* Al Bundy’s shoe shop is a US based company. Currently it also operates in Canada, UK, and Germany.
* The firm sells mid to high end shoes ranging from 120 to $200.
* While the shoes are of high quality, you have lots and lots of inventory that is never sold. In other words, the shoes collect dust on store shelves.

**Inventory management is a very common problem.**

* Many if not most shops cannot determine the right number of items they need to keep in stock.
* The opposite problem arises too. Shops do not supply an adequate amount of goods and fail to meet the demand in their market.
* For instance, you have surely entered a shoe shop but were unable to buy a specific pair of shoes because they did not have them in stock.

In this example, I will examine the opposite problem.

**Having too much inventory.**

**And by how much one shop outperforms the other in terms of sales.**

This is a more significant problem for the company as it means the company has invested in producing

or purchasing the product but was not able to sell it.

**My Analysis:**

1. The data is a sample data.
2. If we have two subgroups, men and women. We must analyze these both groups separately. Other ways in which we can segment data is by size, country etc.
3. I took last three years data, and then trying to determine the number of men shoes across different sizes they should keep in stock so that it leads to optimum inventory management.
4. This is a case of unknown population variance. We use t-statistic and calculate the confidence intervals at 95%.
5. After computing the intervals and to avoid possible shortage of stock, Al Bundy’s should keep

the number of shoes equal to the upper limit of the confidence interval.

**My Analysis:**

For the second problem, we are comparing two shops from the German market with code **GER1** and **GER2.**

I’ve taken sales data of women shoes of past three years, across different months.

Now since the data collected is of two different shops, the two samples will be independent. We assume that the population variance is equal (since the market is same)

Assumption: Customer buys only from one shop and not from both.

Now by looking at the confidence intervals for all 15 sizes we see that lower limit is negative while upper limit is positive for all cases.

Hence, we cannot determine whether one store outsells other.