Module 11 – EOQ

Exploratory Data Analysis

In this section, you should perform some data analysis on the data provided to you. Please format your findings in a visually pleasing way and please be sure to include these cuts:

- *Make line graphs showing the following data over time:*
  - *Sales*
  - *Unit Purchase Cost*
  - *Fixed Order Cost*
- *Use a forecast method to determine annual demand for 2025 to use for our model*
  - *Naïve*
  - *Moving Average / Weighted Moving Average*
  - *Linear Regression*
  - *Exponential Smoothing*
- *For costs, use a similar/different method. Otherwise, a simple overall average is fine.*

I used Naïve forecast for both annual demand and costs for 2025.

Model Formulation

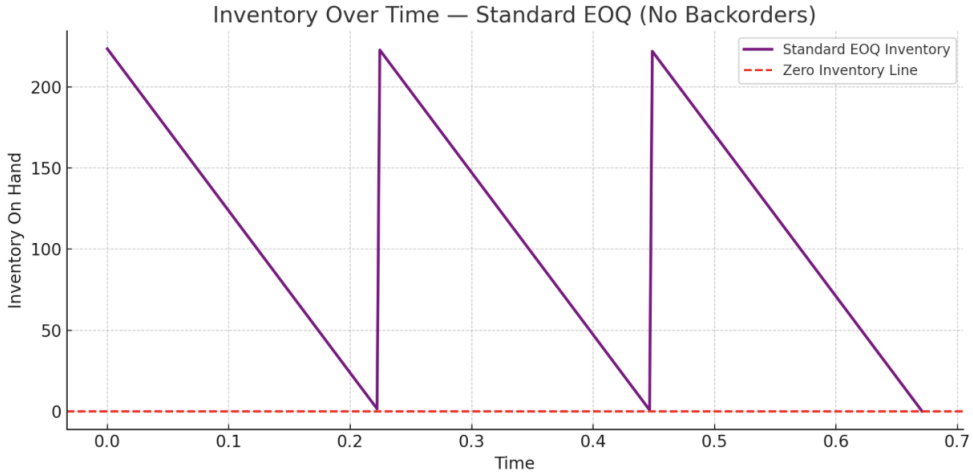
Write the formulation of the model into here prior to implementing it in your Excel model. Be explicit with the definition of the decision variables, objective function, and constraints. Please restate the variables in the algorithm (i.e. D = Annual Demand)

MIN: DC + (D/Q)S + (Q/2)C
Subject Q≥1

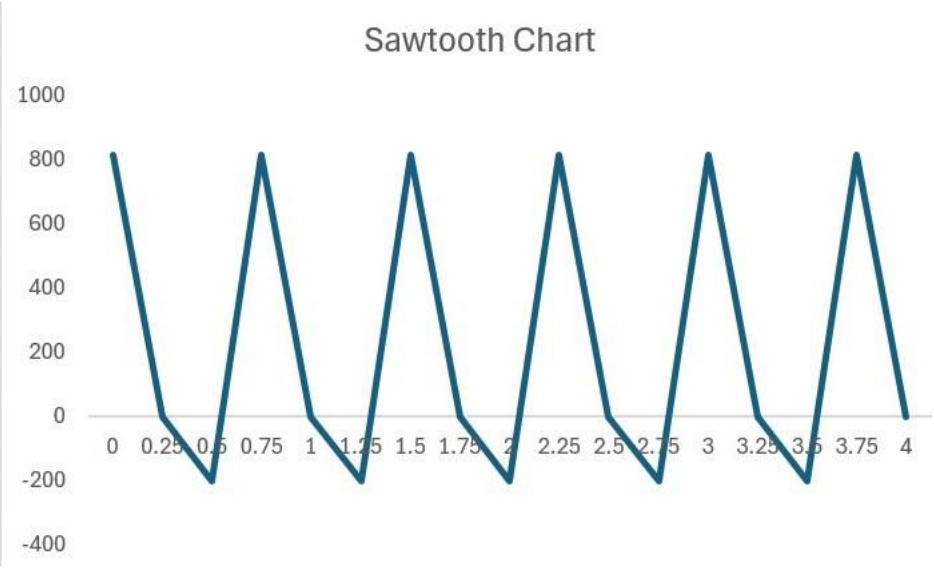
Model Optimized for Minimizing Costs with Optimal Order Quantity

Implement your formulation into Excel and be sure to make it neat. This section should include:

- *A screenshot of your optimized final model (formatted nicely, of course)*
- *A text explanation of what your model is recommending*
- *Make a "sawtooth chart" for 2025, see below for reference. Assume you start with year with your EOQ Quantity like it has below*



Annual Demand		19443
Cost per Unit	$	48.58
Cost per Order	$	174.99
Holding Cost		19%
Order Quantity		814.92
Purchasing Cost	$	944,538.99
Cost of Ordering		4175.047686
Inventory Cost	$	3,760.93
Total Cost	$	952,474.97



My model is recommending that the order quantity be 814.92/order