A 2-Day Hands-on Masterclass on Effective Data Storytelling with visualization using R

Understanding data, generating insights, creating visuals, communicating ideas

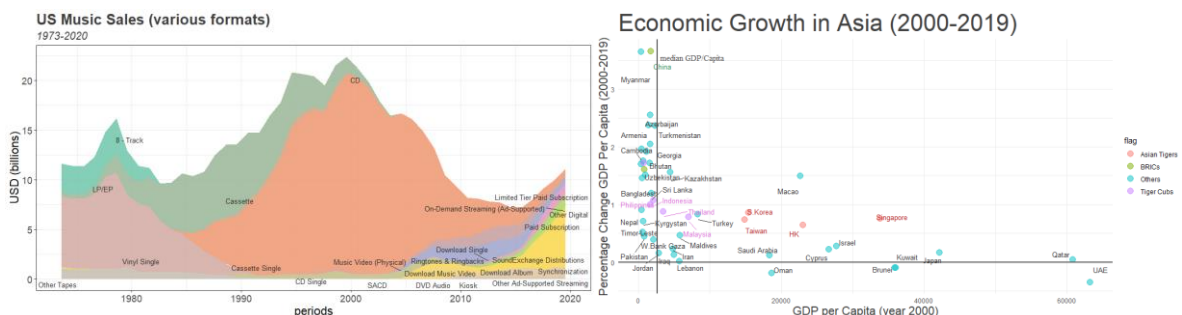**Course Content / Brief synopsis:**

Storytelling is a fundamental skill. It has always been intricately linked to our survival. This was the case in the past, and continues to be true today. However, using data to tell stories is still an emerging field. It is also an art form that may not come naturally to everyone, including data scientists and data analysts. Sometimes, it could be a matter of overwhelming recipients with much information. At other times, it could be a result of not understanding well the vantage point of recipients, and hence not creating the right visuals and narratives that resonate with them.
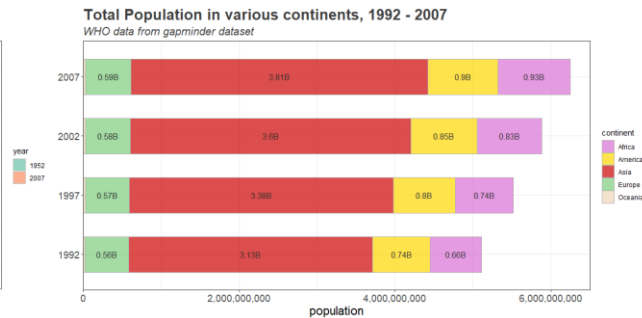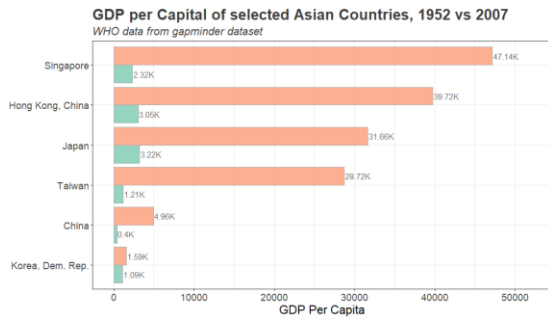
"The ability to take data—to be able to understand it, to process it, to extract value from it, to visualize it, to communicate it—that's going to be a hugely important skill in the next decades."

Google's Chief Economist Dr. Hal R.Varian

Data storytelling can be facilitated with powerful business intelligence (BI) and data visualization tools. However, such tools can be expensive. Additionally, while many commercial software allows you to easily explore and create different graphics, getting the right visuals, and customizing them exactly the way you want remains very challenging. Furthermore, owning expensive visualization software does not equate quality data storytelling.

This workshop endeavours to equip learners with the essential hands-on know-how to discover the hidden stories behind the data, and to effectively communicate the key insights in a visually impactful manner to stakeholders. We will be using R (and R Studio) – a <u>free</u> but powerful data statistical and machine learning programming software at the heart of data science and data analytics. We shall be learning the programming language basics of R and using it to analyse data, tease out their hidden messages, and to tell their stories. As part of the course, learners will acquire the resources and know-how to create many stunning graphics that can rival most commercial applications.

