

# Assignment 4

Start Assignment

**Due** 18 May by 22:00    **Points** 10    **Submitting** a file upload  
**File types** rmd and html    **Available** until 18 May at 22:00

## Assignment 4

*This assignment draws on lecture and lab content from Module 4: Creating static and dynamic visualisations. The knowledge and skills assessed by the assignment will be covered in lectures/labs by the end of Module 4. Consequently, the order of the assignment instructions below does not necessarily reflect the order the material is covered in lectures/labs.*

The data context for Assignment 4 is music data. You will focus on manipulating data from Spotify API and creating visualisations with this data. 🎵🎵🎵 You need to choose a public Spotify playlist to use for your data source. You can create your own public Spotify playlist, or use one someone else has created.

You will then use your data to create visualisations to “tell a story” (a narrative). You will also need to write about the story behind your data visualisation.

You can use examples from lectures and the labs as inspiration, but can not copy them exactly, as you will need to demonstrate understanding of how to **manipulate data** as well as how to apply the **grammar of graphics** to create a visualisation.

## Computing information

You will need access to a computer that has [R](https://cran.r-project.org/) <sup>↗</sup> [\(https://cran.r-project.org/\)](https://cran.r-project.org/) installed and [RStudio](https://www.rstudio.com/products/rstudio/download/) <sup>↗</sup> [\(https://www.rstudio.com/products/rstudio/download/\)](https://www.rstudio.com/products/rstudio/download/) installed.

You should already have installed the R packages {tidyverse} and {jsonlite}.

**You will need to install the package {ganimate}.**

Use `install.packages("gganimate")` to install the {gganimate} package but do not leave this code in your `index.Rmd` file as you only need to run this once.

If installing R, RStudio, or these packages onto your computer is a problem, you can use the free level of [RStudio Cloud](https://rstudio.cloud/) <sup>↗</sup> [\(https://rstudio.cloud/\)](https://rstudio.cloud/).

## Data source

You need to choose a public Spotify playlist to use for your data source. You can create your own public Spotify playlist, or use one someone else has created.

The playlist must have at least 50 different songs on it.

Use this app to obtain data about your selected Spotify playlist: <https://stats-uaa.shinyapps.io/spotify/> [\(https://stats-uaa.shinyapps.io/spotify/\)](https://stats-uaa.shinyapps.io/spotify/)

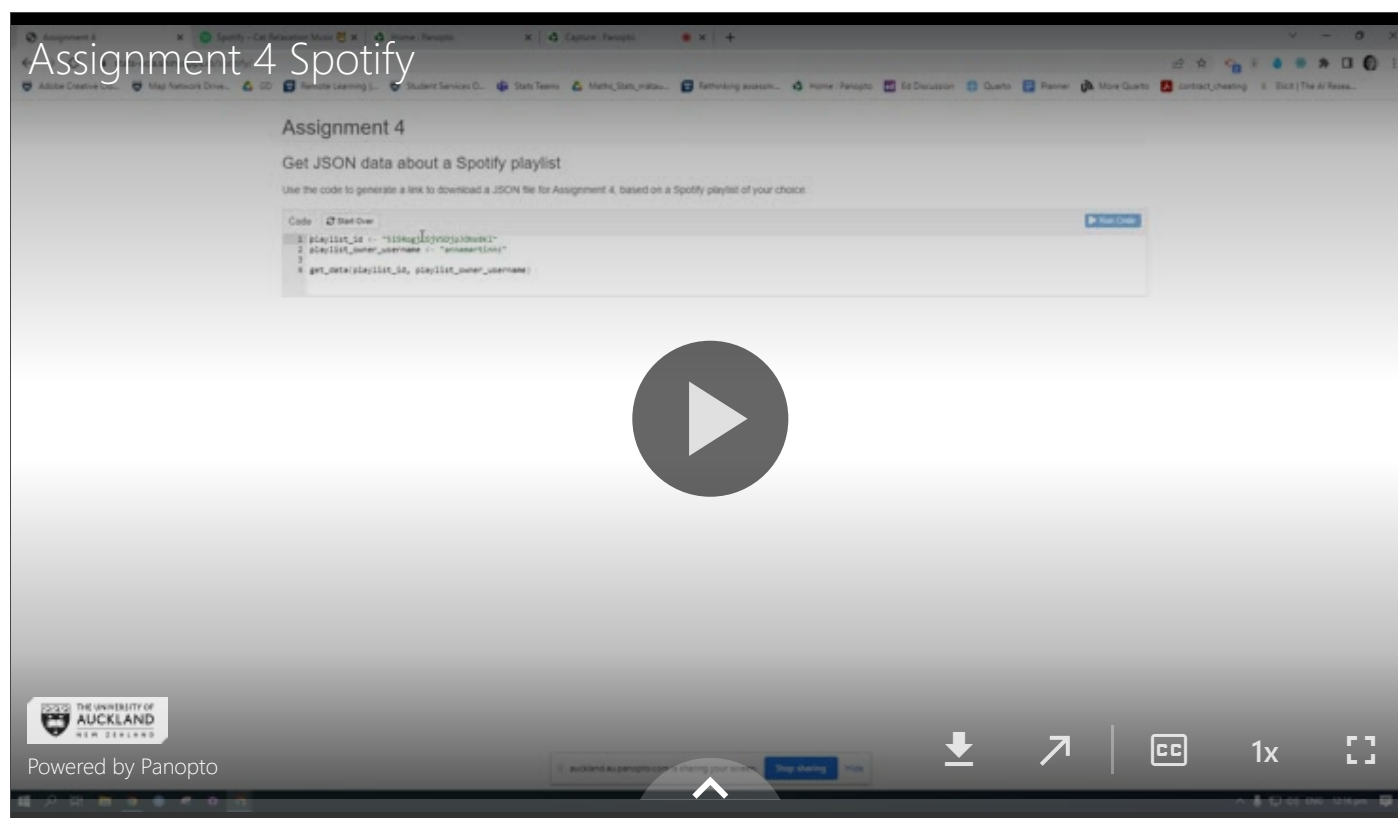
You will need the `playlist_id` and the username of the Spotify user who has shared the playlist publicly.

