

Laboratorio 1

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Análisis Exploratorio Precios

```
library(readxl)
library(ggplot2)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##   filter, lag

## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
```

```
library(lubridate)
```

```
##
## Attaching package: 'lubridate'

## The following objects are masked from 'package:base':
##
##   date, intersect, setdiff, union
```

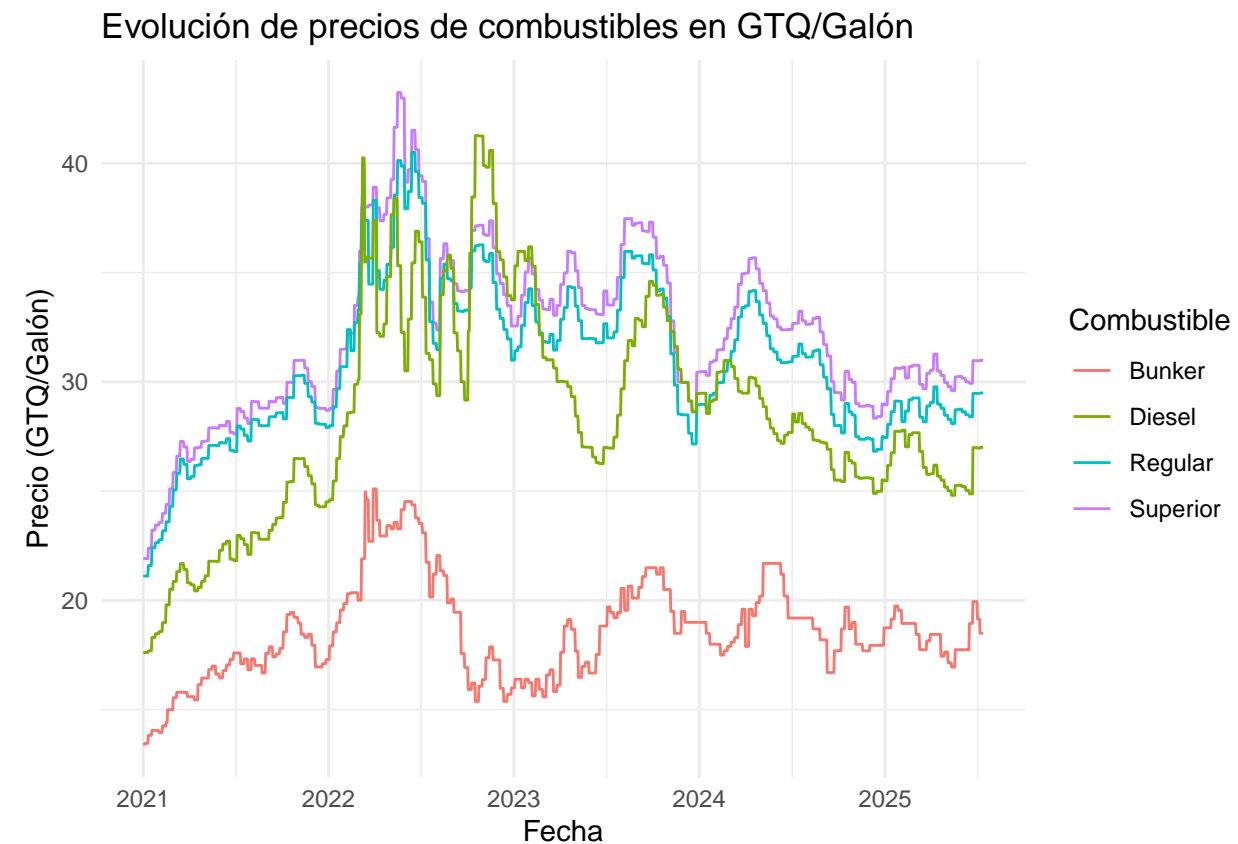
```
library(corrplot)
```

```
## corrplot 0.95 loaded
```

```
precios <- read_excel("Datos/Libro1.xlsx")
```

