SumbarajuAditya_ex1_2_R_Refresher

SumbarajuAditya

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R Markdown

```
# Load Libraries

library(blsAPI)
library(dplyr)
```

```
## Warning: package 'dplyr' was built under R version 4.0.5
```

```
##
## 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(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.0.5
```

Load BLS data

```
#Consumer Price Index-All Urban Consumers (Current Series)

urban_cpi <- blsAPI('CUUR0000SA0', return_data_frame = TRUE)
# Chained CPI-All Urban Consumers
chained_cpi <- blsAPI('SUUR0000SA0', return_data_frame = TRUE)
```

check for right grain of data

```
summary(urban_cpi)
```

```
##      year              period           periodName           value
##  Length:33          Length:33          Length:33          Length:33
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##    seriesID
##  Length:33
```

```
##  Class :character
##  Mode  :character
```

```
summary(chained_cpi)
```

```
##      year              period           periodName           value
##  Length:31          Length:31          Length:31          Length:31
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##    seriesID
##  Length:31
##  Class :character
##  Mode  :character
```

```
str(urban_cpi)
```

```
## 'data.frame':    33 obs. of  5 variables:
##  $ year      : chr  "2021" "2021" "2021" "2021" ...
##  $ period    : chr  "M07" "M06" "M05" "M04" ...
##  $ periodName: chr  "July" "June" "May" "April" ...
##  $ value     : chr  "273.003" "271.696" "269.195" "267.054" ...
##  $ seriesID  : chr  "CUUR0000SA0" "CUUR0000SA0" "CUUR0000SA0" "CUUR0000SA0" ...
```

```
str(chained_cpi)
```

```
## 'data.frame':    31 obs. of  5 variables:
##  $ year      : chr  "2021" "2021" "2021" "2021" ...
##  $ period    : chr  "M07" "M06" "M05" "M04" ...
##  $ periodName: chr  "July" "June" "May" "April" ...
##  $ value     : chr  "153.424" "152.720" "151.405" "150.221" ...
##  $ seriesID  : chr  "SUUR0000SA0" "SUUR0000SA0" "SUUR0000SA0" "SUUR0000SA0" ...
```

```
dim(urban_cpi)
```

```
## [1] 33  5
```

```
dim(chained_cpi)
```

```
## [1] 31  5
```

Data cleansing and Merging Step

```
#Merging two datasets
df1 <- merge(urban_cpi, chained_cpi, by=c("year","period"))

#Renaming the columns
names(df1)[names(df1) == "value.x"] <- "urban_cpi_Rate"
names(df1)[names(df1) == "value.y"] <- "chained_cpi_Rate"

#Convert string representations to numbers
df1$urban_cpi_Rate <- as.numeric(df1$urban_cpi_Rate)
df1$chained_cpi_Rate <- as.numeric(df1$chained_cpi_Rate)

summary(df1)
```

