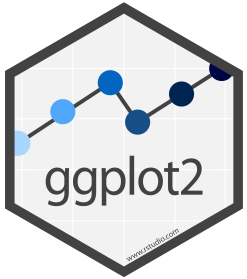
INTRO TO THE **TIDYVERSE**

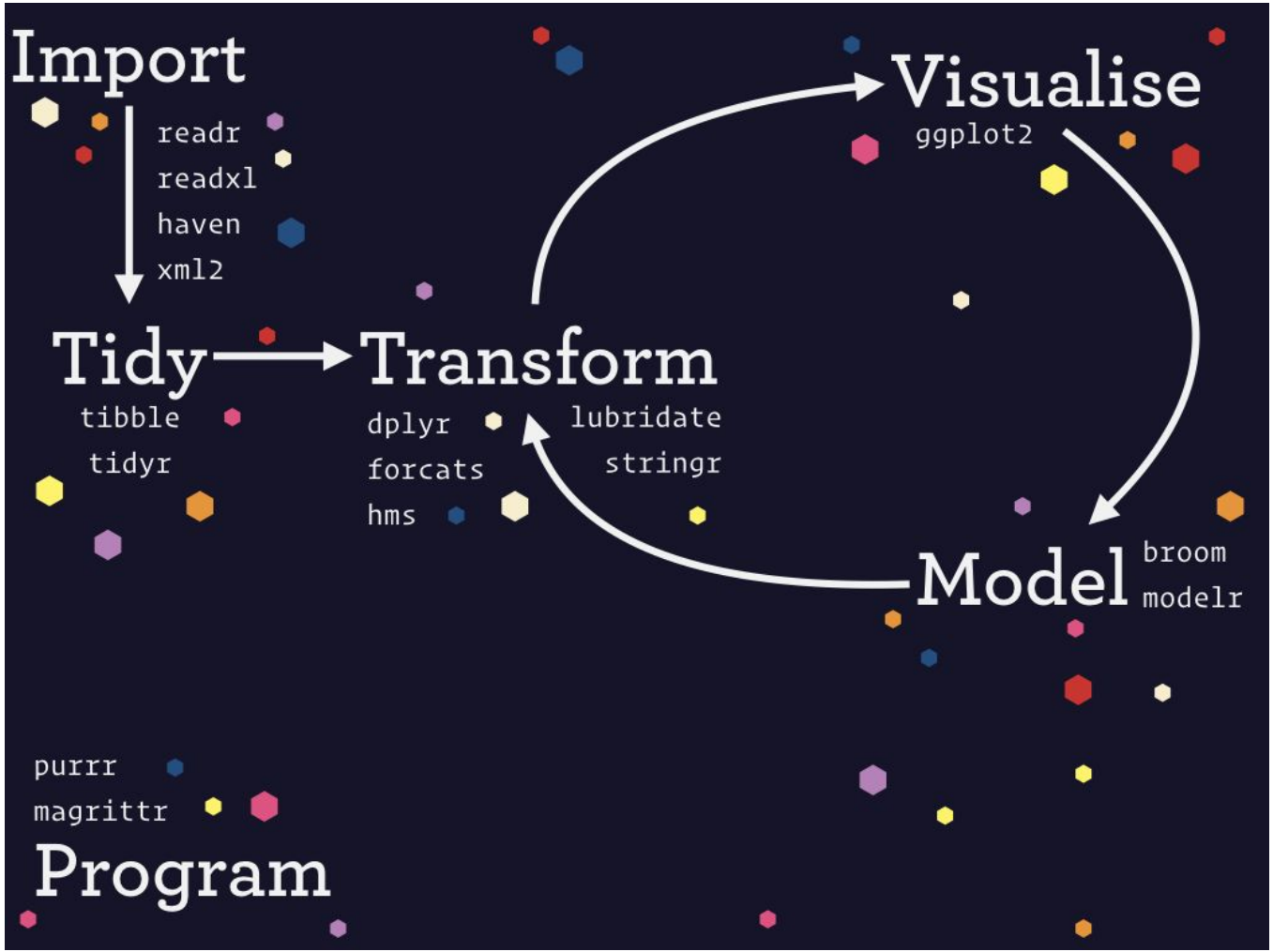
DATA VISUALIZATION USING



OMAYMA SAID

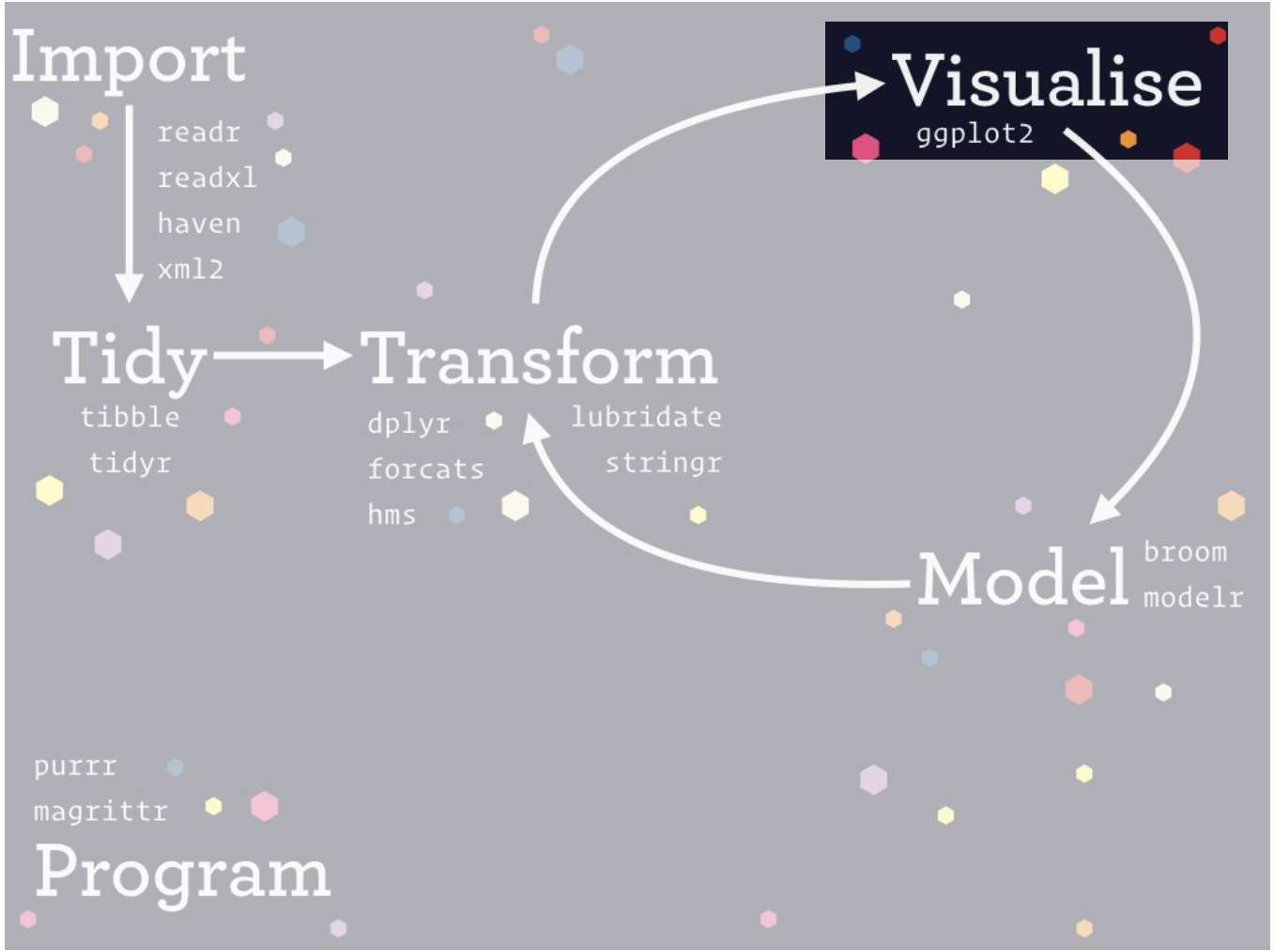
OmaymaS

