

James, testing

2026-01-29

R dataset

```
nyc <- read.csv("nyc.csv")
str(nyc)
```

```
## 'data.frame':   168 obs. of  7 variables:
## $ Case      : int   1 2 3 4 5 6 7 8 9 10 ...
## $ Restaurant: chr   "Daniella Ristorante" "Tello's Ristorante" "Biricchino" "Bottino" ...
## $ Price     : int   43 32 34 41 54 52 34 34 39 44 ...
## $ Food      : int   22 20 21 20 24 22 22 20 22 21 ...
## $ Decor     : int   18 19 13 20 19 22 16 18 19 17 ...
## $ Service   : int   20 19 18 17 21 21 21 21 22 19 ...
## $ East      : int    0 0 0 0 0 0 0 1 1 1 ...
```

Including Plots

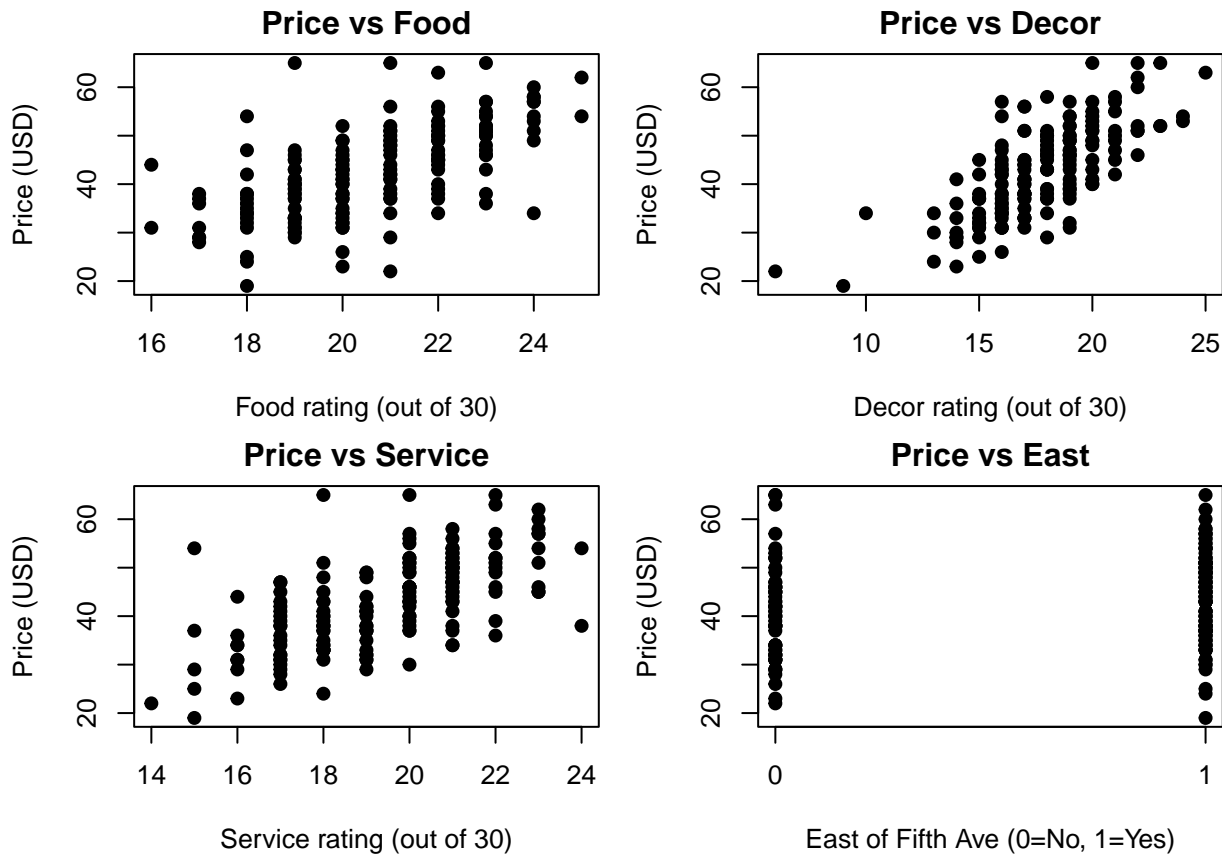
```
# op <- par(no.readonly = TRUE)
par(mfrow = c(2, 2), mar = c(4, 4, 2, 1))

plot(nyc$Food, nyc$Price,
     xlab = "Food rating (out of 30)", ylab = "Price (USD)",
     main = "Price vs Food", pch = 19)
#abline(lm(Price ~ Food, data = nyc), lty = 2)

plot(nyc$Decor, nyc$Price,
     xlab = "Decor rating (out of 30)", ylab = "Price (USD)",
     main = "Price vs Decor", pch = 19)
#abline(lm(Price ~ Decor, data = nyc), lty = 2)

plot(nyc$Service, nyc$Price,
     xlab = "Service rating (out of 30)", ylab = "Price (USD)",
     main = "Price vs Service", pch = 19)
#abline(lm(Price ~ Service, data = nyc), lty = 2)

# East is binary; jitter helps show overlap
plot(nyc$East, nyc$Price,
     xlab = "East of Fifth Ave (0=No, 1=Yes)", ylab = "Price (USD)",
     main = "Price vs East", pch = 19, xaxt = "n")
axis(1, at = c(0, 1), labels = c("0", "1"))
```



