

## 03\_killer\_graph\_miriam

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Introduction Section: Describe dataset, State question of interest

Describe the project:

The Trash Wheel Collection Data tracks the amount of trash from dumpsters over time. It keeps track of the weight and volume of the trash, as well as the amounts and types of trash collected. Additionally, it tells how many homes are powered from the the dumpster's trash.

What you hope to discover in your killer graph:

I hope to be able to see the relationships between the trash collected and the homes it powers, and how these relationships may vary over time.

Results Section: The paragraph before the killer graph should give the main conclusions and how they can be read from the graph. Not dynamic. Content over "glitz". Use ggplot2 – do not show your code. The killer graph needs a caption.

Cigarette butts make the largest contribution to the trash collection, with the largest amount of waste being collected during the summer and spring months.

Killer Graphs: Distribution of Trash Types:

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
## v dplyr      1.1.4      v readr      2.1.5
## v forcats    1.0.0      v stringr   1.5.1
## v ggplot2    3.5.1      v tibble    3.2.1
## v lubridate  1.9.4      v tidyr     1.3.1
## v purrr      1.0.2
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

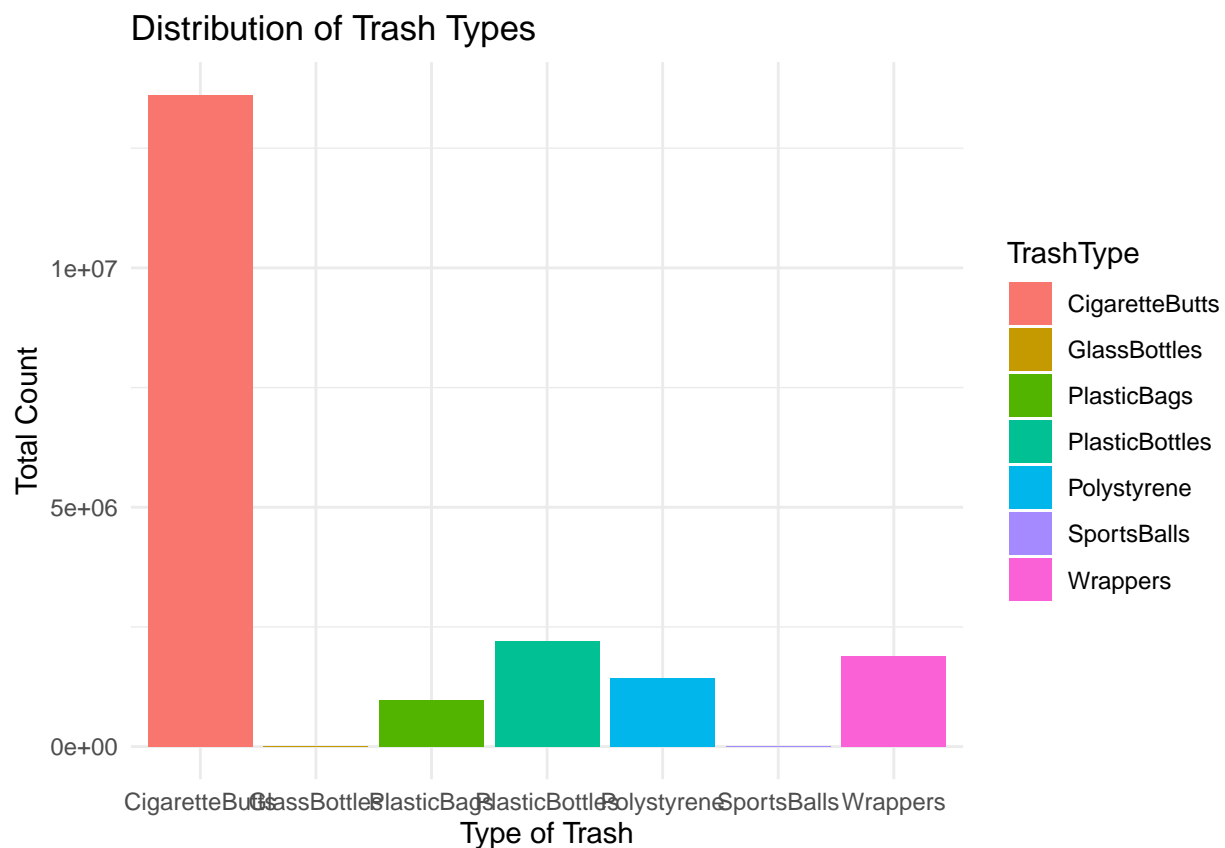
```
library(tidyuesdayR)
library(ggplot2)
tuesdata <- tidyuesdayR::tt_load(2024, week = 10)
```

```
## ---- Compiling #TidyTuesday Information for 2024-03-05 ----
## --- There is 1 file available ---
##
##
## -- Downloading files -----
##
## 1 of 1: "trashwheel.csv"
```

```
trashwheel <- tuesdata$trashwheel

trash_types <- trashwheel %>%
  select(PlasticBottles, Polystyrene, CigaretteButts, GlassBottles, PlasticBags, Wrappers, SportsBalls)
  pivot_longer(cols = everything(), names_to = "TrashType", values_to = "Count") %>%
  group_by(TrashType) %>%
  summarize(TotalCount = sum(Count, na.rm = TRUE))

# plot
ggplot(trash_types, aes(x = TrashType, y = TotalCount, fill = TrashType)) +
  geom_bar(stat = "identity") +
  theme_minimal() +
  labs(title = "Distribution of Trash Types", x = "Type of Trash", y = "Total Count")
```

