# Data Science

## Data Analytics
## in
## Business Processes

## Task 1:

Refer the dataset: 'dabp_salesdata.xlsx'

### Data Analysis

· Open the "SalesData.xlsx" dataset.

· Calculate the following using Excel functions:

i) Total revenue for each product.

ii) Total cost for each product.

iii) Gross profit for each product (Total revenue - Total cost).

iv) Total revenue for each month.

v) Average monthly gross profit.

· Create a bar chart to visualize the monthly revenue.

### What-If Analysis

· Imagine the company wants to offer a discount of 10% on one of the products to boost sales. Calculate the new gross profit for each product after applying the discount.

So, shall I apply the 10% for all the products or shall I apply randomly for one of the products and apply some random discounts for all the other products?

I would recommend applying the 10% discount to the product that you think would have the biggest impact on sales. You can also use what-if analysis to experiment with different discount percentages and products to see which scenario would be most profitable for your business.

· Create a data table to show how the overall gross profit changes as the discount is applied to different products.

**Decision Analysis**

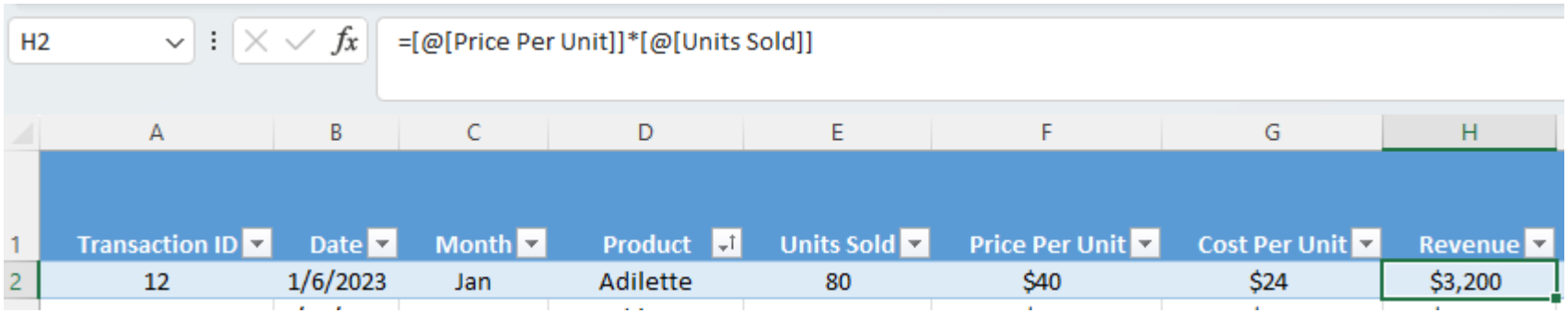
Based on your analysis:

· Identify which product would benefit the most from a 10% discount in terms of gross profit increase.

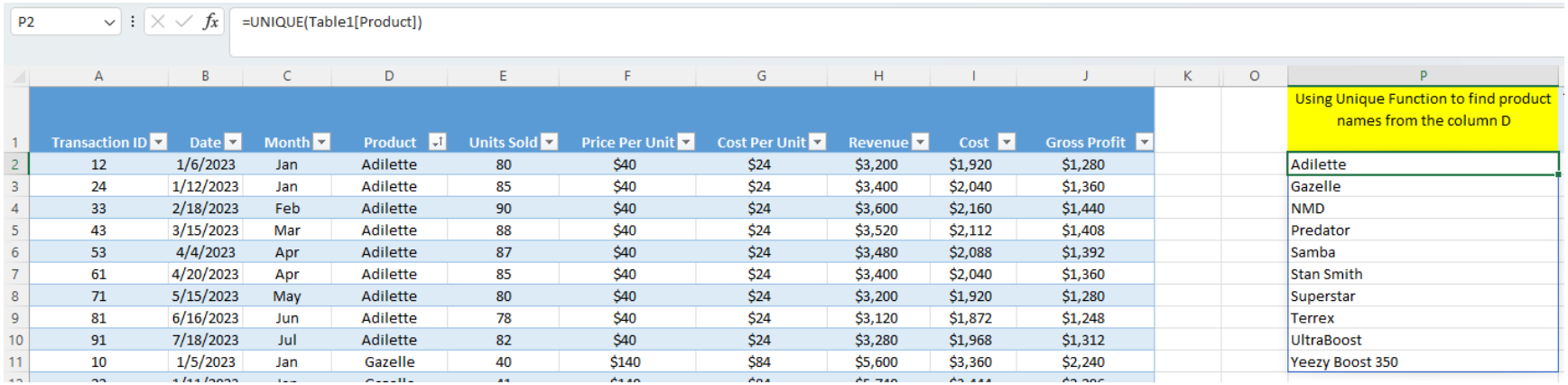
· Provide a brief recommendation on whether the company should proceed with the discount strategy.

i)Total revenue for each product.

1. Calculating the total revenue for each product line item (column H).



2. Using UNIQUE function to get the product names from column D to column P.

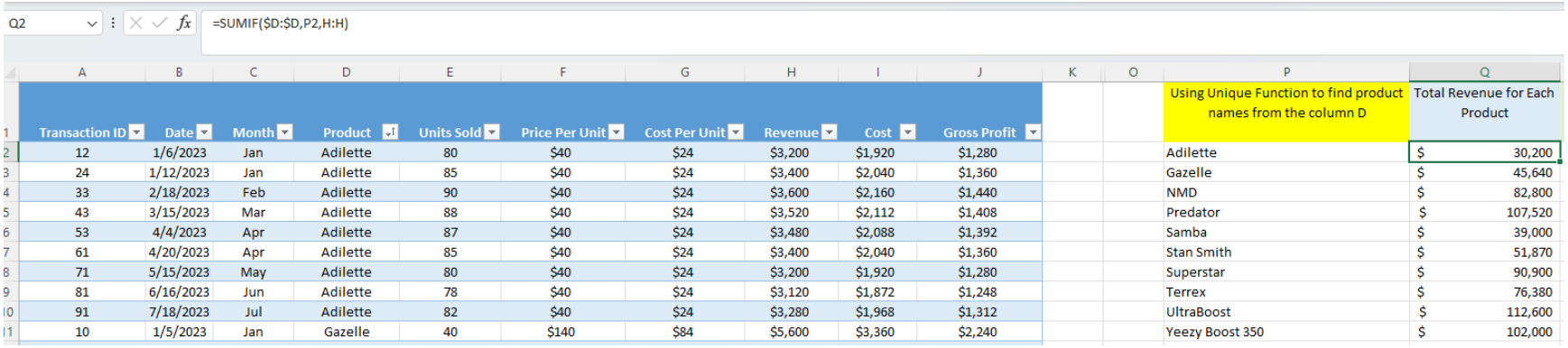


P2 | =UNIQUE(Table1[Product])

