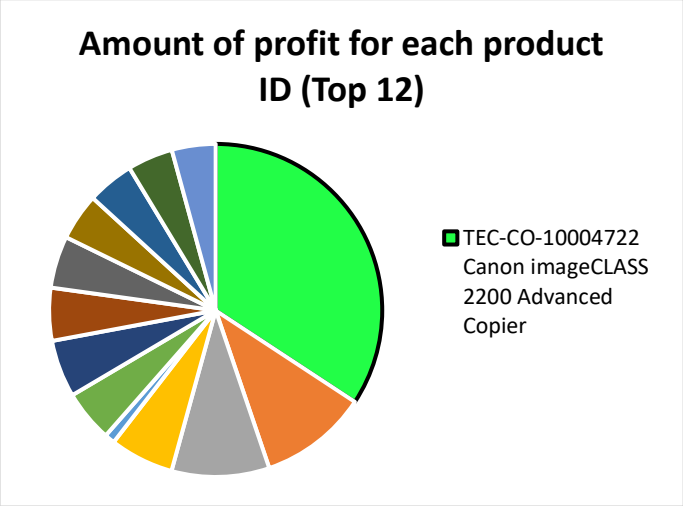
Excel assessment

First and most importantly, I wanted to have a look at the profits and losses as 2 of the most important areas any business needs to focus on is increasing profits and reducing losses. In general, high profits could be because of high quality of product, high sales, high quantity, desirable and accessible region, high speed of delivery, high customer satisfaction and high enough price.

Alternatively, losses could either be caused due to the product itself, the sales the product generates, the quantity of the product sold, the region it's sold in, and the speed of delivery of the product, customer satisfaction of product i.e., whether it was returned or not, and not high enough price.

Analysis

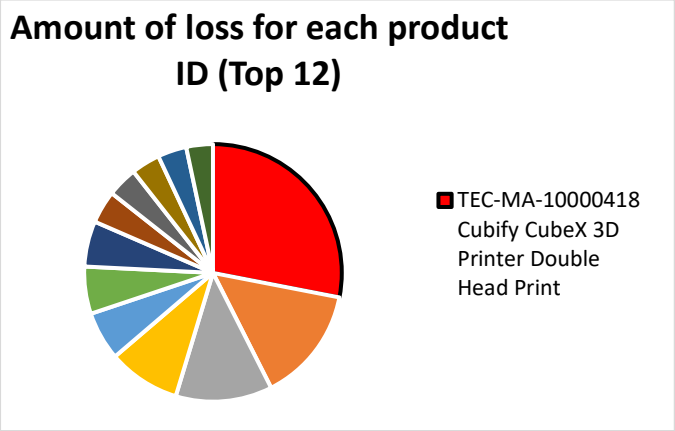
I created a pivot table for the sum of profits for each product ID and product name and by ordering the sum of profits in ascending order, and then only presented the top 12 highest profits for comparison.



From this we can see that the product that's associated with the biggest profit is canon image CLASS 2200 advanced copier.

Suggestion 1: Increase the sales for canon image CLASS 2200 advanced copier as it's a profitable product. Consider encouraging the team to sell more of them, order more of them to have in stock, and market and display them better.

I also created a pivot table for the sum of losses for each product ID and product name and by ordering the sum of profits in descending order, and then only presented the top 12 highest losses as these were the 4 digit losses.



From this we can see that the product that's associated with the biggest loss is cubify cubex 3D printer double head print.

I then created a new table just for the 3D double head print, to have a look at its associated sales and quantity sold to dig into why this product is leading to such huge losses. To do the comparison, I did the average of sales and average of quantity sold from the original orders table.

