

Overview

This standard identifies the competencies you need to develop and communicate data visualisations.

Data visualisation is about presenting large amounts of data in ways that are easy to understand and interpret, and which are appropriate for the target audience. There are a wide variety of data visualisation techniques including charts, graphs, infographics and other pictorial representations. These visual representations are used to help develop insights into datasets and aid the identification of trends and patterns in the data.

Data visualisation tools and techniques are used to create and communicate information either internally within the organisation, or externally for clients. To do this you are required to have appropriate domain knowledge of the data as well as the skills, knowledge and understanding necessary to deliver high quality data visualisations to describe and illustrate relationships in data.

Data visualisation revolves around first understanding the data context and business problem. The subsequent steps involved include locating and preparing the data, selecting the graphics outputs to develop and utilising tools and techniques to produce the required data visualisation outputs. Your underpinning knowledge will provide an understanding of the data visualisation requirements and techniques and the application of tools to deliver and communicate the required data story and visuals.

This activity is likely to be undertaken by all knowledge workers who need to develop and communicate data visualisations to support data-driven decision making. It will also be required for those specifically working as data professionals.

Performance criteria

You must be able to:

1. develop requirements specifications for data visualisations that accurately describe the problem and scope
2. locate and prepare required datasets across multiple sources ready for visualisation
3. create a data pipeline to deliver up to date data for visualisation
4. develop plans to show how the requirements specifications will be met through the data visualisation outputs
5. identify suitable data visualisation techniques based on the data context and the problem to be solved, to make the data understandable and usable
6. create data visualisations that deliver the outputs required
7. interpret datasets using storytelling and visualisation to aid the audience appreciation of the data
8. apply data modelling approaches to aid the visual representation of data
9. define and document the Key Performance Indicators (KPIs) required for data visualisation assignments
10. select, compose and construct data visualisation graphics that are accessible to all users and follow organisational and industry standard accessibility guidelines
11. produce and disseminate data visualisations in the form of reports, dashboards, presentations and other communications
12. develop, validate and deploy visualisation tools into production environments within the organisation
13. create effective contextual awareness communications, guides and training for end users to get the most out of data visualisation tools developed

Knowledge and understanding

You need to know and understand:

1. the foundations of data visualisation including perception, pre-attentive attributes and the use of best practice data visualisation techniques
2. the data context and the who the target users / audience for data visualisation are
3. the business problems to be addressed using data visualisation
4. the detailed stages of a data lifecycle, including create, store, use, archive and destroy
5. what is meant by structured/unstructured data and numerical/categorical data
6. how to develop an initial understanding of the shape of the data
7. how to prepare datasets for data visualisation
8. the structure and the need to restructure and reshape datasets to support different visualisations
9. the best practice visualisation techniques for different types of data
10. the difference between continuous or discrete variables as it impacts visualisation
11. the appropriate data to display for a given visualisation solution
12. the methods for visualisation of multi-faceted data
13. how to select and use analytical and data visualisation software and platforms for large, complex and interlinked data presentation
14. the data visualisation tools available and how to apply them in context
15. how to manage the reproducibility, security and source control of the data visualisation techniques applied
16. how to define, capture and document Key Performance Indicators (KPIs) in context
17. how to undertake data-driven storytelling to communicate data, trends, patterns and derived analytical insights
18. how to use data modelling to help in the visual representation of data
19. how to build a scalable data analytics pipeline

Develop and communicate data visualisations

Developed by	ODAG
Version Number	1
Date Approved	January 2021
Indicative Review Date	April 2024
Validity	Current
Status	Original
Originating Organisation	ODAG Consultants Ltd.
Original URN	TECIS806401
Relevant Occupations	Data Operations; Data Wrangler
Suite	IT(Data Science)
Keywords	Data Science, Data Analytics, Data Visualisation, Business Intelligence