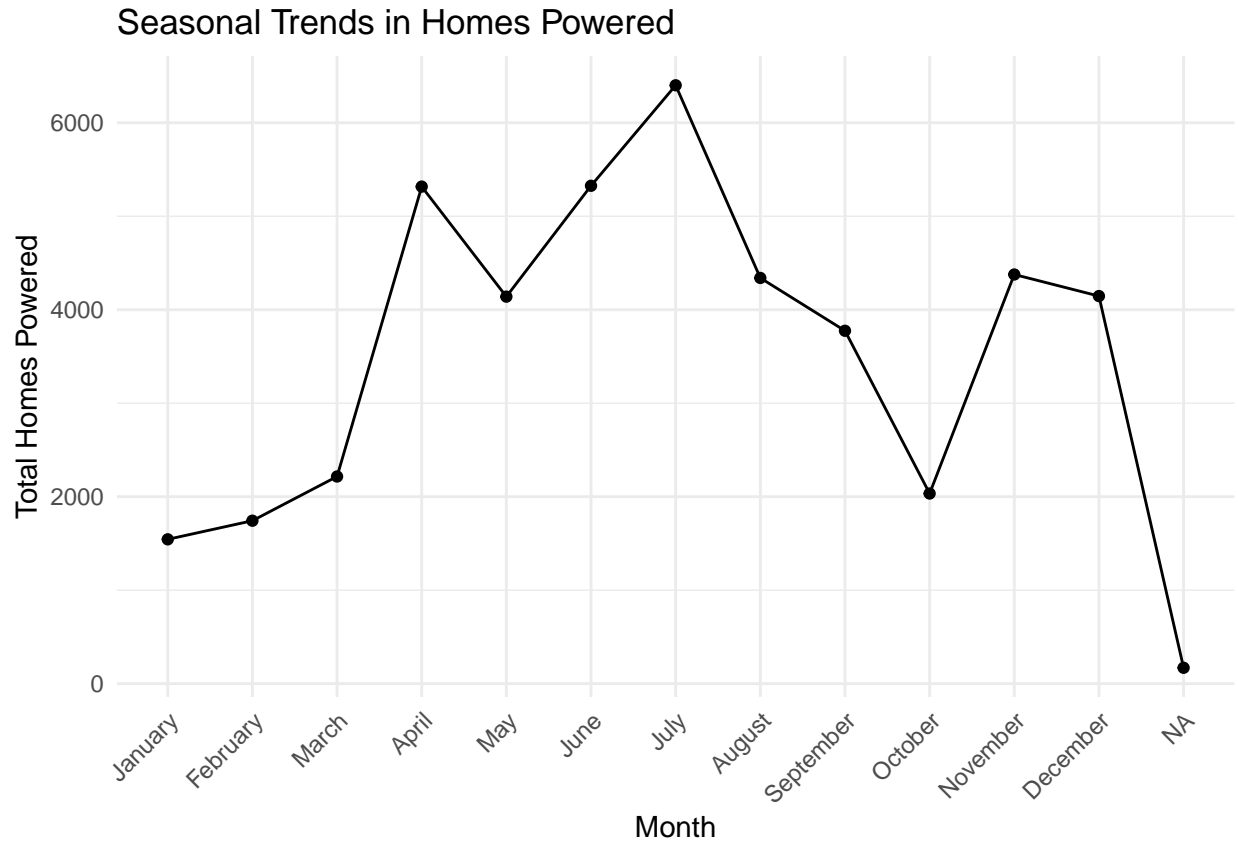


```
trashwheel <- trashwheel %>%
  mutate(Date = as.Date(Date, format = "%Y-%m-%d"),
         Month = factor(Month, levels = month.name))

seasonal_trends <- trashwheel %>%
  group_by(Month) %>%
  summarize(TotalPower = sum(HomesPowered, na.rm = TRUE)) %>%
  filter(!is.na(TotalPower) & TotalPower > 0)

ggplot(seasonal_trends, aes(x = Month, y = TotalPower, group = 1)) +
  geom_line() +
```

```
geom_point() +
theme_minimal() +
labs(title = "Seasonal Trends in Homes Powered", x = "Month", y = "Total Homes Powered") +
theme(axis.text.x = element_text(angle = 45, hjust = 1))
```



