

LV5

Single Variable Visualisation

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Libraries

```
library(tidyverse)
```

1 Overview

- Single Variable Visualisation
- Pie Charts
- Bar Charts
- Stacked Bar Charts
- Density Plot
- Boxplot
- Violin Plot
- Mosaic Plot

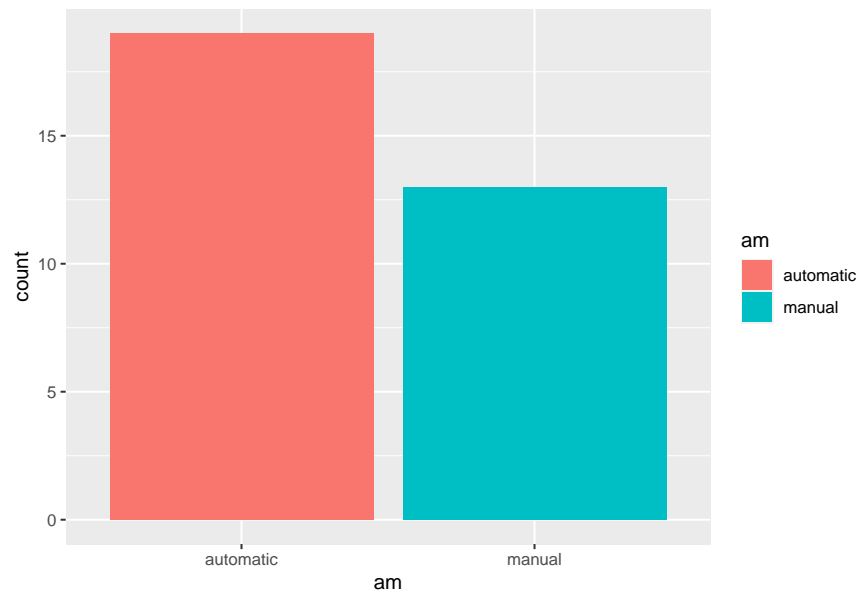
2 Plots for a single Variable - bar plot

Create Dataset

```
mtcars %>%
  mutate(
    am = ifelse(am == 1, "manual", "automatic"),
    vs = ifelse(vs == 1, "straight", "v-shaped")
  ) -> data
```

2.1 Classic Bar Chart

```
data %>% ggplot(aes(x = am, fill= am)) + geom_bar()
```



Interpretation: - shows the number (count) of cars with automatic and manual shifting - data set contains more cars with automatic shifting than with manual shifting of gears

2.2 Stacked Bar Chart

```
data %>% ggplot(aes(x = "", fill = am)) +
  geom_bar(position = "fill", width = 0.5) +
  xlab("") +
  ylab("Proportion") +
  scale_x_discrete(breaks = NULL)
```

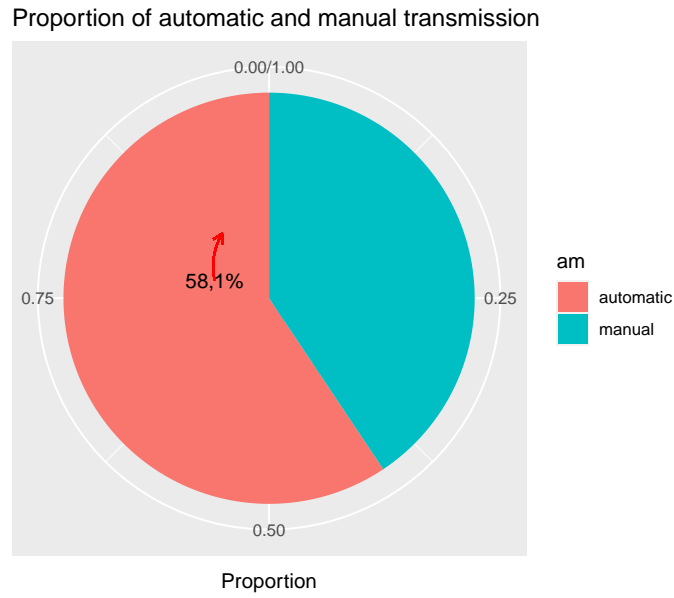


Interpretation:

- the graph shows the proportion of automatic to manual gear shifting in the car data set

2.3 Pie Chart

```
ggplot(data, aes(x = 1, fill=am)) +
  geom_bar(position = "fill") +
  coord_polar("y") +
  xlab("") +
  ylab("Proportion") +
  ggtitle("Proportion of automatic and manual transmission") +
  scale_x_continuous(breaks = NULL) +
  #annotate("text", 0.3, 0.3, label="58,1%") +
  geom_segment(aes(x = 0.8, y = 0.8, xend = 0.9, yend = 0.9),
    arrow = arrow(length = unit(0.2, "cm")),
    col = "red") +
  annotate("text", 0.8, 0.8, label="58,1%")
```

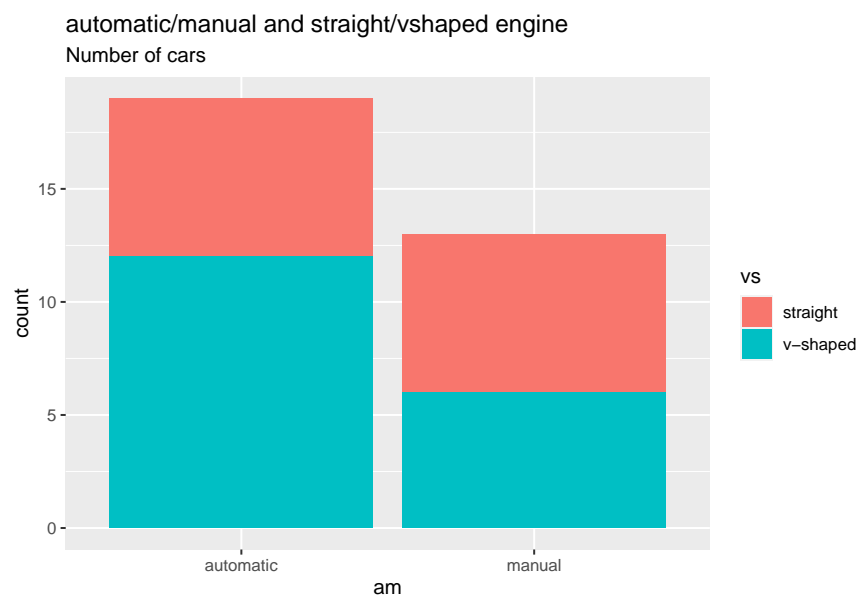


Interpretation:

- Different form of previous plot
- shows that 58.1% of the cars in the dataset are automatic transmission

2.4 Graphs with two categorical variables

```
data %>% ggplot(aes(x = am, fill=vs)) +
  geom_bar() +
  ggtitle("automatic/manual and straight/vshaped engine", subtitle="Number of cars")
```



Interpretation:

- Number of cars with automatic gear shifting is higher than cars with manual gear shifting
- For automatic cars the v-shaped engines dominate (around $2/3$)
- Manual transmission has approximately equal straight and vshaped engines