The Tidyverse

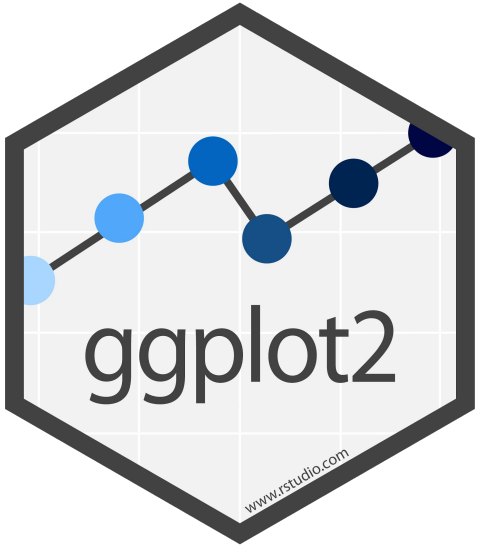


Source: https://imgur.com/a/l7fNwP1

The Tidyverse



Source: https://imgur.com/a/l7fNwP1



Based on the grammar of graphics

DATASETS

PART 1

gapminder

Main Source: gapminder dataset

https://github.com/jennybc/gapminder

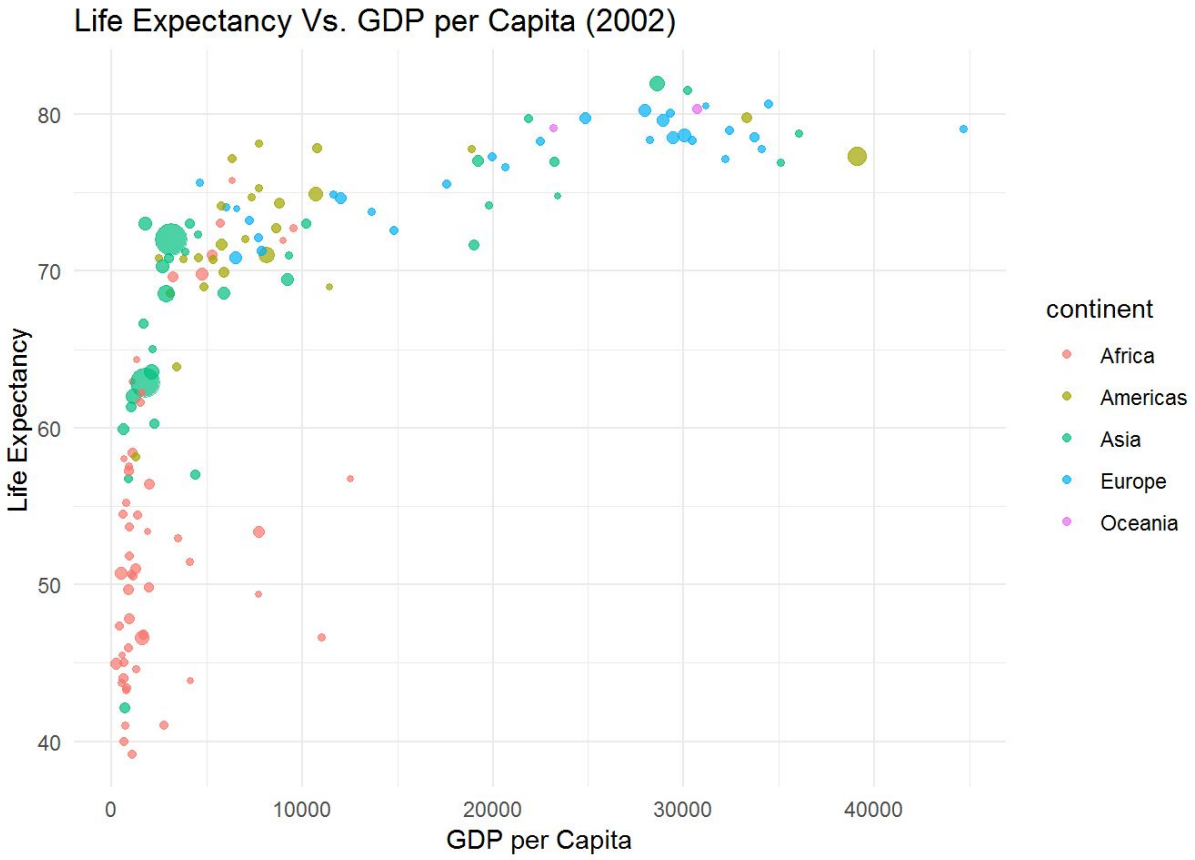
PART 2

googleplayappstore

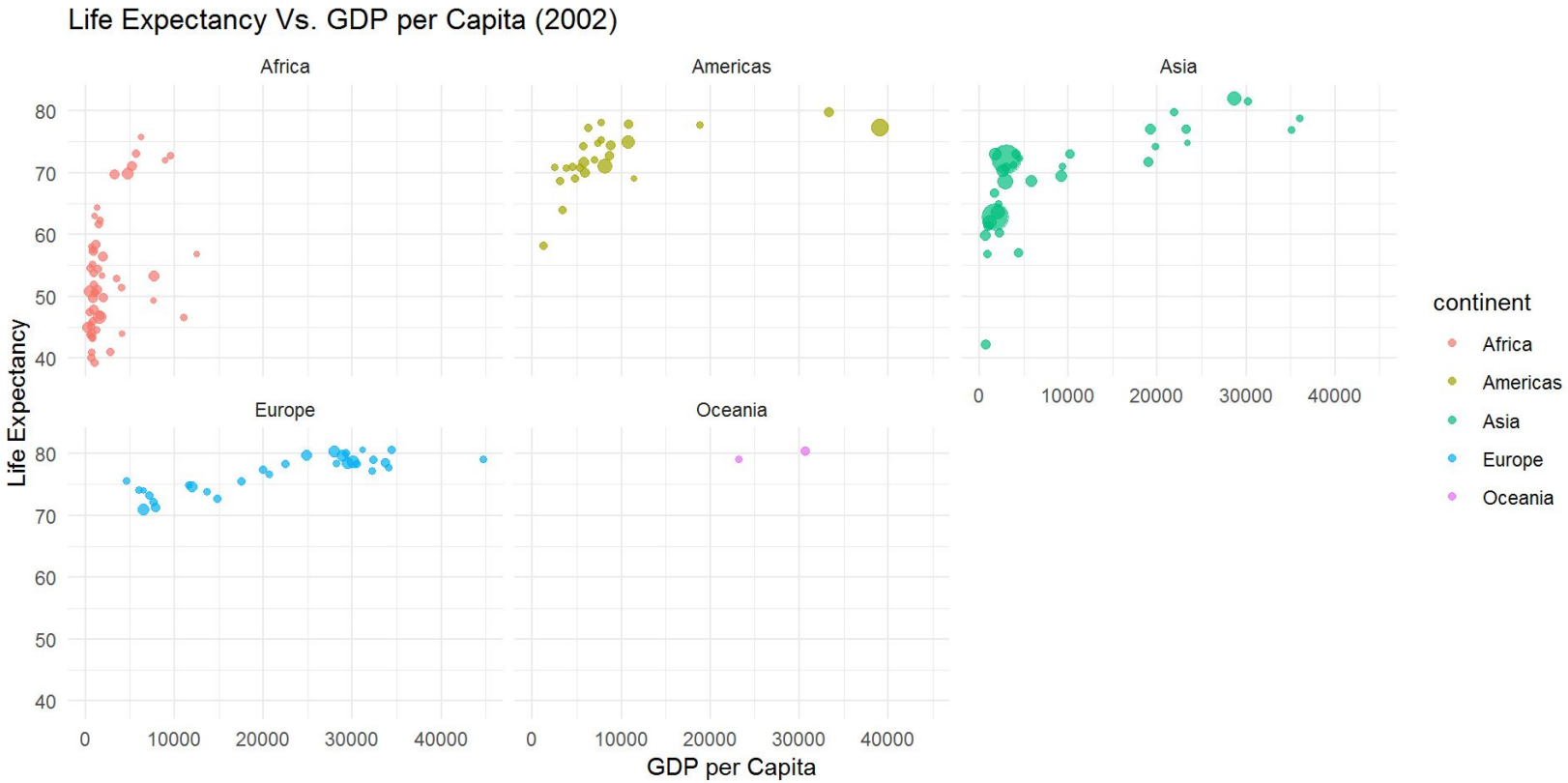
Main Source: Kaggle