State	Postal Code	Region	Product ID	Category	Sub-Category	Product Name	Sales	Quantity	Discount	Profit
Ohio	43130	East	TEC-MA-10000418	Technology	Machines	Cubify CubeX 3D Printer Double Head Print	4500	5	0.7	$ -6,600
Ohio	43055	East	TEC-MA-10000418	Technology	Machines	Cubify CubeX 3D Printer Double Head Print	1800	2	0.7	$ -2,640
California	94110	West	TEC-MA-10000418	Technology	Machines	Cubify CubeX 3D Printer Double Head Print	4800	2	0.2	$ 360

Average amount of sales	**251**
Average quantity of each item sold	**4**

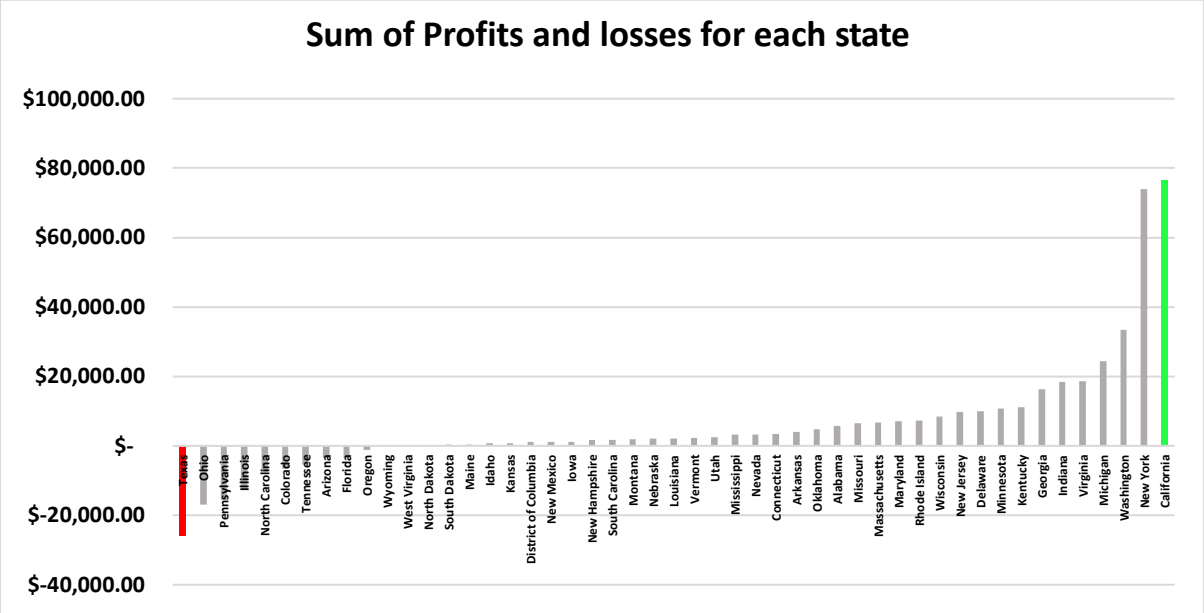
As shown above, each time this item was sold, the quantity was 5,2 and 2 which on average is 3. This is only slightly lower than the average of all the quantities sold (4), which suggests that the issue isn't with the sales team.

Moreover, the amount of sales each time this item was sold was 4500,1800 and 4800. All of these are way above the average sales (251) which again suggests that the issue isn't to do with the amount of sales generated. Additionally when looking at the returns table, we see that this product has not been returned so it suggests that the issue is not to do with the customer satisfaction in terms of product quality, or product not being delivered on time.

