

Saint Joy A. Mandalinao BSDS 2
2023-11993
2/11/2025

Creating time series objects: Installing the packages.

The screenshot shows the RStudio interface. In the top-left code editor, the following R script is displayed:

```
1 #Saint Joy A. Mandalinao BSDS 2
2 #023-11993
3 #2/11/2025
4
5 if (!require('fpp2')) install.packages('fpp2'); library('fpp2')
6
7 y <- ts(c(123,39,78,52,110), start=2012)
8
9
10 y <- ts(c(7.6,7.1,8.3,11.5,13.7,17.2,18.5,19.7,
11 ,15.1,8.9,8.5,8.5,7.7,6.9
12 ,6.1,10.5,12.9), start=1994, frequency=12)
13 print(y)
14
15 |
```

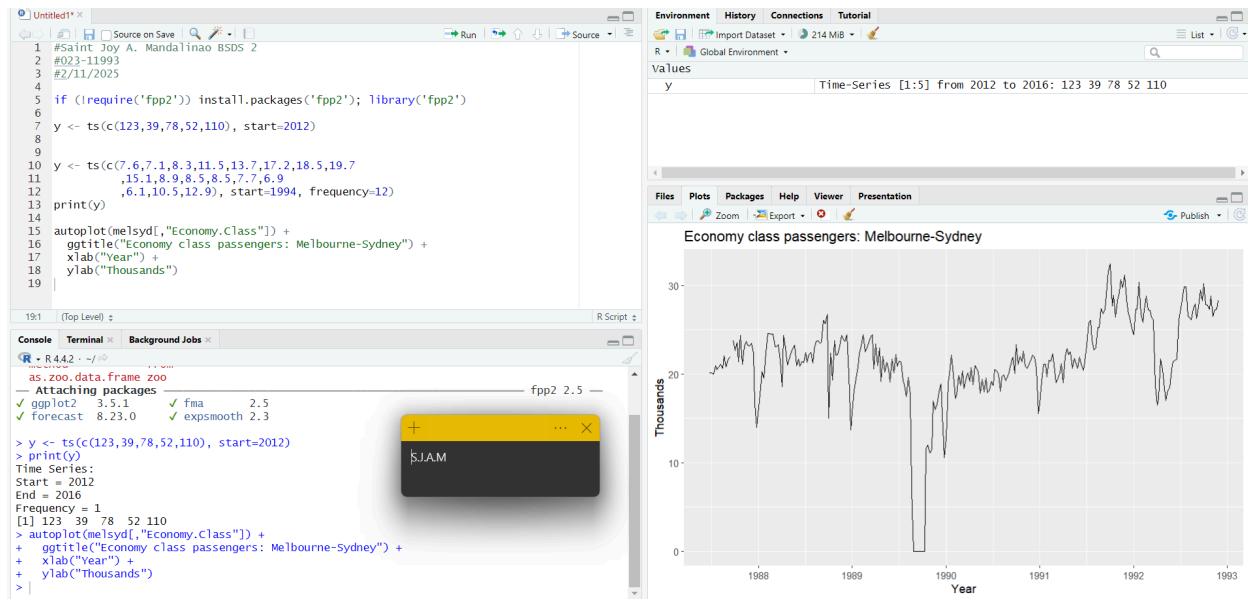
