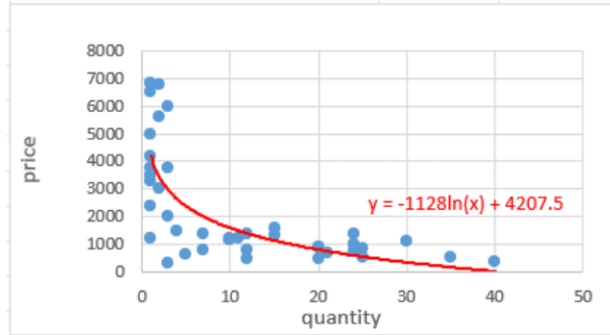


# Price *Optimization* in Excel

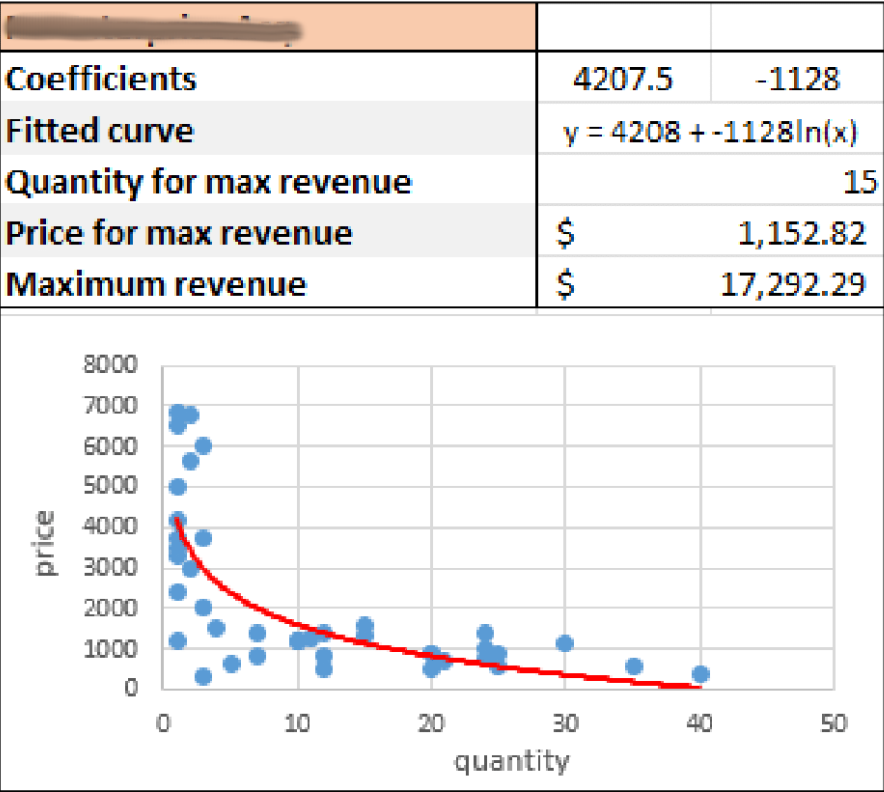
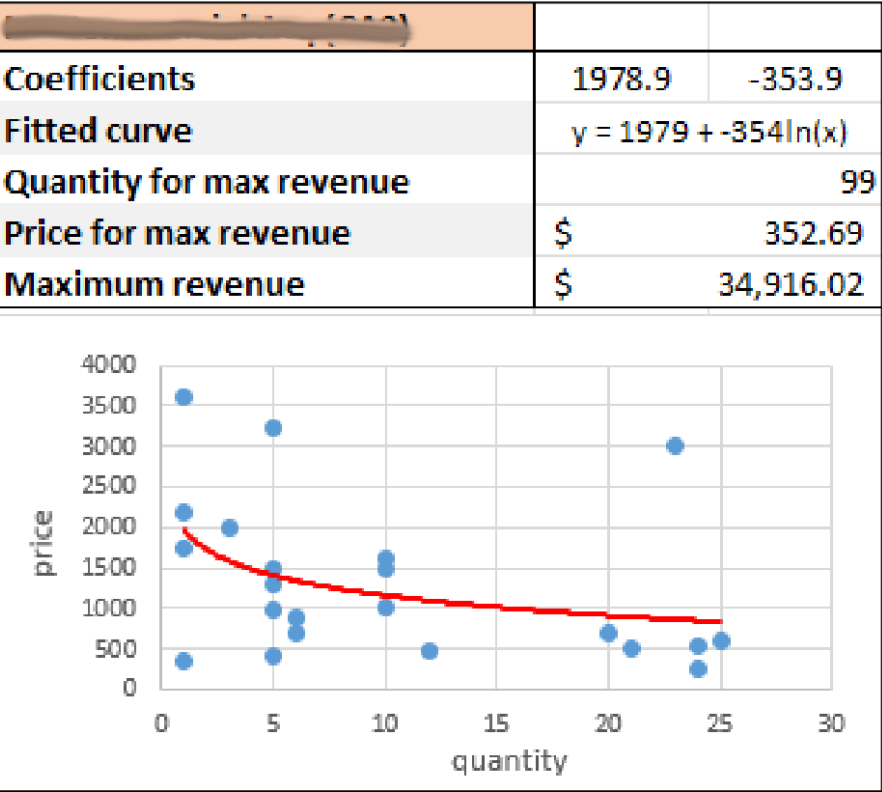
# Methodology

1. Plot each quantity and price without outliers.
2. Fit a logarithmic trendline to each scatterplot via Excel.



3. Calculate price and quantity that will bring max revenue.
  - Since revenue (booking \$) is price \* quantity, revenue =  $x \cdot y$
  - Max revenue occurs at the point where the derivative of the equation  $x \cdot y = 0$
  - For example, for the curve above,  $x \cdot y = x(4207.5 - 1128\ln(x))$ 
    - Revenue =  $f(x) = x(4207.5 - 1128\ln(x))$
    - $f'(x) = (4207.5 - 1128\ln(x)) + x\left(\frac{-1128}{x}\right) = 3079.5 - 1128\ln(x)$
    - $1128\ln(x) = 3079.5$
    - $\ln(x) = \frac{3079.5}{1128}$
    - $x = e^{\frac{3079.5}{1128}} \approx 15$
    - Plug  $x$  into logarithmic equation to solve for  $y$
    - $y = 4207.5 - 1128\ln(15) \approx 1152.82$
    - Max revenue =  $\$1152.82 \times 15 = \$17,292.3$

# Optimization Results



The curve is better fitted when the dataset has lower variability, as is the case in the second graph.

*\*Data is blurred or altered for confidentiality*