

Search...

Search

LOGIN



TEACHERS | ACADEMIC SCHEMA



Data Analysis and Visualisation Using Python

 Teacher
Anita Patra Category
Core Courses[Description](#) [Teachers](#) [Attendees](#) [Reviews](#)

Course Name : Data Analysis and Visualisation Using Python

Code(Credit) : CUTM 1018(0-1-3)

Course Objectives

- How to tell a story from data
- How to marshal the data for storyline
- The ability to develop visualisation to tell the story
- The focus is on analysis of data using visualisation as a tool

Learning Outcomes

- To create impactful visualisation with good story line.

Course Syllabus

Module-I

STORY BOARD DEVELOPMENT

The objective and flow of the story to be understood through cases

Module-II

DATA READING USING PYTHON FUNCTIONS

Python libraries: Pandas, NumPy, Plotly, Matplotlib, Seaborn, Dash

Data collection from online data sources, Web scrap, data formats such as HTML, CSV, MS Excel, data compilation, arranging and reading data, data munging

Module-III

DATA VISUALISATION USING PYTHON LIBRARIES

Different graphs such as Scatterplot, Line chart, Histogram, Bar chart, Bubble chart, Heatmaps etc.

Dashboard Basics – Layout, Reporting, Infographics, Interactive components, live updating

Projects List

1. World Development Indicators
2. IPL matches

3. IBM HR Analytics
4. Statewise Analysis Socio Economic Indicators
5. Analysis of Lawn Tennis Tournaments
6. World Cup
7. FIFA cup
8. Status of Micro Small Medium Enterprises in India
9. Crime Against Women
10. Tourism in India
11. Loan/Credit Analysis
12. Indian Budget Analysis
13. Handlooms in India
14. Crimes in India
15. E-commerce
16. NIRF Results
17. Results Analysis of CUTM students (last five year passed out students)
18. Malnutrition
19. Population
20. Performance of Indian Movies
21. Crop Production in India
22. Sales in Super Markets

Project-2

23. ERP dashboarding
24. Details of Social/ Empowerment schemes of Govt. etc.
25. COVID 19

References:

<https://www.programmer-books.com/wp-content/uploads/2019/04/Python-for-Data-Analysis-2nd-Edition.pdf>

<https://towardsdatascience.com/data-visualization/home>

Reading materials and videos available on internet on how to use ANACONDA, JUPYTER NOTEBOOK and Python Libraries

Session Plan

Session 1

Course objective, outcome, methodology and assessment.**Why data visualisation**

<https://www.youtube.com/watch?v=YaGqOPxHFkc>

<https://www.youtube.com/watch?v=3JWK5gRI9p0>

PPT: Introduction to Data Analytics & Visualization using Python

Session 2

Story telling using Visuals & Infographics**PPT** Story Boarding

<https://venngage.com/blog/9-types-of-infographic-template/#1>

<https://www.edugrad.com/tutorials/learn-data-visualization-using-python/15>

<https://towardsdatascience.com/storytelling-with-data-a-data-visualization-guide-for-business-professionals-g7d50512b407>

Tips on good visuals

<https://statedashboard.odisha.gov.in/>

<https://data.gov.in/>

<https://www.youtube.com/watch?v=4pymfPHQ6SA>

Project Groups:

Students will be divided into groups and assigned projects (Projects are listed below). Each group will do two projects.

Session 3

Practice

Environmental setup - Anaconda and Jupyter notebook, Anaconda Navigator and Libraries Installation

<https://www.youtube.com/watch?v=beh7GE4FdnM>

PPT: Python Libraries

Session 4 & 5

Practice

Python Fundamentals, Use Case - Data Analysis, Exploring and learning assignments on Jupyter Notebook

<https://towardsdatascience.com/data-visualization-say-it-with-charts-in-python-138c77973a56>

<https://towardsdatascience.com/plotting-with-python-c2561b8c0f1f>

<https://towardsdatascience.com/introduction-to-data-visualization-in-python-89a54c97fbed>

Types of Visualisation: <https://python-graph-gallery.com/>

Basic of Python: https://www.w3schools.com/python/numpy/creating_arrays.asp

Session 5 & 6

Project - 1

For Project -1, the student group has to define the objective/s of the study, identify the data that will be needed and the source of such data

Make Presentations groupwise

Session 7, 8 & 9

Practice

Data collection/importing and reading using Python function of different types of files, i.e. CSV, HTML, Excel - Get CSV data files from source and read them, get HTML file and read, Get Excel sheet and read

