CONTINUING EDUCATION
Course Outline

Data Visualization

With data visualization, businesses can discover hidden patterns from enormous datasets and use visualization techniques to extract intelligence from the information hidden in the data. Visualizations also communicate findings to business leaders enabling improved decision-making. In this course, learn to plot, chart and represent data using Python and Power BI; apply statistical and visualization techniques using Pandas and Jupyter notebooks; practice creating data visualization charts; and create visual and interactive reports using Power BI.

Who Should Take This Course?

This hands-on course is designed for those who are interested in practical data analytics to solve real business problems. This includes identifying patterns in existing data, visualizing data and identifying opportunities to create visualizations to solve the problem at hand. For this course you will use Python with Pandas and Matplotlib. The Matplotlib library is frequently used for data visualization.

Course Objectives

- Describe visualization techniques as part of the exploratory data analysis (EDA) method
- Visualize data from the database using Python's Matplotlib library in Jupyter notebooks
- Create custom data visualizations to explore different data types using Python
- Create statistics of distribution and centrality measures
- Load data into Power BI, and create a report with tables, visuals and summary statistics

Course Info

- Length: 9 hours
- Format: Classroom instruction, demonstration and labs
- Prerequisite: Data Mining

Course Content

Describe visualization techniques as part of the exploratory data analysis (EDA) method
- Communicate how visualization enables the discovery of patterns and anomalies
- Detail the visualization phase of EDA
- Explain how visualizations are used to identify patterns, guide testing of the hypothesis and check assumptions using summary statistics
- Explain the psychology that underlies the understanding of visual communication

Visualize data from the database using Python's Matplotlib library in Jupyter notebooks
- Visualize distributions with histograms
- Visualize outliers using box plots
- Visualize correlations using scatter plots

Create custom data visualizations to explore different data types using Python
- Identify nominal/categorical, ordinal, interval and ratio data in the dataset
- Select the appropriate visualization techniques for categorical, ordinal, interval, and ratio data
- Identify correlations using scatter plots
- Identify distributions in the data through visualization techniques using density plots

Create statistics of distribution and centrality measures
- Create a standard deviation, mean, median, and mode for the variables in the data frame
- Review the centrality measures to create a data narrative
- Interpret and report the findings

Load data into Power Bi, and create a report with tables, visuals and summary statistics
- Install Power BI
- Create a Power BI report
- Create tables in the Power BI report
- Create visualizations in the Power BI report

Assessment /Evaluation

This course is not assigned a letter or numerical grade. However, in some cases, skill assessments may be administered during the course to gauge progress and comprehension.

Course Completion / Continuing Education Unit (CEU) Letter

If your company requires proof of course completion, or if you would like to have proof for your own records, you may request a Course Completion/Continuing Education Unit (CEU) letter **after the final session of your course**. You must attend* 80 percent of the course (or 100 percent of a single-day course) to qualify for the letter. You can request a Course Completion/CEU letter online.

Certificates of Completion for Certificate Programs

To receive a Certificate of Completion for the Data Analyst Certificate, you must take all eight required courses; attend 80 percent of each course (calculated by number of sessions in each course), except the Capstone courses, where 100 percent attendance is required; participate in class; and successfully complete the SQL Server Capstone project and the Data Analyst Certificate Capstone project by the deadlines given. (Please note: Saturday sessions lasting longer than four hours will count as two sessions.) If you complete a certificate program by taking courses individually (not through a series), you can request a Certificate of Completion online.

*Attendance for CEU letters and certificate programs is verified via the sign-in sheets provided at each class session. It is your responsibility to sign-in.