https://www.kaggle.com/lava18/google-play-store-apps

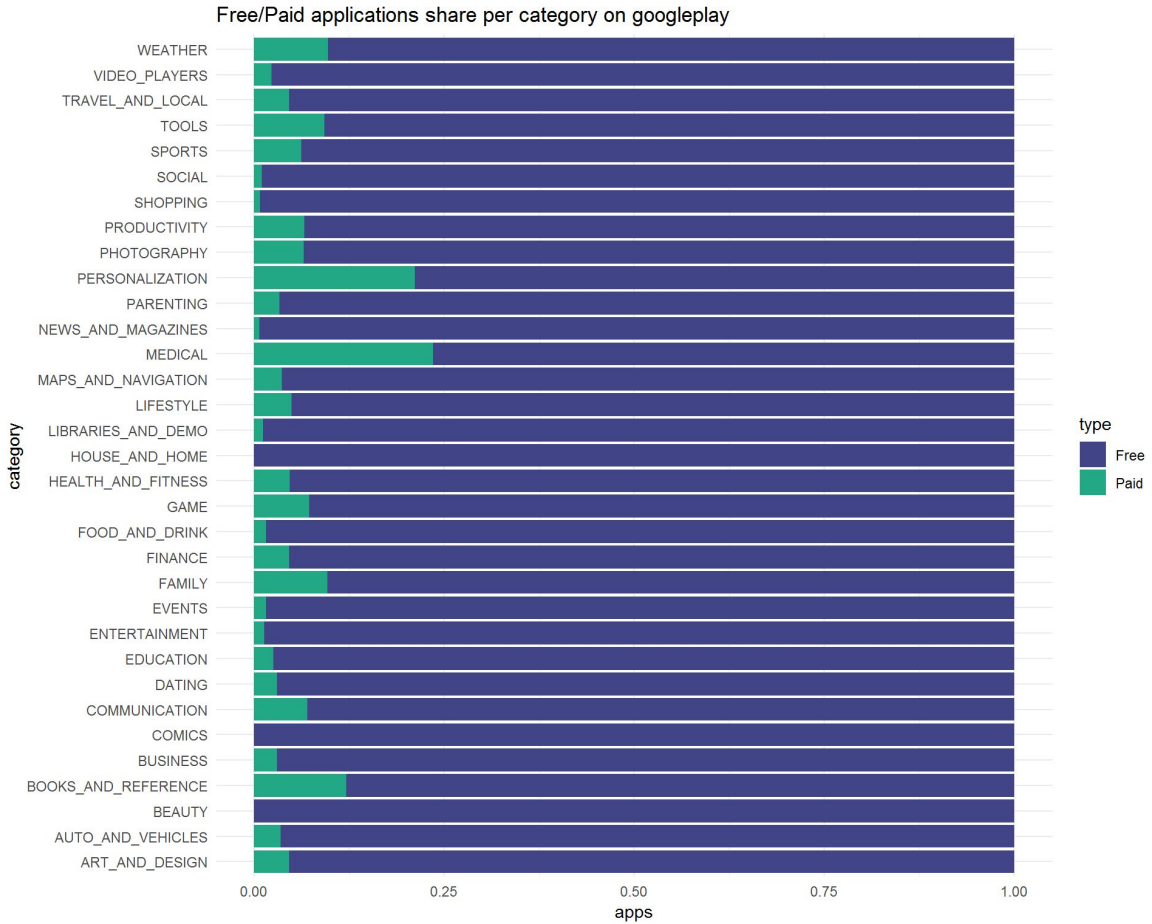
What are we going to create today?



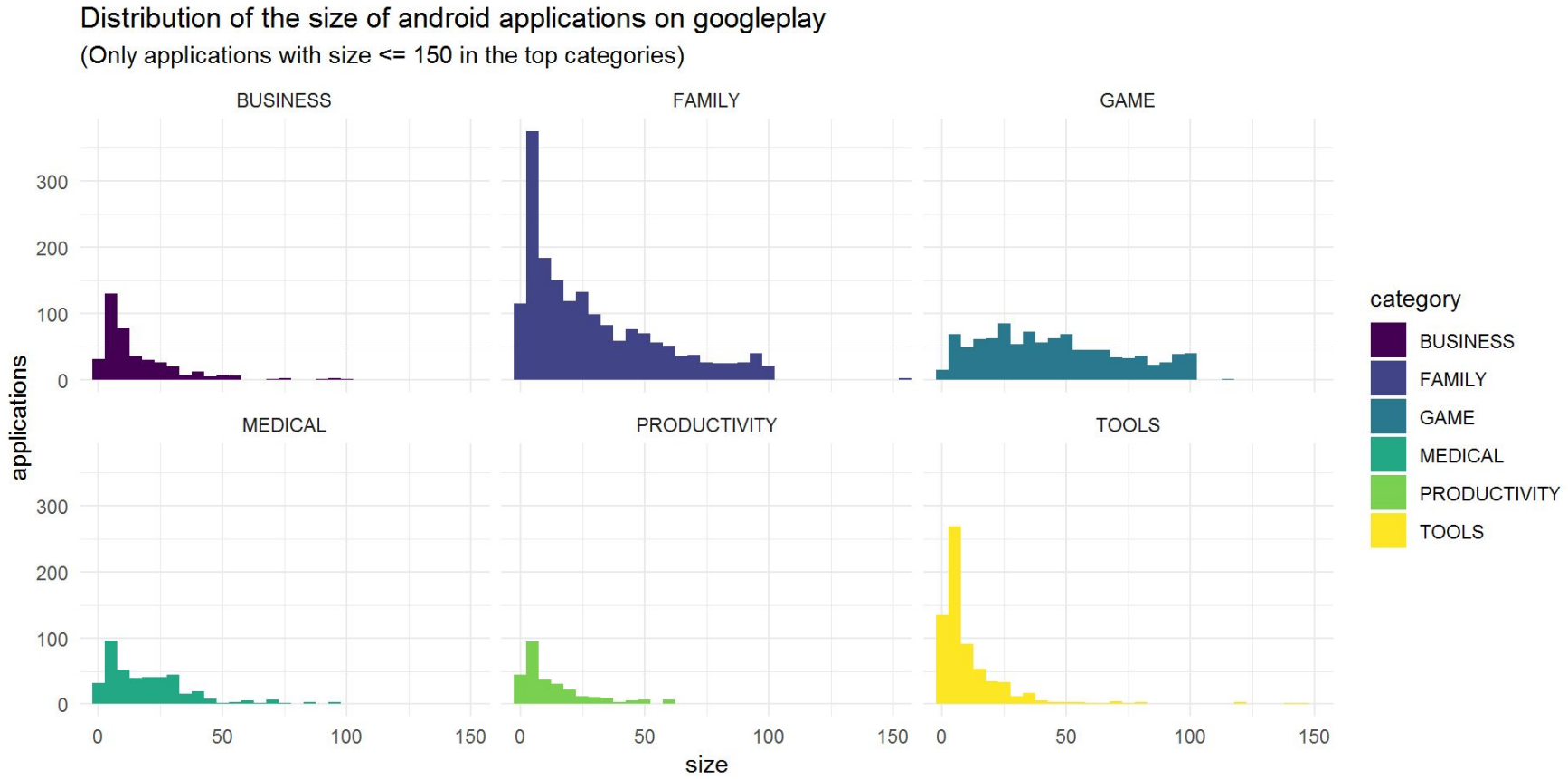
What are we going to create today?



