

**PROJECT: Nike Inventory Allocation**

***COURSE:*** Supply Chain I

***OBJECTIVES:*** Develop an allocation of products to maximize profit in an analysis of a retail business supported by a manufacturer and distributor.

* Determine how demand is measured by businesses through primary and secondary data.
* Calculate sales price, unit profit and unit inventory cost given constraints of a marketing allocation inventory problem.
* Allocate products from a line of products during a specific season within constraints of an inventory budget, inventory amount control and supply constraint.
* Use Microsoft Excel to allocate product mix and obtain quick profit and inventory cost calculations.

***TN STATE STANDARDS: Logistics and Transportation***

 Standard 6) Perform inventory calculations to minimize costs as would a logistics manager for a given company.

***ASPECTS OF INDUSTRY:*** Business Planning, Management, and Technology Production Skills

***DUE DATE:* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***GRADE*:** 100 points (Project without Presentation Rubric)

***Scenario Problem Statement:***

You have received a memo from the Midsouth Sales Distribution Division informing you about the launch of the 2019 Nike Air Max footwear line in December. One of your Footlocker accounts on Poplar Avenue at the Oak Court Mall in Memphis, TN has a current budget inventory of $30,000 to introduce a combination of 6 new products from this line. We need to come up with a strategy to allocate the urban footwear to this particular Memphis retailer to come up with the greatest profit from the sales of these shoes. We must stock 270 pairs and cannot stock more than 330 due to limited space on our existing shelves. Supply of the Air Max Pinchot Leather is limited to 60 initial pairs and 60/week after that. All other shoes are offered at an unlimited supply.

**Nike Midsouth Sales Distribution Division**

**Memphis, TN**

To: Sales Manager – Midsouth Footlocker Accounts

From: Darron Trobetsky, Midsouth Sales Manager

As you know, we are launching the 2019 Nike Air Max footwear line in December. One of your Footlocker accounts on Poplar Avenue at the Oak Court Mall has a current inventory budget of $30,000 to introduce a combination of 6 new products from this line. We need to come up with a strategy to allocate the new urban footwear to this particular Memphis retailer.

We must make sure that we can build an assortment plan to emphasize their past successes, energize new selling opportunities, and grow their business profitably. The plan should maximize our profitability and make sure that this location can turn over as many pairs of boots as possible.

The cost, profit, and demand information are shown in the chart below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Product** | **Inventory Cost** | **Nike Profit Margin** | **Demand** |
| Air Max Pinchot Men’s Leather | $80 | 20% | Extremely High |
| Air Max 90 | $120 | 40% | Medium |
| Air Max 95 | $85 | 50% | Low |
| Air Max Plus | $80 | 40% | Low |
| Air Max 270 | $150 | 40% | Medium |
| Air Vapormax Plus | $120 | 30% | High |

As you know the Air Max Pinchot Men’s Leather is an innovative and high demand boot. Because of limited release on this footwear, we can only supply this Foot Locker with a maximum of 60 units. This is an extremely high rate of supply. Other boots will certainly not move as quickly. Any store should be able to sell as many of these as we can supply. As many pairs as needed can be provided for all the other products.

In addition, this Footlocker retailer has an agreement with Nike that they will keep a minimum number of 270 pairs and a maximum of 330 pairs of 2019 Nike Air Max footwear in stock. Please run an inventory analysis using MS Excel 2016 and within the allocation include breakdown of shoe types. Get back to me by Friday with your recommendations. Prepare a written business report with details and present it at our next management team meeting this Friday.

If you have any questions, please let me know.

**Understanding Demand, Inventory Costs, and Profit Margin**

Suppose you are the owner of a Sherwin-Williams paint store on Poplar Avenue. The paint is made in Dallas, Texas at the paint and coatings factory. In turn, these gallons are shipped to a **distributor** in Memphis and then when you need to stock your shelves, you must obtain material from this distributor. The Sherwin-Williams store is called the **retailer**.

The cost to keep products (gallons of paint) in your inventory is called the **inventory cost**. Suppose you need 100 gallons of Brand X exterior house paint to place on your shelves in the store. Each gallon costs $16 from the Sherwin-Williams distribution warehouse.

