

Data Visualiation with R Exercises With Plots

Load the example dataset (example2.tsv) using read_tsv.

```
library(tidyverse)
results <- read_tsv('example2.tsv',
                    col_types = cols(Chr = 'c', Strand = 'c'))
```

Filtering and Selecting

1. Use filter to find out how many genes have an adjusted p-value less than 0.05.

```
filter(results, adjp < 0.05) %>%
  nrow()
```

2. Find out which gene has the smallest p-value by sorting the data using arrange.

```
arrange(results, adjp) %>%
  select(., GeneID, Name, adjp) %>%
  head(1)
```

3. Make a new column in the data that is -log10 of the adjusted p-value column. You can use the log10 () function to calculate this.

```
results <- mutate(results,
                  log10p = -log10(adjp))

select(results, GeneID, Name, adjp, log10p) %>%
  arrange(adjp) %>%
  head(5)
```

4. Make a new data.frame that contains the GeneID, Name and all the normalised count columns.

```
normalised_counts <-
  select(results, GeneID, Name, contains('normalised_count'))
```

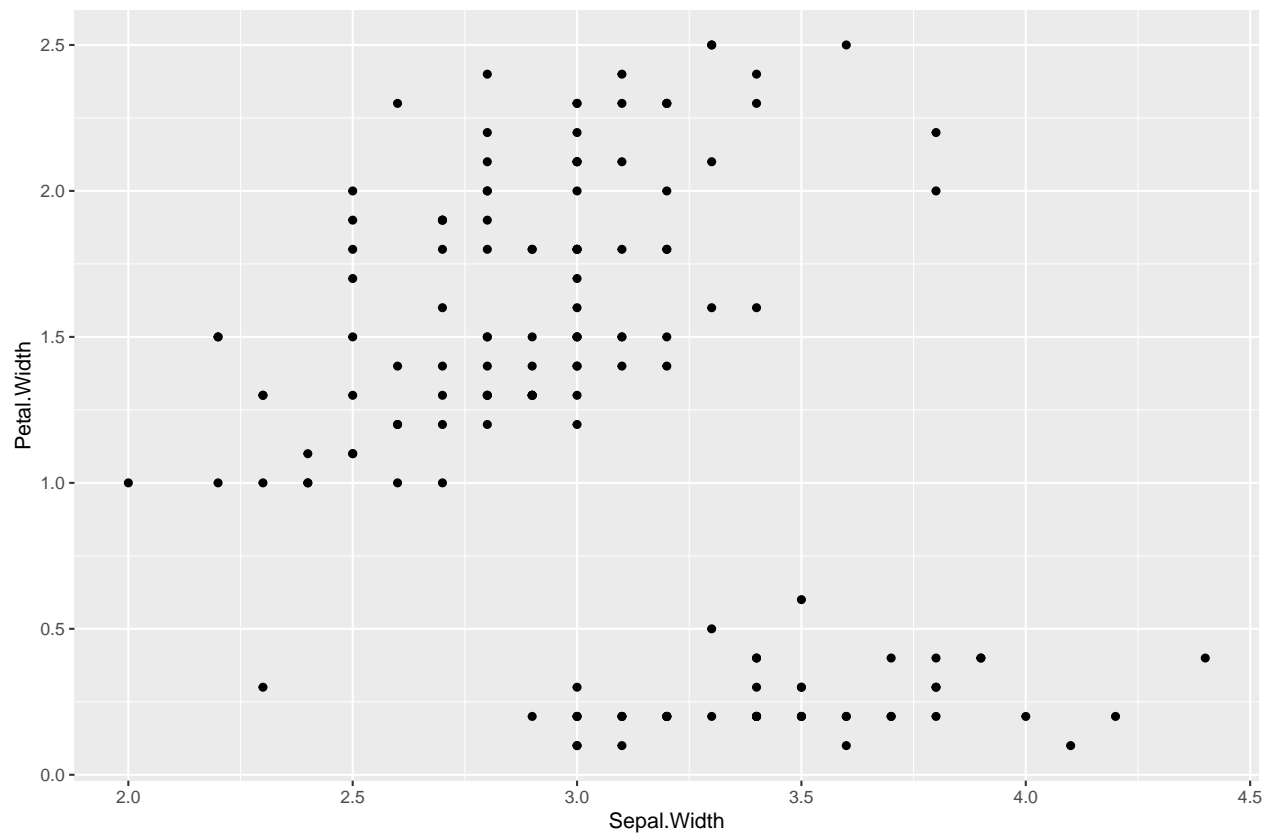
5. Make the new data.frame data tidy using pivot_longer.

```
normalised_counts_long <-
  pivot_longer(normalised_counts, c(-GeneID, -Name),
               names_to = 'sample', values_to = 'normalised count')
```

