



DataTeach.ai

DATA ANALYTICS CURRICULUM

Online/Offline





Module 1: PYTHON PROGRAMMING

Syllabus

Introduction:

- Introduction to python
- Features of python
- Advantages of python over other programming language
- Anaconda installation
- Jupyter notebook Basics

Data Types & Data Structures

- Variables
- Data Types
- Operators
- Strings
- Lists
- Sets
- Tuples
- Dictionaries

Control Flow & Conditional Statements

- Operators
- if
- elif and else statements
- range
- while loops and control flow.

- for loops and nested loops
- pass, break and continue
- Nested loops and list
- dictionary comprehensions.

Functions and Modules

- What is function and types of functions
- Code optimization and argument functions
- Lambda functions.
- Map, filter
- Manual higher order functions & nested functions
- Importing a module
- Namespace & scope of a variable using help() and dir() aliasing or renaming
- Some Important Modules In Python: math module
- random module
- datetime and os module.

Class and Objects

- Create A Class And Objects
- __init__()
- self parameter
- Class Properties
- Instance Properties & Static Properties
- Modifying Object Properties
- Delete Object
- Pass Statements
- 4 pillars of oop
- Inheritance
- Encapsulation
- Polymorphism
- Abstraction
- Multiple dispatch & abc modules.

File Handling

- Errors and Exception Handling,
- Create, Read, Write files
- Operations in File Handling.

Module 2: DATA ANALYSIS USING PYTHON

Syllabus

Numpy - Numerical Python

- Arrays
- Basic Operations In Numpy
- Mathematical Functions Of Numpy
- Numpy With Images
- Advance Numpy.

Data Manipulation with Pandas

- Series and DataFrames
- Data Importing and Exporting through Excel
- CSV Files
- Data Understanding Operations
- Indexing and slicing and More filtering with Conditional Slicing
- Groupby
- Pivot table and Cross Tab
- Concatenating and Merging Joining
- Descriptive Statistics.

- Removing Duplicates
- String Manipulation
- Date Time Manipulations
- Other Forms Of Data xls
- html & json files json normalization
- Missing Data Handling mcar, mar & mnar Visualization & Imputation Of Missing Data Using Pandas
- Merges & Joins, Window Functions Statements.

Data Visualization Using Matplotlib And Seaborn

- Introduction to Matplotlib
- Plotting
- Properties of plotting
- About Subplots
- Line plots
- Pie Chart & Bar Graph.

Exploratory Data Analysis (EDA)

- What is EDA?
- Uni - Variate Analysis
- Bi - Variate Analysis
- More on Seaborn Based Plotting Including Pair Plots
- Catplot
- Heat Maps
- Count plot along with matplotlib plots.

UNSTRUCTURED DATA PROCESSING

- Regular Expressions
- Structured Data and Unstructured Data
- Literals and Meta Characters, How to Regular Expressions using Pandas?
- Inbuilt Methods
- Pattern Matching, flags.

Project (web - scraping)



Module 3: STATISTICS

Syllabus

- Vectors
- Matrices
- Linear Equation
- Vector Norms
- Calculus
- Central Tendency
- Sample V/S Population

- Probability
- Types of Distribution
- Central Limit Theorem
- Hypothesis Testing
- Types of Test
- Anova Test
- Skewness & Kurtosis

Module 4: SQL

Syllabus

Introduction to Basic Database Concepts:

- What is Data, Field, Record and database? ,Limitations of File Management System, Basic Concepts of Advantages of DBMS, Level of abstraction, Database models, Exploring Relational DBMS, Discuss the basic design, theoretical, and physical aspects of a relational database, Understanding Client and Server, What is MySQL?

Introduction to SQL

- MySQL datatypes, Basics of Types of SQL Statements, Create and use Database, Categorize the different types of SQL statements, DDL, DML, DQL, DCL and TCL, Data types in SQL, Exploring DDL Statements on Table

Writing Basic SQL Statement

- . List the capabilities of SQL SELECT statements, Generate a report of data from the output of a basic SELECT statement, Select All Columns, Select Specific Columns, Use Column Heading Defaults, Use Arithmetic Operators, Understand Operator Precedence, Learn the DESCRIBE command to display the table structure, Using Parentheses,

- Defining a Null, Defining a Column Alias, Concatenation Operator, Literal Character Strings, Eliminating Duplicate Rows

Restricting and Sorting Data

- Limiting Rows Using a Selection, Limiting the Rows Selected, Using the WHERE Clause, Character Strings and Dates, Using Comparison Conditions, BETWEEN Condition, IN Condition, LIKE Condition, NULL Conditions, Logical Conditions, AND Operator, Using the OR Operator, Using the NOT Operator, Rules of Precedence, ORDER BY Clause, Sorting in Descending Order, Sorting by Column Alias, Sorting by Multiple Columns

Advance DDL Commands

- Normalization, Create Database objects, Alter Table Statements, Drop Table Statements, Various Constraints, Commit, Rollback, Savepoint, Creating Views.

Working on DML statements

- Data Manipulation Language, Adding a New Row to a Table, The INSERT Statement Syntax, Inserting New Rows, Inserting Rows with Null Values, Inserting Special Values, Inserting Specific Date Values.

- Creating a Script, Copying Rows from another Table

Use of built-in function in SQL

- Conversion Function, Logical Functions, Math Function, Aggregate Functions, String Functions, Date Functions

Working on multiple tables and Retrieve records from multiple tables

- Self-Join, Inner Join, Left Join, Right Join, Cross Join

Working on subqueries

- Using a Subquery to Solve a Problem, Subquery Syntax, Using a Subquery, Guidelines for Using Subqueries, Types of Subqueries, Single-Row Subqueries, Executing Single-Row Subqueries, Using Group Functions in a Subquery, The HAVING Clause with Subqueries, Multiple-Row Subqueries, Using the ANY Operator in Multiple-Row Subqueries, Using the ALL Operator in Multiple-Row Subqueries, Null Values in a Subquery.

Python with MYSQL

- Regex with MYSQL, Regex with Python, Python MySQL Limit: Limit the Result, Start From Another Position, Quick intro of SQLIA, Import, Export, Overview of Cursor and Trigger



Module 5 : POWER BI

Syllabus

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| <ul style="list-style-type: none"> • Intro to Power BI • Basic Charts in Power BI • Maps in Power BI • Tabular Data in Power BI • Cards in Power BI • Filters in Power BI • Slicers in Power BI • Advance Chart in Power BI | <ul style="list-style-type: none"> • Inserting Object in Power BI • BookMark Action in Power BI • Creating Report in Power BI • Publishing Report in Power BI • Service Dashboard in Power BI • Refreshing Data in Power BI and Scheduling | <ul style="list-style-type: none"> • Using Text Functions, Date Functions, Number Functions in Power Query • Appending and Merging Sheet • Columns from example in power query, Conditional ColumnsN • Data Modelling in Power BI • Connecting to MySql |
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TOOLS COVERED



KEY HIGHLIGHTS OF THE TRAINING

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|------------------------------|---------------------------|
| 100+ hours of learning | 20+ Use Cases |
| Instructor-Led LIVE Sessions | Mock Interviews |
| Life-time LMS Access | Learners Community Access |
| LIVE Doubt Resolution | Guaranteed Internship |
| Topic-wise Assignments | Soft Skills |
| Weekly Quizzes | Resume Building |
| Monthly Assessments | 100% Job Assistance |

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