| Transaction ID | Date | Month | Product | Units Sold | Price Per Unit | Cost Per Unit | Revenue | Cost | Gross Profit |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 1/6/2023 | Jan | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 |
| 24 | 1/12/2023 | Jan | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 |
| 33 | 2/18/2023 | Feb | Adilette | 90 | $40 | $24 | $3,600 | $2,160 | $1,440 |
| 43 | 3/15/2023 | Mar | Adilette | 88 | $40 | $24 | $3,520 | $2,112 | $1,408 |
| 53 | 4/4/2023 | Apr | Adilette | 87 | $40 | $24 | $3,480 | $2,088 | $1,392 |
| 61 | 4/20/2023 | Apr | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 |
| 71 | 5/15/2023 | May | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 |
| 81 | 6/16/2023 | Jun | Adilette | 78 | $40 | $24 | $3,120 | $1,872 | $1,248 |
| 91 | 7/18/2023 | Jul | Adilette | 82 | $40 | $24 | $3,280 | $1,968 | $1,312 |
| 10 | 1/5/2023 | Jan | Gazelle | 40 | $140 | $84 | $5,600 | $3,360 | $2,240 |

| Using Unique Function to find product names from the column D |
|---|
| Adilette |
| Gazelle |
| NMD |
| Predator |
| Samba |
| Stan Smith |
| Superstar |
| Terrex |
| UltraBoost |
| Yeezy Boost 350 |

3. Using SUMIF function to get the Total Revenue for each product.

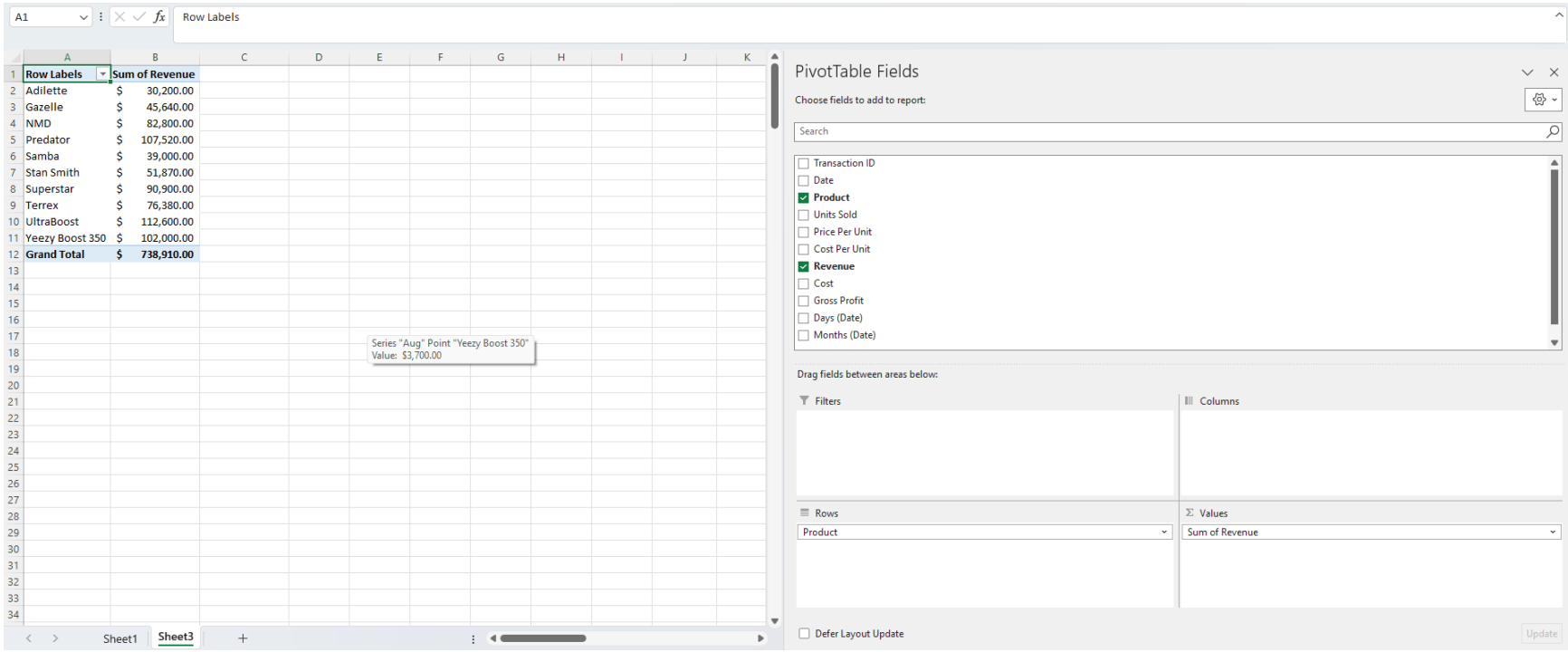


Q2 | =SUMIF($D:$D,P2,H:H)

| Transaction ID | Date | Month | Product | Units Sold | Price Per Unit | Cost Per Unit | Revenue | Cost | Gross Profit |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 1/6/2023 | Jan | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 |
| 24 | 1/12/2023 | Jan | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 |
| 33 | 2/18/2023 | Feb | Adilette | 90 | $40 | $24 | $3,600 | $2,160 | $1,440 |
| 43 | 3/15/2023 | Mar | Adilette | 88 | $40 | $24 | $3,520 | $2,112 | $1,408 |
| 53 | 4/4/2023 | Apr | Adilette | 87 | $40 | $24 | $3,480 | $2,088 | $1,392 |
| 61 | 4/20/2023 | Apr | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 |
| 71 | 5/15/2023 | May | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 |
| 81 | 6/16/2023 | Jun | Adilette | 78 | $40 | $24 | $3,120 | $1,872 | $1,248 |
| 91 | 7/18/2023 | Jul | Adilette | 82 | $40 | $24 | $3,280 | $1,968 | $1,312 |
| 10 | 1/5/2023 | Jan | Gazelle | 40 | $140 | $84 | $5,600 | $3,360 | $2,240 |

