

Assignment 2

Deconstruct, Reconstruct Web Report

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- ☒ No part of this assessment has been written for me by any other person except where such collaboration has been authorised by the lecturer/teacher concerned.
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- ☒ Plagiarism is the presentation of the work, idea or creation of another person as though it is your own. It is a form of cheating and is a very serious academic offence that may lead to exclusion from the University. Plagiarised material can be drawn from, and presented in, written, graphic and visual form, including electronic data and oral presentations. Plagiarism occurs when the origin of the material used is not appropriately cited.
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I agree and acknowledge that:

- ☒ I have read and understood the Declaration and Statement of Authorship above.
- ☒ If I do not agree to the Declaration and Statement of Authorship in this context and all boxes are not checked, the assessment outcome is not valid for assessment purposes and will not be included in my final result for this course.

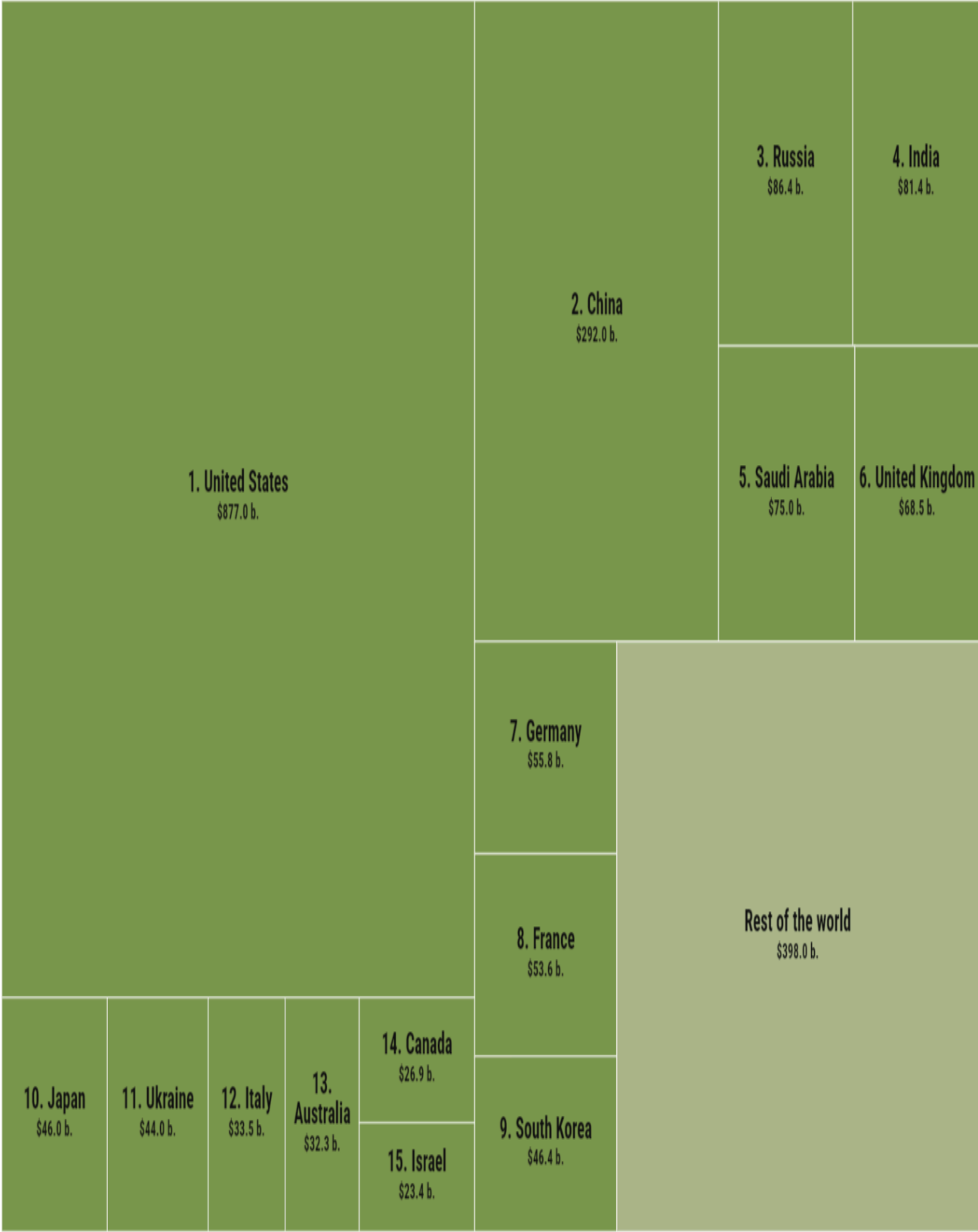
Deconstruct

Original

The original data visualisation selected for the assignment was as follows:

The top 15 military spenders, 2022

Military expenditure by the top 15 countries reached \$1842 billion in 2022 and accounted for 82% of global military spending.



Source: SIPRI Military Expenditure Database, Apr. 2023.
Note: Expenditure figures are in US\$, at current prices and exchange rates.

Source: STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE (SIPRI)

Objective and Audience

The objective and audience of the original data visualisation chosen can be summarised as follows:

Objective

This visualization's goal is to present a concise, hierarchical overview of the top 15 countries in terms of military spending in 2022.

Audience

Policymakers, scholars, analysts, and anybody else with an interest in learning about the relative military spending of the world's leading nations seem to be the target audience.

Critique

The visualisation chosen had the following three main issues:

- **Choice of Visualization:** Although the treemap-style visualization does a good job of illustrating the data's hierarchical structure, it might not be the most logical or user-friendly option when it comes to presenting ranked data. The top military spenders could be shown in descending order using a bar chart or a horizontal bar chart, which is more recognizable and easier for viewers to quickly identify and compare the spending levels across nations.
- **Color Scheme:** It is challenging to discern between varying levels of military spending because every nation uses same shade of green. To make it easier for the viewer to compare and contrast the various spending levels visually, a more effective color scheme would use different hues or variations in color intensity.
- **Wrong/misleading data:** There is a discrepancy between the numerical values stored in the original database and the data displayed in the visualization. The numbers shown in the visualization and the actual data entries kept in the database are not the same.