**Total Inventory cost for this item in your store would be:**

 100 gallons paint X $16/gallon = $1600 total inventory cost

Since you bought these gallons for $1600, you must sell them at a higher price. You plan on making 20% for each gallon you sell. This percentage increase to your inventory cost is called the **margin** or **profit margin**.

**What will be your sales (retail) price of one of the gallons of paint if you make your 20% margin?**

 Take the inventory cost and multiply by the margin (in decimal form) and then add this to your inventory cost:

$16/gallon X 0.20 = $3.20 (this $3.20 is sometimes called **markup**.)

 $16.00 + $3.20 = $19.20 retail price

 Or $16/gallon x 1.20 = $19.20

**Demand** is one’s willingness and ability to buy something. You might be able to sell this particular type of paint at a higher margin during the summer months when there is a higher demand.

**Exercises:**

1. Calculate the markup of a $20 gallon of interior paint if the margin is 10%, 20%, and 25%.
2. Calculate the retail price for the $20 gallon of paint at the 3 margins.

**Calculating Profit from Inventory Cost and Profit Margin**

Step 1: Open MS Excel 2016 and create the following spreadsheet

Step 2: Choose 3 Air Max products from the Nike memo

Step 3: Fill-in the inventory cost of the product as provided in the Nike memo

Step 4: Calculate the retail price of product at each profit margin level (insert formula)

Step 5: Calculate the unit profit at each profit margin level (insert formula)

Step 6: Calculate the profit for 200 units (insert formula)

Step 7: Save spreadsheet to your folder on your desktop and email it to kavasschs@gmail.com

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Product** | **Inventory Cost** | **Profit Margin** | **Retail Price of Product** | **Unit Profit** | **Profit for 200 Units** |
|  |  | 5% |  |  |  |
|  |  | 20% |  |  |  |
|  |  | 40% |  |  |  |
|  |  |  |  |  |  |
|  |  | 5% |  |  |  |
|  |  | 20% |  |  |  |
|  |  | 40% |  |  |  |
|  |  |  |  |  |  |
|  |  | 5% |  |  |  |
|  |  | 20% |  |  |  |
|  |  | 40% |  |  |  |

**Product Allocation**

Step 1: Open MS Excel 2016 and create the spreadsheet shown below – include a header with

Product Allocation, your name, class period

Step 2: List the 6 Air Max products from the Nike memo

Step 3: Allocate the number of units to purchase of each product type (refer to Nike memo for

minimum and maximum required allocations)

Step 4: Fill-in the Inventory Cost per Unit of the product as provided in the Nike memo

Step 5: Calculate the Total Inventory Cost per product (insert formula)

Step 6: Calculate the Total Inventory Cost for ALL six products (insert formula)

Step 7: Calculate the Retail Price per Unit for each product (insert formula)

Step 8: Calculate the Unit Profit for each product (insert formula)

Step 9: Calculate the Total Profit for each product (insert formula)

Step 10: Calculate the Total Profit for ALL six products (insert formula)

Step 11: Save spreadsheet to your folder on your desktop and email it to kavasschs@gmail.com

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Product** | **Number of Units****(1 Unit=1 Pair)** | **Inventory Cost per Unit** | **Total Inventory Cost** | **Profit Margin** | **Retail Price per Unit** | **Unit Profit** | **Total Profit** |
|  |  | $ | $ | 20% | $ | $ | $ |
|  |  | $ | $ | 20% | $ | $ | $ |
|  |  | $ | $ | 20% | $ | $ | $ |
|  |  | $ | $ | 20% | $ | $ | $ |
|  |  | $ | $ | 20% | $ | $ | $ |
|  |  | $ | $ | 20% | $ | $ | $ |
| **TOTALS**: |  |  | $ |  |  |  | $ |

**Solution Checker for 2019 Nike Inventory Allocation Problem**

***Answer the following questions:***

1. Did you take into account that the Pinchot Men’s Leather has a supply limit of 60 units/week?
2. How many pairs do you have in your inventory? Is this between 270 and 330 total pairs?
3. Can you cover the weekly demand for each product (other than Pinchot Men’s Leather)? Meaning are the demands consistent (low, medium, high)?
4. What is the total inventory cost? Is it under the $30,000 budget?
5. Did you present your product mix by using all 6 products in your Product Allocation Chart?
6. What is your overall profit?