

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 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 1 1 1 ...
```

Including Plots

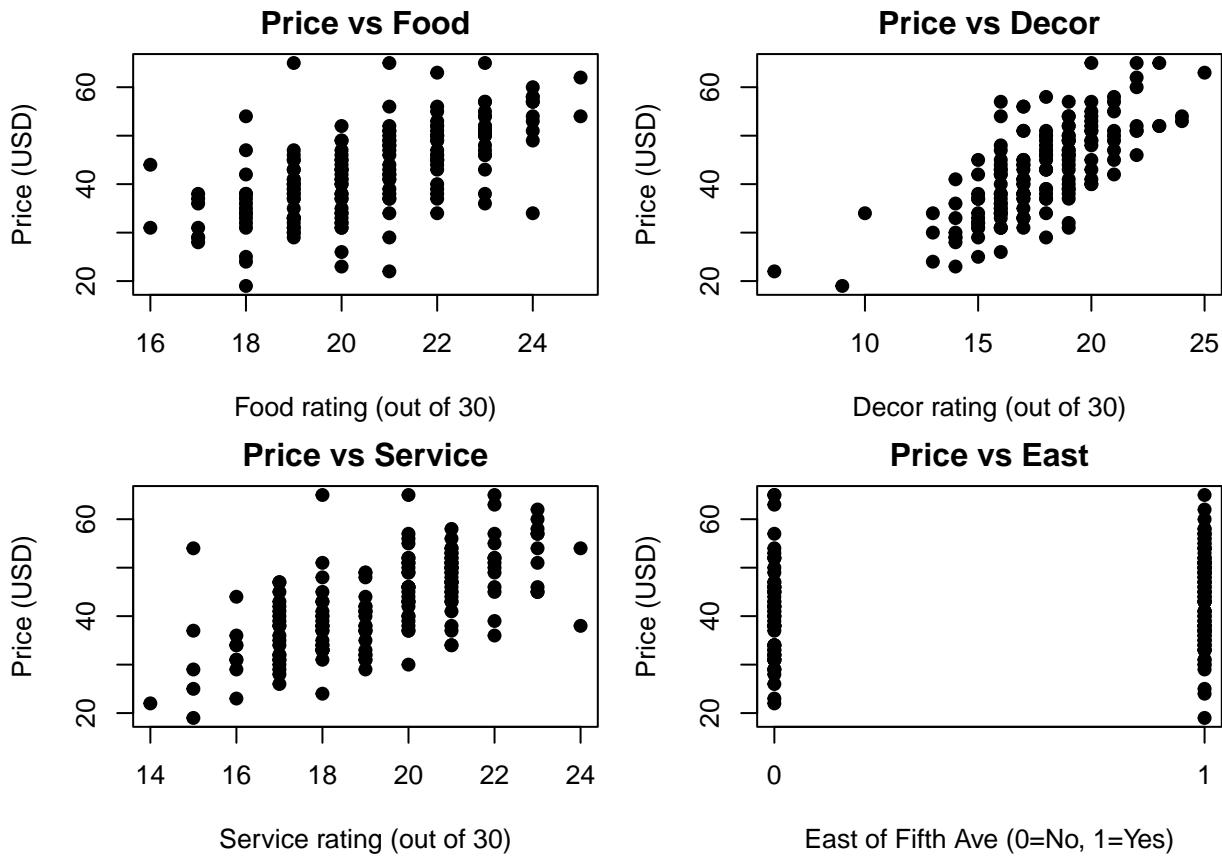
```
# op <- par(no.readonly = TRUE)
par(mfrow = c(2, 2), mar = c(4, 4, 2, 1))

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) -24.023800  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

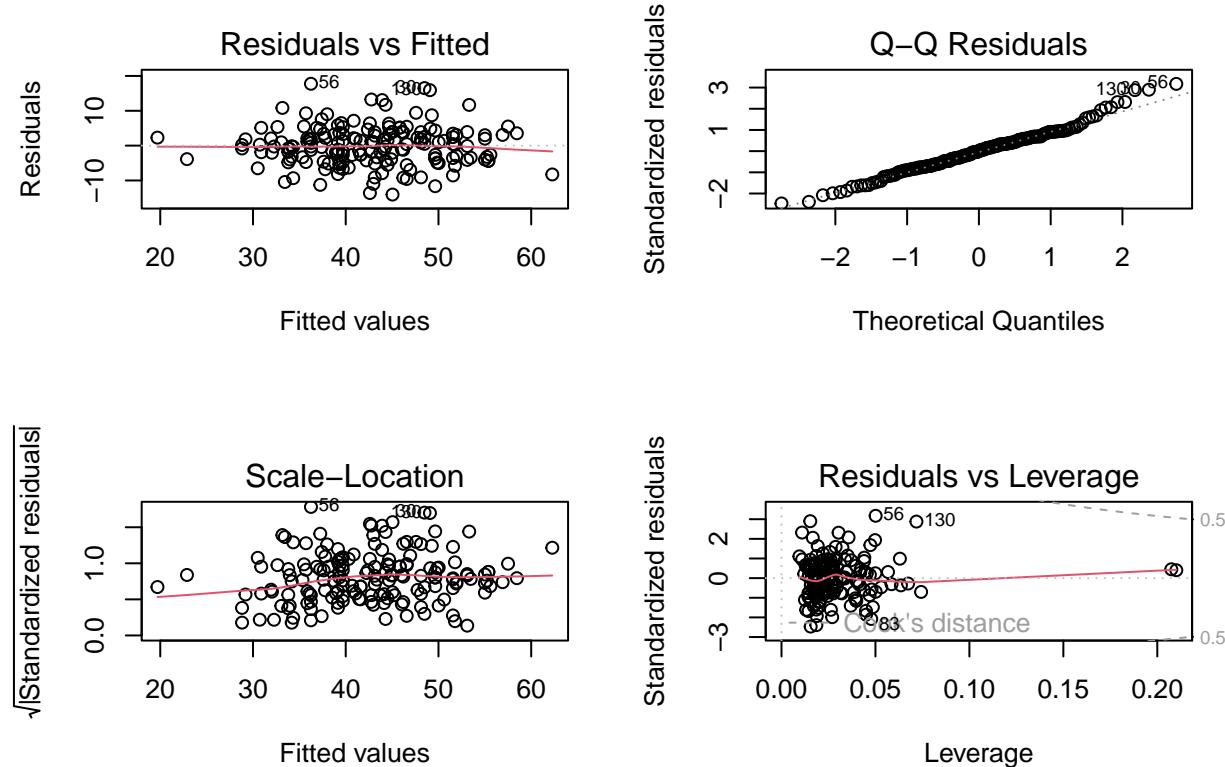
```

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)
```