In the bottom-left console, the output of running the script is shown:

```
R - R 4.4.2 - ~/Desktop
> if (!require('fpp2')) install.packages('fpp2'); library('fpp2')
Loading required package: fpp2
Registered S3 method overwritten by 'quantmod':
  method      from
  as.zoo.data.frame zoo
-- Attaching packages --
✓ ggplot2 3.5.1   ✓ fma    2.5
✓ forecast 8.23.0 ✓ expsmooth 2.3

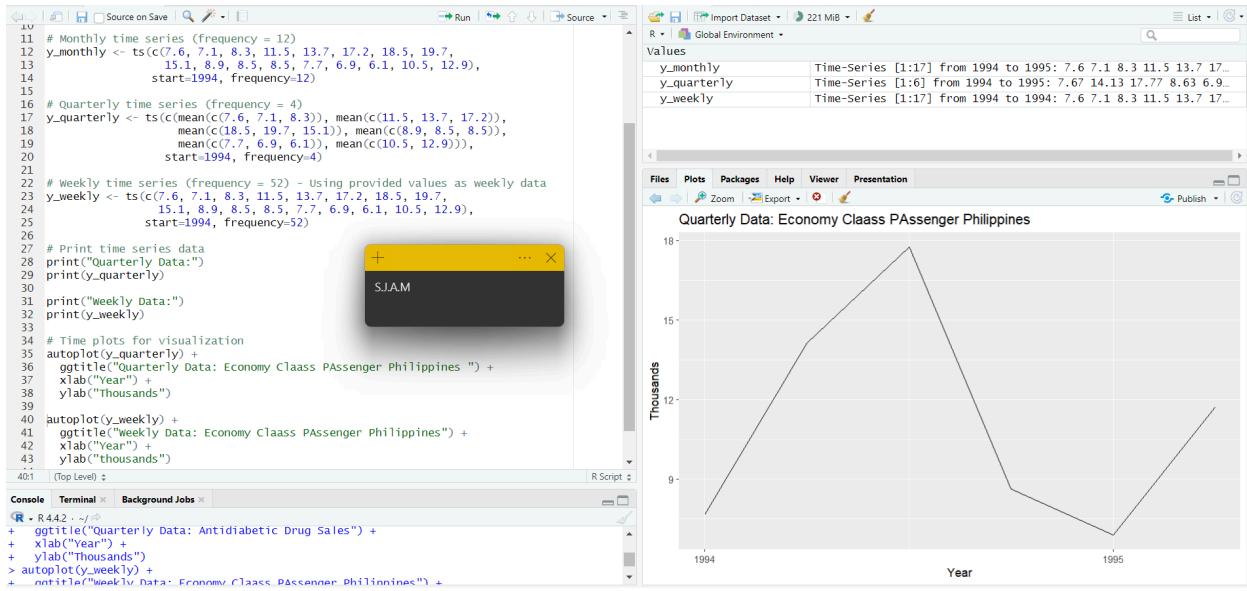
> y <- ts(c(123,39,78,52,110), start=2012)
> print(y)
Time Series:
Start = 2012
End = 2016
Frequency = 1
[1] 123 39 78 52 110
> |
```