What are we going to create today?



What are we going to create today?



AND MORE...

ggplot2 Layers/Building Blocks

THEME

COORDINATES

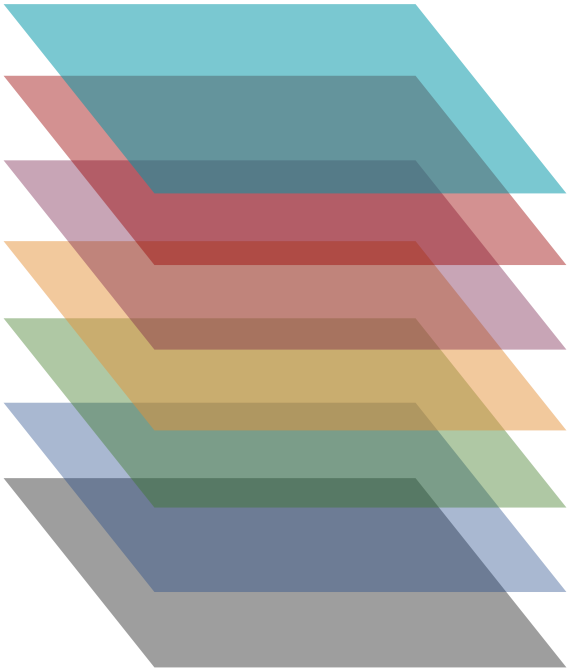
STATISTICS

FACETS

GEOMETRIES

AESTHETICS

DATA



Gapminder Dataset

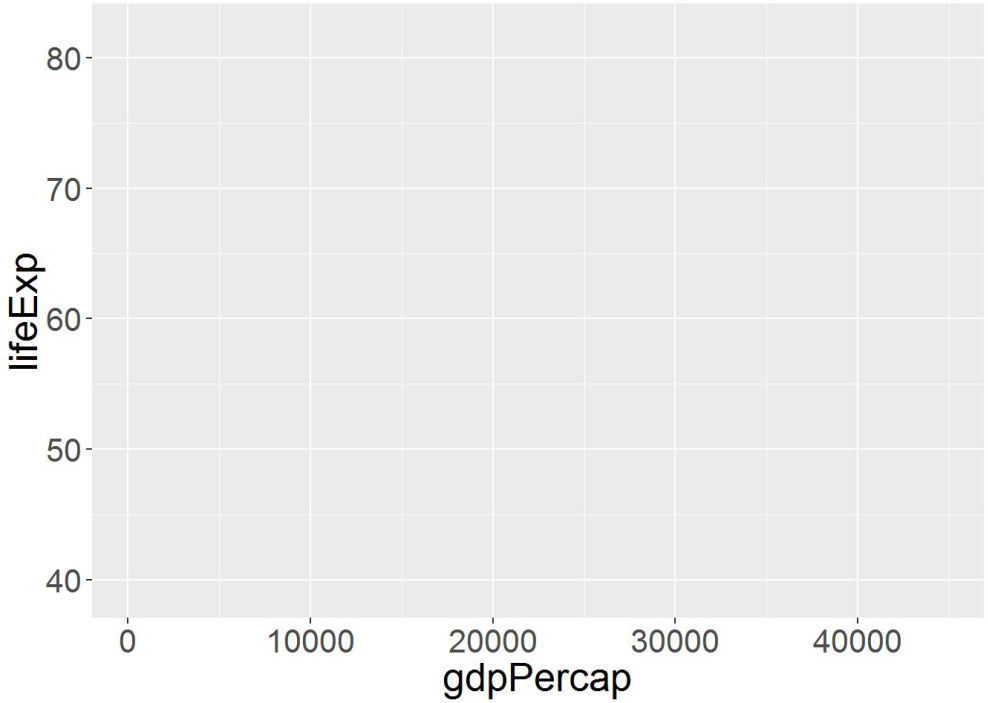
```
> library(gapminder)
> gapminder

# A tibble: 1,704 x 6
   country     continent  year lifeExp      pop gdpPercap
   <fct>       <fct>     <int>   <dbl>    <int>     <dbl>
 1 Afghanistan Asia       1952  28.801  8425333    779.45
 2 Afghanistan Asia       1957  30.332  9240934    820.85
 3 Afghanistan Asia       1962  31.997 10267083    853.10
 4 Afghanistan Asia       1967  34.02  11537966    836.20
 5 Afghanistan Asia       1972  36.088 13079460    739.98
 6 Afghanistan Asia       1977  38.438 14880372    786.11
 7 Afghanistan Asia       1982  39.854 12881816    978.01
 8 Afghanistan Asia       1987  40.822 13867957    852.40
 9 Afghanistan Asia       1992  41.674 16317921    649.34
10 Afghanistan Asia       1997  41.763 22227415    635.34
# ... with 1,694 more rows
```

