

Tutorial Paper

Information visualization

Title of the Tutorial: Data Visualization with Python3.8 using Anaconda3

Workshop length: 3:00 hours

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Presenter 1 Biography: Dur-e-Jabeen is currently working as an Assistant Professor in the Department of Electronics Engineering at Sir Syed University of Engineering & Technology (SSUET) since August 2019. Before that she was working as Assistant Professor at Hamdard Institute of Engineering & Technology for more than 12 years. She has done her PhD in Electronics Engineering with specialization in Signal Processing from Hamdard University, Karachi, Pakistan in 2017. She did her Masters and Bachelors in Electrical and Electronics Engineering from NED University of Engineering & Technology in 2009 and 2006 respectively. She has more than ten years' experience in the Research and Academics, she published papers in renowned journals along with conference and symposia presented at different IEEE forums. Dur-e-Jabeen received "Best University Teacher Award 2016" from Higher Education Commission (HEC) in 2018 and she also received "Women's Achievements Award in 2019" from Social Awareness/Sports Development through Events and Activities. She has organized number of technical and CPD workshops & seminars at different universities. She has area of interest in digital signal processing, Complex systems and mathematical modeling etc.

Presenter 2 Biography: Engr. Maria Fatima is currently working as an Assistant Professor in the Department of Electronics Engineering at Sir Syed University of Engineering & Technology (SSUET) and she is part of SSUET since January 2006. Currently, she is enrolled in PhD in Electronics Engineering at SSUET. She did her Masters and Bachelors in Electronics Engineering from SSUET in 2010 and 2005 respectively. She has supervised number of Final year projects and attended number of conferences, seminars and technical workshops.

Timeliness

Time line	Topics
20 minutes	Introduction
60 minutes	Matplot using Python with Jupyter notebook
15 minutes	Break
60 minutes	Seaborn using Python with Jupyter notebook
10 minutes	Quiz/Test
15 minutes	Question & Answer

Software requirements: Python 3.8 and Anaconda 3

Outline of the tutorial content

We'll teach you how to program with Python, how to create amazing data visualizations, and how to plot with Python! Here are just a few of the topics we will be learning:

- Programming with Python
- Use matplotlib and seaborn for data visualizations
- Use plotly for interactive visualizations

Description of tutorial topic

This comprehensive tutorial will be your guide to learning how to use the power of Python to analyze data, create beautiful visualizations, and you can be able to use powerful machine learning algorithms. This tutorial is designed for both beginners and with some programming experience developers looking to make the jump to Data Science!

The goal of information visualization is the unveiling of the underlying structure of large or abstract data sets using visual representations. Information visualization is an exciting topic, and the last two decades have witnessed the development of many interesting ideas about how to visualize information.

Information visualization and information graphics are tools for communicating, understanding, and analyzing. This tutorial will take a critical stance towards the field of information visualization. Rather than survey existing approaches, we will analyze the factors that contribute to success or lack thereof, as a means to determine how to devise future successful visualizations. Criteria for success in this analysis are either positive results from valuable studies or wide adoption by the target user population. This tutorial will also have a focus on how to present information clearly and effectively.

The intended objectives for students are to:

- Learn how to present information in an understandable, efficient, effective, and aesthetic manner, for the purposes of explaining ideas and analyzing data.
- Acquire skills at designing and evaluating information visualizations and other forms of visual presentation.
- Become familiar with the core principles and some of the literature of the field.

What you'll learn

- Use Python for Data Science
- Learn to use Matplotlib for Python Plotting
- Learn to use Seaborn for statistical plots
- Use Plotly for interactive dynamic visualizations

Are there any tutorial requirements or prerequisites?

- Some programming experience
- Admin permissions to download files

Who this tutorial is for:

- This tutorial is meant for people with at least some programming experience