The top-right pane shows the Global Environment with a variable 'y' defined as a Time-Series [1:5] from 2012 to 2016: 123 39 78 52 110. The bottom-right pane shows the 'Plots' tab with a plot of the time series 'y'.

Creating time series plots Economy class passengers: Melbourne–Sydney



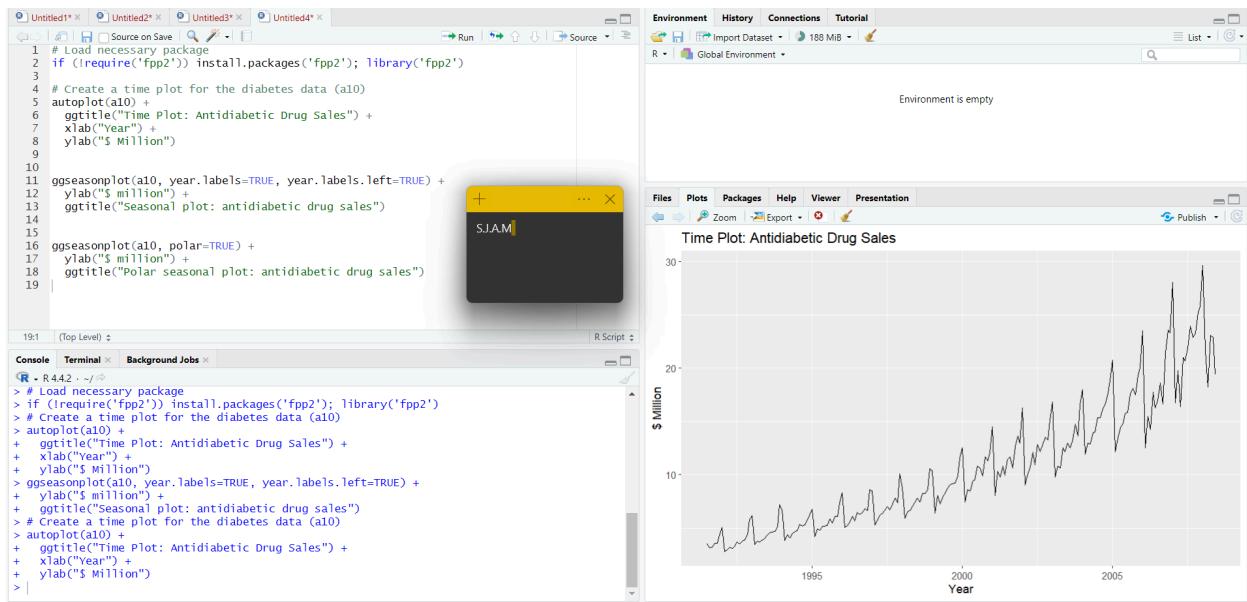
For other frequencies: Quarterly is 4 and weekly is 52.



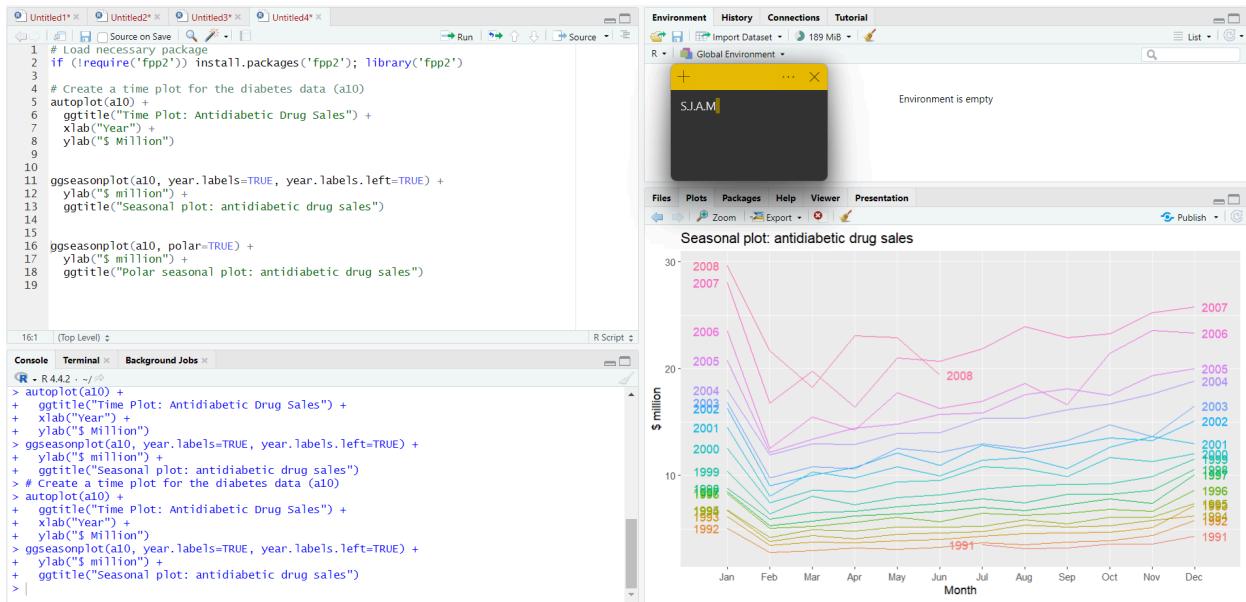
We use other example here to show the other frequency.

