RStudio

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```r
# Prices data
prices <- c(1, 1, 5, 5, 5, 5, 5, 8, 8, 10, 10, 10, 10, 12, 14, 14, 14, 15, 15, 15, 15, 15, 15

# Equal-frequency partitioning with bin equal to 3
num_bins <- 3
bin_boundaries <- cut(prices, breaks = seq(min(prices), max(prices), length.out = num_bins +

# Data smoothing using bin means and bin boundaries
bin_means <- tapply(prices, bin_boundaries, mean)
bin_boundaries_clean <- as.numeric(levels(bin_boundaries))[bin_boundaries]

# Plot histogram for frequency division
hist(prices, breaks = seq(min(prices), max(prices), length.out = num_bins * 2), main = "Histo

# Add vertical lines for bin boundaries
abline(v = unique(bin_boundaries_clean), col = "red", lty = 2)

# Plot smoothed data using bin means
# Plot smoothed data using bin means
```

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Data	
cor_matrix	num [1:3, 1:3] 1 0.669 -0.327 0.669 1 ...
cov_matrix	num [1:3, 1:3] 4 26 -10 26 377 ...
data	num [1:3, 1:3] 18 22 20 2 28 40 20 10 40
Values	
AirPassengers	Time-Series [1:144] from 1949 to 1961: 112 118 132 129 12…
bin_boundaries	int [1:51] NA NA 1 1 1 1 1 1 1 1 ...
bin_boundaries_clean	num [1:51] NA NA NA NA NA NA NA NA NA NA ...
bin_means	num [1:3(1d)] 7.36 17.12 25
cor_bc	0.483054600011872
cov_bc	143.333333333333
min_max_normalized	num [1:5] 0 0.125 0.25 0.5 1
num_bins	3
prices	num [1:51] 1 1 5 5 5 5 5 8 8 10 ...
z_score_normalized	num [1:5] -0.949 -0.632 -0.316 0.316 1.581

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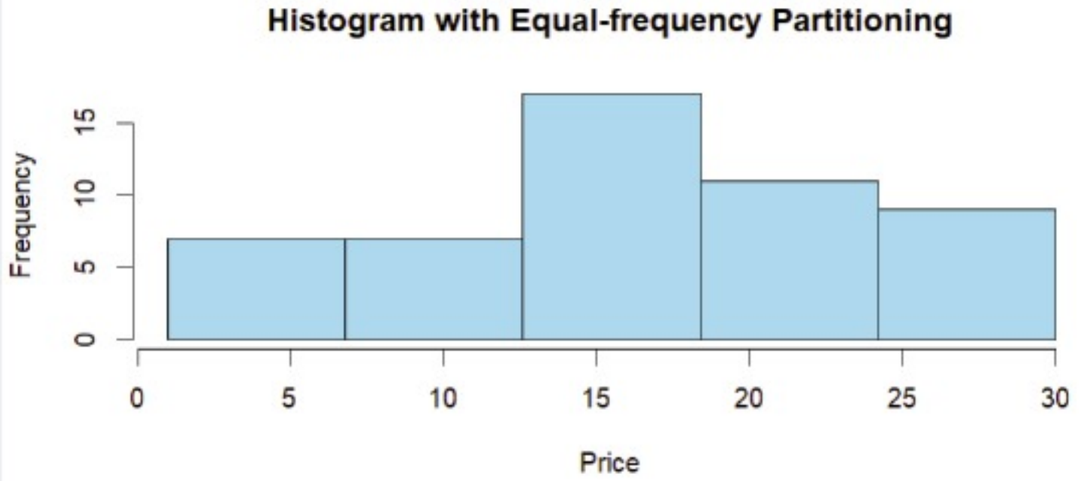
R 4.3.3 · ~/

```
> num_bins <- 3
> bin_boundaries <- cut(prices, breaks = seq(min(prices), max(prices), length.out = num_bins + 1),
labels = FALSE)
>
> # Data smoothing using bin means and bin boundaries
> bin_means <- tapply(prices, bin_boundaries, mean)
> bin_boundaries_clean <- as.numeric(levels(bin_boundaries))[bin_boundaries]
>
> # Plot histogram for frequency division
> hist(prices, breaks = seq(min(prices), max(prices), length.out = num_bins * 2), main = "Histogram
with Equal-frequency Partitioning", xlab = "Price", col = "lightblue")
>
>
> # Add vertical lines for bin boundaries
> abline(v = unique(bin_boundaries_clean), col = "red", lty = 2)
>
> # Plot smoothed data using bin means
> # Plot smoothed data using bin means
> points(unique(bin_boundaries_clean), rep(bin_means, each = 2), col = "darkgreen", pch = 16)
```



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