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**Swinburne University of Technology**

**COS30045**

**DATA VISUALISATION**

**Assignment 1 (Week 6)**

**Analysis of OECD Health Statistic Visualisations**

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1. Introduction
   1. Report introduction  
      In today's technology world, data visualisation has been closely integrated into our lives as it helps us simplify communicating complex information. We often use it to help us understand and make decisions as it gives more informative data from raw data.

Data visualisation helps us translate raw data into graphical representations, allowing us to quickly discover the trends, patterns, and insights that could be ignored. It has been stated that this tool is essential in several fields that come with statistical data, especially in public health. For example, I will use the public health data provided by the Organisation for Economic Co-operation and Development (OECD) in this report. This will inform us about crucial policy decisions and public health initiatives.

* 1. Objective of the report

This report aims to identify three visualisations using OECD health statistics by critiquing the visualisations according to good data visualisation principles and guidelines we learned in lecture class. This report will critique the visualisation, mainly focusing on Tuftle’s integrity principles and visualisation design principles. The are a total of three visualisations have been selected, which are Alcohol consumption, Health and social employment and absence from work due to illness.

The visualisation will be critiqued based on these requirements: clarity, accuracy, design, efficiency, and ability to communicate the underlying data. Additionally, this report will also point out areas for improvement in these visualisations to improve data representation.

Lastly, each visualisation is divided into three sections: a visualisation introduction, a detailed analysis and critique and suggested enhancements to optimise the data representation. The goal is to ensure that these visualisations will fulfil the fundamental design principles, allowing the public to access the data more effectively and accessible.

1. Visualisations 1: Alcohol consumption
   1. Visualisations 1: Alcohol Consumptions   
      A graph of a graph

      Description automatically generated
      1. Visualisation Introduction  
         Alcohol consumption is a severe issue in this society as it keeps increasing over time. This will lead the individual to an unhealthy lifestyle. According to research, drinking alcohol has caused millions of people to die prematurely. Besides, the activity of smoking, harmful alcohol use, physical inactivity and obesity are the root causes of many chronic conditions. Hence, public health strategies often focus on reducing unhealthy alcohol use to improve overall health outcomes and benefit by reducing the burden of disease in public.
      2. Detailed analysis and critique   
         This chart represents data on alcohol consumption from the OECD Health Statistics, which focuses on people aged 15 years or older. This chart measured alcohol consumption based on litres per person and provided insights into consumption patterns across various countries over several years. This chart illustrates drinking habits over time by comparing alcohol consumption levels from 2010, 2011, 2020, 2021 and 2022. Besides, this dataset contains over 2802 data points, which will provide accurate trends results in alcohol consumption trends. The last update to this data was made in July 2024, ensuring that it reflects the most current trends in alcohol consumption globally.

In this visualisation, the horizontal bars show alcohol consumption levels for each year, providing a clear representation of how consumption patterns have changed across different regions.

* + 1. Suggested enhancements

Here are the improvements made after further study of the chart. This chart can utilise “Alignment”, which uses Tufte’s Principle of Integrity and visualisation design principles. For instance, the chart data can align in the middle using “15 years or over – 2020”. This will provide a more compact view without excessive spacing between bars, potentially allowing for quicker comparisons of values.

Besides, by using data-to-ink ratio visualisation design principles. We can remove unnecessary elements like the background, as it is optional. Furthermore, after implementing the first enhancements, we also implemented this principle, as the modified one will utilise the white space. Hence, it also improved the clarity of the data.

Lastly, from the aspect of alignment and comparison, the modified stack row bar chart will provide a better comparison of candidates' data without needing to scan as far across the screen. While compared to the original, it will be harder to draw such comparisons without scrolling or zooming.

* 1. Visualisations 2: Use of vaping products  
     A graph of a number of people

     Description automatically generated with medium confidence
     1. Visualisation Introduction

The use of vaping products has become a significant public health issue in recent years due to their increasing popularity. Based on the chart, the share of the population who are regular vaping product users in Australia in 2019 is 3.2, while in 2022, it is 5.7, which has been increasing rapidly. The use of vaping products trends has been growing, especially among younger populations, because it is often marketed as a safer alternative to smoking. However, the long-term health effects remain uncertain.

* + 1. Detailed analysis and critique  
       This chart represents data on the use of vaping products among individuals aged 15 years or older from the OECD Health Statistics. The use of vaping products is measured in the share of the population who are regular users of vaping products, with the unit of measure being the percentage of the population. This chart also illustrates the number of vaping product users between 2012 and 2018. Besides, this dataset contains over 756 data points, providing valuable information about the trends in vaping habits and offering a breakdown by age and sex. Furthermore, this chart also visualises how the share of the population using vaping products has fluctuated or grown over the years. Lastly, the last update to this dataset was in July 2024, ensuring the data reflects the most current trends in global vaping product use.
    2. Suggested enhancement

**4.0 References**

* **List of reference materials if used**
  + OECD (Organisation for Economic Co-operation and Development). (2024, July 12). *Alcohol consumption*. Data. [https://data-explorer.oecd.org/vis?fs%5B0%5D=Topic%2C0%7CHealth%23HEA%23&pg=0&fc=Topic&bp=true&snb=79&df%5Bds%5D=dsDisseminateFinalDMZ&df%5Bid%5D=DSD\_HEALTH\_LVNG%40DF\_HEALTH\_LVNG\_AC&df%5Bag%5D=OECD.ELS.HD&df%5Bvs%5D=1.0&dq=.A.....&pd=2010%2C&to%5BTIME\_PERIOD%5D=false&ly%5Bcl%5D=TIME\_PERIOD&ly%5Brs%5D=AGE&ly%5Brw%5D=REF\_AREA&vw=sr](https://data-explorer.oecd.org/vis?fs%5B0%5D=Topic%2C0%7CHealth%23HEA%23&pg=0&fc=Topic&bp=true&snb=79&df%5Bds%5D=dsDisseminateFinalDMZ&df%5Bid%5D=DSD_HEALTH_LVNG%40DF_HEALTH_LVNG_AC&df%5Bag%5D=OECD.ELS.HD&df%5Bvs%5D=1.0&dq=.A.....&pd=2010%2C&to%5BTIME_PERIOD%5D=false&ly%5Bcl%5D=TIME_PERIOD&ly%5Brs%5D=AGE&ly%5Brw%5D=REF_AREA&vw=sr%20)
  + OECD (Organisation for Economic Co-operation and Development). (2024b, July 12). *Use of vaping products*. Data. [https://data-explorer.oecd.org/vis?df%5Bds%5D=dsDisseminateFinalDMZ&df%5Bid%5D=DSD\_HEALTH\_LVNG%40DF\_HEALTH\_LVNG\_VP&df%5Bag%5D=OECD.ELS.HD&df%5Bvs%5D=1.0&dq=.A.....&pd=2012%2C&to%5BTIME\_PERIOD%5D=false&ly%5Bcl%5D=TIME\_PERIOD&ly%5Brs%5D=SEX%2CAGE&ly%5Brw%5D=REF\_AREA&vw=ov](https://data-explorer.oecd.org/vis?df%5Bds%5D=dsDisseminateFinalDMZ&df%5Bid%5D=DSD_HEALTH_LVNG%40DF_HEALTH_LVNG_VP&df%5Bag%5D=OECD.ELS.HD&df%5Bvs%5D=1.0&dq=.A.....&pd=2012%2C&to%5BTIME_PERIOD%5D=false&ly%5Bcl%5D=TIME_PERIOD&ly%5Brs%5D=SEX%2CAGE&ly%5Brw%5D=REF_AREA&vw=ov%20)