



Data science and Ai course

What all we cover in our course?

Following is the course content

Data science & analysis syllabus

1. **Mathematics**
2. **Python programming**
3. **Machine learning algorithms**
4. **SQL**
5. **Tableau**
6. **PowerBi & MS Excel**
7. **Deep learning & Computer vision**
8. **50+ projects**

Module 1: MATHEMATICS

1. Introduction
2. Basics and central tendency
3. Dispersion
4. Mono variate functions
5. Differentiation
6. Multi variate functions

7. Probability distribution
8. Hypothesis testing
9. Matrix
10. Vector algebra

Module 2: PYTHON

1. Installation
2. Environment setting
3. SDK for code execution
4. Python pros and cons
5. Mutable and immutable categories
6. Data type representation
7. If elif and else
8. While statement
9. Iter and next
10. Break and continue statement
11. Enumerate
12. Range
13. Else in for loop
14. Strings
15. Lists
16. Tuples
17. Dictionaries
18. Types of functions
19. Return statement
20. Function scoping
21. Execution of nested function
22. Types of exception and exception base class
23. Types of except block
24. Optimized exception execution

25. Document strong
26. Inheritance and types
27. Data hiding
28. Decorators
29. Polymorphism
30. Method resolution order
31. Operators in python
32. scope
33. Lambda function
34. Context manager
35. Basic file operation (read, write, append)
36. Tell()and seek()method
37. Change time format
38. Adding hours, minutes, and seconds

Module 3: MACHINE LEARNING

1. Introduction
2. Types of data
3. Raw and processed data
4. Data wrangling
5. NumPy
6. Pandas
7. Data visualization using matplotlib
8. Scikit learn.
9. Data preprocess using pandas.
10. Exploratory data analysis
11. Simple linear regression
12. Multiple linear regression
13. Logistic regression

14. Performance metrics
15. K nearest neighbors
16. Over fitting and under fitting
17. Regularization: ridge and lasso
18. Feature engineering
19. Cross validation
20. Normalization and standardization
21. K-means clustering
22. Principal component analysis (PCA)
23. Decision trees
24. Support vector machine (svm)
25. Random forest
26. Hyper parameter tuning
27. ADA boosting
28. XG boost
29. Industry based projects and implementation

Module 4: Tableau

1. Tableau setup
2. Tableau connecting with server
3. Data manipulation
4. Tableau data types
5. Tableau data extraction
6. Drill down and hierarchies
7. Introduction to charts
8. Measuring and dimensions.
9. BONUS -(working on dataset -1)

Module 5: SQL

1. What is database
2. An overview of SQL
3. RDBMS Concepts
4. Working with data types
5. Setting up Microsoft SQL server
6. Setting up Microsoft SQL server management studio
7. Connecting to a server
8. System database
9. Creating a new database
10. Adding data to a table
11. Backing up and restoring a database
12. Simple SELECT statements
13. WHERE Clause
14. AND & OR Clause
15. ORDER BY Clause
16. GROUP BY Clause
17. HAVING Clause
18. TOP CLAUSE
19. SELECT DISTINCT
20. UNION
21. Functions
22. INSERT statement
23. UPDATE STATEMENT
24. DELETE STATEMENT
25. ALTER TABLE
26. Aliases
27. INNER JOIN
28. OUTER JOIN

- 29. LEFT JOIN
- 30. RIGHT JOIN
- 31. Subqueries
- 32. Indexing
- 33. Primary key

Module 6: Power Bi

Introduction, Basic Concepts

Download and Install Power BI, Quick Look at Power BI Desktop Dec 2022

Create Power Bi Login, Login/Sign in to Power BI

Power BI EcoSystem, Licenses, Desktop Overview

Options & Settings

Covid Data Analysis

Download the data, Overview of Data

Load Data into Power BI, Column Tools

Data Model Property Pane, Check No Join issue

Single Vs Bi-Directional Join

Update Theme

Create Calculated Columns and Measures, Calculate with and Without filter

Expression Functions SUMX, MINX, MAXX

isfiltered, hasonevalue

Table Visual

Conditional Formatting, Data Bars, URL Icon

Matrix, Bar, Pie, TreeMap, Scatter Visuals

Map, Shape Map, Filled Map, Security Settings

Decomposition Tree, Q&A Visual

DAX Earlier

Date Table, Date Table FY Columns

DAX Search, Find, containsstring, containsstringexact

Left, Right, Mid

calculatetable, Summarize, Summarize Vs Groupby, Summarize in Measures

SummarizeColumns, Except, Distinct, Generateseries, Generate, Cross join

all, allselected, removefilters, allexcept

rankx, topn, dynamic topn with numeric parameters

Firstnonblankvalue, Lastnonblankvalue

Distinct count using values/summarize

Time Intelligence Setup

totalmtd, datesmtd, datesqtd, datesytd, Last datesmtd, Last datesqtd, Last datesytd

