axes using subplot
    7. Different line plots on distinct axes using subplot with 2 * 2 grid
    8. Using xlim and ylim
    9. Using axis to control xlim and ylim at a time
    10. Using legend
    11. Using annotate
    12. Modifying styles
4. Seaborn data visualization
5. Bokeh data visualization
6. Import Data from Flat Files
    1. Delimited flat files
    2. Fixed Flat files
    3. Working with MNIST data
    4. Using numpy to import files
    5. Using pandas to import files
7. Import Data from Excel Files
    1. Reading excels
    2. Writing to excels
8. Import SAS and STATA Files
    1. Working with SA files
    2. Working with STATA files
9. Import HDF5 Files
    1. What is HDF5
    2. Reading HDF5 Files
10. Import from Relational Database
    1. About Sqlalchemy
    2. Explore Sqlite chinook database
    3. SQLite basic select query

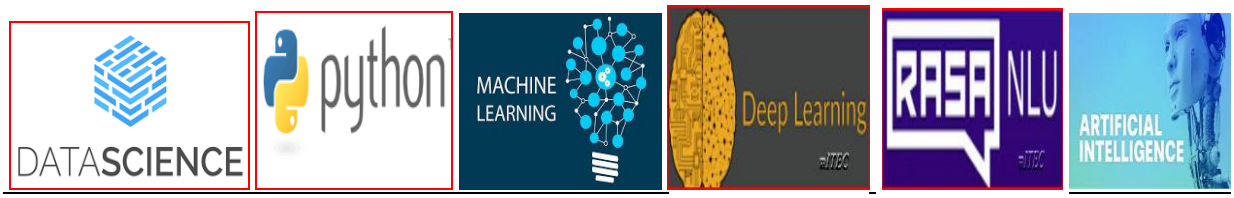


4. SQLite select query using context manager
5. SQLite select query with where and order by clause
6. SQLite query using pandas Vs context manager
7. SQLite database joins

11. Import web data
    1. Working with web data by saving locally
    2. Working with web data without saving locally
    3. Working with web data excel files
12. Import using urllib and requests packages
    1. HTTP requests/responses using urllib package to get html
    2. HTTP requests using requests package to get html
13. Read HTML with BeautifulSoup package
    1. Get HTML using BeautifulSoup package
    2. Get Titles and text using BeautifulSoup package
    3. Get hyperlinks using BeautifulSoup package
14. Import JSON File
15. Movie and Wikipedia APIs
    1. open movie database API
    2. Wikipedia API
16. Twitter API
    1. Create twitter app
    2. Print Public tweets
    3. Know followers
    4. Know mutual contacts
17. Cleaning Data (ETL)
    1. Melt() data
    2. Pivot (un-melting data)
    3. Concatenating
    4. Merge/Joins
    5. Data Types Conversion
    6. Regular expression operations
    7. Dropping duplicate data
    8. Filling missing data
    9. Testing with asserts
18. Time Series Analysis
    1. Diet search trend
    2. Diet, gym and finance search trend
    3. Correlation
    4. Spurious/fake correlation
    5. Auto correlation
    6. Compute the ACF
    7. AR Model
    8. MA Model
    9. ARIMA Model

4. Level 04: Machine Learning models

1. What is Machine learning
2. Difference between regular program and machine learning program
3. Types of Machine Learning
4. What is Supervised learning
5. What is unsupervised learning
6. What is reinforcement learning
7. Neighbours algorithm
    1. Introduction
    2. Minkowski distance
    3. Euclidean distance
    4. Manhattan distance
    5. Hamming distance
    6. K Nearest Neighbours Classification
        1. Measuring model performance
            a. Accuracy score
            b. Confusion matrix
            c. Classification report
            d. ROC
            e. AUC
        2. Hyper parameter tuning with GridSearchCV
    7. K Nearest Neighbours Regression
        1. Measuring model performance
            a. R square
            b. RMSE
        2. Hyper parameter tuning with GridSearchCV
8. Logistic regression
    1. Introduction
    2. Sigmoid curve
    3. Sigmoid equation
    4. Logistic regression model
        1. Measuring model performance
            a. Accuracy score
            b. Confusion matrix
            c. Classification report
            d. ROC
            e. AUC
        2. Hyper parameter tuning with GridSearchCV
9. Linear regression
    1. Linear equations
    2. Nonlinear equations
    3. Linear model
    4. R square
    5. RMSE
10. Ridge and lasso regression
    1. L1 regularization or L2 regularization
    2. LASSO