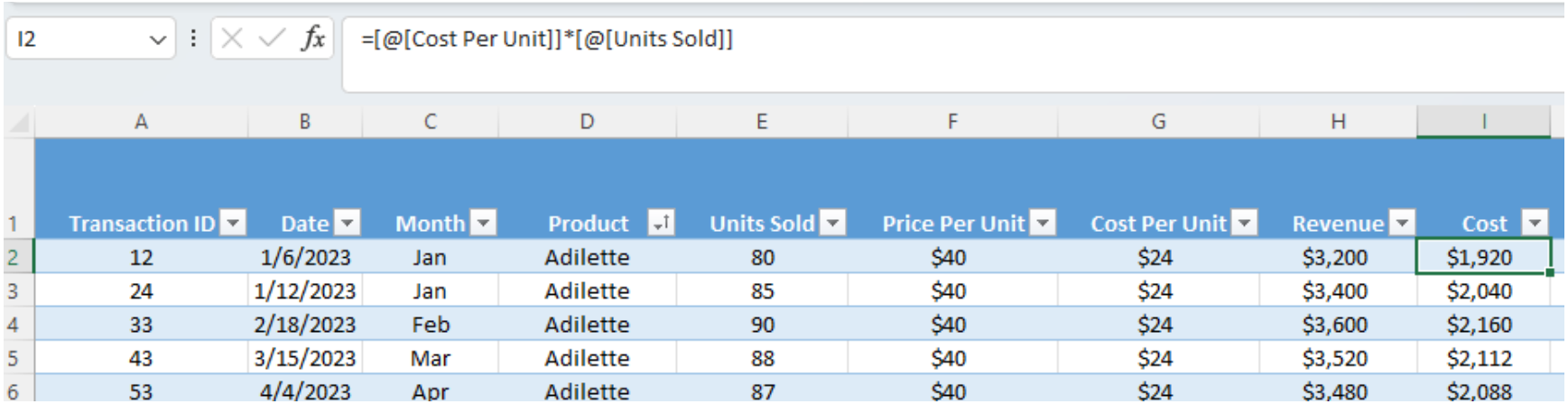
| Using Unique Function to find product names from the column D | Total Revenue for Each Product |
|---|---|
| Adilette | $ 30,200 |
| Gazelle | $ 45,640 |
| NMD | $ 82,800 |
| Predator | $ 107,520 |
| Samba | $ 39,000 |
| Stan Smith | $ 51,870 |
| Superstar | $ 90,900 |
| Terrex | $ 76,380 |
| UltraBoost | $ 112,600 |
| Yeezy Boost 350 | $ 102,000 |

The above same results can be obtained by using a Pivot Table as shown below.




## ii)Total cost for each product.

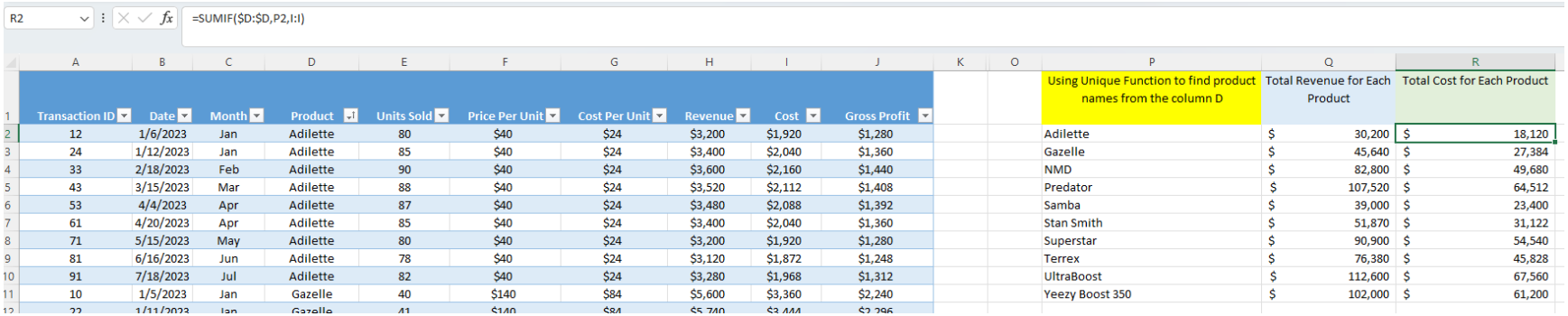
1. Calculating the total cost for each product line item (column I)



I2 | =[@[Cost Per Unit]]*[@[Units Sold]]

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Transaction ID | Date | Month | Product | Units Sold | Price Per Unit | Cost Per Unit | Revenue | Cost |
| 2 | 12 | 1/6/2023 | Jan | Adilette | 80 | $40 | $24 | $3,200 | $1,920 |
| 3 | 24 | 1/12/2023 | Jan | Adilette | 85 | $40 | $24 | $3,400 | $2,040 |
| 4 | 33 | 2/18/2023 | Feb | Adilette | 90 | $40 | $24 | $3,600 | $2,160 |
| 5 | 43 | 3/15/2023 | Mar | Adilette | 88 | $40 | $24 | $3,520 | $2,112 |
| 6 | 53 | 4/4/2023 | Apr | Adilette | 87 | $40 | $24 | $3,480 | $2,088 |