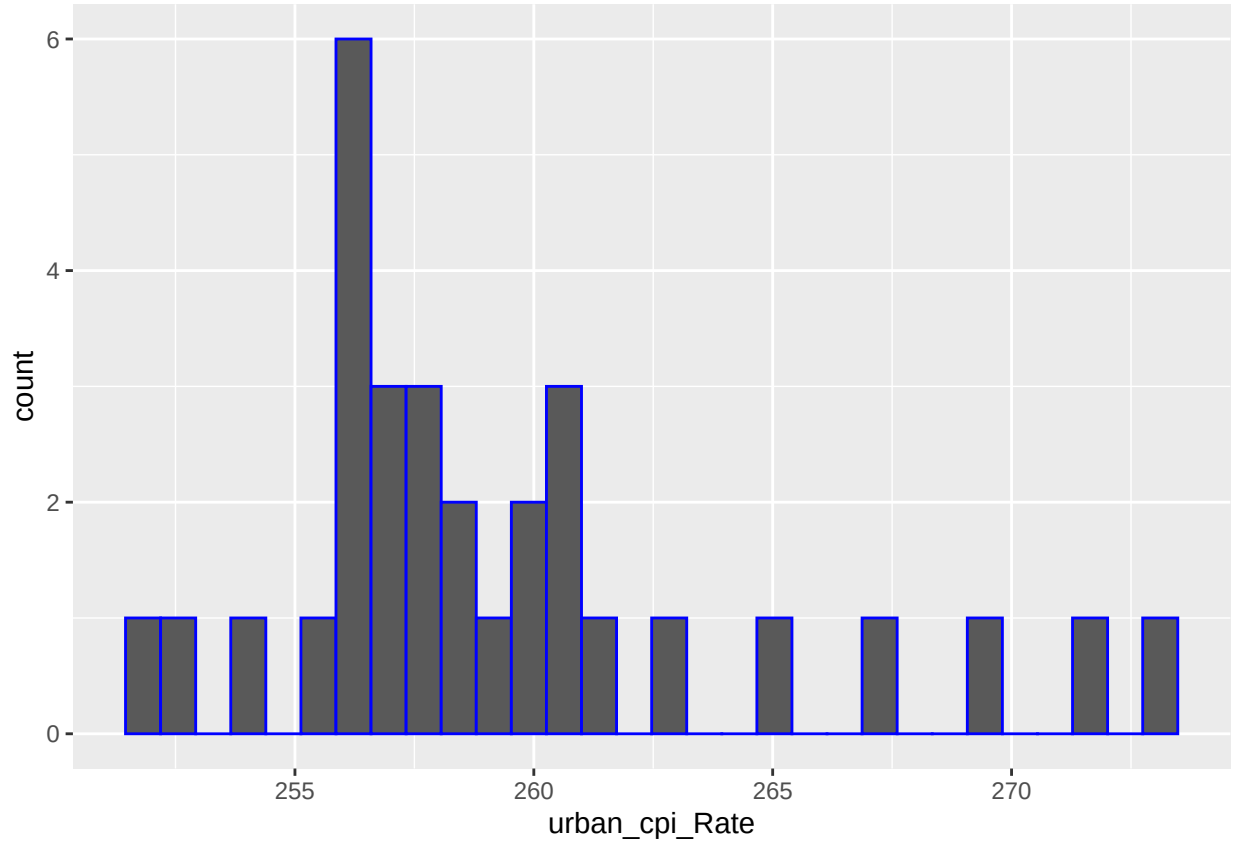
```
##      year              period          periodName.x       urban_cpi_Rate
##  Length:31          Length:31          Length:31          Min.   :251.7
```

```
##  Class :character   Class :character   Class :character   1st Qu.:256.5
##  Mode  :character   Mode  :character   Mode  :character   Median :258.0
##                                                          Mean   :259.5
##                                                          3rd Qu.:260.4
##                                                          Max.   :273.0
##   seriesID.x        periodName.y       chained_cpi_Rate  seriesID.y
##  Length:31          Length:31          Min.   :142.0     Length:31
##  Class :character   Class :character   1st Qu.:144.2     Class :character
##  Mode  :character   Mode  :character   Median :144.8     Mode  :character
##                                        Mean   :145.9
##                                        3rd Qu.:146.5
##                                        Max.   :153.4
```