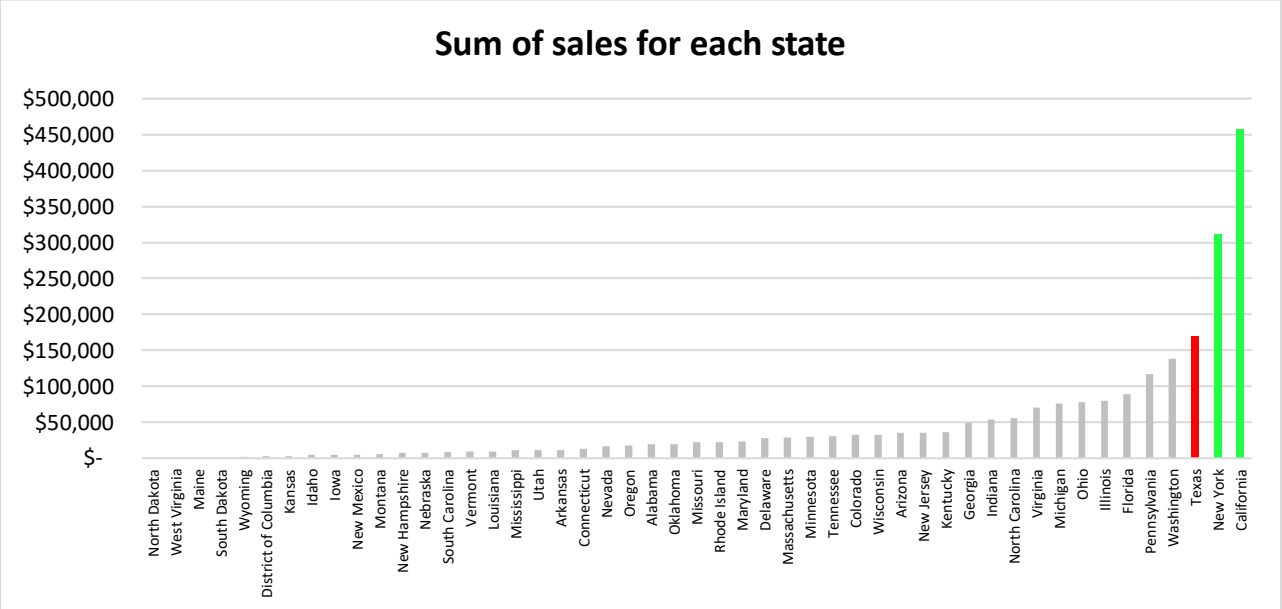
However, when looking at all the times this product was sold, we can see that the times it resulted in a loss was when it was sold in Ohio. This may suggest that selling some products including this one in Ohio may be very expensive and result in loss – possibly due to production site being far away from Ohio and possibly because of transport costs being very high.

Suggestion 2: Stop selling cubify cubex 3D printer double head print in Ohio.

Following on from this, I wanted to look more into whether selling in certain states could be affecting profitability. Thus, I created a pivot table for profits for each state. This showed that Texas had the highest losses and California had the highest profits. Notably, the fact that Ohio is second in this list further confirms my last suggestion.



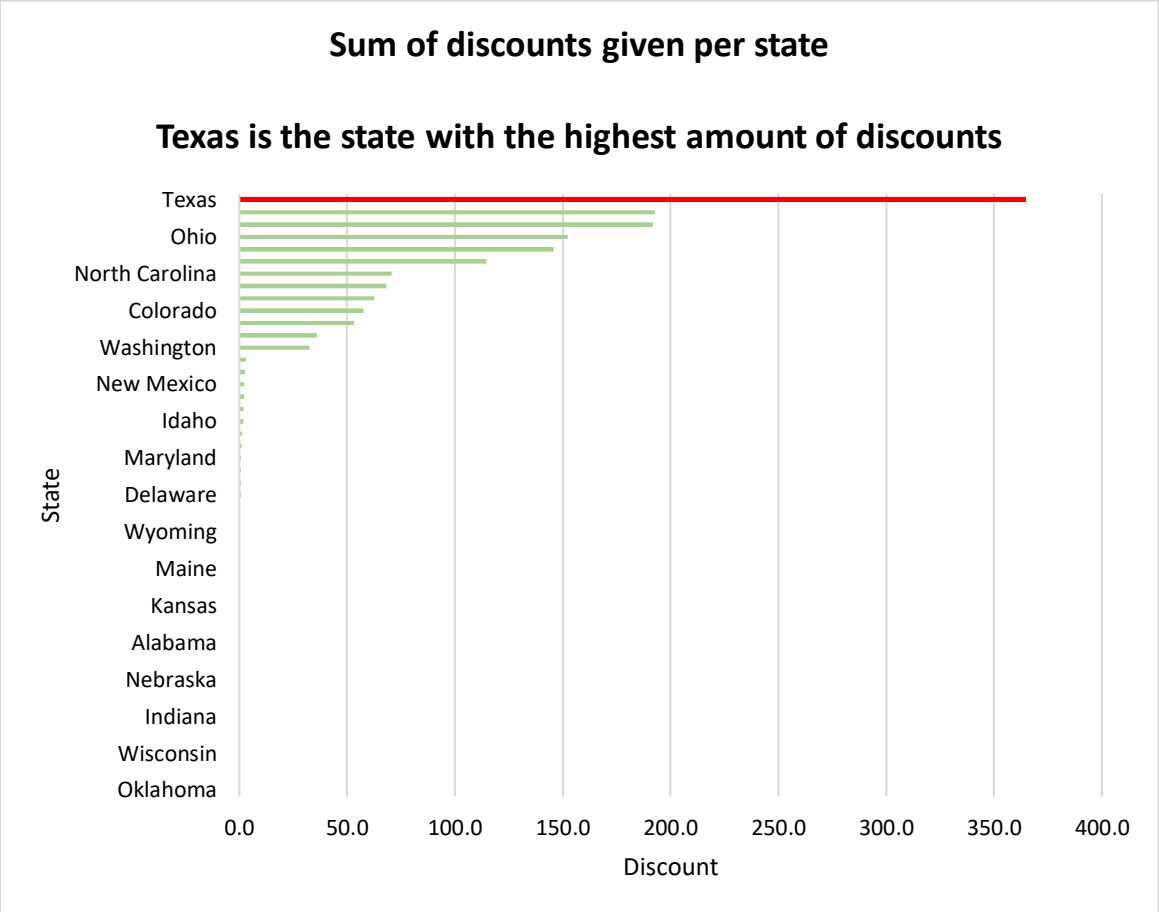
I also looked at the sales for each state. The sales for California and New York are the 2 highest which matches the profits and suggests that these are good areas to keep focusing on in terms of sales. However surprisingly Texas has the 3rd highest sales even though it has the lowest profits, which further shows that it's not a good area to focus sales efforts on.



