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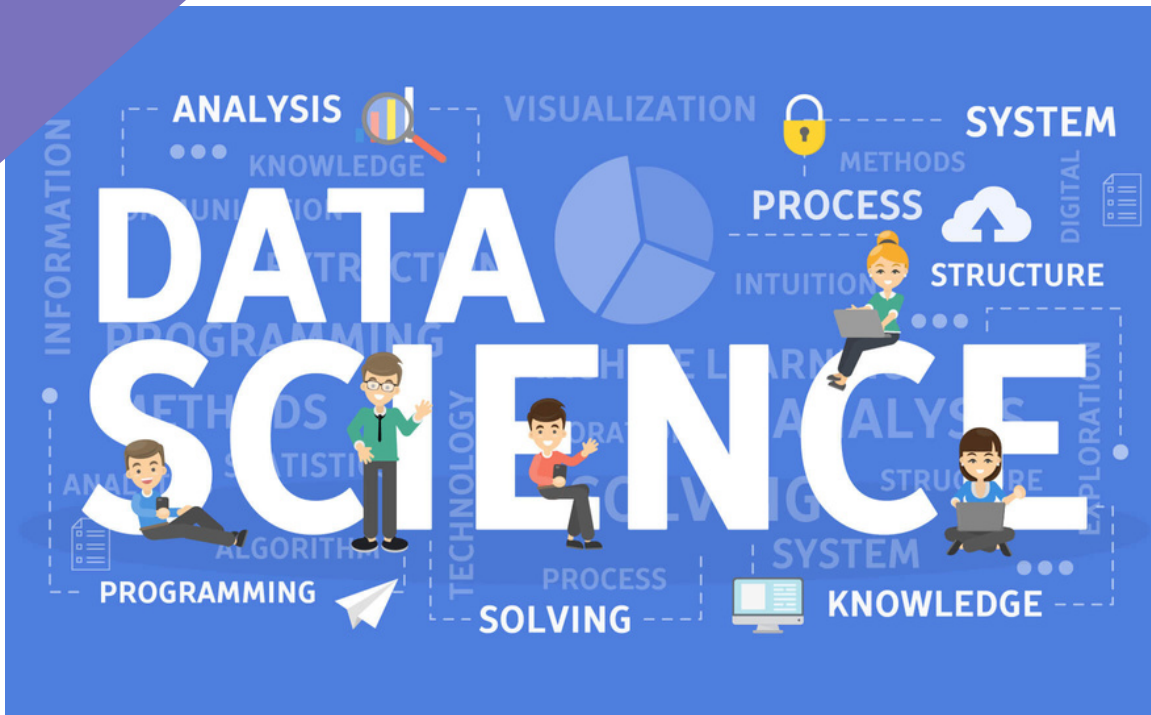
# DATA SCIENCE SYLLABUS

**Prepared For :**  
Eduva Tech

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# Course Outline

## INTRODUCTION TO DATA SCIENCE

- INTRODUCTION TO DATA SCIENCE
- USE CASES
- THE NEED FOR BUSINESS ANALYTICS
- DATA SCIENCE LIFE CYCLE
- DIFFERENT TOOLS AVAILABLE FOR DATA SCIENCE

## ENVIRONMENT SET-UP

- ENVIRONMENT SET-UP  
PYTHON  
ENVIRONMENT  
SETUP



## JUPYTER OVERVIEW

- JUPYTER OVERVIEW UPDATES TO NOTEBOOK ZIP
- JUPYTER NOTEBOOKS
- OPTIONAL: VIRTUAL ENVIRONMENTS

## PYTHON CRASH COURSE

- PYTHON CRASH COURSE WELCOME TO THE PYTHON CRASH COURSE
- PYTHON CRASH COURSE - PART 1
- PYTHON CRASH COURSE - PART 2
- PYTHON CRASH COURSE - PART 3
- PYTHON CRASH COURSE - PART 4
- PYTHON CRASH COURSE EXERCISES - OVERVIEW
- PYTHON CRASH COURSE EXERCISES - SOLUTIONS

## PYTHON FOR DATA ANALYSIS - NUMPY

- PYTHON FOR DATA ANALYSIS - NUMPY
- WELCOME TO THE NUMPY SECTION
- INTRODUCTION TO NUMPY
- NUMPY ARRAYS
- QUICK NOTE ON ARRAY INDEXING
- NUMPY ARRAY INDEXING
- NUMPY OPERATIONS
- NUMPY EXERCISES OVERVIEW
- NUMPY EXERCISES SOLUTIONS



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## PYTHON FOR DATA ANALYSIS – PANDAS