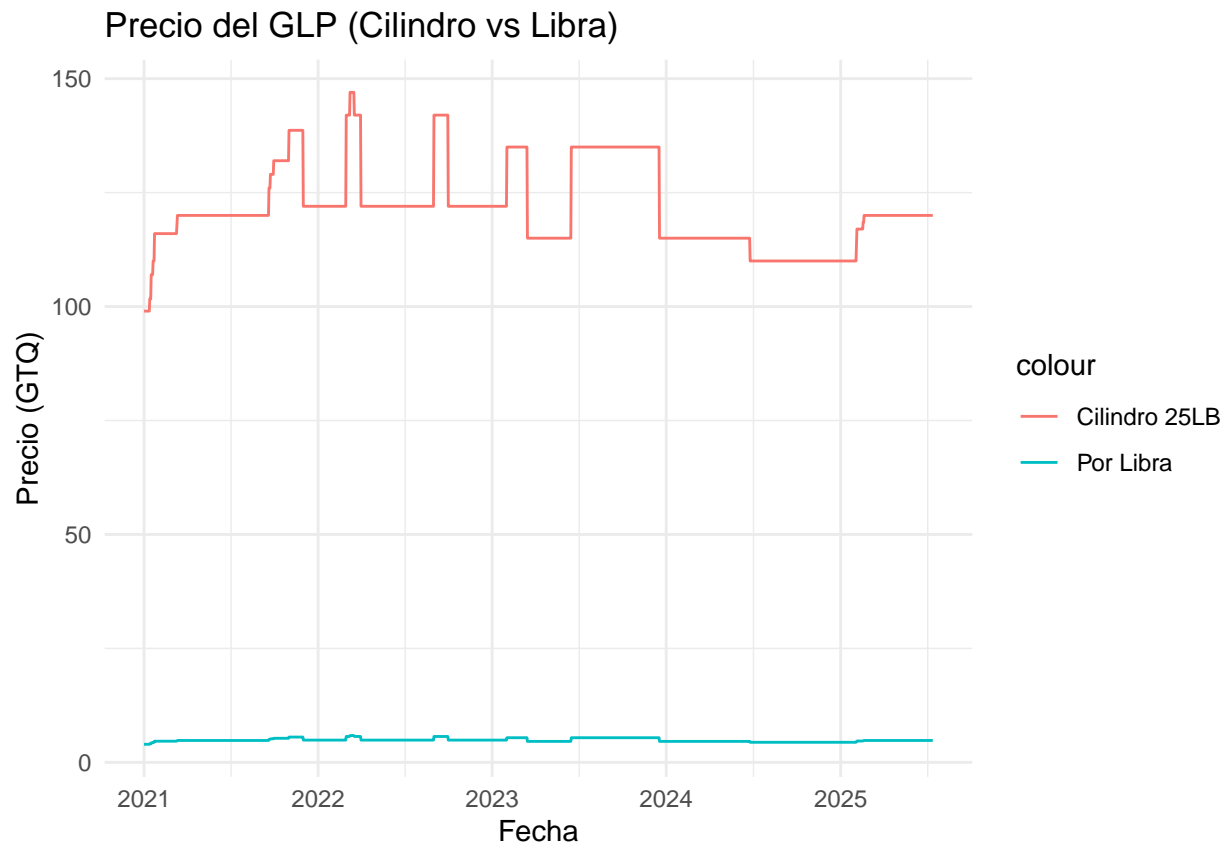
Evolución de precios de combustibles

```
ggplot(precios, aes(x = FECHA)) +
  geom_line(aes(y = `Superior GTQ/GALON`, color = "Superior")) +
  geom_line(aes(y = `Regular GTQ/GALON`, color = "Regular")) +
  geom_line(aes(y = `Diesel GTQ/GALON`, color = "Diesel")) +
  geom_line(aes(y = `Bunker GTQ/GALON`, color = "Bunker")) +
  labs(title = "Evolución de precios de combustibles en GTQ/Galón",
       y = "Precio (GTQ/Galón)", x = "Fecha", color = "Combustible") +
  theme_minimal()
```



#GLP (Cilindro vs Libra)

```
ggplot(precios, aes(x = FECHA)) +
  geom_line(aes(y = `Glp Cilindro 25Lbs. GTQ/CIL 25 LB`, color = "Cilindro 25LB")) +
  geom_line(aes(y = `Glp Cilindro 25Lbs. GTQ/LB`, color = "Por Libra")) +
  labs(title = "Precio del GLP (Cilindro vs Libra)", y = "Precio (GTQ)", x = "Fecha") +
  theme_minimal()
```



#Tipo de cambio GTQ/USD

```
ggplot(precios, aes(x = FECHA, y = `Tipo de Cambio GTQ/USD`)) +
  geom_line(color = "blue") +
  labs(title = "Evolución del tipo de cambio GTQ/USD", y = "GTQ/USD", x = "Fecha") +
  theme_minimal()
```