Suggestion 3: Increase sales in California and New York. This could be done by focusing more of the marketing budget for these states, by shipping more products to these states, expanding the sales team in these states etc. On the other hand consider not selling in states like Texas and Ohio.

Then I wanted to look more closely into Texas as it was associated with the most losses. The losses may be due to the fact that the production sites are too far and not easily accessible to customers in Texas and Ohio, so it may be that it's costing a lot for the transport and delivery of these products.

To challenge suggestion 3, I wanted to see if the discounts could be affecting the losses in Texas, to see if instead of not selling in Texas we could remove discounts or increase prices. I produced a pivot table for discounts for each state. This showed that Texas is the state with the highest discounts so discounts could be a possible cause.



I then created a table for the product associated with the biggest loss for Texas and added additional columns to find out what the profit would be, if the product wasn't discounted.

Product associated with the biggest loss for Texas	
Product Name	GBC DocuBind P400 Electric Binding System
Sales	$2178
Quantity	8
Discount	0.8
Profit	$-3702
Discounted price per item	$272
Original price per item	$1361
Cost per item	$3974
Profit without dicount	$-2613
New minimum price per item for profatibility	3975

Even without the discount, it still resulted in a loss, meaning removing the discount wouldn't help on its own; increased price is needed as well. Thus, I calculated the new minimum price needed for the product to go into profitability and it was much larger than both the discounted price and original price so it wouldn't be feasible to increase prices this drastically just to make the product profitable. Therefore, it's best to avoid selling in these states.

Following on from this I wanted to create a what if scenario for increasing discounts to see what would happen to the loss of sales. This showed that with increasing discount there's more loss.

