

Figure 8

Overview

This script takes a data frame produced by challenges.qmd and outputs a figure that adheres to PLOS submission guidelines.

Import packages and utilities

```
project_root <- here::here() # requires that you be somewhere in the
# project directory (not above it)
# packages
suppressMessages(source(file.path(project_root, "scripts/packages.R")))
# functions and objects used across scripts
suppressMessages(source(file.path(project_root, "scripts/utils.R")))
```

Load data

```
# This poorly named function from utils.R
# is basically just read.csv with my data path in there
clust1 <- load_qualtrics_data(file.path("data_for_plots/chall_cluster1.tsv"))
clust2 <- load_qualtrics_data(file.path("data_for_plots/chall_cluster2.tsv"))
clust3 <- load_qualtrics_data(file.path("data_for_plots/chall_cluster3.tsv"))
```

```
# Paul Tol's sunset theme
#https://sronpersonalpages.nl/~pault/
sunset <- c(
  "#A50026",
```

```
"#F67E4B",
"#FEDA8B",
"#C2E4EF",
"#6EA6CD",
"#364B9A"
)
```

```
p1 <- stacked_bar_chart(
  df = clust1,
  x_var = "challenge",
  y_var = "total",
  fill = "challenge_level",
  title = "Cluster 1",
  ylabel = NULL,
  show_axis_title_y = FALSE,
  show_x_axis_text = FALSE,
  show_grid = TRUE,
  show_legend = FALSE, # don't show legend
  horizontal = TRUE,
  proportional = TRUE,
  cpalette = sunset,
  legend_text_size = 7,
  margin_vals = c(0.3, 0.3, 0.3, 0.3),
  plot_title_size = 8,
  x_axis_text_size = 7,
  y_axis_text_size = 7,
  y_axis_title_size = 7
)

p2 <- stacked_bar_chart(
  df = clust2,
  x_var = "challenge",
  y_var = "total",
  fill = "challenge_level",
  title = "Cluster 2",
  ylabel = NULL,
  legend_left_margin = 15, # show legend, with a wide margin
  show_axis_title_y = FALSE,
  show_x_axis_text = FALSE,
  show_grid = TRUE,
  horizontal = TRUE,
  proportional = TRUE,
```

```

cpalette = sunset,
legend_text_size = 7,
margin_vals = c(0.3, 0.3, 0.3, 0.3),
plot_title_size = 8,
x_axis_text_size = 7,
y_axis_text_size = 7,
y_axis_title_size = 7
)

p3 <- stacked_bar_chart(
df = clust3,
x_var = "challenge",
y_var = "total",
fill = "challenge_level",
title = "Cluster 3",
ylabel = NULL,
show_axis_title_y = FALSE,
show_x_axis_text = FALSE,
show_grid = TRUE,
show_legend = FALSE, # don't show legend
horizontal = TRUE,
proportional = TRUE,
cpalette = sunset,
legend_text_size = 7,
margin_vals = c(0.3, 0.3, 0.3, 0.3),
plot_title_size = 8,
x_axis_text_size = 7,
y_axis_text_size = 7,
y_axis_title_size = 7
)

```

```

p_combined <- patchwork::wrap_plots(p1, p2, p3, ncol = 1) +
patchwork::plot_layout(heights = c(1, 1, 2)) +
patchwork::plot_annotation(
  title = "Frequency of Open Source Challenges",
  theme = theme(plot.title = element_text(
    size = 8,
    face = "bold",
    margin = margin(t = 15),
    hjust = 0.5
  )
)

```

```
ggsave(  
  filename = file.path(FIGURE_PATH, "fig8.tif"),  
  plot = p_combined + plot_annotation(tag_levels = "A") & theme(plot.tag = element_text(size = 10),  
  device = "tiff",  
  width = 5.2, height = 5.2, units = "in",  
  dpi = 300,  
  compression = "none",  
  bg = "white"  
)
```