Trailing Day, Week, Month, Qtr, Year, Year Week, Previousmonth, previousquarter, previousyear

Week on Week, WTD, Half(custom period) Till Date, HoH, Period on Period

DAX offset, isinscope, window, Index

Visual Interaction

Bookmarks

Field Parameter, Measure Slicer, Axis Slicer, Drill Through

Tooltip

Introduction to Power Query

Use First Row As a header, Remove Blank and Duplicates

Power Query UnPivot Data, Pivot Data, Transpose Data, Query Fill Up, Fill Down

Replace Values, Text Operations, Append Tables, Merge Tables

Power Query Custom Column, Extract Data

Column Quality, Profile, and Distribution

Clean File, Publish File, Analyze on Power Bi Service

Create Report in Power BI Service

Service Dashboard

Power Bi Service App, Power BI Dataflow

Live Connection

Tenant Setting

Module 7: Microsoft Excel

Excel formulas for beginners:

1. SUM
2. AVERAGE
3. MAX
4. MIN
5. IF
6. VLOOKUP
7. HLOOKUP
8. COUNT
9. COUNTA
10. CONCATENATE
11. LEFT
12. RIGHT
13. LEN
14. DATE
15. TODAY
16. NOW

Data cleaning tasks and techniques in Excel:

1. Remove Duplicates
2. Trim Whitespace
3. Text to Columns
4. Find and Replace
5. Handle Blank Cells
6. Date Formatting
7. Data Validation
8. Remove Special Characters
9. Deal with Case Sensitivity

10. Correct Data Errors
11. Data Sorting and Filtering
12. Use Data Cleaning Add-Ins
13. Text Functions (e.g., LEFT, RIGHT, MID, FIND)
14. Remove Unwanted Characters
15. Handle Non-Numeric Data in Numeric Columns

10 steps to use a pivot table in Excel :

1. Prepare
2. Select
3. Insert
4. Choose
5. Design
6. Customize
7. Refresh
8. Analyze
9. Create
10. Save

list of dynamic array functions in Excel:

1. FILTER
2. SORT
3. UNIQUE
4. SEQUENCE
5. RANDARRAY
6. SORTBY
7. FILTERXML
8. SEQUENCE
9. XMATCH
10. XLOOKUP

Certainly, here's a list of some of the most important advanced formulas in Excel:

1. *INDEX-MATCH*:
2. *SUMPRODUCT*:
3. *SUMIFS/COUNTIFS/AVERAGEIFS*:
4. *IFERROR/IFNA*:
5. *OFFSET*:
6. *INDIRECT*:
7. *TEXTJOIN*:
8. *CONCATENATEX/DAX functions*:
9. *RANK/PERCENTILE functions*:
10. *TEXT functions (e.g., LEFT, RIGHT, MID, FIND, REPLACE)*:
11. *DATE functions (e.g., DATE, EOMONTH, NETWORKDAYS)*:
12. *ARRAY formulas*:
13. *CUBE functions*:
14. *XNPV/XIRR*:

Macros and basics vba in Excel

Module 8: Deep learning

1. Deep learning
2. Basics
3. Neural networks
4. Activation functions
5. Artificial neural networks
6. Optimization
7. CNN
8. CNN architecture
9. Tensorflow

10. Tensorflow examples
11. Pytorch
12. Pytorch examples
13. Keras
14. Keras examples
15. Recurrent neural networks (RNN)
16. RNN Examples
17. Projects
18. Cost functions

Module 9: Computer Vision

1. Computer vision
2. Open CV
3. Open CV examples
4. YOLO
5. YOLO examples
6. Industry based projects

The syllabus contents may vary a little bit to adjust to market demands