Fit the regression model and summarize the results

```
fit <- lm(Price ~ Food + Decor + Service + East, data = nyc)
print(summary(fit))
```

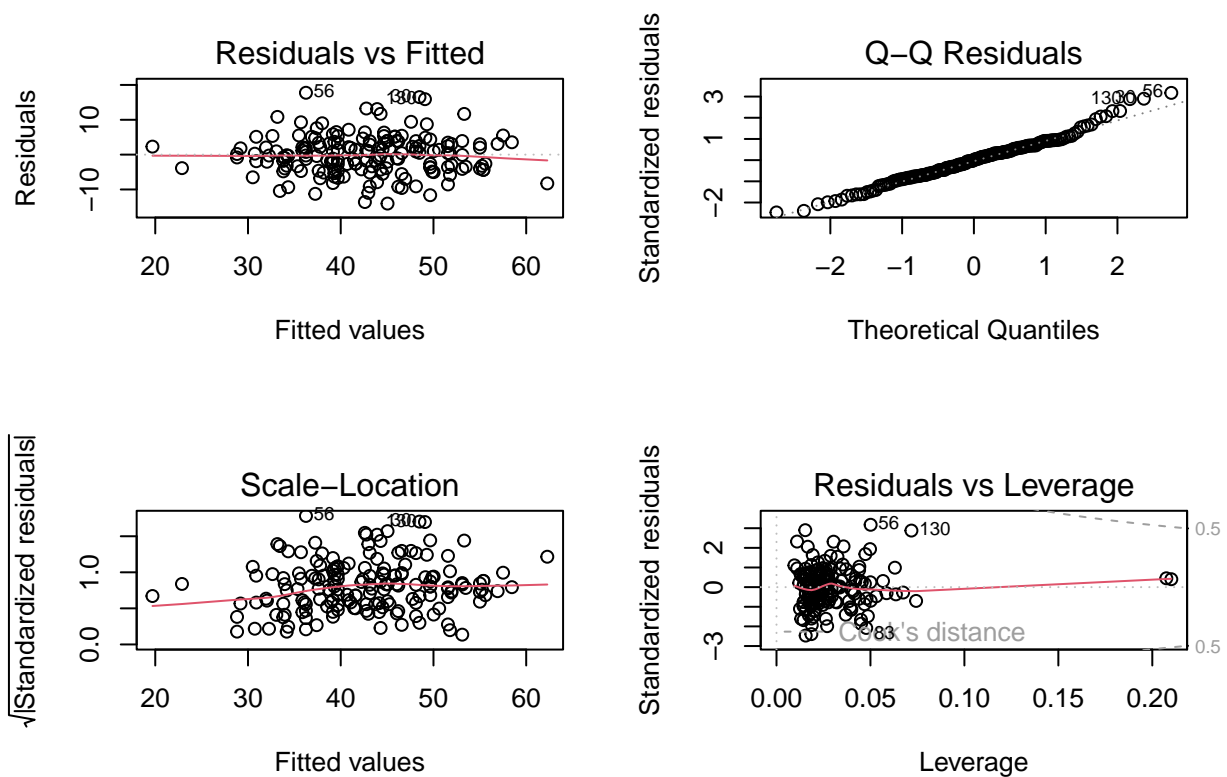
```
##
## Call:
## lm(formula = Price ~ Food + Decor + Service + East, data = nyc)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -14.0465  -3.8837   0.0373   3.3942  17.7491
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) -24.02380    4.708359  -5.102 9.24e-07 ***
## Food         1.538120    0.368951   4.169 4.96e-05 ***
## Decor        1.910087    0.217005   8.802 1.87e-15 ***
## Service     -0.002727    0.396232  -0.007  0.9945
## East         2.068050    0.946739   2.184  0.0304 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 5.738 on 163 degrees of freedom
## Multiple R-squared:  0.6279, Adjusted R-squared:  0.6187
## F-statistic: 68.76 on 4 and 163 DF, p-value: < 2.2e-16
```

```
print(confint(fit))
```

```
##                2.5 %      97.5 %
## (Intercept) -33.3210407 -14.7265586
## Food         0.8095797   2.2666601
## Decor        1.4815846   2.3385897
## Service      -0.7851371   0.7796821
## East         0.1985964   3.9375039
```

Produce residual diagnostic plots, arranging multiple plots within a single figure

```
op <- par(no.readonly = TRUE)
par(mfrow = c(2, 2))
plot(fit) # Produces: Residuals vs Fitted, QQ, Scale-Location, Residuals vs Leverage
```



```
par(op)
```