#Histograms of the 2 variables

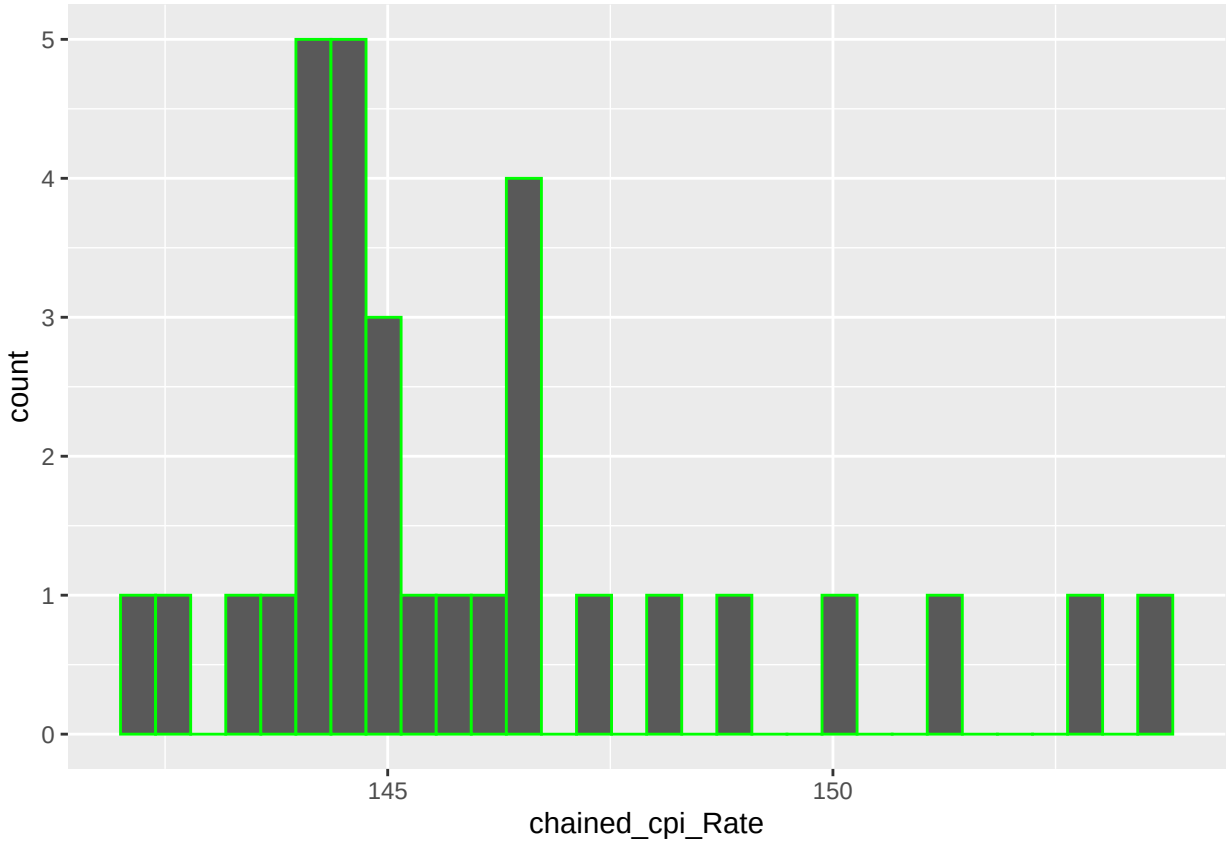
```
ggplot(df1, aes(x = urban_cpi_Rate)) + geom_histogram (col = c("blue"))
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



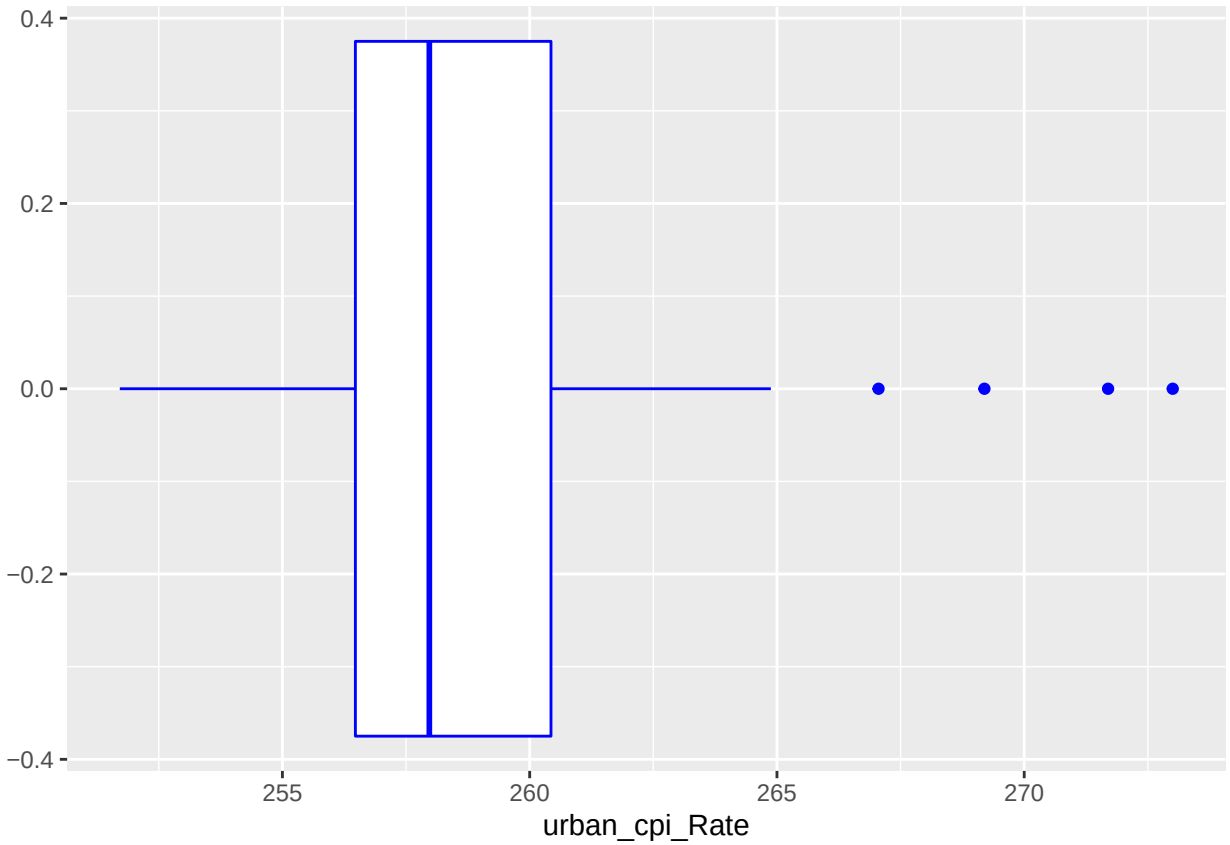