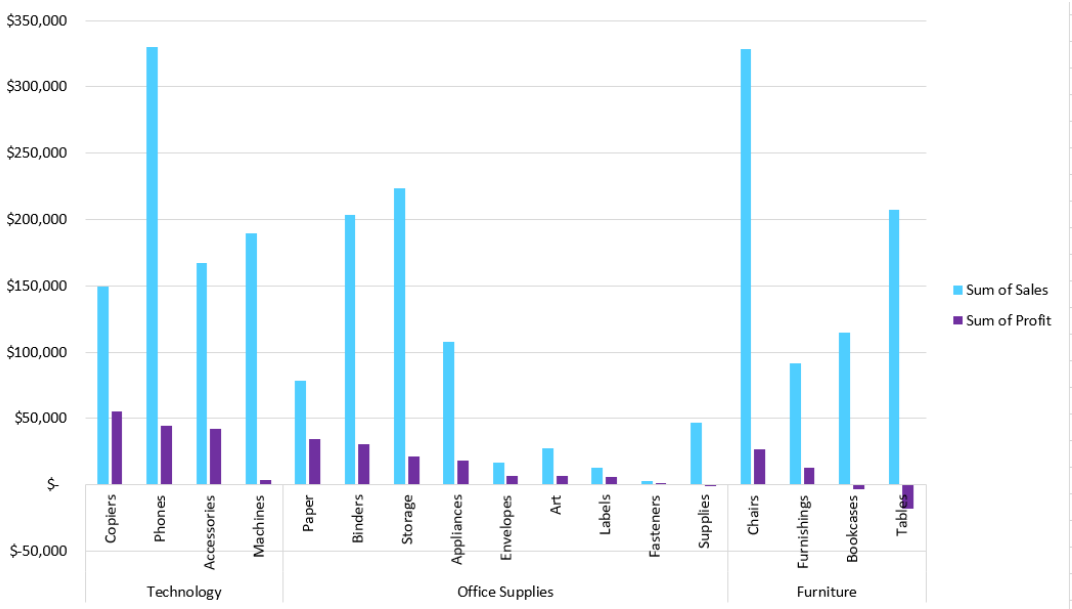
Scenario Summary						
	0% discount	5% discount	10% discount	15% discount	20% discount	25% discount
Changing Cells:						
D9	0	0.05	0.1	0.15	0.2	0.25
Result Cells:						
D10	0	-143196.75	-286393.5	-429590.25	-572787	-715983.75

Following on from this, I wanted to look at what discount tends to be the most profitable, so I created a pivot table for the profits and losses for each discount. As expected, the biggest profit is made when there 0 discount. Profit is also made when discount is 20%. However, discounts any higher than 20% start to result in loss.

Suggestion 4: Don’t offer any more than 20% discount on any products.

I then wanted to look at the profits and sales for each category and subcategory so I created a pivot tables for this. This showed that technology is the most profitable category with copiers being the most profitable subcategory. On the other hand Furniture is the least profitable category with tables being the least profitable subcategory. Additionally, although copiers had the highest profits, it had it did not have the highest sales. This means that it would be a great area to focus increasing sales in as it would actually result in profit.

Suggestion 5: Consider encouraging the team to sell more products in the technology category, especially in the copiers subcategory, order more of them to have in stock, and market and display them better. Also consider not selling tables because although its sales were impressive, it produced loss for the business.



I then wanted to have a look at the returns, so I created a pivot table of the number of returned products for state, and it corelated with sales (the highest sales states had the highest returns), which makes sense. I also did the returns for each category and technology, which is the most profitable category also has the lowest returns, which further supports previous suggestion of focusing sales efforts into tech as this confirms that products in tech have high customer satisfaction.

Row Labels	Count of Returned
California	2001
New York	1128
Texas	985

Row Labels	Count of Returned
Technology	1847
Furniture	2121
Office Supplies	6026

Overall summary of suggestions:

Suggestion 1: Increase the sales for canon image CLASS 2200 advanced copier as it's a profitable product. Consider encouraging the team to sell more of them, order more of them to have in stock, and market and display them better.

Suggestion 2: Stop selling cubify cubex 3D printer double head print in Ohio.

Suggestion 3: Increase sales in California and New York. This could be done by focusing more of the marketing budget for these states, by shipping more products to these states, expanding the sales team in these states etc. On the other hand consider not selling in states like Texas and Ohio.

Suggestion 4: Don't offer any more than 20% discount on any products as this tends to result in a loss.

Suggestion 5: Consider encouraging the team to sell more products in the technology category, especially in the copiers subcategory, order more of them to have in stock, and market and display them better. Also consider not selling tables because although its sales were impressive, it produced loss for the business.