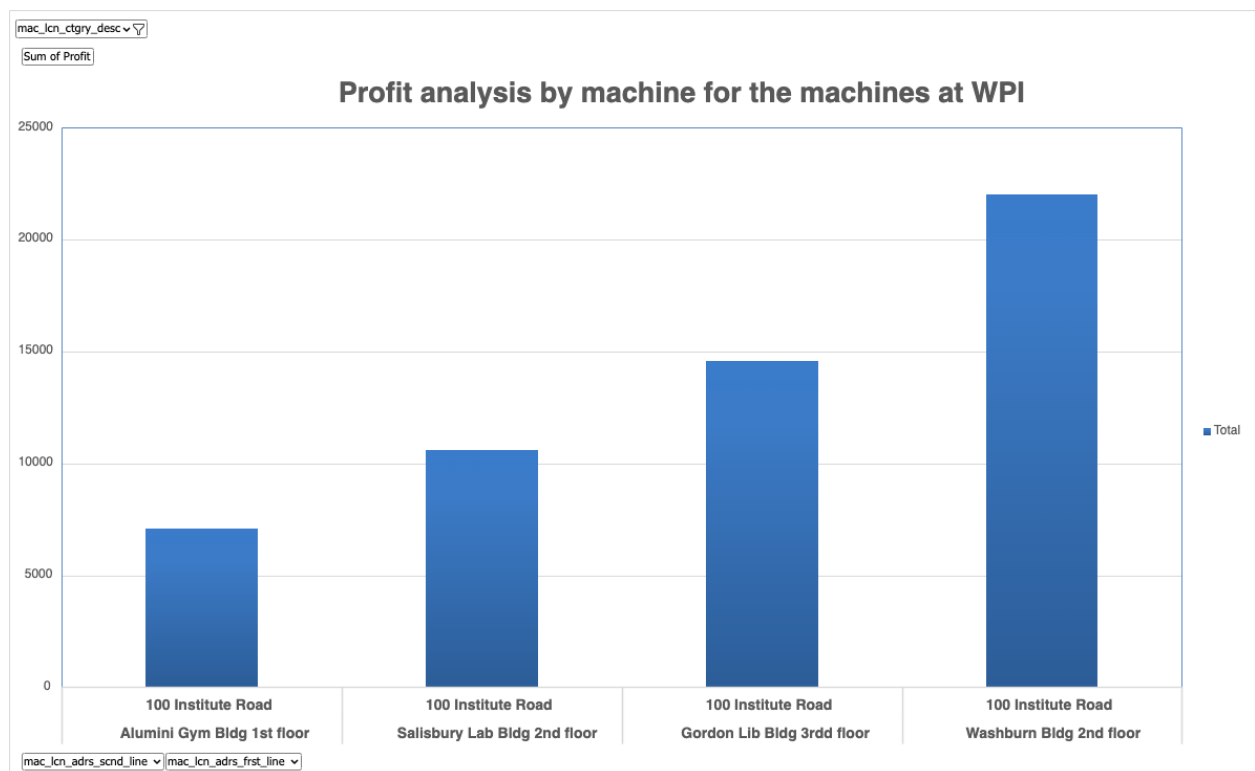


Question 1:

- In terms of profit, the vending machine located at Washburn Building has the highest profit at \$21,989.24, whereas Alumni Gym has the least sum of profit at \$7,068.74. This does have some underlying reason to it because the Washburn Building is an academic building that has a vending machine right next to the classroom, where students have easy access, unlike the gym where it's away from the recreation facilities.

Row Labels	Sum of Profit
Alumni Gym Bldg 1st floor	7068.74
100 Institute Road	7068.74
Salisbury Lab Bldg 2nd floor	10601.27
100 Institute Road	10601.27
Gordon Lib Bldg 3rd floor	14567.95
100 Institute Road	14567.95
Washburn Bldg 2nd floor	21989.24
100 Institute Road	21989.24
Grand Total	54227.2



2. Based on the pivot table, schools have the higher restock unit counts at 119,694 products compared to the other two locations. A safe assumption would be that a higher restock count indicates more products are being sold. Another analysis we encountered was the rate at which many products were going stale. About 3.23% of products go stale at school, 2.72% at the mall go stale, and finally 2.63% at the company.

Row Labels	Sum of fact_stale_unit_cnt	Sum of fact_restock_unit_cnt
Company	1347	23883
Carbonated soft drink and Water	0	10596
Coke	0	3532
Diet Coke	0	3532
XXX Brand Water	0	3532
Snacks	1347	13287
Candies	449	4429
Doritos	450	4429
Lays	448	4429
Mall	572	21207
Carbonated soft drink and Water	0	13302
Coke	0	4434
Diet Coke	0	4434
XXX Brand Water	0	4434
Snacks	572	7905
Candies	191	2635
Doritos	191	2635
Lays	190	2635
School	2086	74604
Carbonated soft drink and Water	11	33915
Coke	11	11305
Diet Coke	0	11305
XXX Brand Water	0	11305

Snacks	2075	40689
Candies	690	13563
Doritos	707	13563
Lays	678	13563
Grand Total	4005	119694

3. It can be seen within our data that carbonated drinks produce the least number of sales. In regards to location, we can see that the school produces the most number of sales among the three. The school snack vending machines have 2000+ sales, while the company and mall machines have ~1350 and ~575 respectively. This can be attributed to the fact that the school has a larger amount of products than the other two locations, but this does not change the fact that they have the most stale products.

