Primer to Data Analytics and Visualization
By Peter Low

Has your organization encountered difficulties in making smart, cost-efficient and well-informed business decisions? In this age of rapid disruption, the need for actionable insights and a data-driven culture has become increasingly important in addressing the business challenges which you face today.

Data analytics and visualization are no longer good to have but essential tools required by businesses to innovate and even survive in this age of increased competition. Missed opportunities often result from the lack of use of analytics and visualization.

This 2-day practical workshop is aimed at equipping participants with the fundamentals of data science, key data visualization tools and dashboard concepts as well as the applied skills required to enable them to communicate insights to make the right business decisions.

By the end of this workshop, participants will be able to:

- ❖ Understand Data Science Terminologies such as Data Science, Big Data, Data Analytics and Data Visualization
- ❖ Differentiate between data science, big data, data analytics and data visualization
- ❖ Understand the different Excel functions and features to prepare data for data visualization
- ❖ Learn about key data visualization tools including dashboard concepts, building dashboards and interactivity
- ❖ Adopt best practices in the creation of dashboards for their businesses
- ❖ Understand the Data Preparation Process such as the use of Excel Functions and Excel in-built Features
- ❖ Have a basic knowledge of using dashboards to analyze data and how to derive business insights
- ❖ Develop analytical skills to obtain insights and communicate them

Participants should ideally have the following assumed knowledge:
- Must be conversant in English
- Must be able to use computer and navigate using the mouse
- Knowledge of basic Microsoft Excel

Day 1

Program Introduction & Ice-Breaker
a) Participants to indicate their exposure to data analytics or understanding
b) Trainer will scribe the topics/objectives shared by participants to set the context for learning
c) Trainer will connect the issues to the topics that will be covered during the training

An Introduction to Data Analytics

What is Data Analytics?

What is Big Data vs Data Analytics?

Applications of Data Analytics and Skills required

Role of a Data Analyst

The 5 ways to make sense of data

How data analytics can support business decisions

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An Introduction to Data Visualization

a) What is Data Visualization?

b) Value of Data Visualization

c) Storytelling in Data Visualization

d) Data Visualization Tools

e) Data Visualization Techniques

Using Excel as Data Visualization Tool

What is a dashboard?

- Concepts of a dashboard
- Define information needs
- Acquiring and arranging data
- Dashboard design considerations

Using Excel tables

- Importing data from source
- Types of data source

Using Excel functions to prepare data

- Name range and Advance Filter
- IF, Nested IF, IF(And), IF(OR)
- VLOOKUP, HLOOKUP, INDEX, MATCH

Using Excel for data validation

- Basic validation feature
- Applying name range in data validation
- Applying logical function in data validation

a) Using database functions

- DSUM, DAVERAGE, DCOUNT, DCOUNTA, DMAX, DMIN
- Using name range with database functions

b) Using conditional formatting

- Top / bottom values

c) Using Text and Mathematical

Day 2

1. **Recap of Day 1 Learning & Class Quiz / Practice session**
   a) Day 2 Opening and Recap of Day 1 Learning
   b) Class Quiz
   c) Practice Session

2. **Using Pivot Table**
   a) Creating Pivot Table
   b) Hands-on practice on Excel functions and built-in features
   c) Filtering in pivot table
   d) Group and ungroup data
   e) Applying calculations in pivot table

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Creating Pivot Charts

a) Types of charts
b) Using chart elements and formats
c) Using combo charts
d) Introduction to slicers
e) Slicer settings and formatting

Building a Dashboard

a) Linking slicers to dashboard charts
b) Create interactivity elements in dashboards using Developer tools
   - Setting Developer tab
   - Introduction to toolkit
   - Using various tools

c) Introduction to Sparklines
   - What is sparkline?
   - How to apply sparklines
   - Purpose of sparklines

d) Individual Assignment – Building Dashboard
   - Using tools to prepare data for staging
   - Using staging data to create data visualization tools
   - Create interactivity of chart and using slicers

Using Dashboard for Analysis
a) How to read data visualizations in the dashboard to get insights?
b) How to use slicers to refine your dimension to drill down and drill up
   - Several participants will be invited to share their insights from the dashboard they have created
c) Communicating your insight as a data analyst using the dashboard
   - How to document your insight

Assessment & Closing
a) Overall Summary of 2-Day Course
b) Facilitator to wrap session and open floor for Q & A from participants
c) Course Feedback

For Whom

This course would be suitable for any working professionals who are interested to advance their knowledge in Data Analytics and its applications for their businesses.

About The Trainer – Mr Peter Low

Peter has more than 20 years of working experience. He has worked for different multi-national companies like CapitaLand, Hewlett Packard, Fuji Xerox and Philip Morris. In his last role, he was the department head for the sales information team whereby he was responsible for providing data analytics for the organization as well as managing system implementations in the company.

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From February 2016, Peter made a career switch and became a freelance trainer in IT and Leadership courses. He completed his Advanced Certificate in Training and Assessment (ACTA) certification and Specialist Diploma in Leadership and People Management (SP LPM) in 2016 and has conducted SSG and non-SSG courses for public run as well as corporate clients.