Exercise 1: Create a time plot for the diabetes data. The name of the data is a10

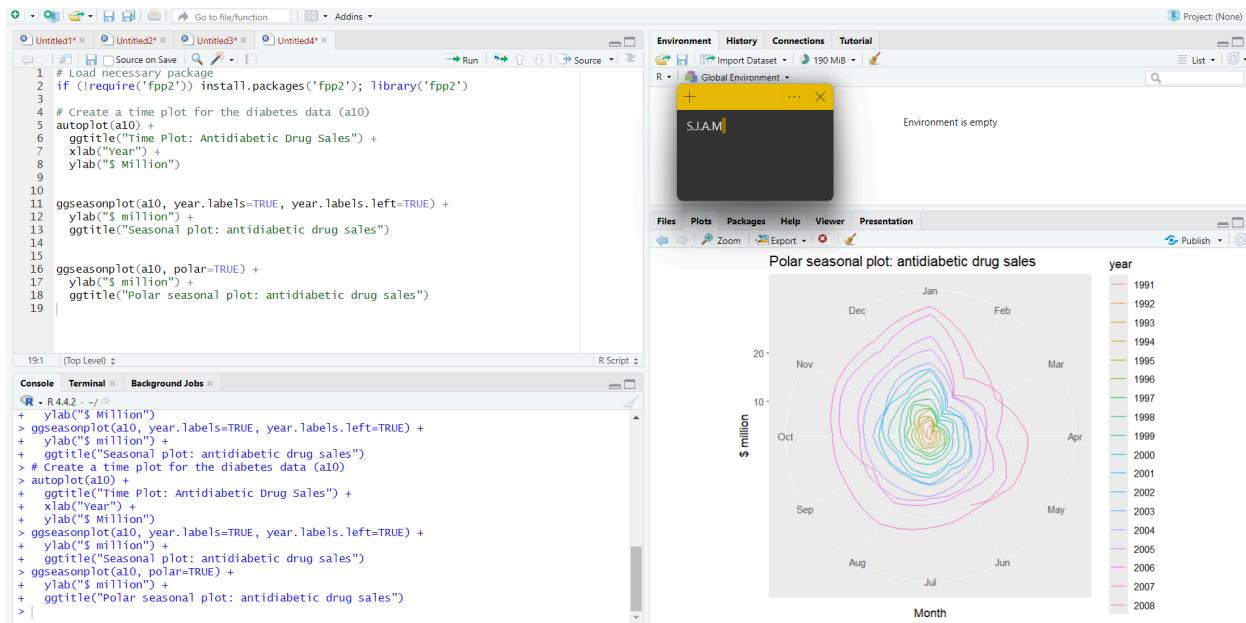
Time plot: Anti Diabetic Drug sales