- PYTHON FOR DATA ANALYSIS – PANDAS WELCOME TO THE PANDAS SECTION
- INTRODUCTION TO PANDAS
- SERIES
- DATAFRAMES
- MISSING DATA
- GROUPBY
- MERGING JOINING AND CONCATENATING
- OPERATIONS
- DATA INPUT AND OUTPUT

## PYTHON FOR DATA ANALYSIS – PANDAS EXERCISES

- PYTHON FOR DATA ANALYSIS - PANDAS
- EXERCISES NOTE ON SF SALARY EXERCISE
- SF SALARIES EXERCISE OVERVIEW
- SF SALARIES SOLUTIONS
- ECOMMERCE PURCHASES EXERCISE OVERVIEW
- ECOMMERCE PURCHASES EXERCISE SOLUTIONS



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## **PYTHON FOR DATA VISUALIZATION – MATPLOTLIB**



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- PYTHON FOR DATA VISUALIZATION
- MATPLOTLIB WELCOME TO THE DATA VISUALIZATION SECTION
- INTRODUCTION TO MATPLOTLIB
- MATPLOTLIB PART 1
- MATPLOTLIB PART 2
- MATPLOTLIB PART 3
- MATPLOTLIB EXERCISES OVERVIEW
- MATPLOTLIB EXERCISES – SOLUTIONS

## **PYTHON FOR DATA VISUALIZATION – SEABORN**

- PYTHON FOR DATA VISUALIZATION
- SEABORN INTRODUCTION TO SEABORN
- DISTRIBUTION PLOTS
- CATEGORICAL PLOTS
- MATRIX PLOTS
- GRIDS
- REGRESSION PLOTS

## **PYTHON FOR DATA VISUALIZATION – SEABORN**

- STYLE AND COLOR
- SEABORN EXERCISE OVERVIEW
- SEABORN EXERCISE SOLUTION





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## **PYTHON FOR DATA VISUALIZATION – PANDAS BUILT-IN**

- PYTHON FOR DATA VISUALIZATION - PANDAS
- BUILT-IN PANDAS BUILT-IN DATA VISUALIZATION
- PANDAS DATA VISUALIZATION EXERCISE
- PANDAS DATA VISUALIZATION EXERCISE – SOLUTIONS

## **PYTHON FOR DATA VISUALIZATION – PLOTLY AND CUFFLINKS**

- PYTHON FOR DATA VISUALIZATION - PLOTLY
- CUFFLINKS INTRODUCTION TO PLOTLY AND CUFFLINKS
- PLOTLY AND CUFFLINKS

## **PYTHON FOR DATA VISUALIZATION – GEOGRAPHICAL PLOTTING**

- PYTHON FOR DATA VISUALIZATION
- GEOGRAPHICAL PLOTTING INTRODUCTION TO GEOGRAPHICAL PLOTTING
- CHOROPLETH MAPS - PART 1 - USA
- CHOROPLETH MAPS - PART 2 - WORLD
- CHOROPLETH EXERCISES CHOROPLETH EXERCISES - SOLUTIONS





## **DATA PREPROCESSING TECHNIQUE**

- FEATURE ENGINEERING
- TYPES OF VARIABLES: NUMERICAL, CATEGORICAL, DATETIME AND MIXED VARIABLES
- DATA CLEANING STEPS
- COLLECTING DATASETS
- HANDLING MISSING VALUE
- MISSING VALUE IMPUTATION
- STANDARDIZATION AND NORMALIZATION

## **DATA CAPSTONE PROJECT**

- DATA CAPSTONE PROJECT
- WELCOME TO THE DATA CAPSTONE PROJECTS
- 911 CALLS PROJECT OVERVIEW
- 911 CALLS SOLUTIONS - PART 1
- 911 CALLS SOLUTIONS - PART 2
- BANK DATA
- FINANCE DATA PROJECT OVERVIEW
- FINANCE PROJECT - SOLUTIONS PART 1
- FINANCE PROJECT - SOLUTIONS PART 2
- FINANCE PROJECT - SOLUTIONS PART 3



## INTRODUCTION TO MACHINE LEARNING

- INTRODUCTION TO MACHINE LEARNING
- WELCOME TO THE MACHINE LEARNING SECTION!
- LINK FOR ISLR
- SUPERVISED LEARNING OVERVIEW
- EVALUATING PERFORMANCE - CLASSIFICATION
- EVALUATING PERFORMANCE - REGRESSION ERROR
- MACHINE LEARNING WITH PYTHON

## LINEAR REGRESSION

- LINEAR REGRESSION
- LINEAR REGRESSION THEORY
- MODEL\_SELECTION UPDATES FOR SCIKIT LEARNING
- LINEAR REGRESSION WITH PYTHON - PART 1
- LINEAR REGRESSION WITH PYTHON - PART 2
- LINEAR REGRESSION PROJECT OVERVIEW
- LINEAR REGRESSION PROJECT SOLUTION