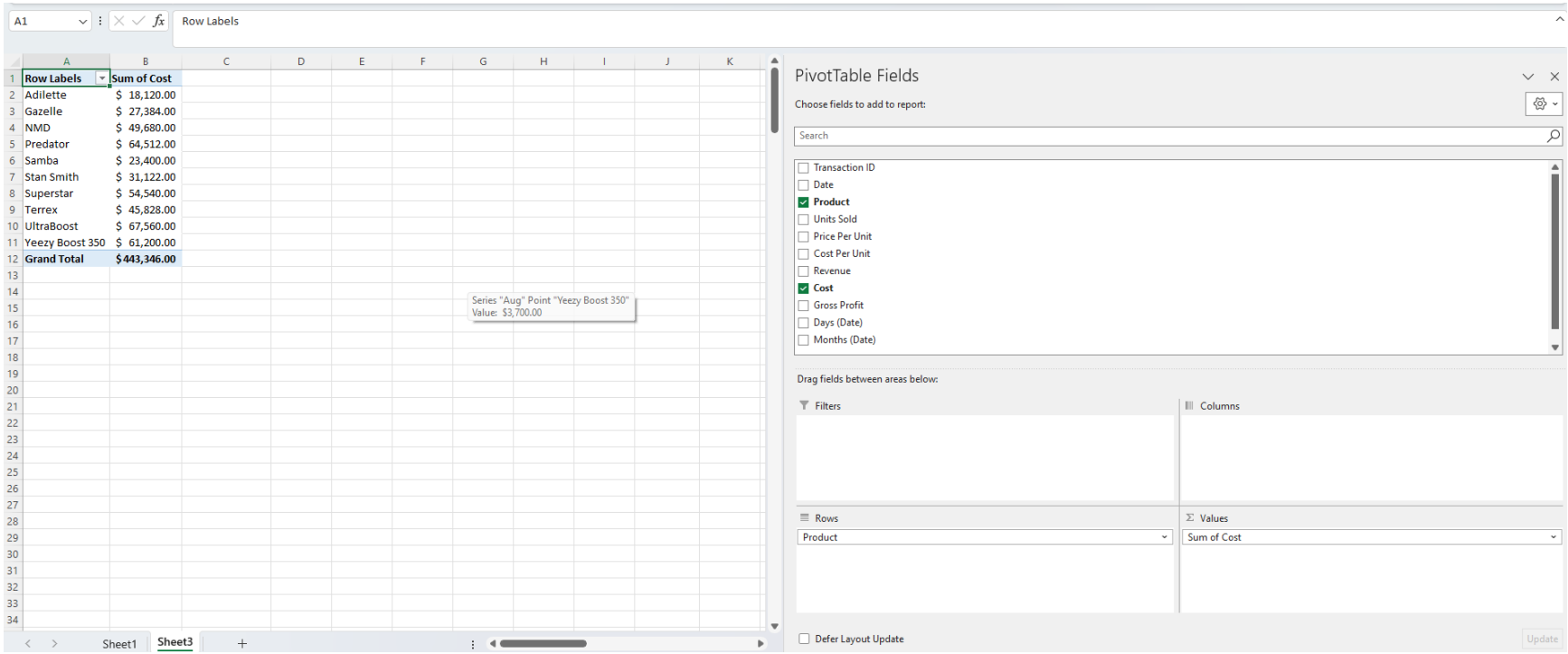
2. Using SUMIF function to get the Total Cost for each product.



R2 | =SUMIF($D:$D,P2,I:I)

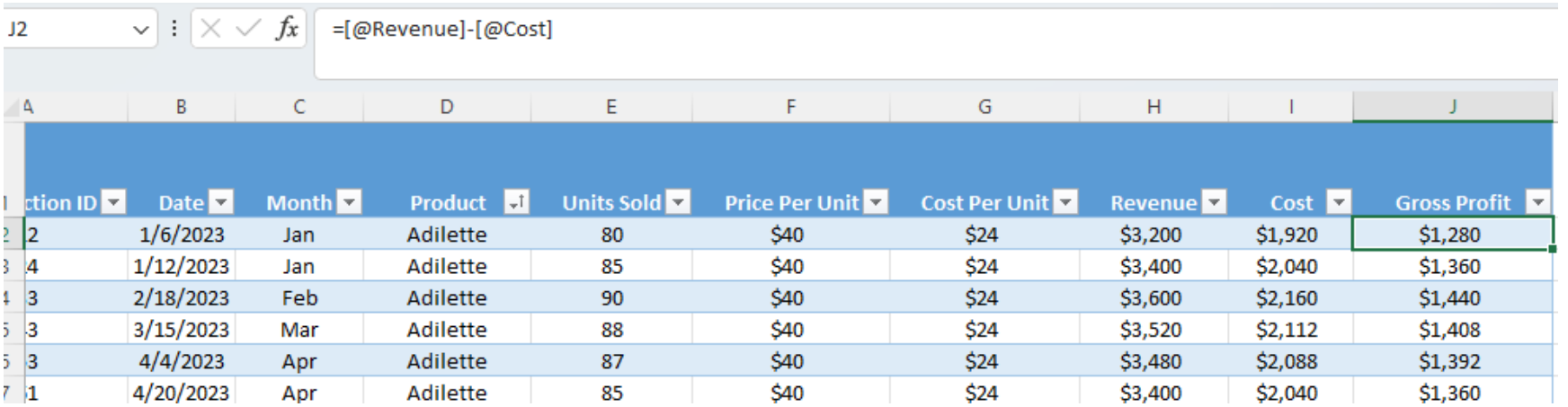
| | A | B | C | D | E | F | G | H | I | J | K | O | P | Q | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Transaction ID | Date | Month | Product | Units Sold | Price Per Unit | Cost Per Unit | Revenue | Cost | Gross Profit | | | Using Unique Function to find product names from the column D | Total Revenue for Each Product | Total Cost for Each Product |
| 2 | 12 | 1/6/2023 | Jan | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 | | | Adilette | $ 30,200 | $ 18,120 |
| 3 | 24 | 1/12/2023 | Jan | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 | | | Gazelle | $ 45,640 | $ 27,384 |
| 4 | 33 | 2/18/2023 | Feb | Adilette | 90 | $40 | $24 | $3,600 | $2,160 | $1,440 | | | NMD | $ 82,800 | $ 49,680 |
| 5 | 43 | 3/15/2023 | Mar | Adilette | 88 | $40 | $24 | $3,520 | $2,112 | $1,408 | | | Predator | $ 107,520 | $ 64,512 |
| 6 | 53 | 4/4/2023 | Apr | Adilette | 87 | $40 | $24 | $3,480 | $2,088 | $1,392 | | | Samba | $ 39,000 | $ 23,400 |
| 7 | 61 | 4/20/2023 | Apr | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 | | | Stan Smith | $ 51,870 | $ 31,122 |
| 8 | 71 | 5/15/2023 | May | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 | | | Superstar | $ 90,900 | $ 54,540 |
| 9 | 81 | 6/16/2023 | Jun | Adilette | 78 | $40 | $24 | $3,120 | $1,872 | $1,248 | | | Terrex | $ 76,380 | $ 45,828 |
| 10 | 91 | 7/18/2023 | Jul | Adilette | 82 | $40 | $24 | $3,280 | $1,968 | $1,312 | | | UltraBoost | $ 112,600 | $ 67,560 |
| 11 | 10 | 1/5/2023 | Jan | Gazelle | 40 | $140 | $84 | $5,600 | $3,360 | $2,240 | | | Yeezy Boost 350 | $ 102,000 | $ 61,200 |
| 12 | 22 | 1/11/2023 | Jan | Gazelle | 41 | $140 | $84 | $5,740 | $3,444 | $2,296 | | | | | |

The above same results can be obtained by using a Pivot Table as shown below.