Evolución del tipo de cambio GTQ/USD



#Correlación entre variables numéricas

```
# Filtrar columnas numéricas
numericas <- precios %>% select(where(is.numeric))

# Calcular matriz de correlación
correlaciones <- cor(numericas, use = "complete.obs")
correlaciones
```

```
##                                     Tipo de Cambio GTQ/USD Superior GTQ/GALON
## Tipo de Cambio GTQ/USD                1.0000000      0.2513382
## Superior GTQ/GALON                    0.2513382      1.0000000
## Regular GTQ/GALON                     0.2675024      0.9919482
## Diesel GTQ/GALON                      0.3901033      0.8717493
## Bunker GTQ/GALON                     -0.2161899      0.6866737
## Glp Cilindro 25Lbs. GTQ/CIL 25 LB      0.2663342      0.3727960
## Glp Cilindro 25Lbs. GTQ/LB             0.2661881      0.3725873
##                                     Regular GTQ/GALON Diesel GTQ/GALON
## Tipo de Cambio GTQ/USD                0.2675024      0.3901033
## Superior GTQ/GALON                    0.9919482      0.8717493
## Regular GTQ/GALON                     1.0000000      0.8672361
## Diesel GTQ/GALON                      0.8672361      1.0000000
## Bunker GTQ/GALON                      0.6729068      0.4739397
## Glp Cilindro 25Lbs. GTQ/CIL 25 LB      0.4057897      0.3684999
## Glp Cilindro 25Lbs. GTQ/LB             0.4055953      0.3682888
##                                     Bunker GTQ/GALON
## Tipo de Cambio GTQ/USD                -0.2161899
```

```
## Superior GTQ/GALON                0.6866737
## Regular GTQ/GALON                 0.6729068
## Diesel GTQ/GALON                  0.4739397
## Bunker GTQ/GALON                 1.0000000
## Glp Cilindro 25Lbs. GTQ/CIL 25 LB 0.2609778
## Glp Cilindro 25Lbs. GTQ/LB        0.2608683
##                                     Glp Cilindro 25Lbs. GTQ/CIL 25 LB
## Tipo de Cambio GTQ/USD             0.2663342
## Superior GTQ/GALON                 0.3727960
## Regular GTQ/GALON                 0.4057897
## Diesel GTQ/GALON                  0.3684999
## Bunker GTQ/GALON                 0.2609778
## Glp Cilindro 25Lbs. GTQ/CIL 25 LB 1.0000000
## Glp Cilindro 25Lbs. GTQ/LB        0.9999993
##                                     Glp Cilindro 25Lbs. GTQ/LB
## Tipo de Cambio GTQ/USD             0.2661881
## Superior GTQ/GALON                 0.3725873
## Regular GTQ/GALON                 0.4055953
## Diesel GTQ/GALON                  0.3682888
## Bunker GTQ/GALON                 0.2608683
## Glp Cilindro 25Lbs. GTQ/CIL 25 LB 0.9999993
## Glp Cilindro 25Lbs. GTQ/LB        1.0000000
```

#Tendencias mensuales

```
precios <- precios %>%
  mutate(anio = year(FECHA), mes = month(FECHA, label = TRUE))

mensual <- precios %>%
  group_by(anio, mes) %>%
  summarise(across(where(is.numeric), mean, na.rm = TRUE), .groups = "drop")
```

```
## Warning: There was 1 warning in 'summarise()'.
## i In argument: 'across(where(is.numeric), mean, na.rm = TRUE)'.
## i In group 1: 'anio = 2021' and 'mes = Jan'.
## Caused by warning:
## ! The '...' argument of 'across()' is deprecated as of dplyr 1.1.0.
## Supply arguments directly to '.fns' through an anonymous function instead.
##
## # Previously
##   across(a:b, mean, na.rm = TRUE)
##
## # Now
##   across(a:b, \(x) mean(x, na.rm = TRUE))
```

```
# Visualización mensual (ejemplo: gasolina superior)
ggplot(mensual, aes(x = interaction(anio, mes), y = `Superior GTQ/GALON`)) +
  geom_line(group = 1, color = "darkgreen") +
  labs(title = "Precio promedio mensual de gasolina superior",
       x = "Año-Mes", y = "Precio (GTQ/Galón)") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 90, size = 8))
```

Precio promedio mensual de gasolina superior