GDP per Capital of selected Asian Countries, 1952 vs 2007
WHO data from gapminder dataset

Total Population in various continents, 1992 - 2007
WHO data from gapminder dataset

> ## "Data are just summaries of thousands of stories – tell a few of those stories to help make the data meaningful"
>
> **Dan Heath**

More importantly, learners will also find out how to eliminate clutter so that they can stitch a more focused and coherent storyline. Understanding what your data is telling you, being aware of your audiences' needs, and enhancing coherency to better connect key messages to your audiences are the important ingredients to effective data storytelling.

Level: Basic-Intermediate

Who Should Attend
- Existing professionals looking to acquire analytics skillsets to future-proof their careers.
- Forward-thinking professionals looking to quickly pick up the essentials of data analytics so as to transform and make an impact to their organisations.
- Curious individuals (including nerds) who wishes to seek a technical understanding of data analytics to better prepare for the data revolution.
- Suitable for executives / managers in the marketing and strategic planning roles.

Topics
1. manipulate, clean and enrich raw data into more usable formats;
2. discover hidden patterns in the enriched datasets using data visualization
3. connect the dots, interpret and derive actionable insights to facilitate decision making.
4. Creating relevant and coherent storyline, and using the appropriate visuals that can better connect with your audience.

Learning Outcomes

At the end of this course, participants should be able to:
- Generate enriched data from a real-world raw dataset.
- Select the appropriate data visualization graphics to tease out key insights from the data.

- Making adjustments to your graphics to better focus your audience attention on key features. This will enable you to better communicate insights to stakeholders.

Schedule

Day 1

Time	Agenda
10:00 – 11:30	- Course Overview & warm-up; - Installation of R & R studio; Registration of R Studio Cloud - Introduction to data analytics - Basic R manipulations and data structures
11:30 – 11:45	Break
11:45 – 13:00	R programming – data wrangling. Learners will learn how to: - Clean up and prepare data for analysis; - Filter data based on certain conditions; - Apply these concepts to process and analyse a real-world dataset
13:00 – 14:00	Lunch
14:00 – 15:00	- Understanding various data visualization graphics, and using the appropriate graphics to bring key points across. Scatter plot - Tinkering with scatterplots and bubble plots using ggplot2. Applying learnt skillset on real-world dataset.
15:00 – 15:15	Break
15:15 – 17:00	Bar Chart - Tinkering with basic bar chart using ggplot2. Applying learnt skillset on real-world dataset. - Understanding your audience, and the features that captures their attention. - Calibrating your basic bar chart to better connect with your audience. - Data wrangling tips to transform your data and optimizing it for data visualization.

Note: There may be a short break between Day 1 and Day 2 of this course to allow for assignments to be completed by learners.

Day 2

Time	Agenda
10.00 – 11.30	Presentation by learners on assignments done, and comments from trainer.
11.30 – 11:45	Break

11:45 – 13:00	**Advanced bar charts and scatter plots** • Creating advanced bar charts and scatter plot to tease out deeper insights.
13:00 – 14:00	Lunch
14:00 – 15.15	**Box plot** • Tinkering with boxplot using ggplot2. Applying learnt skillset on real-world dataset.
15:15 – 15:30	Break
15:30 – 17:00	**Line Plot and Area Chart** • Tinkering with boxplot using ggplot2. Applying learnt skillset on real-world dataset. • Adjusting line plot to visualise timeseries data. **Other visualization modalities** • Comments on other types of plots and when to use them. • Other tips to make your data storytelling more engaging.

Note: Participations are expected to download and install FREE data analytic tools (R software and R Studio) into their computer during this masterclass.

Requirements

- Attendees ideally should have some knowledge of analytics and R, but learners without such knowledge are welcomed as well, so long as they have GCE 'O' Levels as minimal entry requirement.
- Attendees have to bring along their own (personal) laptop, with at least 8 GB RAM. Attendees are discouraged from bringing corporate laptops to the course as there may be restrictions in installing R software and its packages.
- The recommended set-up: one monitor that is connected to their personal laptop and set-up using extended screen format. This can enable learners to view the codes from the trainer clearly on one screen, while performing the necessary coding on another. Additionally, learners can also share-screen easily with the trainer should they encounter difficulties during the lesson.

Other details

Date:	**Typically, on second week of every month, but course commencement depends on whether minimal class size is met.**
Time:	**10am – 5pm over 2 days** **(12hrs in total)**
Venue:	**Online**
Fee per person:	**S$2,000 nett**
For more information	**contact@ann-sense.com**