Row Labels	Sum of fact_stale_unit_cnt
Carbonated soft drink and Water	11
Mall	0
Carbonated soft drink and Water	0
Coke	0
Diet Coke	0
XXX Brand Water	0
Company	0
Carbonated soft drink and Water	0
Coke	0
Diet Coke	0
XXX Brand Water	0
School	11
Carbonated soft drink and Water	11
Coke	11
Diet Coke	0

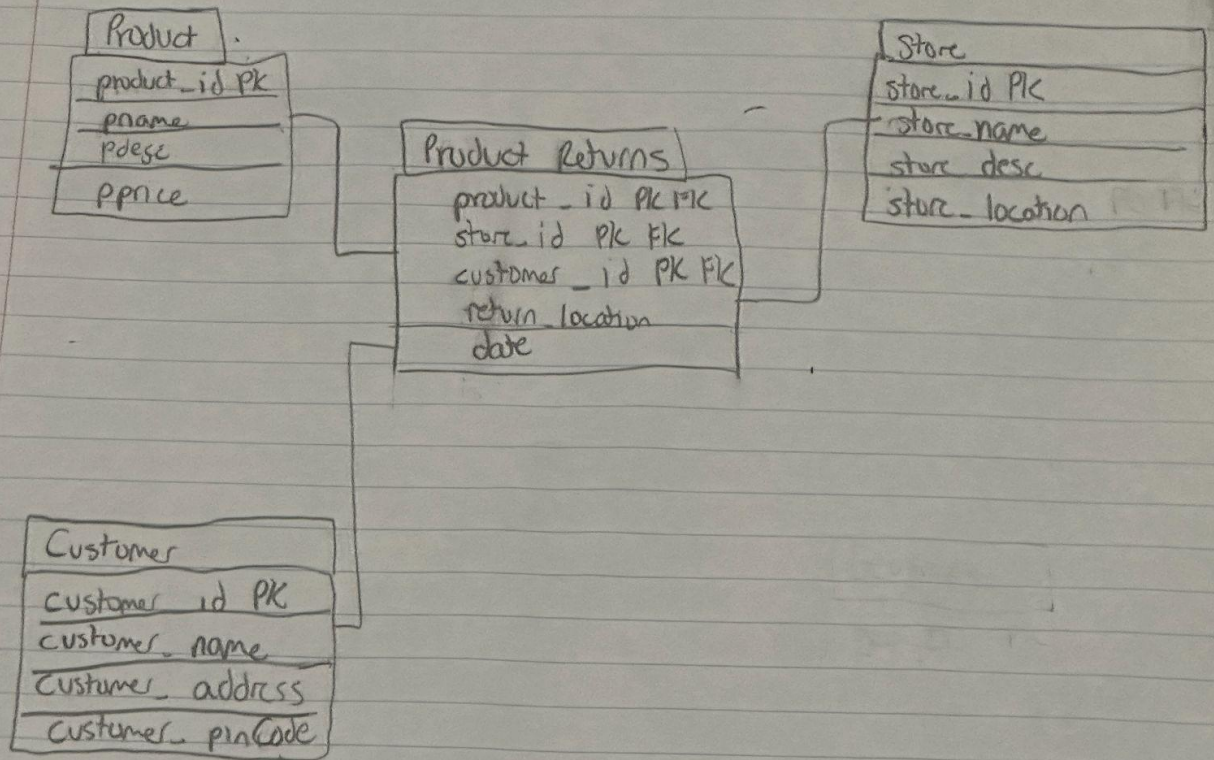
XXX Brand Water	0
Snacks	3994
Mall	572
Snacks	572
Candies	191
Doritos	191
Lays	190
Company	1347
Snacks	1347
Candies	449
Doritos	450
Lays	448
School	2075
Snacks	2075
Candies	690
Doritos	707
Lays	678
Grand Total	4005

4. The three major things that we recommend based on this data is that the location of the vending machines could be improved, for example putting them in a location that is more available for people to run into. They could be placed right next to a doorway or next to a main room in the building. Another thing that we recommend is that the carbonated drinks should be prioritized over the snacks because they sold better based on the data that we saw. It was clear based on the data that the carbonated drinks were making the most money because nearly all of them completely sold out all of their drinks. Finally, adding additional machines around these locations so that you could maximize the number of machines selling products would allow for maximum profit, so we recommend that they add one or two additional vending machines to make sure they get the most out of it.

Question 2:

1. Acne Inc. is an Indian retailer that spans multiple states and holds multiple warehouses full of tech, home appliances, etc. As with a huge retailer like Acne, there was a need for change in their warehousing processes due to inaccurate forecast estimates, excess inventory, and delayed shipments. For Acne Inc. certain analytical requirements would need to be fulfilled with the data warehouse. Data warehousing efficiently stores and organizes vast amounts of data in an organization. Acne Inc. had grown massively through acquisitions of various other companies. This led to multiple systems being in place, making it difficult to standardize. This made accessing data difficult, and time-consuming. Data warehousing solves this issue as it allows for a central vault of a sort that could place data from various departments. Having a data warehouse also allows for better-formulated insights and analysis. This could help improve their inventory forecasting and make it far more accurate. Overall the implementation of a data warehouse would give Acme a competitive edge due to the ability to make informed decisions on centralized data.

Retail Product Returns



Assumptions.

- Date is included in the fact table
- Geography already included as location/address for the tables

Question 3:

1.

```
SELECT TOP 5 Product.PName, Product.PDesc, COUNT(Restock.ProductID) AS TotalSold
FROM Restock JOIN Product ON Restock.ProductID = Product.ProductID
WHERE Restock.Date > 1/1/20 AND Restock.Date < 1/31/20
GROUP BY Product.PName, Product.PDesc;
```

2.

```
SELECT TOP 5 Product.PName, Product.PDesc, SUM(Product.Price) AS TotalSales
FROM Restock JOIN Product ON Restock.ProductID = Product.ProductID
WHERE Restock.Date > 1/1/20 AND Restock.Date < 1/31/20
GROUP BY Product.PName, Product.PDesc;
```