## iii)Gross profit for each product (Total revenue - Total cost).

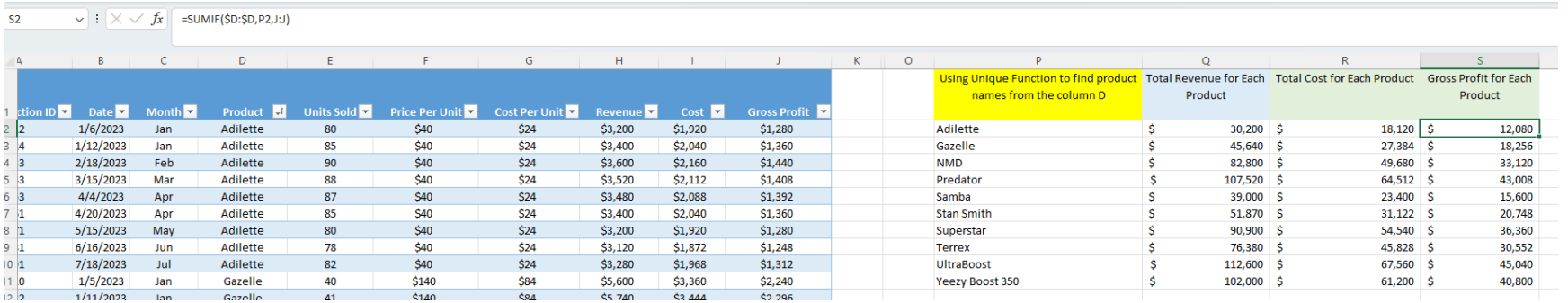
1. Calculating the total gross profit for each product line item (column J)



J2 | =[@Revenue]-[@Cost]

| ction ID | Date | Month | Product | Units Sold | Price Per Unit | Cost Per Unit | Revenue | Cost | Gross Profit |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1/6/2023 | Jan | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 |
| 4 | 1/12/2023 | Jan | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 |
| 3 | 2/18/2023 | Feb | Adilette | 90 | $40 | $24 | $3,600 | $2,160 | $1,440 |
| 3 | 3/15/2023 | Mar | Adilette | 88 | $40 | $24 | $3,520 | $2,112 | $1,408 |
| 3 | 4/4/2023 | Apr | Adilette | 87 | $40 | $24 | $3,480 | $2,088 | $1,392 |
| 1 | 4/20/2023 | Apr | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 |

2. Using SUMIF function to get the Total Gross Profit of each product.

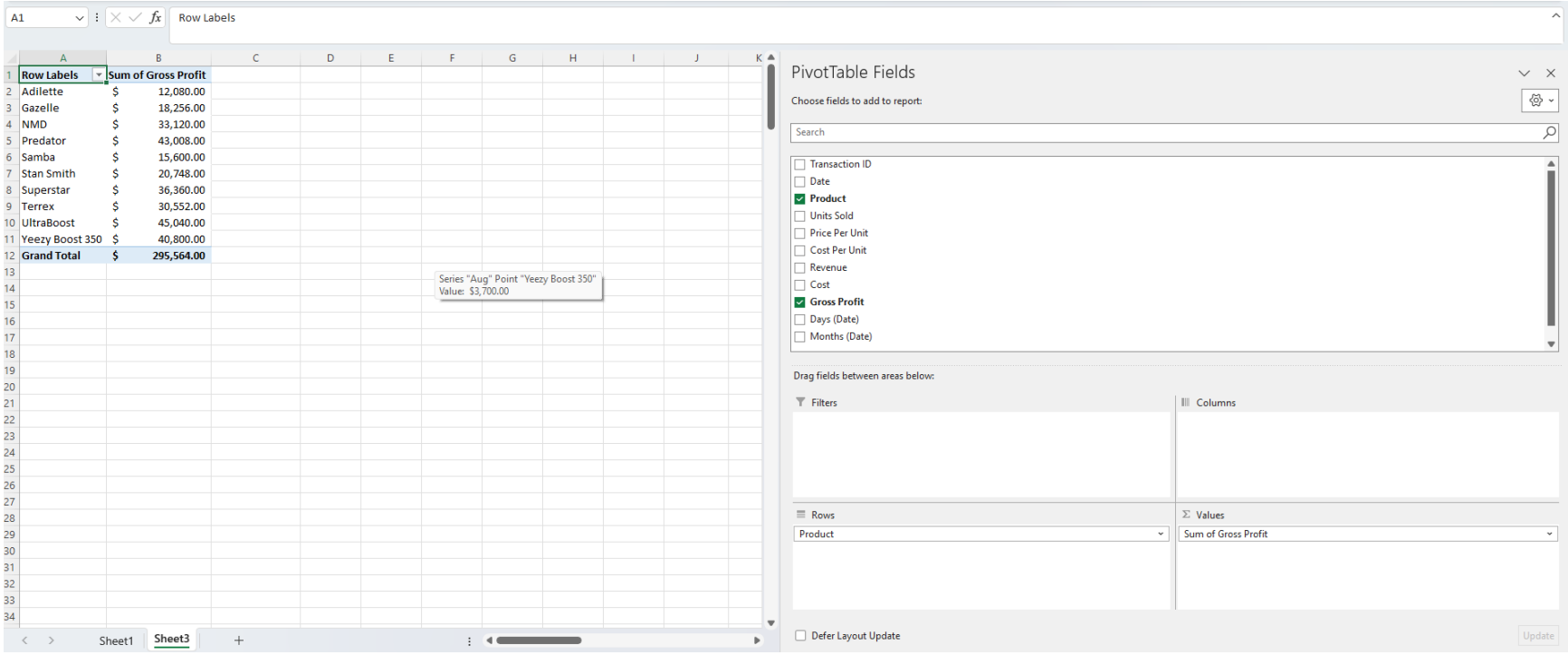


S2 | =SUMIF($D:$D,P2,J:J)

| ction ID | Date | Month | Product | Units Sold | Price Per Unit | Cost Per Unit | Revenue | Cost | Gross Profit |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1/6/2023 | Jan | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 |
| 4 | 1/12/2023 | Jan | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 |
| 3 | 2/18/2023 | Feb | Adilette | 90 | $40 | $24 | $3,600 | $2,160 | $1,440 |
| 3 | 3/15/2023 | Mar | Adilette | 88 | $40 | $24 | $3,520 | $2,112 | $1,408 |
| 3 | 4/4/2023 | Apr | Adilette | 87 | $40 | $24 | $3,480 | $2,088 | $1,392 |
| 1 | 4/20/2023 | Apr | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 |
| 1 | 5/15/2023 | May | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 |
| 1 | 6/16/2023 | Jun | Adilette | 78 | $40 | $24 | $3,120 | $1,872 | $1,248 |
| 1 | 7/18/2023 | Jul | Adilette | 82 | $40 | $24 | $3,280 | $1,968 | $1,312 |
| 0 | 1/5/2023 | Jan | Gazelle | 40 | $140 | $84 | $5,600 | $3,360 | $2,240 |
| 2 | 1/11/2023 | Jan | Gazelle | 41 | $140 | $84 | $5,740 | $3,444 | $2,296 |