```
ggplot(df1, aes(x = chained_cpi_Rate)) + geom_histogram(col = c("green"))
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

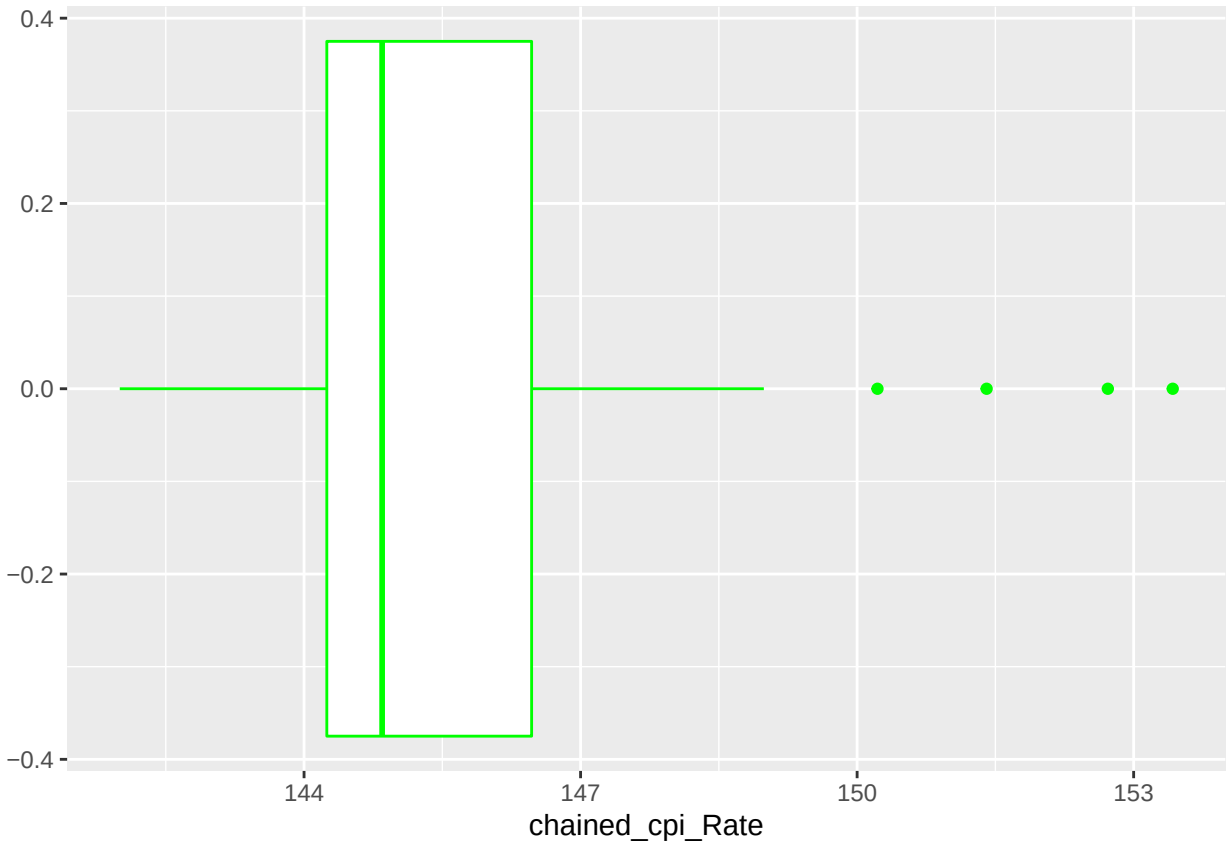


#Boxplots of the 2 variables

