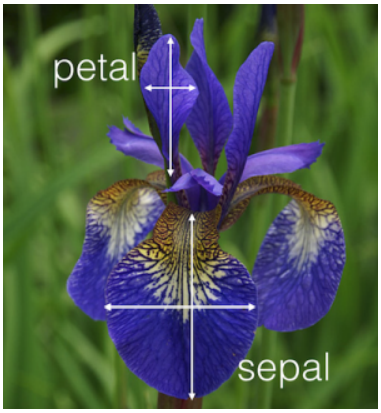
Tutorial 1



1. Interpret the following outputs.

Question 1.1

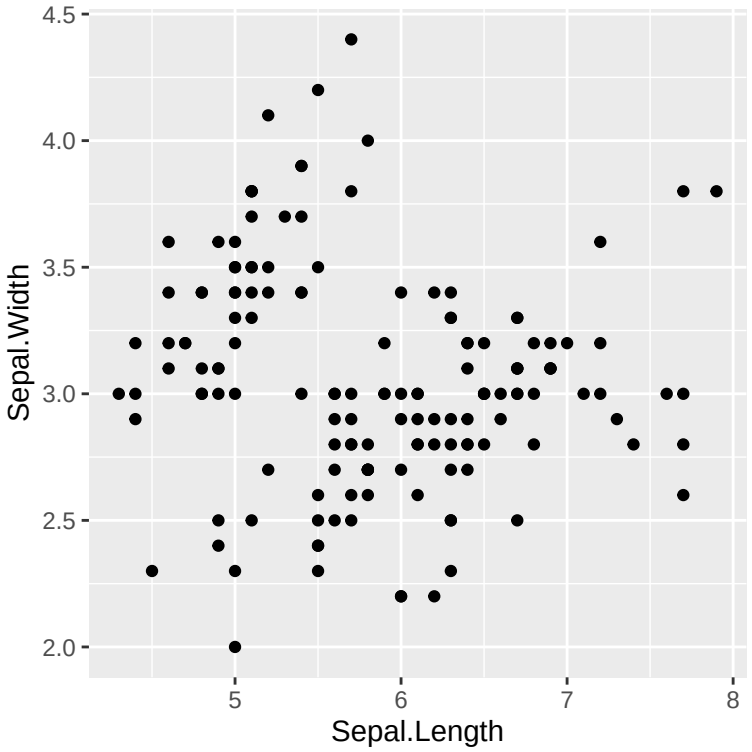


Figure 1: Scatterplot of Sepal Length vs Sepal Width (Pearson's correlation coefficient = -0.12)