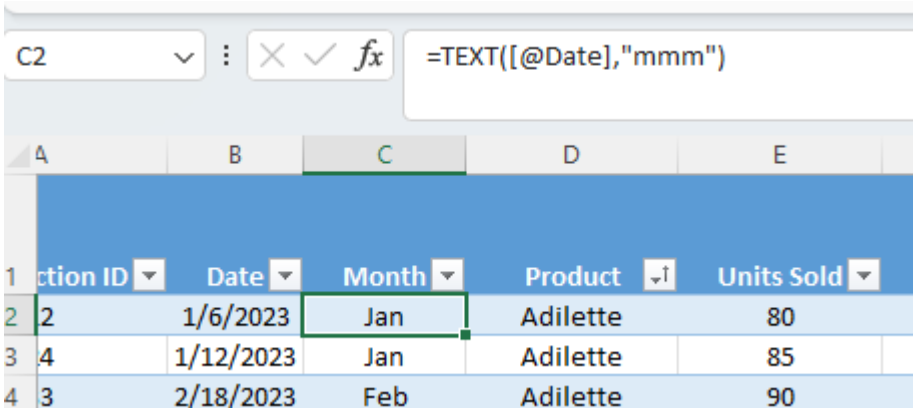
| Using Unique Function to find product names from the column D | Total Revenue for Each Product | Total Cost for Each Product | Gross Profit for Each Product |
|---|---|---|---|
| Adilette | $ 30,200 | $ 18,120 | $ 12,080 |
| Gazelle | $ 45,640 | $ 27,384 | $ 18,256 |
| NMD | $ 82,800 | $ 49,680 | $ 33,120 |
| Predator | $ 107,520 | $ 64,512 | $ 43,008 |
| Samba | $ 39,000 | $ 23,400 | $ 15,600 |
| Stan Smith | $ 51,870 | $ 31,122 | $ 20,748 |
| Superstar | $ 90,900 | $ 54,540 | $ 36,360 |
| Terrex | $ 76,380 | $ 45,828 | $ 30,552 |
| UltraBoost | $ 112,600 | $ 67,560 | $ 45,040 |
| Yeezy Boost 350 | $ 102,000 | $ 61,200 | $ 40,800 |

The above same results can be obtained by using a Pivot Table as shown below.

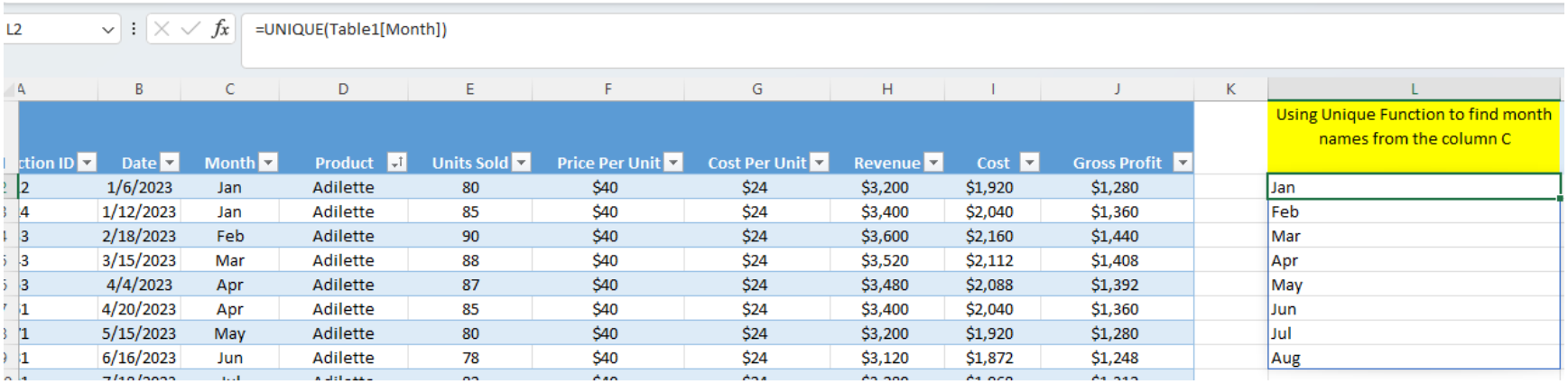



iv) Total revenue for each month.

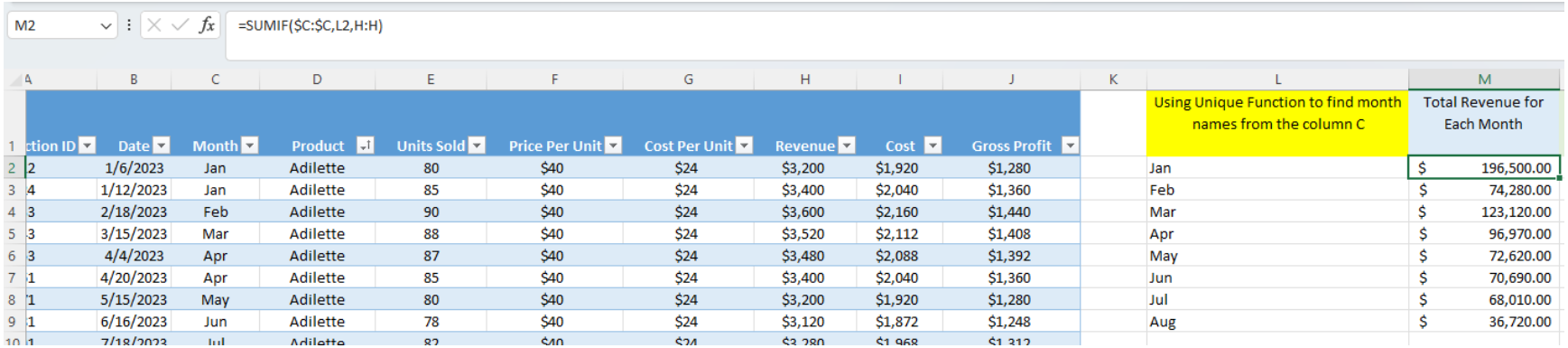
1. Using the TEXT function, get the name of the month for each line item into column C.