Plotting

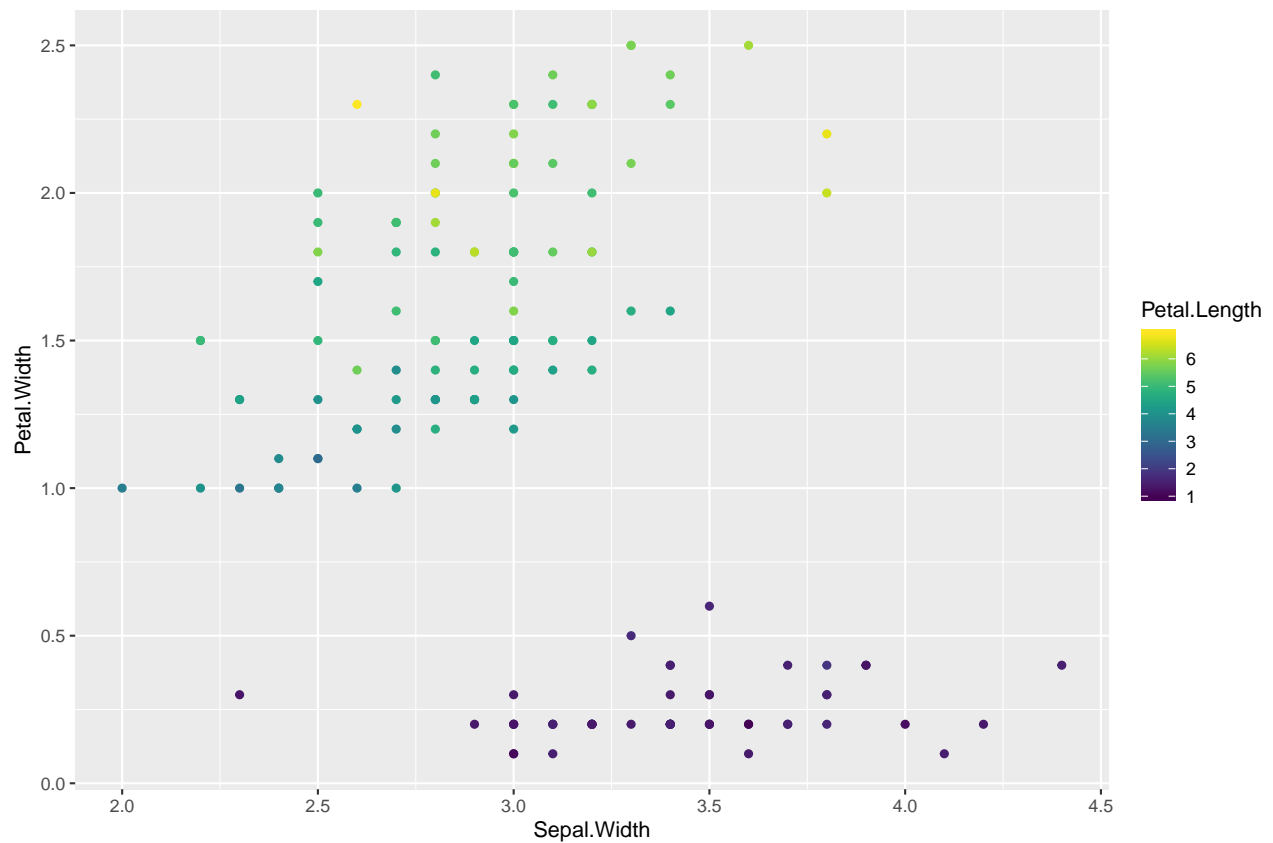
1. Using the iris dataset make a plot of Petal.Width (y) against Sepal.Width (x).

```
ggplot(data = iris) +
  geom_point(aes(x = Sepal.Width, y = Petal.Width))
```



2. Now colour the points by Petal.Length and use the viridis colour scale using `scale_colour_viridis_c`.

```
ggplot(data = iris, aes(x = Sepal.Width, y = Petal.Width)) +  
  geom_point(aes(colour = Petal.Length)) +  
  scale_colour_viridis_c()
```



3. Change the colouring to Species, choose a hollow shape (one of 21-25) and pick 3 colours to use with `scale_fill_manual`.

```
ggplot(data = iris, aes(x = Sepal.Width, y = Petal.Width)) +  
  geom_point(aes(fill = Species), shape = 22, size = 3) +  
  scale_fill_manual(values = c('firebrick2', 'steelblue3', 'orange'))
```

