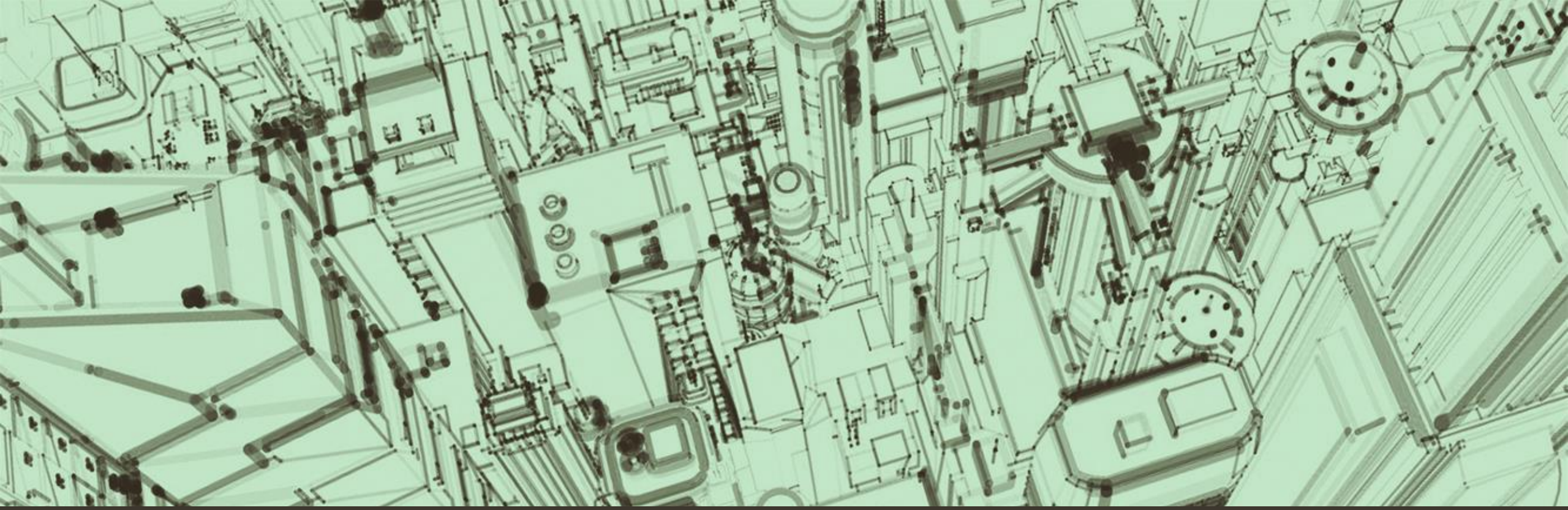


Big Bug Consulting

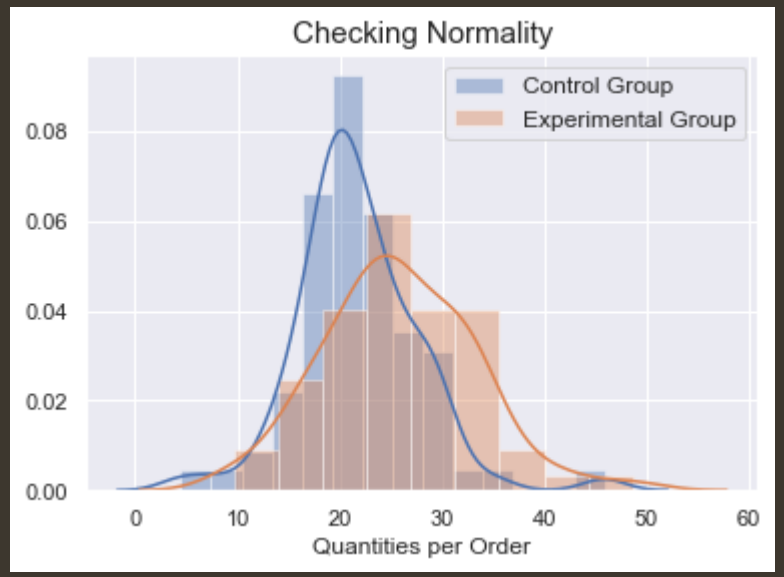
making your business more profitable

By Diego Vallejos

Questions

- Does discount amount have a statistically significant effect on the quantity of a product in an order?
- If so, at what level(s) of discount?
- Is there a significant difference in profit when discounts are applied?
- Is there a significant difference in profit between customer's region?
- Is there a significant difference in quantity of orders per month?