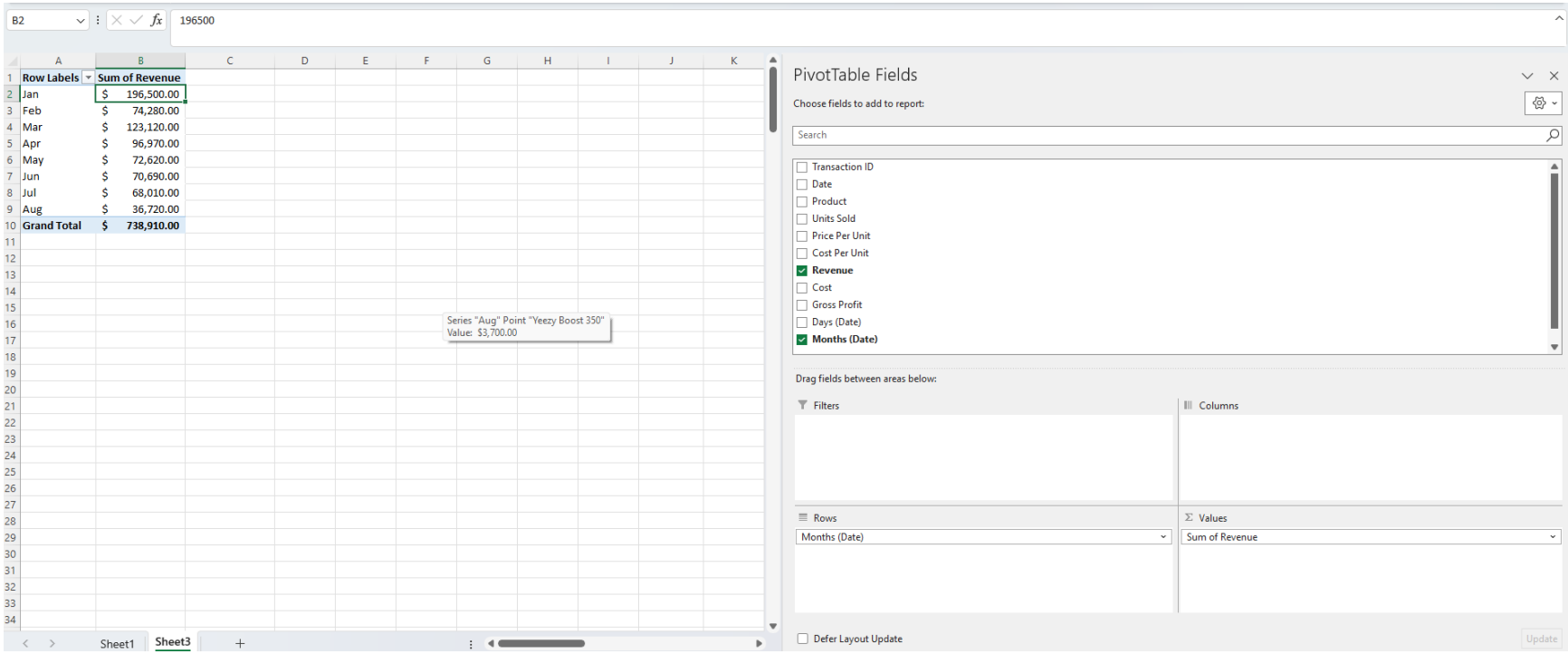

2. Using UNIQUE function to get the month names to column L.




3. Using SUMIF function to get the total revenue for each month.



The above same results can be obtained by using a Pivot Table as shown below.




v) Average monthly gross profit.

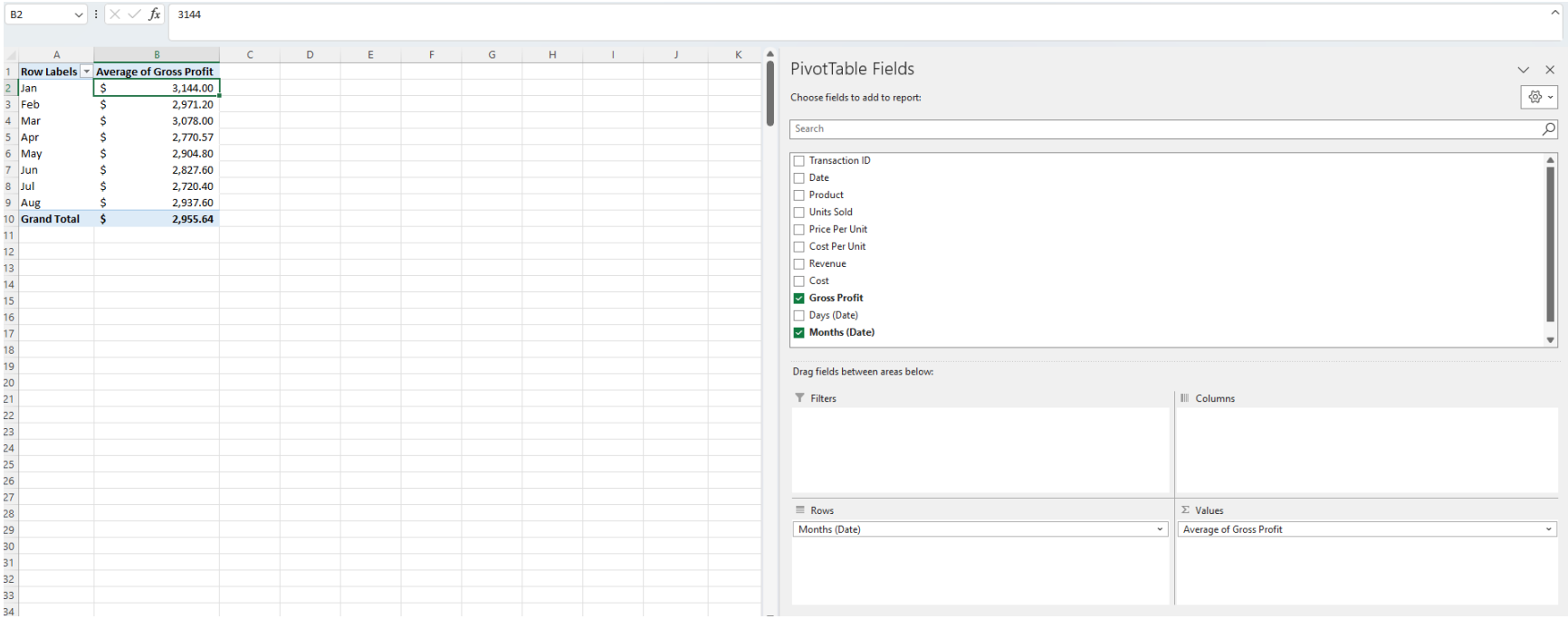
Using AVERAGEIF function to get the average gross profit for each month.