```
ggplot(df1, aes(x = urban_cpi_Rate)) + geom_boxplot(col = c("blue"))
```

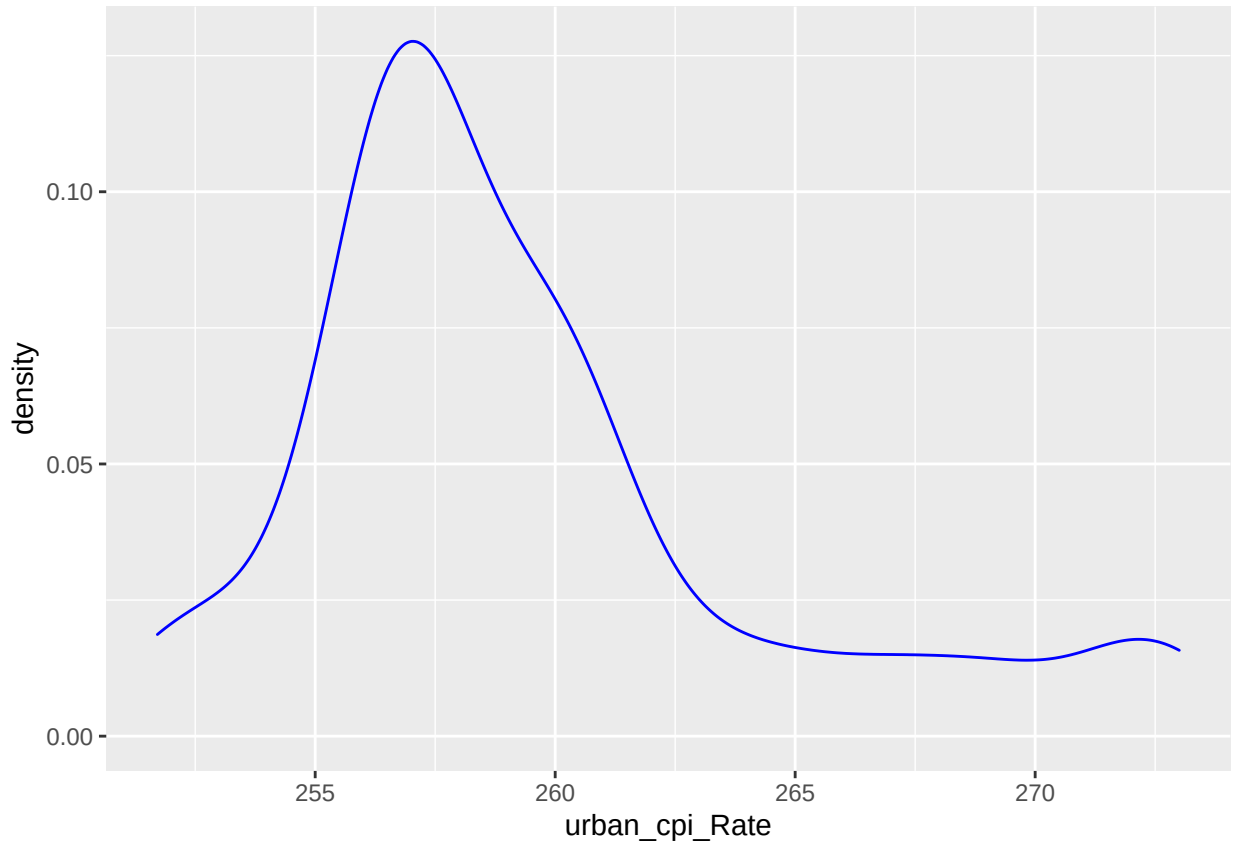



```
ggplot(df1, aes(x = chained_cpi_Rate)) + geom_boxplot(col = c("green"))
```