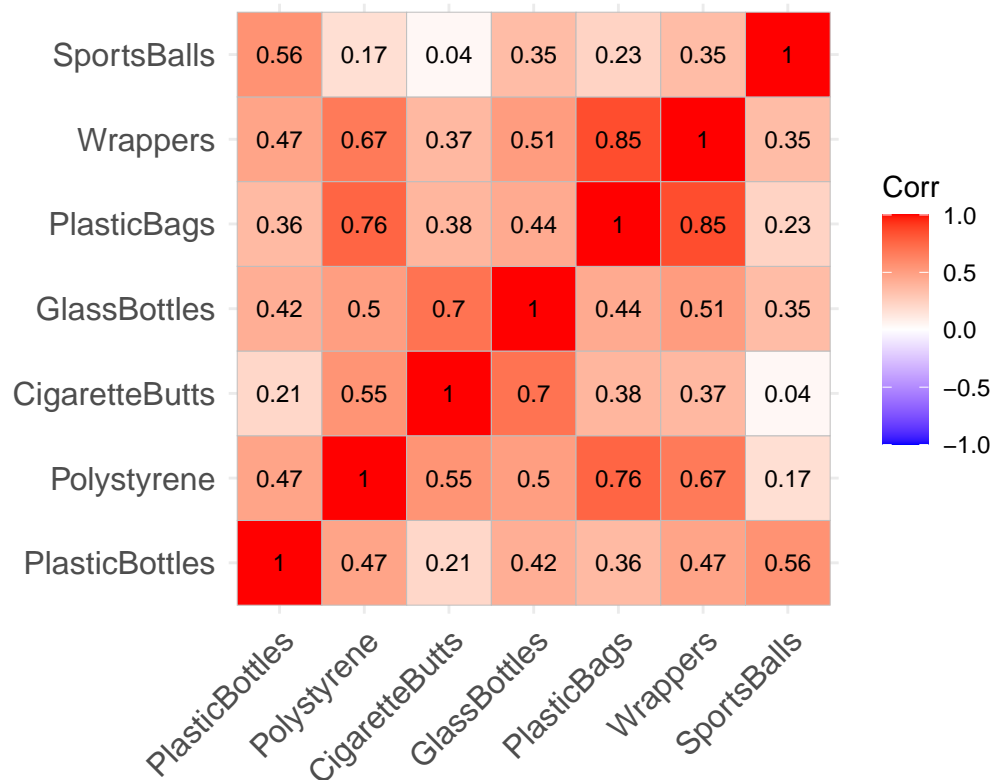
```
library(tidyverse)
library(ggcorrplot)

cor_data <- trashwheel %>%
  select(PlasticBottles, Polystyrene, CigaretteButts,
         GlassBottles, PlasticBags, Wrappers, SportsBalls)

cor_matrix <- cor(cor_data, use = "complete.obs")

ggcorrplot(cor_matrix, method = "square",
           lab = TRUE, lab_size = 3,
           colors = c("blue", "white", "red"),
           title = "Correlation Heatmap: Trash Types",
           ggtheme = theme_minimal())
```

Correlation Heatmap: Trash Types



Discussion: Suggest a testable hypothesis

Predicting how many homes can be powered based on the types of trash collected

Seasonal Trends:

```
# analyze seasonal trends in trash collection
trashwheel <- trashwheel %>%
  mutate(Date = as.Date(Date, format = "%Y-%m-%d"),
         Month = factor(Month, levels = month.name))

seasonal_trends <- trashwheel %>%
  group_by(Month) %>%
  summarize(TotalWeight = sum(Weight, na.rm = TRUE)) %>%
  filter(!is.na(TotalWeight) & TotalWeight > 0)

# plot
ggplot(seasonal_trends, aes(x = Month, y = TotalWeight, group = 1)) +
  geom_line() +
  geom_point() +
  theme_minimal() +
  labs(title = "Seasonal Trends in Trash Collection", x = "Month", y = "Total Weight (tons)") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