N2 =AVERAGEIF($C:$C,L2,J:J)

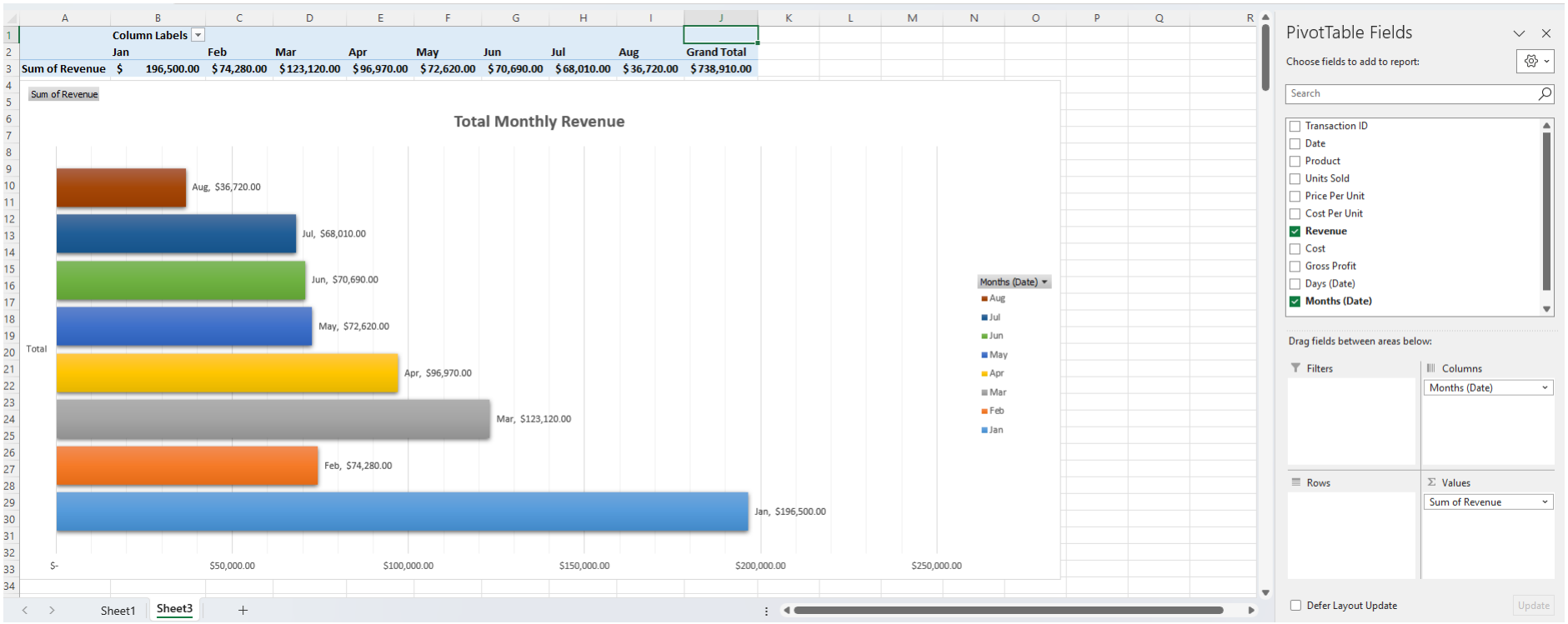
| ction ID | Date | Month | Product | Units Sold | Price Per Unit | Cost Per Unit | Revenue | Cost | Gross Profit |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 1/6/2023 | Jan | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 |
| 4 | 1/12/2023 | Jan | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 |
| 3 | 2/18/2023 | Feb | Adilette | 90 | $40 | $24 | $3,600 | $2,160 | $1,440 |
| 3 | 3/15/2023 | Mar | Adilette | 88 | $40 | $24 | $3,520 | $2,112 | $1,408 |
| 3 | 4/4/2023 | Apr | Adilette | 87 | $40 | $24 | $3,480 | $2,088 | $1,392 |
| 1 | 4/20/2023 | Apr | Adilette | 85 | $40 | $24 | $3,400 | $2,040 | $1,360 |
| 1 | 5/15/2023 | May | Adilette | 80 | $40 | $24 | $3,200 | $1,920 | $1,280 |
| 1 | 6/16/2023 | Jun | Adilette | 78 | $40 | $24 | $3,120 | $1,872 | $1,248 |

| Using Unique Function to find month names from the column C | Total Revenue for Each Month | Average Gross Profit for Each Month |
|---|---|---|
| Jan | $ 196,500.00 | $ 3,144.00 |
| Feb | $ 74,280.00 | $ 2,971.20 |
| Mar | $ 123,120.00 | $ 3,078.00 |
| Apr | $ 96,970.00 | $ 2,770.57 |
| May | $ 72,620.00 | $ 2,904.80 |
| Jun | $ 70,690.00 | $ 2,827.60 |
| Jul | $ 68,010.00 | $ 2,720.40 |
| Aug | $ 36,720.00 | $ 2,937.60 |

The above same results can be obtained by using a Pivot Table as shown below.




The below screenshot displays a Bar chart to visualize the monthly revenue.




The month of January had the most monthly income generation, and the month of August witnessed the lowest monthly revenue generation, as shown in the above bar chart.

# References


Abby Jenkins . (2022, 08 09). *oracle netsuite*. Retrieved from netsuite: https://www.netsuite.com/portal/resource/articles/inventory-management/inventory-turnover-ratio.shtml

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