Reconstruct

Code

The following code was used to fix the issues identified in the original.

```
library(readxl)
library(ggplot2)

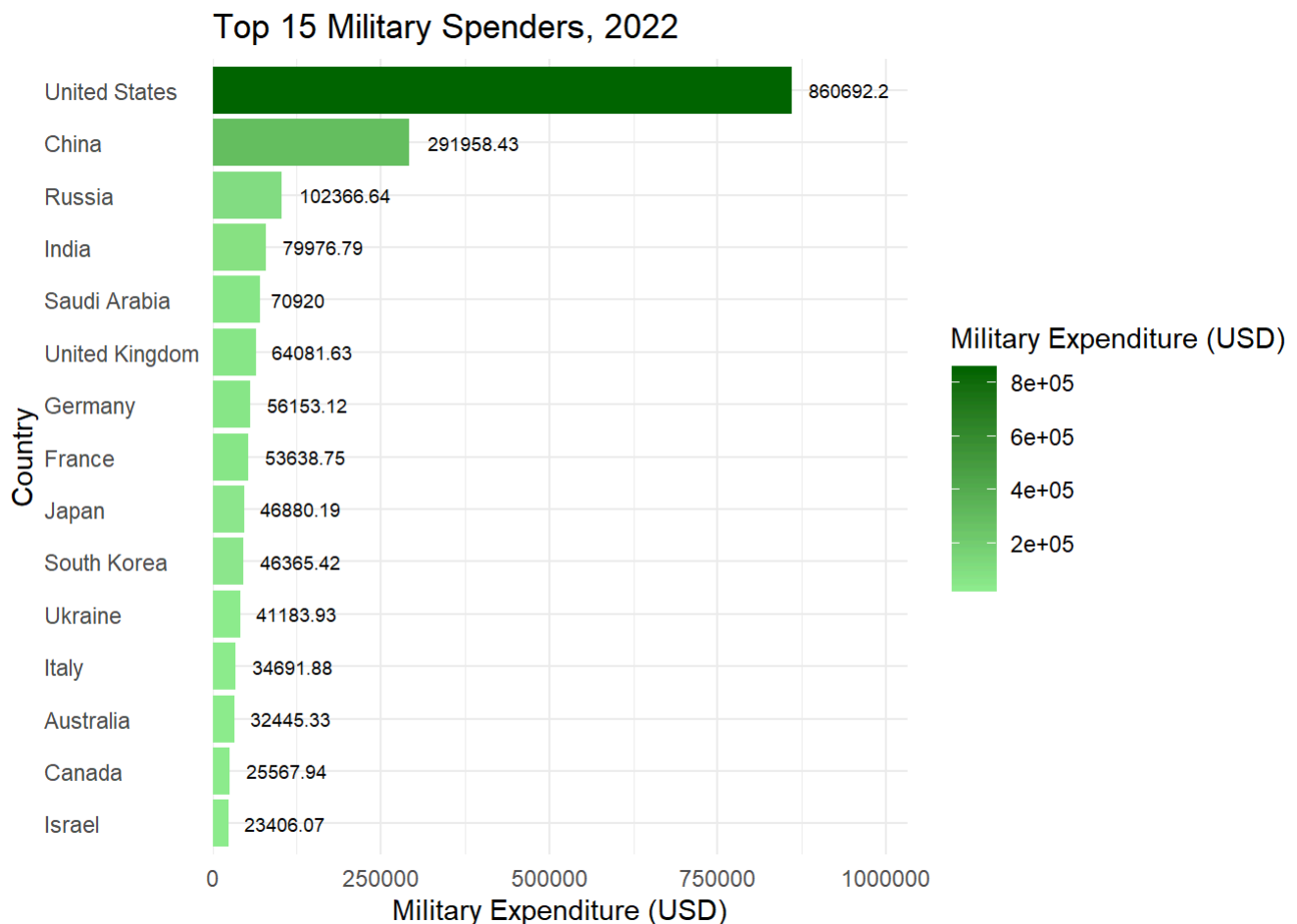
# Reading the data from an Excel file
file_path <- "Military_Expenditure_2022.xlsx"

# Reading the Excel file into a data frame
expenditure_data <- read_excel(file_path)
cleaned_data <- na.omit(expenditure_data)
cleaned_data$Expenditure <- round(cleaned_data$Expenditure, 2)
# Reordering the data by descending military expenditure
cleaned_data <- cleaned_data[order(-cleaned_data$Expenditure), ]
# Subset the data to include only the top 15 countries
top_15_countries <- cleaned_data[1:15, ]

r1 <- ggplot(top_15_countries, aes(y = reorder(Country, Expenditure), x = Expenditure, fill =
Expenditure)) +
  geom_bar(stat = "identity") +
  geom_text(aes(label = Expenditure), hjust = -0.2, size = 2.5) +
  labs(title = "Top 15 Military Spenders, 2022",
        y = "Country",
        x = "Military Expenditure (USD)",
        fill = "Military Expenditure (USD)") +
  scale_fill_gradient(low = "lightgreen", high = "darkgreen") +
  theme_minimal() +
  theme(axis.text.y = element_text(hjust = 0)) +
  scale_x_continuous(expand = expansion(mult = c(0, 0.2)))
```

Reconstruction

The following plot fixes the main issues in the original.



References

The reference to the original data visualisation choose, the data source(s) used for the reconstruction and any other sources used for this assignment are as follows:

- The top 15 military spenders, 2022. *SIPRI*. Retrieved May 04,2024, from STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE website: <https://www.sipri.org/visualizations/2023/top-15-military-spenders-2022> (<https://www.sipri.org/visualizations/2023/top-15-military-spenders-2022>)
- Sipri Military Expenditure Database. *SIPRI*. Retrieved May 04,2024, from STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE website: <https://www.sipri.org/databases/milex> (<https://www.sipri.org/databases/milex>)