3. Ridge regression
11. Support Vector Machines (SVM)
    1. Introduction
    2. Mathematic equations
    3. Support Vectors Classification (SVC)
    4. Support Vectors Regression(SVR)
12. Pre-processing of machine learning data
    1. Identify outliers
    2. Remove outliers
    3. Avoid missing values
    4. Working with categorical features
        1. Dummies function
        2. One hot encoder
13. ML Pipeline
    1. Introduction
    2. ML pipeline with outliers and SVM algorithm
14. What is Unsupervised Learning
    1. k-means clustering
    2. Hierarchical Clustering
    3. Dimensionality Reduction
        1. Principal Component analysis (PCA)
        2. Kernel PCA
15. Tree Based Models
    1. What is CART
    2. Decision Tree for classification
    3. Decision tree for refression
    4. Information gain(IG)
        1. Gini
        2. Entropy
    5. Bias
    6. Variance
    7. Trade off
    8. Noise
    9. Bagging
    10. Random Forest
    11. Adaboost
    12. Gradient boosting
    13. Stochastic Gradient Boosting
    14. Tuning tree models
16. Naïve Bayes ML for text classification

5. Level 5: Deep Learning

a. Deep learning
    i. .1 Introduction
b. Forward propagation
c. Activation functions
d. Deeper networks
e. Need for optimization
f. Gradient descent
g. Backpropagation
h. Creating keras Regression Model
i. Creating keras Classification Models
j. Using models
k. Understanding Model Optimization
l. Model Validation
m. Model Capacity

6. Level 6: Project on Keras using Tensor flow frame work

1. Project on keras
2. Working with MNIST data
3. Working with Bees data
4. Identifying Animals

7. Level 7: NLU/NLP/Text Analytics/Text Mining

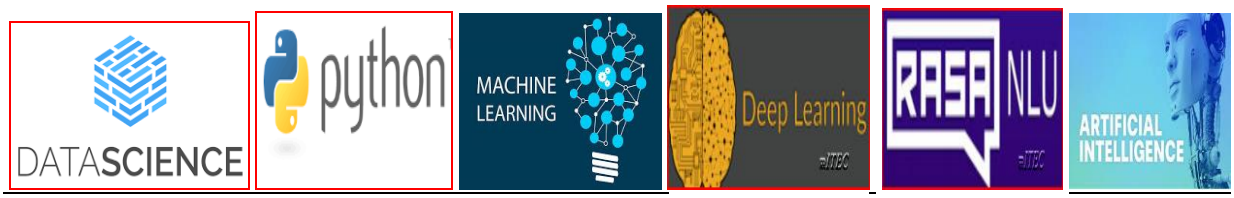
1. Natural Language Understanding
2. Natural Language Processing
3. Introduction
4. Regular Expressions
5. Tokenization
6. Advanced tokenization with regex
7. Charting word length with nltk
8. Word counts with bag of words
9. Text pre-processing
10. Gensim
11. Tf-idf with gensim
12. Named Entity Recognition
13. Introduction to SpaCy
14. Multilingual NER with polyglot
15. building a "fake news" classifier
16. Dialog Flow
17. Wit
18. LUIS
19. Rasa NLU
20. Rasa core
21. Rasa UI
22. snips

8. Level 8: PYTHON Chatbot Project

1. Introduction
2. EchoBot
3. ChitChat Bot
4. Text Munging with regular expressions
5. Understanding intents and entities
6. Word vectors
7. Intents and classification
8. Entity Extraction
9. Robust NLU with Rasa
10. Building a virtual assistant
    a. 10.1.Virtual assistants and accessing data
    b. 10.2 Exploring a DB with natural language
    c. 10.3 Incremental slot filling and negation
11. Dialogue
    a. 11.1 Stateful bots

9. Statistics

1. Random Variables
2. Probability
3. Sampling Funnel-why And how
4. Measures of central tendency
5. Measures of dispersion
6. Mean, median, mode
7. Variance
8. Standard Deviation
9. Measures of Skewness



1. kurtosis-Graphical Representation
2. Continuous probability distribution
3. Standard Formal Distribution/Z-distribution
4. F-distribution
5. Students t distribution
6. Chi square distribution
7. Discrete Probability Distribution
8. Binomial distribution
9. Negative binomial distribution
10. Poisson distribution
11. Computing Probability from Normal Distribution
12. Building Normal Q-Q plots & its Interpretation
13. Central limit Theorem for sampling Variations
14. Confidence Interval-Computation and analysis
15. Formulating a hypothesis Statement
16. Parametric tests
17. Nonparametric Tests

10. AZURE ML Cloud

1. Nonparametric Tests

11. Orange ML Tool

1. All ML algorithms

12. GitHub

1. Create id
2. Create public repository
3. Sharing code
4. Versioning code

13. Tableau

1. Tableau Desktop
2. Tableau Server
3. Tableau Online

14. Power BI

1. Power BI Desktop
2. Power BI Web