<https://perso.telecom-paristech.fr/eagan/class/igr204/datasets>

<https://www.youtube.com/watch?v=eWFwe41LyWk>

<https://towardsdatascience.com/wrangling-data-with-pandas-27ef828aff01>

<https://www.youtube.com/watch?v=ndwuUzgAiPY>

<https://www.youtube.com/watch?v=Ycq3sDg6jio>

Sorting data, Missing values & Munging data

<https://www.youtube.com/watch?v=-dwjEFv2R5o>

<https://www.youtube.com/watch?v=EaGbS7eW/Sso>

<https://www.youtube.com/watch?v=T11QYVfZoDo>

<https://www.askpython.com/python/python-csv-module>

Session 10 & 11

Project - 1

Data collection and sorting for the assigned project

Pandas Tutorial 1. What is Pandas python? Introduction and Installation- <https://www.youtube.com/watch?v=CmorAWRsCAw>

Pandas Tutorial2. Dataframe and Series Basics- Selecting row and column- <https://www.youtube.com/watch?v=zmdjNSmRXF4>

Pandas Tutorial 3: Different Ways Of Creating DataFrame - <https://www.youtube.com/watch?v=3koHbcUGErE>

Python Pandas Tutorial 4: Read Write Excel CSV File- <https://www.youtube.com/watch?v=-oNwrcZOKhQ>

Importing data in python - Read excel file - <https://www.youtube.com/watch?v=lco-r5CgvhY>

Pandas Tutorial 8 | How to import HTML data in Python | Importing HTML data in Python - <https://www.youtube.com/watch?v=ndwuUzgAiPY>

Pandas Tutorial 13. Crosstabs - <https://www.youtube.com/watch?v=LkUj-MFYys>

Session 12 & 13

Practice

Basics of Numpy

<https://www.youtube.com/watch?v=xECXZ3tyONo>

Complete Python NumPy Tutorial (Creating Arrays, Indexing, Math, Statistics, Reshaping) - <https://www.youtube.com/watch?v=GB9ByFAIAH4>

PPT Basic of Numpy

Session 14 & 15

Practice

Basic of Pandas

<https://www.youtube.com/watch?v=dcqPhpY7tWk>

https://www.tutorialspoint.com/python_pandas/python_pandas_pdf_version.htm

Session 16 & 17

Practice

Basic of Matplotlib

Different Graphs: plots

<https://www.youtube.com/watch?v=MbKrSmoMads&pbjreload=10>

Matplotlib Tutorial 1 - Introduction and Installation- <https://www.youtube.com/watch?v=qqwf4Vuj8oM>

Matplotlib Tutorial 2 - format strings in plot function - <https://www.youtube.com/watch?v=z15qPnqps8M>

Matplotlib Tutorial 3 - Axes labels, Legend, Grid- <https://www.youtube.com/watch?v=oETDriXgn1w>

Matplotlib Tutorial 4 - Bar Chart - <https://www.youtube.com/watch?v=iedmZlFxfA>

Matplotlib Tutorial 5 - Histograms - <https://www.youtube.com/watch?v=r75BPh1uk38>

Matplotlib Tutorial 6 - Pie Chart - <https://www.youtube.com/watch?v=GOuUGWGUT14>

Matplotlib Tutorial 7 - Save Chart To a File Using savefig - <https://www.youtube.com/watch?v=XLJHkCn48IM>

Plotting real-time data using Python - <https://www.youtube.com/watch?v=GlywmJbGH-8>

Session 18, 19, 20 & 21

Project (work on Project -1)

Work on the projects assigned using Python Libraries

Pandas Tutorial 1. What is Pandas python? Introduction and Installation- <https://www.youtube.com/watch?v=CmorAWRsCAw>

Pandas Tutorial 3: Different Ways Of Creating DataFrame - <https://www.youtube.com/watch?v=3koHbcUGErE>

Python Pandas Tutorial 4: Read Write Excel CSV File

<https://www.youtube.com/watch?v=-oNwrcZOKhQ>

Importing data in python - Read excel file - <https://www.youtube.com/watch?v=lco-r5CgvhY>

Pandas Tutorial 8 | How to import HTML data in Python | Importing HTML data in Python - <https://www.youtube.com/watch?v=ndwuUzgAiPY>

Pandas Tutorial 13, Crosstabs - https://www.youtube.com/watch?v=_LkUj-MfYys

Session 22 & 24

Practice

Plotly

<https://plotly.com/python/basic-charts/>

Graphing Library - <https://plotly.com/python/>

Plotly Python - Plotly multi line chart| Plotly Python data visualization- <https://www.youtube.com/watch?v=pfhBbJ2MnMI>