Does discount amount have a statistically significant effect on the quantity of a product in an order?



Steps:

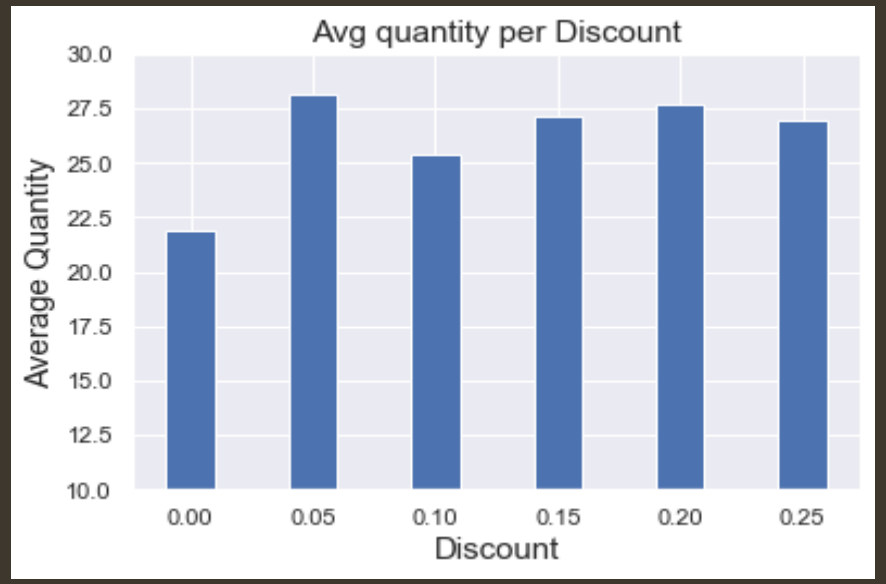
1. Checking normality
2. Check means and standard deviation
3. Compare means
4. Cohen's d for effect size (low size effect 0.12)
5. Welch's T test (3.770797879779603)
6. Degrees of freedom (142.42959979066148)
7. P-Value = 0.00

H0 = There is [illegible] quantity of products [illegible] when discounts [illegible] applied.

H1 = There is a significant difference in quantity of products in orders when discounts are applied.

→ Yes, they have a significant effect

Is there a significant difference in effect of different discounts over quantities of products ordered



1. Plot means per category
2. Applying ANOVA.
3. P-Value = 0.0000000

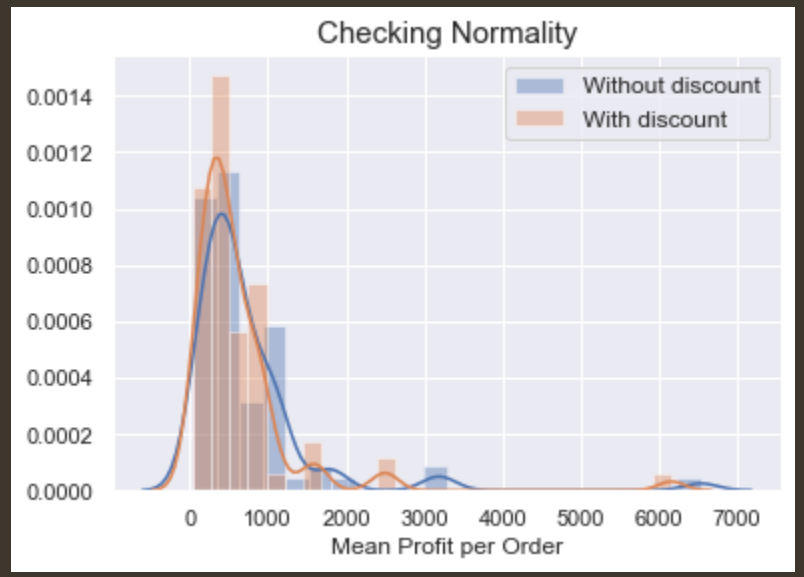
H0: There is no significant difference in effect of different discounts over quantities of products ordered

.

H1: There is a significant difference in effect of different discounts over quantities of products ordered.