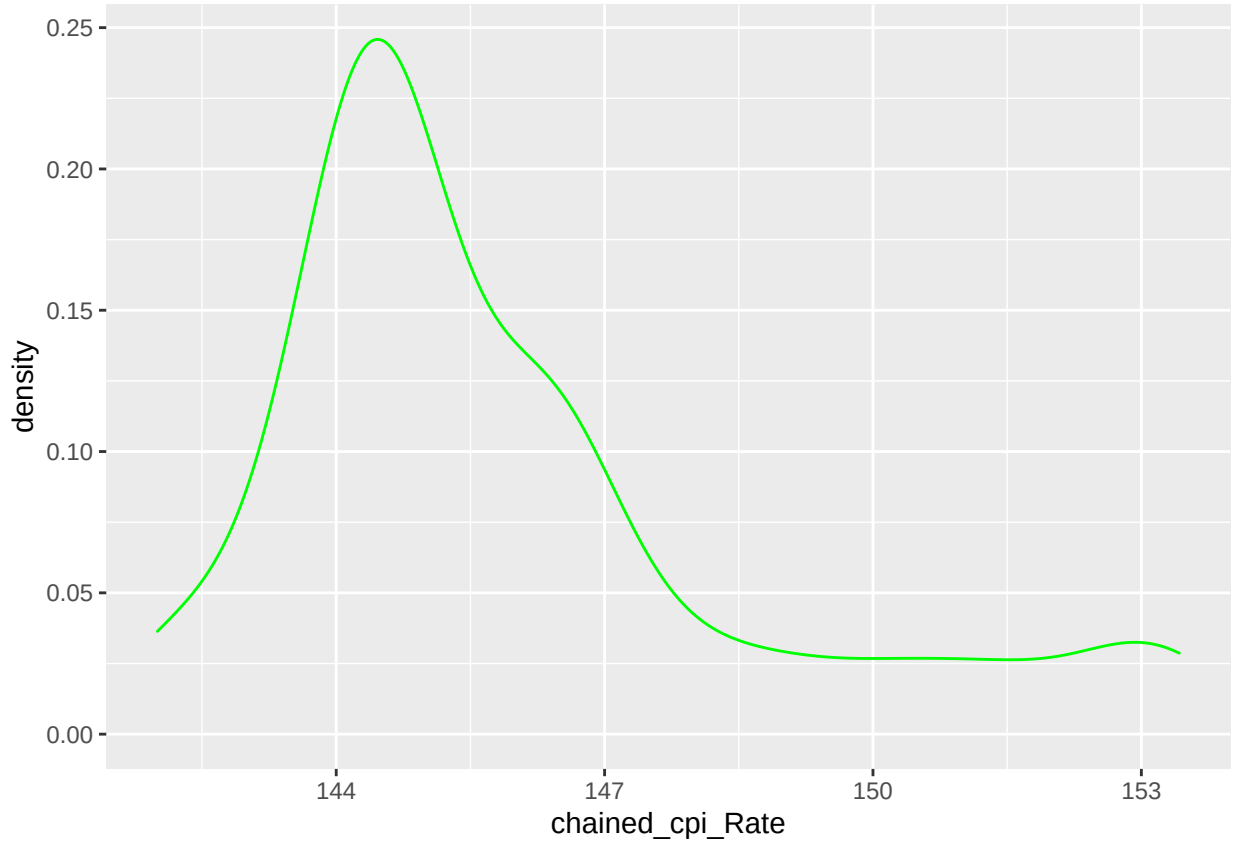


#Density plots of the 2 variables

```
ggplot(df1, aes(x = urban_cpi_Rate)) + geom_density(col = c("blue"))
```