Plotly Data Visualization in Python | Part 13 | how to create bar and line combo chart - <https://www.youtube.com/watch?v=AQG4RQoIUC8>

Plotly Web based visualisation - <https://www.youtube.com/watch?v=Bg11tZFuaOM>

Session 25, 26, 27 & 28

Project (Project-1)

Work on Project

Interim Presentation

Session 29 & 30

Practice

Seaborn - Scatter Chart, Bubble Chart, Gapminder

<https://www.youtube.com/watch?v=MG0cVAOuXxo>

https://www.tutorialspoint.com/seaborn/seaborn_tutorial.pdf

Interactive Data Visualization - <https://www.youtube.com/watch?v=VdWfB3oQTYI>

Session 31 & 32

Practice

Web Scrapping

<https://www.youtube.com/watch?v=mKxFfjNj3c>

Web scraping in Python (Part 4)_ Exporting a CSV with pandas - <https://www.youtube.com/watch?v=Zh2fkZ-uzBU>

Web scraping in Python (Part 2)_ Parsing HTML with BeautifulSoup - https://www.youtube.com/watch?v=zXif_gRVadI

Webscraping - Mode, Median, Mean, Range, and Standard Deviation- <https://www.youtube.com/watch?v=mk8tODot8Mo>

Web Scraping Dynamic Graphs to CSV Files using Python - https://www.youtube.com/watch?v=NYK_1bVoBfU

Session 33 & 34

Practice

Solve the 10 problem (started from session 7)

-students will submit the assignment (in groups)

(upload the assignment ...done by Prof. Ramana)

Session 35 & 36

Practice

Dashboard Basics

<https://www.youtube.com/watch?v=e4ti2fCpXMI>

Create Presentation Slides from Jupyter - <https://www.youtube.com/watch?v=utNIgf3gqYQ>

Dash and Python 1_ Setup -<https://www.youtube.com/watch?v=Ldp3RmUxtOQ>

Dash and Python 2_ Dash Core Components - <https://www.youtube.com/watch?v=NM8Ue4znLP8>

Dash and Python 3_ Using CSS - <https://www.youtube.com/watch?v=xgmUZZ1gdIo>

Session 37 & 38

Practice

Dash (plotly) and Python

<https://www.youtube.com/watch?v=Ldp3RmUxtOQ>

Dash in 5 Minutes - <https://www.youtube.com/watch?v=e4ti2fCpXMI>

How to Create a Slideshow using Jupyter+Markdown+Revealjs- <https://www.youtube.com/watch?v=EOpcxyoRA1A>

ipython dashboard - <https://www.youtube.com/watch?v=LOWBEYDkngo>

Plotting real-time data using Python - <https://www.youtube.com/watch?v=GlywmJbGH-8>

Session 38 & 39

Practice

Interactive charts/Maps using Bokeh,

Dash board using Dash

<https://www.youtube.com/watch?v=o4TB6LTPDaY>

<https://towardsdatascience.com/how-to-build-a-complex-reporting-dashboard-using-dash-and-plotl-4f4257c18a7f>

Session 40 & 41

Practice

IPython-Dashboard

Live graphs

<https://pypi.org/project/IPython-Dashboard/>

<https://pythonprogramming.net/live-graphs-data-visualization-application-dash-python-tutorial/>

Session 42 & 43

Project

Work on Project - 1 to make dash boards

Session 44, 45 & 46

Project

Final presentation of Project -1

Session 47 & 48

Project -2

Start Project - 2 (ERP Dash Board)

Define the objective and prepare the flow chart

Session 49 & 50

Project

Make presentations on the objective and flow chart of Project-2

Session 50 & 51

Project

Work on Project - 2

Session 52 & 53

Project

Make interim presentation on Project - 2

Session 54 & 55

Project

Work on Project - 2

Session 56 & 58

Project

Final Presentation on Project -2

Session 59 & 60

Project

Make final changes on Project -1 & Project -2 to make it ready for External Evaluation

Case Studies

I am text block. Click edit button to change this text. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut elit tellus, luctus nec ullamcorper mattis, pulvinar dapibus leo.

Case Studies

Recent Comments

- Catalogador iq option gratuito on Dr. Amrutha Gopan
- porn on
- porn on Domain course template
- Melonie Trickett on
- In Stallbaumer on Dr. Amrutha Gopan



Centurion
UNIVERSITY