Yes, they have a significant effect over quantities

Is there a significant difference in profit when discounts are applied?



Steps:

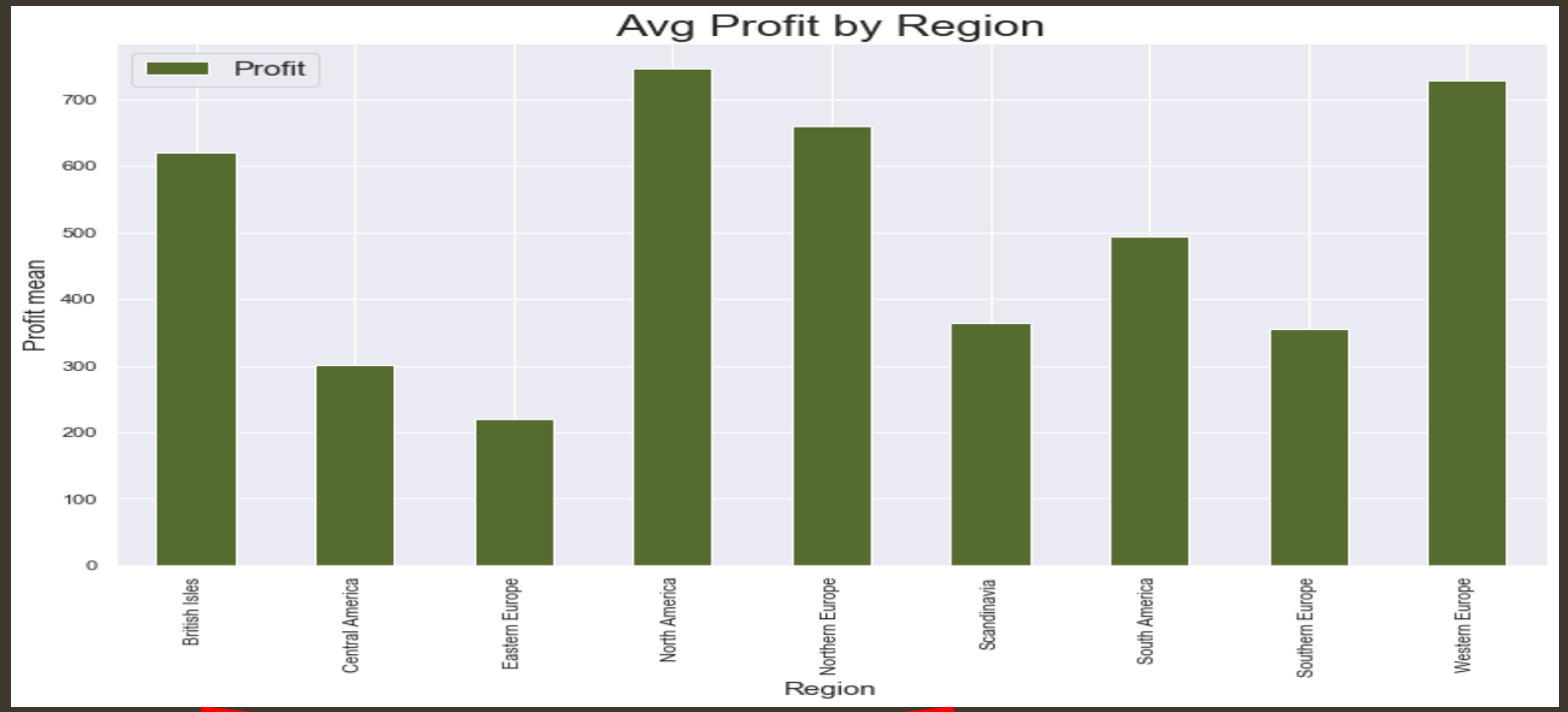
1. Checking normality
2. Check means and standard deviation
3. Compare means
4. Cohen's d for effect size (low size effect 0.12)
5. Welch's T test (0.773418819055129 9)
6. Degrees of freedom (146.318783787519)
7. P-Value = 0.22

H0 = There is no significant difference in Profit in orders when discounts are applied.¶

H1 = There is a significant difference in profit in orders when discounts are applied.

→ No, discounts don't have a significant effect on profit.

Is there a significant difference in profit between customer's regions?



