

GAME INSTRUCTIONS

In this experiment, you have just been hired for the role of an inventory manager for one year. You must decide how many units of a product you want to order and stock to sell to your customers. You are making these decisions over multiple rounds. In every round, you are deciding on an order quantity.

You are making your decision under uncertainty, 3 months in advance of actual realized demand. This means at the time of the order decision you do not know the exact demand of the period you are ordering for, which is 3 months out. However, you do know the probability distribution of the demand. The demand for your product will be shown by a distribution curve, shown on the decision-making page. Demand is independent between rounds.

The game will start in January, where the demand for January will be displayed. Because you did not order this product, profit from this round will not be shown. You will decide how much product you want to order for April (3 months out). The same will happen in February, where February demand will be shown, and you will then order for May. This continues until April, where demand for April will be shown, your profit from the order you made in January will be calculated, and then you will order product for July. This will continue through December, where you will make your last ordering decision, to be realized in March of the following year.

You have no starting inventory in your warehouse at the beginning of the game. You will order units three months in advance, which then get delivered three months later, when demand is realized. Any leftover inventory after demand is realized will earn a salvage value per unit left over.

For example:

Purchased inventory: 90 units
Demand: 80 units
Leftover inventory: $90 - 80 = 10$ units

Salvage values are earned for the resulting leftover 10 units that are stocked in inventory.

If you purchased too few units in a period to fulfill that period's demand, the unfulfilled demand is lost. You cannot reorder within a period or shift demand to later periods. For example:

Purchased inventory: 30 units
Demand: 80 units
Units Sold: 30 Units

You are trying to maximize your Profits in this experiment. Profit per round is calculated as follows:

*Profit per round = Selling price x units sold - purchasing price x order quantity + salvage fee * leftover inventory*

Therefore, profit = revenue - purchasing costs + salvage costs.

In this experiment, your costs will be displayed on the decision page.

Here are 2 examples of calculating the profit of a round:

Example 1:

selling price = \$20 / unit

purchasing price = \$7.5 / unit

salvage value = \$5 / unit

your order quantity = 50 units

demand = 20 units

$$\begin{aligned}\text{Profit} &= \$20 * 20 \text{ units [units sold = Minimum of demand and order quantity]} \\ &\quad - \$7.5 * 50 \text{ units [order quantity]} \\ &\quad + \$5 * 30 \text{ units [salvage inventory= order quantity - units sold]} \\ &= \$175\end{aligned}$$

Example 2:

Prices of example 1 apply here.

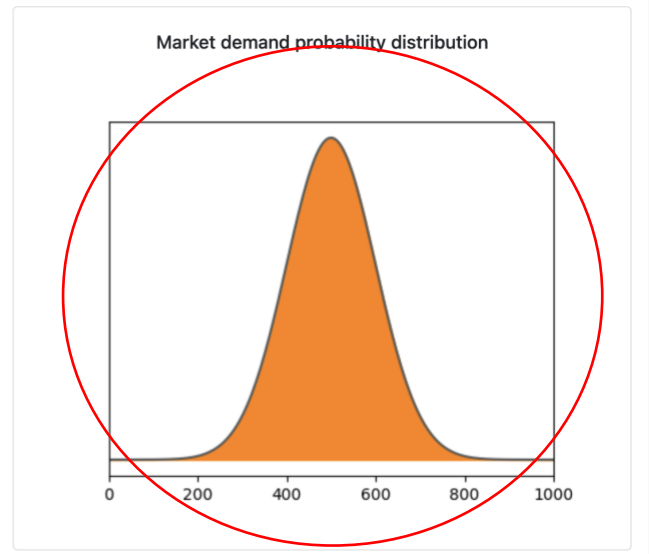
your order quantity = 50 units

demand = 100 units

$$\begin{aligned}\text{Profit} &= \$20 * 50 \text{ units [units sold = Minimum of demand and order quantity]} \\ &\quad - \$7.5 * 50 \text{ units [order quantity]} \\ &\quad + \$5 * 0 \text{ units [final inventory= 0]} \\ &= \$625\end{aligned}$$

After completion of a short practice round, you will first see the realized demand for January. You will then come to the demand page:

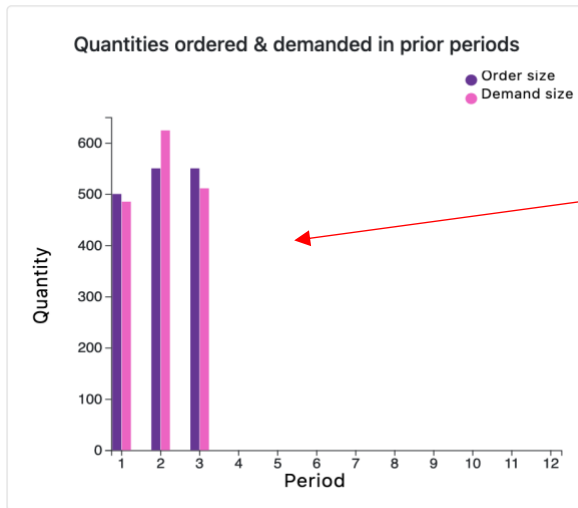
Game Parameters	
Retail	\$43.00 / unit / period
Wholesale	\$6.00 / unit / period
Salvage	\$5.00 / unit / period
Demand Distribution	$N \sim (500, 100)$



These are the costs associated with the project. You can use these to manually calculate your profits throughout the experiment

This is the distribution of demand. $N \sim (500, 100)$ signifies a normal distribution (N) with an average demand of 500 units and standard deviation of 100 units. You can use this data as a guide to determine how much you want to order in each round.

Game History Information



This is the graphical history of what you ordered (in purple) and what the actual demand was (in pink) for all prior rounds

Summary of key metrics of prior periods

Period	1	2	3	4	5	6	7
Order quantity	500	500	500				
Demand quantity (realized)	560	742	442				
Salvaged inventory	0	0	58				
Profit	\$18500	\$18,500	\$15,716				

This is the history (in numbers) including the profit realized per round and cumulative profit

At the bottom, there is a place for you to input how much you want to order for the period three months out.

Decision

Input how much you want to order here

Next

Click “Next” to proceed to the next screen. It will show you the next periods realized demand.

You will now go through a practice round where you will order three times. The product cost parameters from these rounds will be the same as those in the game, but the **demand distributions will be different**. Be sure to note the new distribution when you enter the actual experiment. Click next below to be taken to the practice round and thank you!