Once you have run the code, you will be given a link. Click on this link to access the JSON as text, and then use “Save as” to save this text as a JSON file in your *Assignment4* project folder.

**You will probably want to change the name of the json file to something more easy to reference, like ‘spotify.json’.**

To read the data from your JSON file, use the function `fromJSON()` [See Lab task 4B].

The video below demonstrates some of this process.



## Instructions

- Within your *stats220* folder on your computer, create a new project using RStudio that is called “Assignment4”.
- Create a new Rmd file within the *Assignment4* project called “index.Rmd”
- Use your Rmd file to produce a web page (HTML file) that uses your data to create


visualisations to “tell a story” (a narrative). You will also need to write about the story behind your data visualisation.

- Your web page (HTML file) needs to contain:
  - at least two different data visualisations created using {ggplot2} and your Spotify data, one of which also needs to use {ganimate}
  - the R code used to manipulate the data and to produce the visualisations (i.e. `echo = TRUE` for any R chunks)
  - the story *behind* the data visualisation, describing:
    - why you chose this story
    - why you decided to focus on certain variables
    - why you chose the chart type(s) you used
    - how you applied the “grammar of graphics”
    - things you tried but didn’t work
    - your overall conclusion
- Please note the marking guide requirements below.
- Knit your *index.Rmd* file to create a self-contained *index.html* file.

*For this assignment, you will submit your index.html file AND your index.Rmd file*

## Marking guide

The assignment will be marked out of 10.

- The R code used is from {tidyverse}, is readable, and is used to manipulate the data for visualisation i.e. for a meaningful purpose **(2 marks)**
  - Note: There is an expectation that you will manipulate the data sources from Spotify in some way using functions such as `group_by()`, `summarise()`, `mutate()`, `filter()`, `arrange()`, `slice()`, etc. You do not need to use all of these functions, just the ones that help you obtain your goal(s) for visualisation.
- {ggplot2} is used to create at least two visualisations that are appropriate for the story being told and support a reader/viewer of the visualisation to understand the story **(3 marks)**
  - Note: At least one of these visualisations must use {ganimate} in some way. Think carefully about how you can use the different “tools” from {ggplot2} and {ganimate} to visually communicate a story: [Link to Lecture 4B2 recording](https://auckland.au.panopto.com/Panopto/Pages/Viewer.aspx?id=3b786c5d-ee67-4517-85c7-ae8b00559557&start=303)   
(<https://auckland.au.panopto.com/Panopto/Pages/Viewer.aspx?id=3b786c5d-ee67-4517-85c7-ae8b00559557&start=303>)
- The story behind the data is described, and includes how the “grammar of graphics” were applied to at least one visualisation **(2 marks)**

- Note: At least 300 words need to be written.
- The story presented is unique and does not just copy the examples used in lectures, lab tasks/quizzes, or other sources such as the R graph gallery etc. **(2 marks)**
- The web page (HTML file) uses markdown and CSS effectively to support the design of the visualisations and to present the story **(1 mark)**

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Criteria	Ratings				Pts
The R code used is from {tidyverse}, is readable, and is used to manipulate the data for visualisation i.e. for a meaningful purpose	2 Pts Full marks	1 Pts Part mark	0 Pts No marks		2 pts
{ggplot2} is used to create at least two visualisations that are appropriate for the story being told and support a reader/viewer of the visualisation to understand the story	3 Pts Full marks	2 Pts Part marks	1 Pts Part mark	0 Pts No marks	3 pts
The story behind the data is described, and includes how the "grammar of graphics" were applied	2 Pts Full marks	1 Pts Part mark	0 Pts No marks		2 pts
The story presented is unique	2 Pts Full marks	1 Pts Part mark	0 Pts No marks		2 pts
The web page (HTML file) uses markdown and CSS effectively to support the design of the visualisations and to present the story	1 Pts Full marks		0 Pts No marks		1 pts
Total points: 10					