Steps:

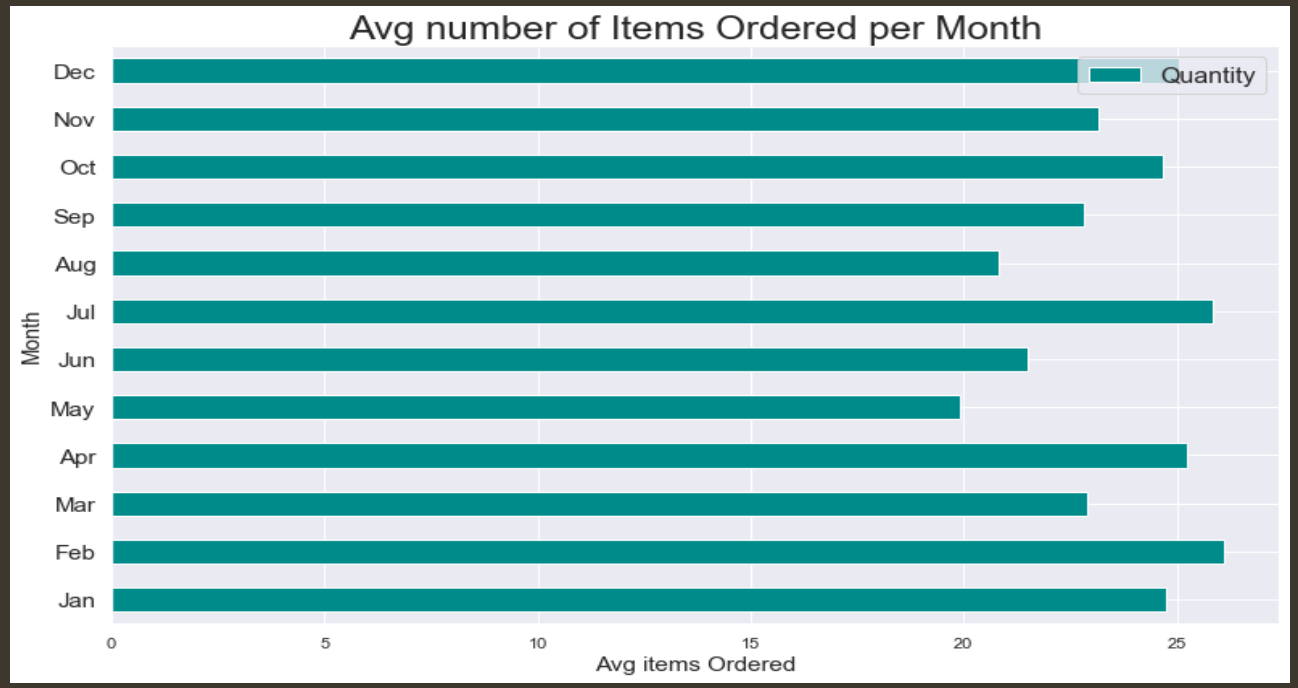
1. Plot means per category
2. Aplying ANOVA.
3. P-Value = 0.000003

H0: there is [illegible] profit mean of products [illegible] by region

H1: there is a significant difference in profit mean of products purchased by region

Yes, regions have a significant effect on profit.

Is there a significant difference in quantity of orders per month?



Steps:

1. Plot means per category
2. Aplying ANOVA.
3. P-Value = 0.039229

H0: there [illegible] quantity of products [illegible]

H1: there is a significant difference in quantity of products purchased by month

Yes, months have a significant effect on quantity of orders.

Conclusions

- 1- When the company applies discounts the quantity of products per order will increase.
- 2- The quantity of products per order will increase due to the amount of discount. It seems like 5% discount works better than others.
- 3- Profit of the company is not significantly affected when discounts are applied to products.
- 4- We can assume that the mean profit is significantly different between regions. Said that, we can try to increase our sales force in those regions where the mean profit is higher that others. At the same time we can apply aggressive discounts to regions with lower profit per order so the company can penetrate the market.
- 5- We could see that the quantity of products vary significantly between months, so this is telling us when should we apply discounts or vary the amount of them.

Future tasks

- It would be very useful to have the total profit of each product with the logistics and workforce discounted. In that way we can have a better idea of which products are being more important to the company in order to make profits.
- Get deeper into people, shipping and time for delivery.
- Is there a discount limit that we can give without affecting profits?

Thanks for your time.