Question 1.2

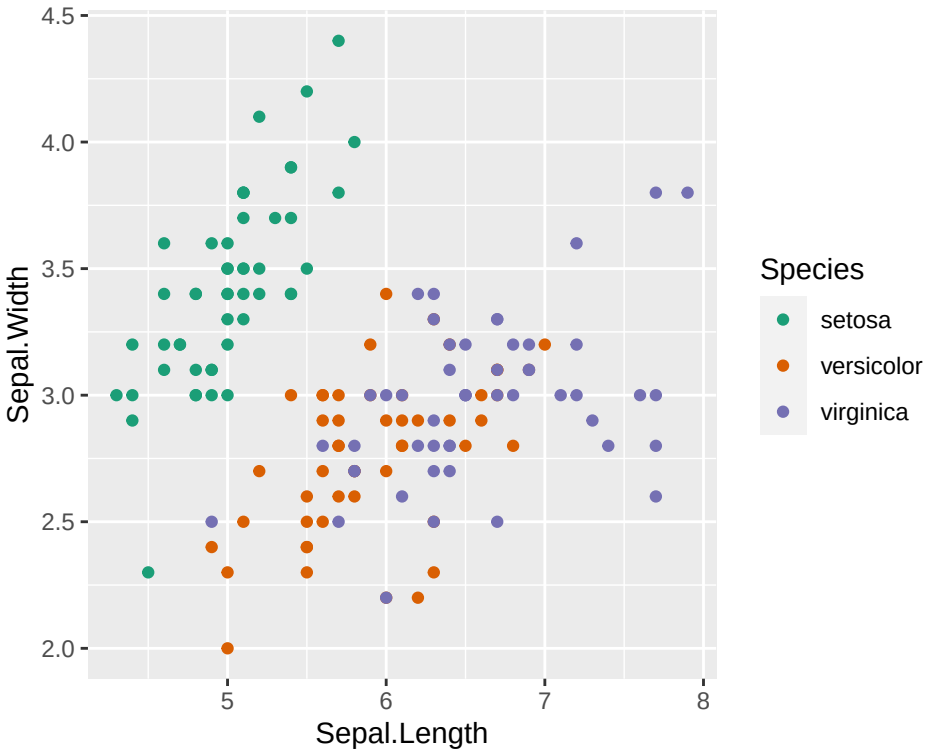


Figure 2: Scatterplot of Sepal Length vs Sepal Width by Species (Pearson's correlation coefficient = -0.12)

Question 1.3

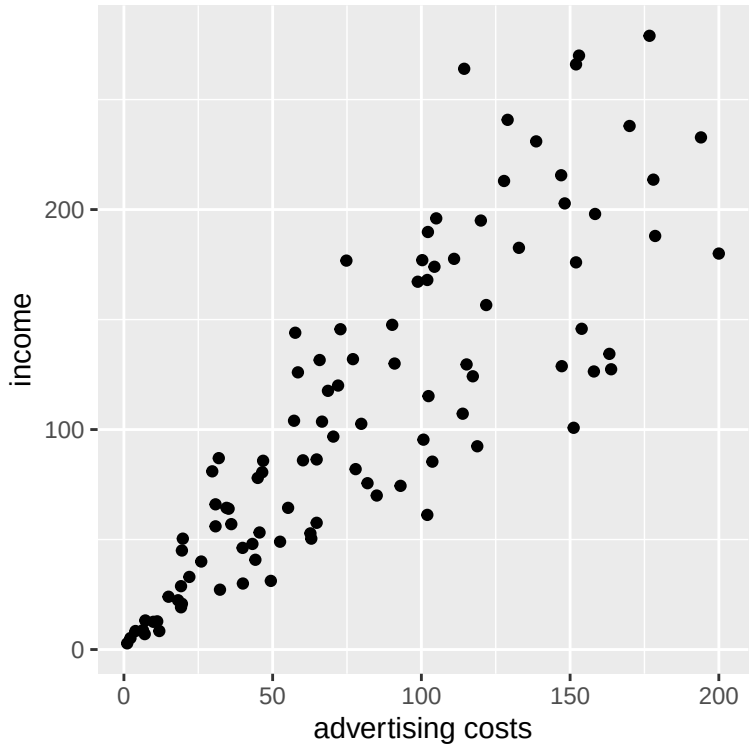


Figure 3: Scatterplot of income vs advertising costs (Pearson's correlation coefficient = 0.803)

For question 1.3, do you think a simple linear regression model (with its basic assumptions) is appropriate for analysing the relationship between the two variables using these data?