DATA

AESTHETICS

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp))
```



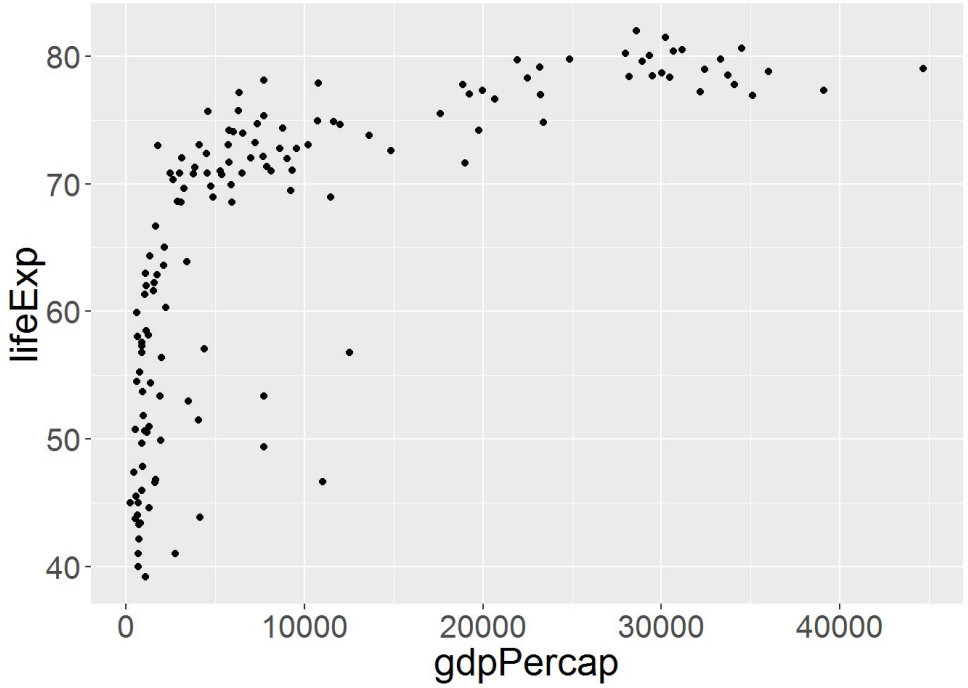
DATA

AESTHETICS

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp))+
  geom_point()
```

GEOMETRY

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp))+
    geom_point()
```



DATA

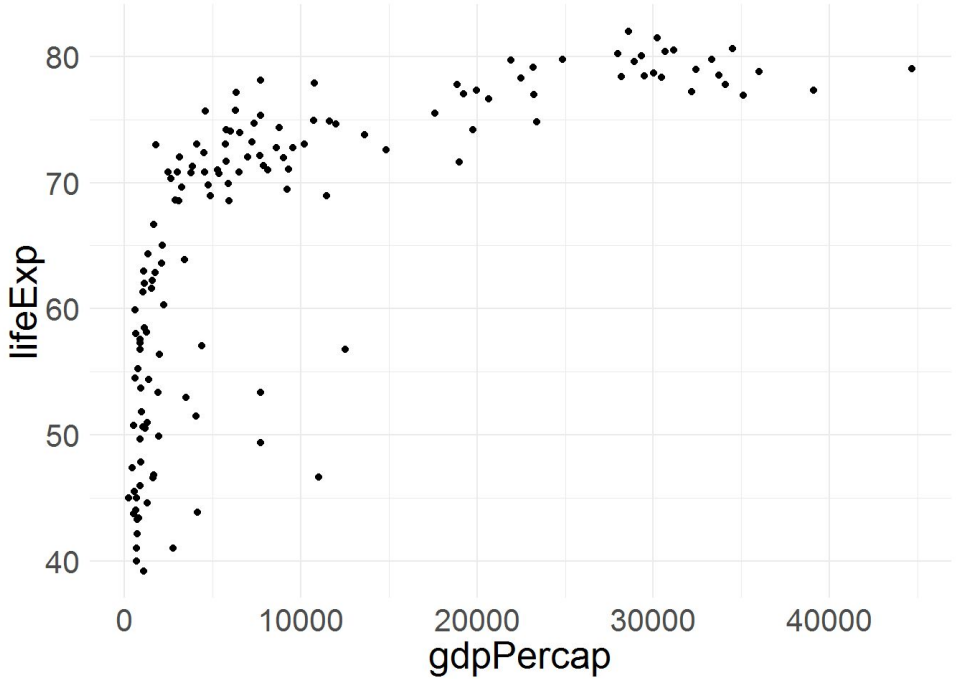
AESTHETICS

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp))+
  geom_point()+
  theme_minimal()
```

GEOMETRY

THEME

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp))+
    geom_point()+
    theme_minimal()
```



DATA

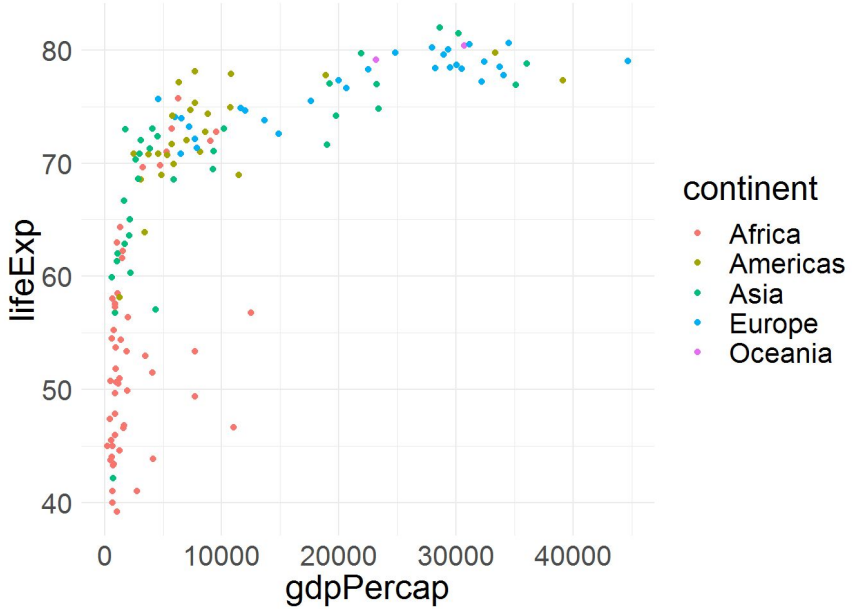
AESTHETICS

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp,
                                  color = continent))+
  geom_point()+
  theme_minimal()
```