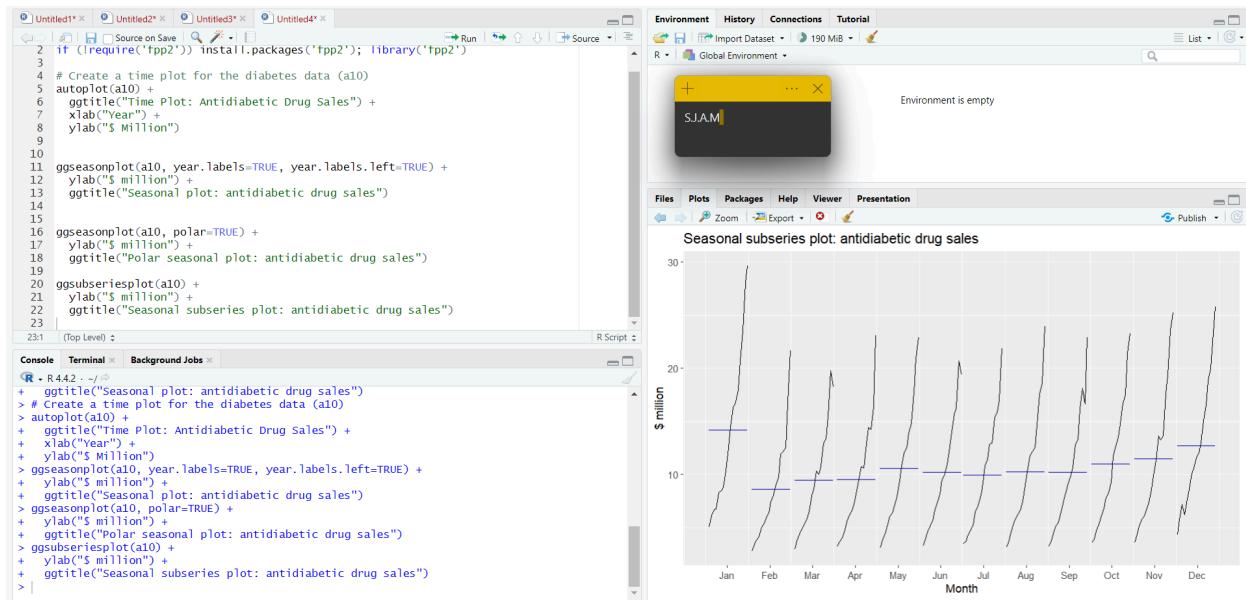
Seasonal plot: Anti Diabetic Drug sales



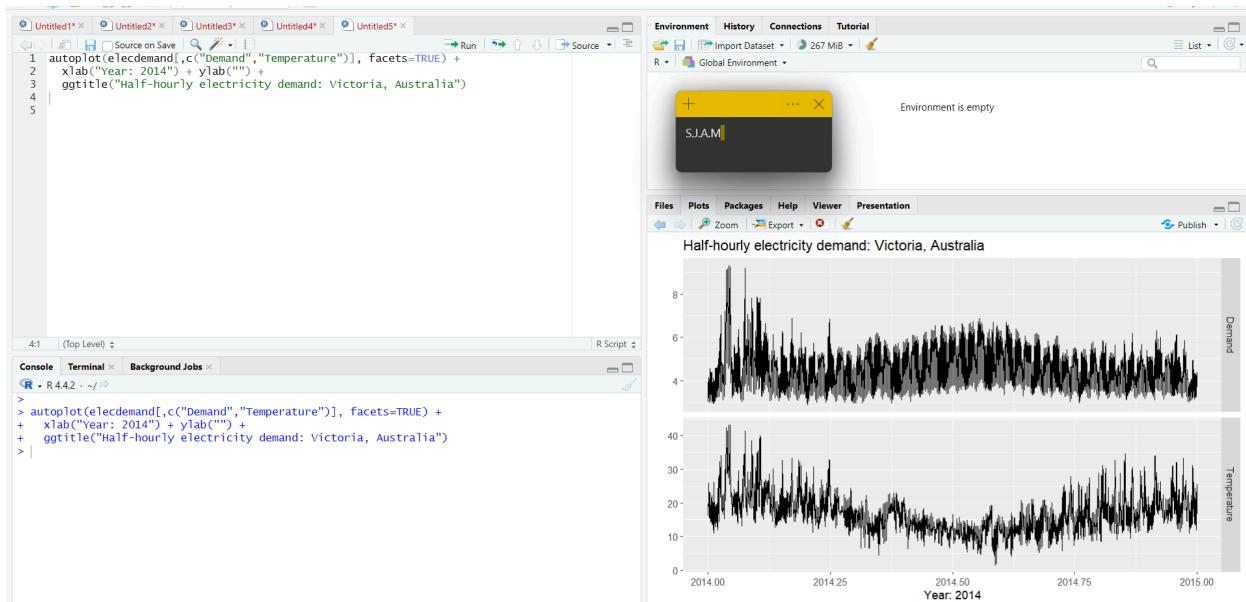
Polar Seasonal Plot: Anti Diabetic Drug sales