Question 1.4

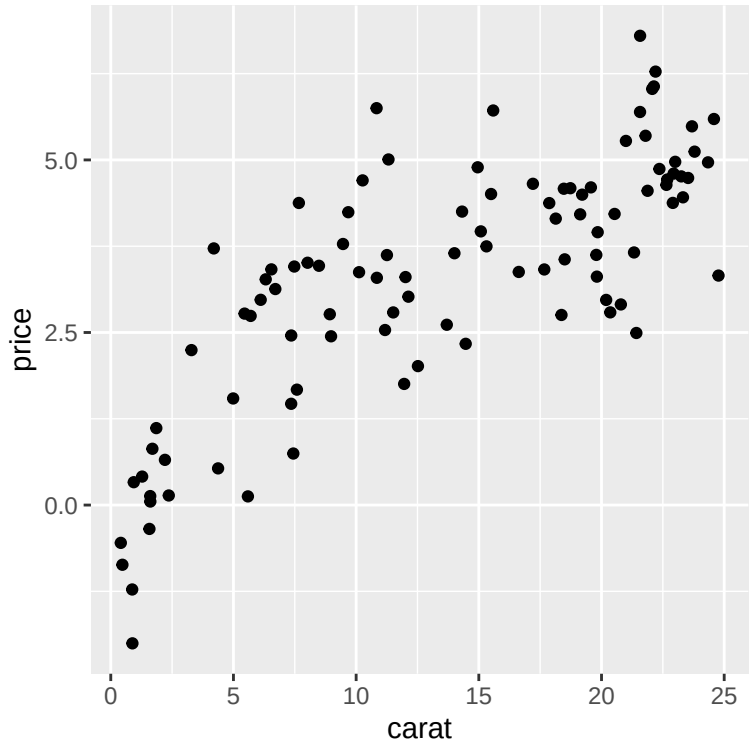


Figure 4: Scatterplot of price vs carat in diamonds (Pearson's correlation coefficient = 0.783)

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[1] 0.7834839
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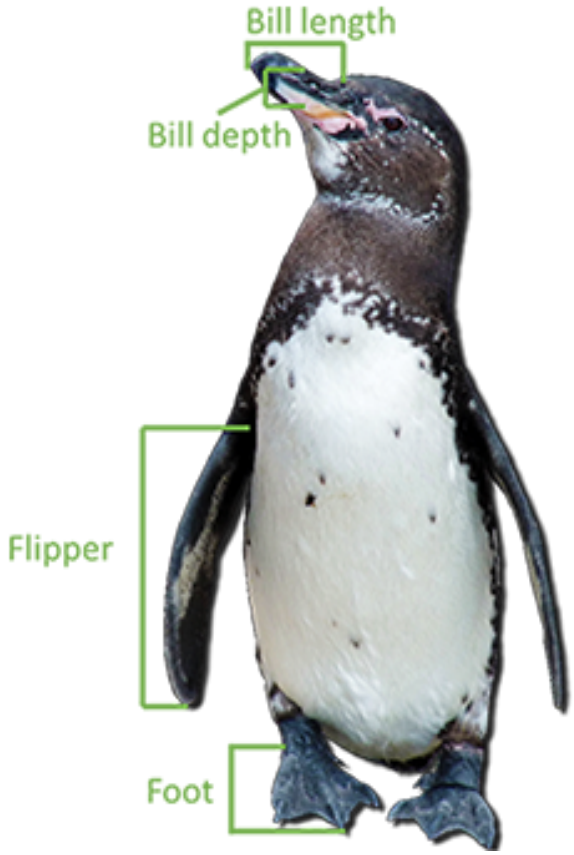
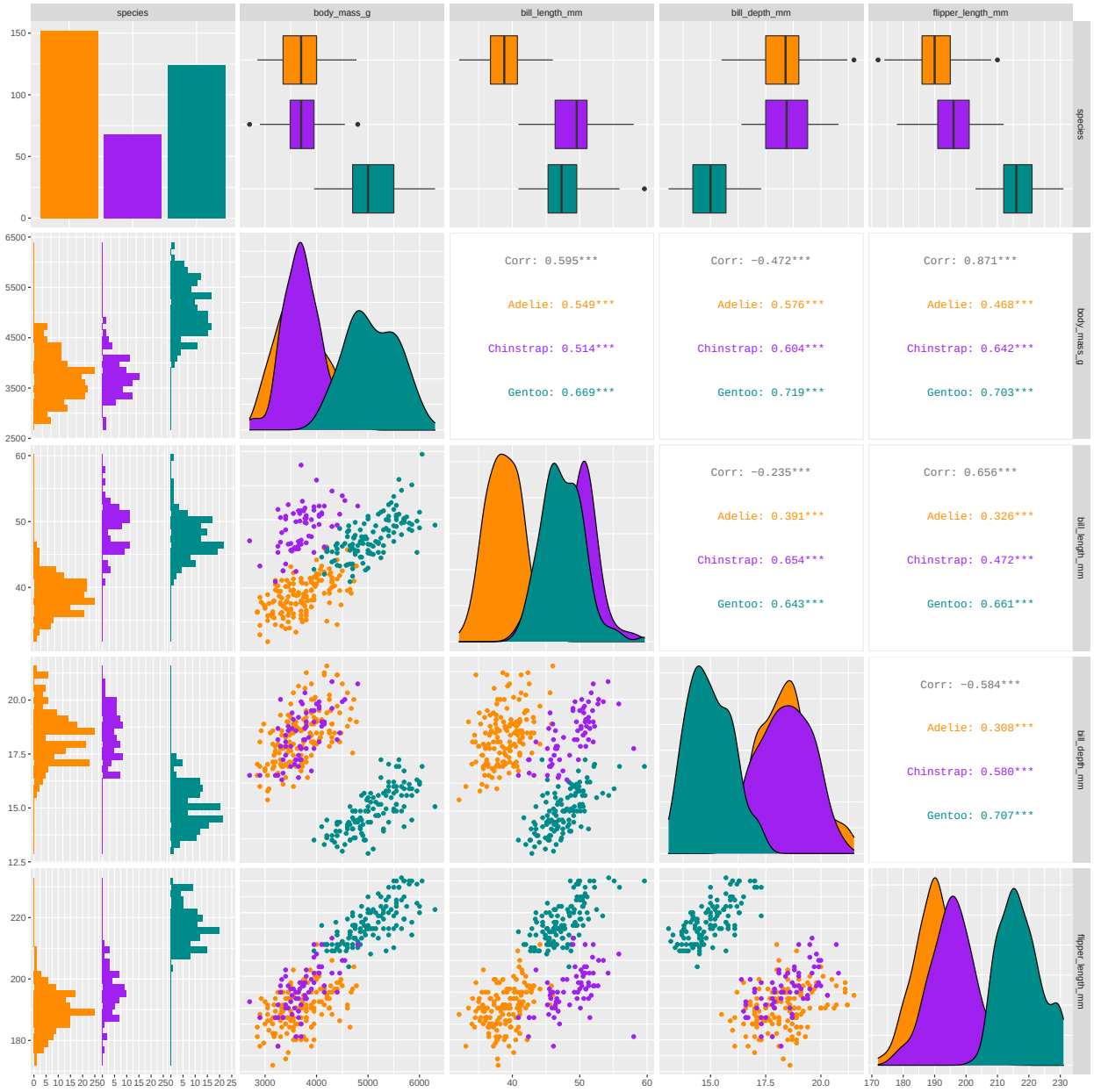
For question 1.4, do you think a simple linear regression model (with its basic assumptions) is appropriate for analysing the relationship between the two variables using these data?