GEOMETRY

THEME

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp,
                                  color = continent))+
    geom_point()+
    theme_minimal()
```



DATA

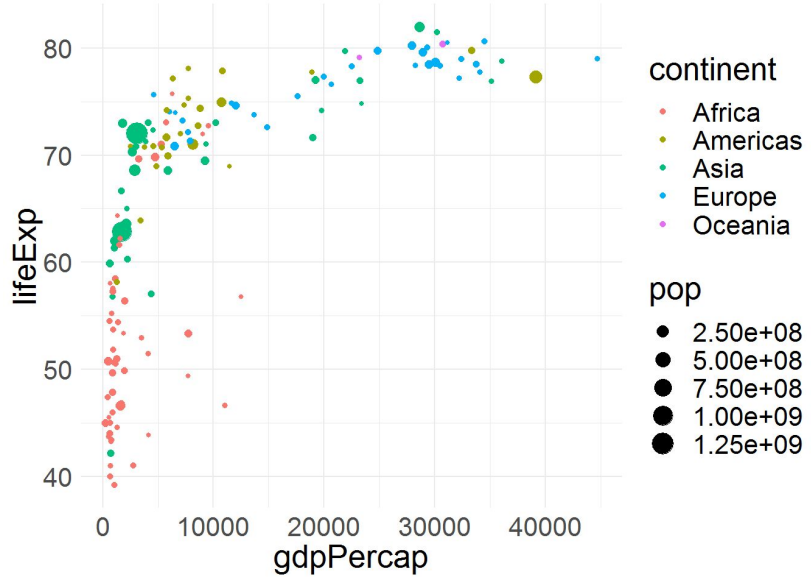
AESTHETICS

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp,
                                  color = continent,
                                  size = pop))+
  geom_point()+
  theme_minimal()
```

GEOMETRY

THEME

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp,
                                  color = continent,
                                  size = pop))+
  geom_point()+
  theme_minimal()
```



DATA

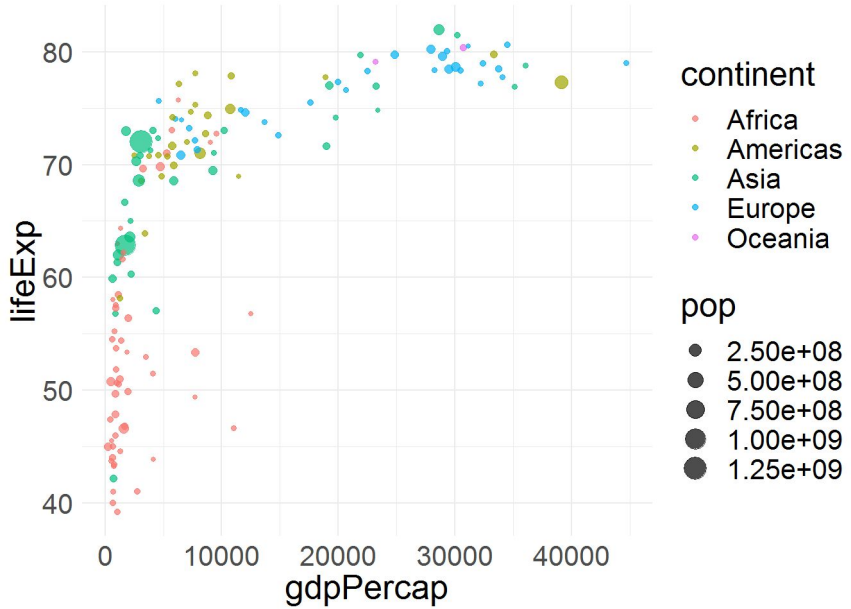
AESTHETICS

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp,
                                  color = continent,
                                  size = pop))+
  geom_point(alpha = 0.7)+
  theme_minimal()
```

GEOMETRY

THEME

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp,
                                  color = continent,
                                  size = pop))+
    geom_point(alpha = 0.7)+
    theme_minimal()
```



DATA

AESTHETICS

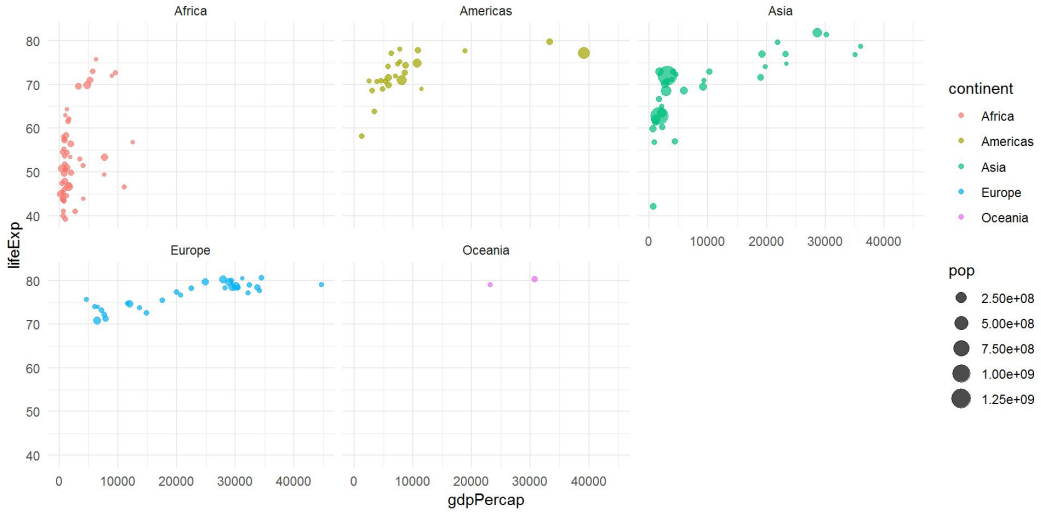
```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp,
                                  color = continent,
                                  size = pop))+
  geom_point(alpha = 0.7)+
  theme_minimal()+
  facet_wrap(~continent)
```

GEOMETRY

THEME

FACETS

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp,
                                  color = continent,
                                  size = pop))+
  geom_point(alpha = 0.7)+
  theme_minimal()+
  facet_wrap(~continent)
```