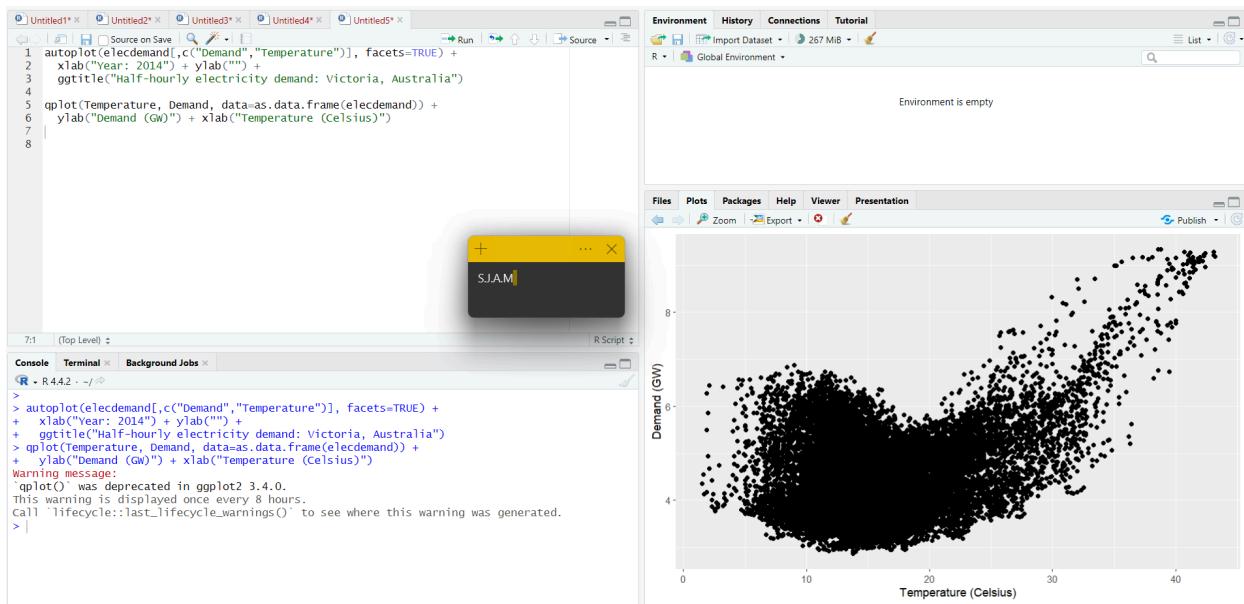
Seasonal Subseries Plot: Anti Diabetic Drug sales



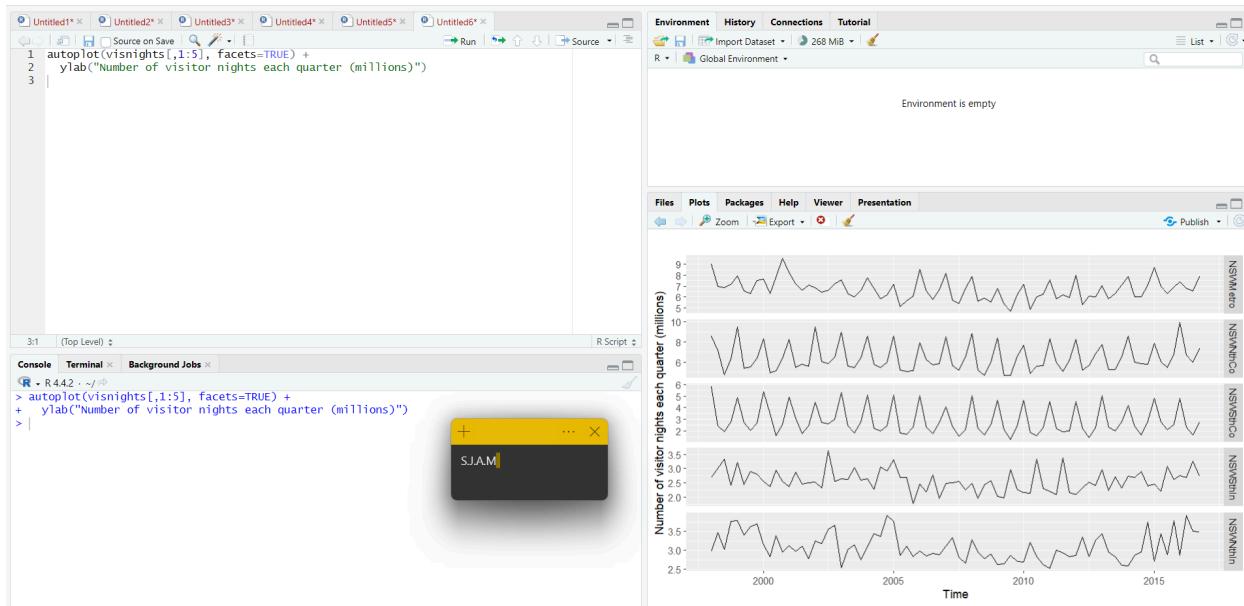
Scatterplots: (Half-hourly electricity demand: Victoria, Australia)