Question 1.5



Overview of the dataset

```
Rows: 344
Columns: 7
$ species           <fct> Adelie, Adelie, Adelie, Adelie, Adelie, Adelie, A...
$ island            <fct> Torgersen, Torgersen, Torgersen, Torgersen, Torge...
$ bill_length_mm    <dbl> 39.1, 39.5, 40.3, NA, 36.7, 39.3, 38.9, 39.2, 34....
$ bill_depth_mm     <dbl> 18.7, 17.4, 18.0, NA, 19.3, 20.6, 17.8, 19.6, 18....
$ flipper_length_mm <int> 181, 186, 195, NA, 193, 190, 181, 195, 193, 190, ...
$ body_mass_g       <int> 3750, 3800, 3250, NA, 3450, 3650, 3625, 4675, 347...
$ sex               <fct> male, female, female, NA, female, male, female, m...
```


species
body_mass_g
bill_length_mm
bill_depth_mm
flipper_length_mm
Corr: 0.595***
Adelie: 0.549***
Chinstrap: 0.514***
Gentoo: 0.669***
Corr: −0.472***
Adelie: 0.576***
Chinstrap: 0.604***
Gentoo: 0.719***
Corr: 0.871***
Adelie: 0.468***
Chinstrap: 0.642***
Gentoo: 0.703***
Corr: −0.235***
Adelie: 0.391***
Chinstrap: 0.654***
Gentoo: 0.643***
Corr: 0.656***
Adelie: 0.326***
Chinstrap: 0.472***
Gentoo: 0.661***
Corr: −0.584***
Adelie: 0.308***
Chinstrap: 0.580***
Gentoo: 0.707***