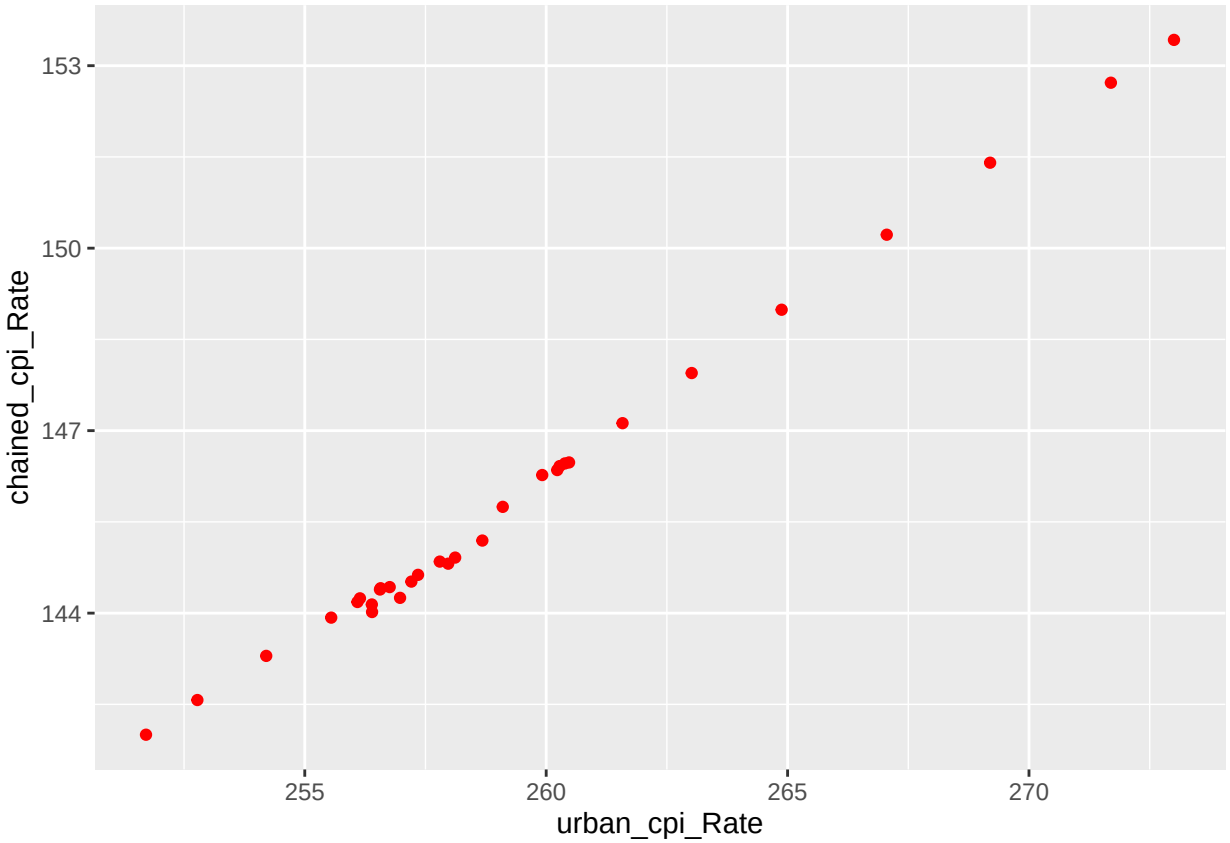

```
ggplot(df1, aes(x = chained_cpi_Rate)) + geom_density(col = c("green"))
```



#Save the data-frame as a CSV file

```
write.csv(df1, 'C:/BU/DSC630/Consumer_Price_Index.csv')
```