DATA

AESTHETICS

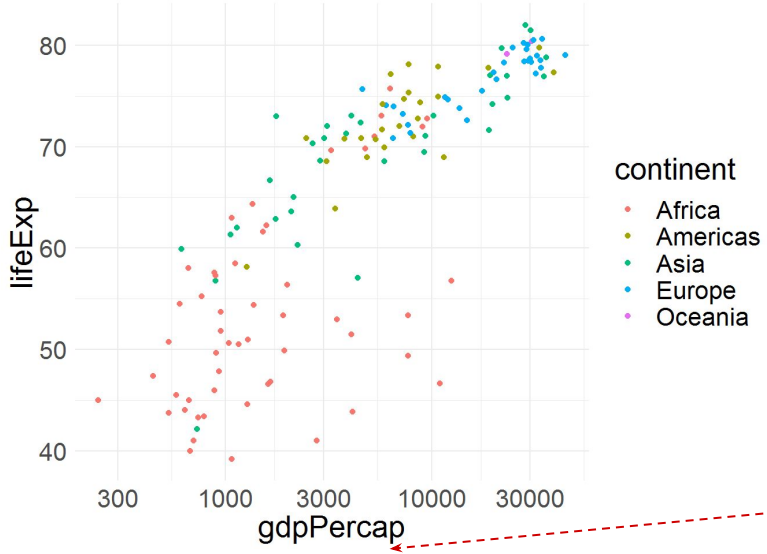
```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp,
                                  color = continent,
                                  size = pop))+
  geom_point(alpha = 0.7)+
  theme_minimal()+
  scale_x_log10()
```

GEOMETRY

THEME

COORDINATES

```
ggplot(data = gapminder_2002, aes(x = gdpPercap, y = lifeExp,
                                  color = continent))+
    geom_point()+
    theme_minimal()+
    scale_x_log10()
```



NOTICE THE X-LABEL

googleplaystore Dataset

```
> str(googleplaystore, max.level = 1)
Classes ‘tbl_df’, ‘tbl’ and 'data.frame':   10839 obs. of  13 variables:
 $ app           : chr  "Photo Editor & Candy Camera & Grid & ScrapBook" "Coloring book moana" "U
Launcher Lite – FREE Live Cool Themes, Hide Apps" "Sketch - Draw & Paint" ...
 $ category      : chr  "ART_AND_DESIGN" "ART_AND_DESIGN" "ART_AND_DESIGN" "ART_AND_DESIGN" ...
 $ rating        : num  4.1 3.9 4.7 4.5 4.3 4.4 3.8 4.1 4.4 4.7 ...
 $ reviews       : int  159 967 87510 215644 967 167 178 36815 13791 121 ...
 $ size          : num  19 14 8.7 25 2.8 5.6 19 29 33 3.1 ...
 $ installs      : chr  "10,000+" "500,000+" "5,000,000+" "50,000,000+" ...
 $ type          : chr  "Free" "Free" "Free" "Free" ...
 $ price         : num  0 0 0 0 0 0 0 0 0 0 ...
 $ content_rating: chr  "Everyone" "Everyone" "Everyone" "Teen" ...
 $ genres        : chr  "Art & Design" "Art & Design;Pretend Play" "Art & Design" "Art & Design" ...
 $ last_updated  : Date, format: "2018-01-07" "2018-01-15" "2018-08-01" "2018-06-08" ...
 $ current_ver   : chr  "1.0.0" "2.0.0" "1.2.4" "Varies with device" ...
 $ android_ver   : chr  "4.0.3 and up" "4.0.3 and up" "4.0.3 and up" "4.2 and up" ...
 - attr(*, "spec")=List of 2
  ..- attr(*, "class")= chr "col_spec"
```

googleplaystore Dataset

Columns

- A App Application name
- A Category Category the app belongs to ss
- # Rating Overall user rating of the app (as when scraped)
- # Reviews Number of user reviews for the app (as when scraped)
- A Size Size of the app (as when scraped)
- A Installs Number of user downloads/installs for the app (as when scraped)
- A Type Paid or Free
- A Price Price of the app (as when scraped)
- A Content Rating Age group the app is targeted at - Children / Mature 21+ / Adult
- A Genres An app can belong to multiple genres (apart from its main category). For eg, a musical family game will belong to Music, Game, Family genres.
- Last Updated Date when the app was last updated on Play Store (as when scraped)
- A Current Ver Current version of the app available on Play Store (as when scraped)
- A Android Ver Min required Android version (as when scraped)

https://www.kaggle.com/lava18/google-play-store-apps

googleplaystore Dataset

- What is the total number of reviews for each category?
- What is the share of free/paid applications in each category?
- What is the distribution of applications size?

CALCULATE AND PLOT