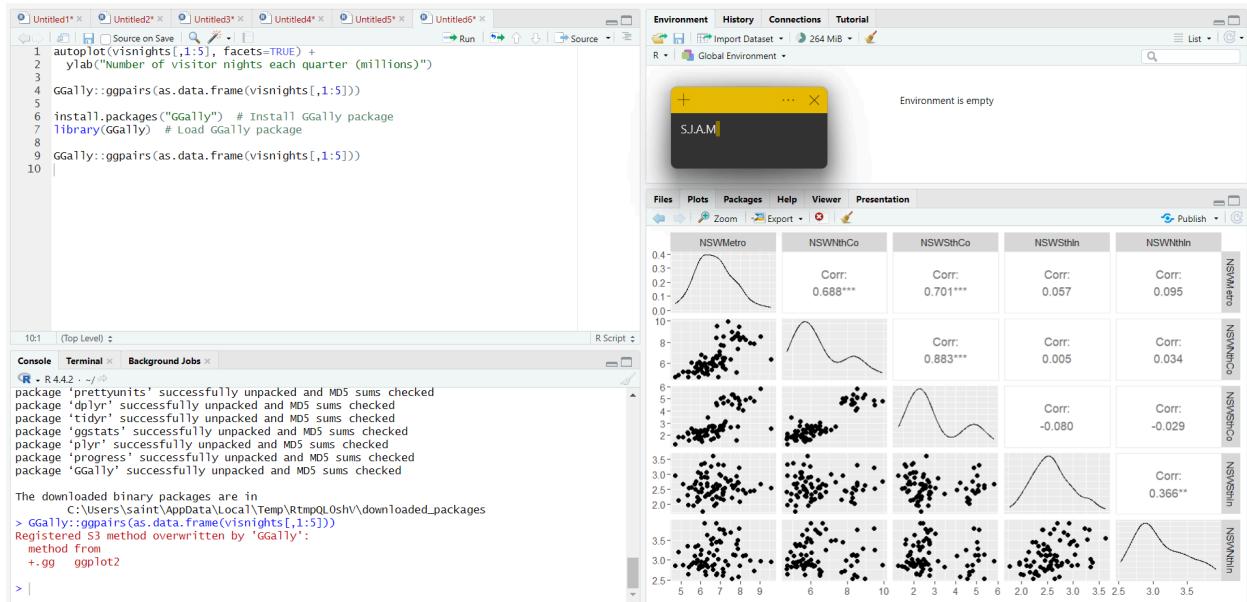
The relationship between electricity demand and temperature is best shown using a scatterplot.



Scatterplot matrices: When there are more than 2 variables it is better to plot each variable against each other. The plots below shows the quarterly number of visitors for five regions of New South Wales, Australia.



To better see the relationships between these five time series, we can plot each time series against the others and arrange the plots in a scatterplot matrix.



Aside from the scatterplots it also shows the correlation between each pair of variables.

Lag plots