2. Bivariate plots and correlation




```
## Warning: package 'tidyverse' was built under R version 4.0.5
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --
## v tibble  3.1.4     v purrr   0.3.4
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   2.0.1     v forcats 0.5.1
## Warning: package 'tibble' was built under R version 4.0.5
## Warning: package 'tidyr' was built under R version 4.0.5
## Warning: package 'readr' was built under R version 4.0.5
## Warning: package 'forcats' was built under R version 4.0.5
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## [1] 0.9981076
## Warning: package 'gmodels' was built under R version 4.0.5
##
##
##    Cell Contents
## |-------------------------|
## |                       N |
```

```
## | Chi-square contribution |
## |           N / Row Total |
## |           N / Col Total |
## |         N / Table Total |
## |-------------------------|
##
##
## Total Observations in Table:  31
##
##
##                     | df1$chained_cpi_Rate
## df1$urban_cpi_Rate |   142.001 |   142.571 |   143.297 |   143.926 |   144.018 |   144.142 |   144.18
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            251.712 |         1 |         0 |         0 |         0 |         0 |         0 |
##                    |    29.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                    |     1.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     1.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.032 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            252.776 |         0 |         1 |         0 |         0 |         0 |         0 |
##                    |     0.032 |    29.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                    |     0.000 |     1.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     1.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.032 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            254.202 |         0 |         0 |         1 |         0 |         0 |         0 |
##                    |     0.032 |     0.032 |    29.032 |     0.032 |     0.032 |     0.032 |     0.03
##                    |     0.000 |     0.000 |     1.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     1.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.032 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            255.548 |         0 |         0 |         0 |         1 |         0 |         0 |
##                    |     0.032 |     0.032 |     0.032 |    29.032 |     0.032 |     0.032 |     0.03
##                    |     0.000 |     0.000 |     0.000 |     1.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     1.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.032 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            256.092 |         0 |         0 |         0 |         0 |         0 |         0 |
##                    |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |    29.03
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     1.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     1.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.03
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            256.143 |         0 |         0 |         0 |         0 |         0 |         0 |
##                    |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            256.389 |         0 |         0 |         0 |         0 |         0 |         1 |
##                    |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |    29.032 |     0.03
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     1.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     1.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.032 |     0.00
```

```
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             256.394 |         0 |         0 |         0 |         0 |         1 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |    29.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     1.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     1.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.032 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             256.558 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             256.571 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             256.759 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             256.974 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             257.208 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             257.346 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             257.797 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             257.971 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
```

```
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             258.115 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             258.678 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             259.101 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             259.918 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             260.229 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##              260.28 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             260.388 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             260.474 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##             261.582 |         0 |         0 |         0 |         0 |         0 |         0 |
##                     |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                     |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
```

```
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            263.014 |         0 |         0 |         0 |         0 |         0 |         0 |
##                    |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            264.877 |         0 |         0 |         0 |         0 |         0 |         0 |
##                    |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            267.054 |         0 |         0 |         0 |         0 |         0 |         0 |
##                    |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            269.195 |         0 |         0 |         0 |         0 |         0 |         0 |
##                    |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            271.696 |         0 |         0 |         0 |         0 |         0 |         0 |
##                    |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##            273.003 |         0 |         0 |         0 |         0 |         0 |         0 |
##                    |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
##                    |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.000 |     0.00
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##       Column Total |         1 |         1 |         1 |         1 |         1 |         1 |
##                    |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.032 |     0.03
## -------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------
##
##
```

3. Organize a Data Report

```r
summary(df1)
```

```
##      year              period          periodName.x       urban_cpi_Rate
##  Length:31          Length:31          Length:31          Min.   :251.7
##  Class :character   Class :character   Class :character   1st Qu.:256.5
##  Mode  :character   Mode  :character   Mode  :character   Median :258.0
##                                                           Mean   :259.5
##                                                           3rd Qu.:260.4
##                                                           Max.   :273.0
```

```
##   seriesID.x        periodName.y       chained_cpi_Rate  seriesID.y
##  Length:31          Length:31          Min.   :142.0    Length:31
##  Class :character   Class :character   1st Qu.:144.2    Class :character
##  Mode  :character   Mode  :character   Median :144.8    Mode  :character
##                                        Mean   :145.9
##                                        3rd Qu.:146.5
##                                        Max.   :153.4
```

```
str(df1)
```

```
## 'data.frame':    31 obs. of  8 variables:
##  $ year            : chr  "2019" "2019" "2019" "2019" ...
##  $ period          : chr  "M01" "M02" "M03" "M04" ...
##  $ periodName.x    : chr  "January" "February" "March" "April" ...
##  $ urban_cpi_Rate  : num  252 253 254 256 256 ...
##  $ seriesID.x      : chr  "CUUR0000SA0" "CUUR0000SA0" "CUUR0000SA0" "CUUR0000SA0" ...
##  $ periodName.y    : chr  "January" "February" "March" "April" ...
##  $ chained_cpi_Rate: num  142 143 143 144 144 ...
##  $ seriesID.y      : chr  "SUUR0000SA0" "SUUR0000SA0" "SUUR0000SA0" "SUUR0000SA0" ...
```

```
dim(df1)
```

```
## [1] 31  8
```

Discussion points

1. The median of urban_cpi_Rate is 258 where as chained_cpi_Rate stands 144.8
2. Bivariate plots resembles the positive correlation.
3. The pearson correlation coefficient is calculated as 0.9981076. it means every positive increase in urban_cpi_Rate there is a positive increase in chained_cpi_Rate
4. The box plots depicts the positive skewness.

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.