



Hypothesis Testing - Northwind

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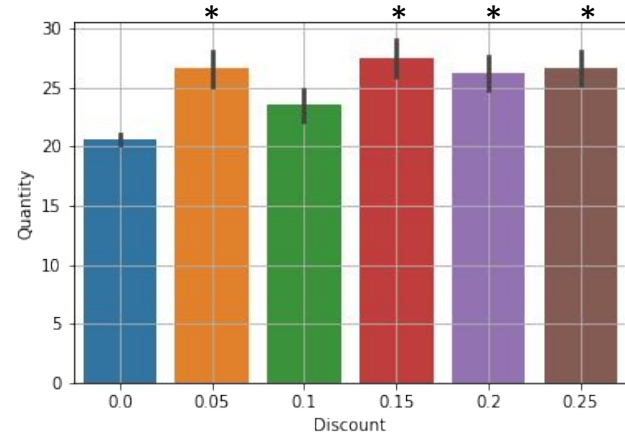


Introduction

- 4 different hypotheses tested:
 - Does discount amount have an effect on product units sold?
 - Does shipping region have an effect on product units sold?
 - Do discounts on a product affect that product's revenue?
 - Does shipping region have an effect on average total revenue?
- Goals:
 - Test & obtain significant results for each hypothesis
 - Create recommendations for future business

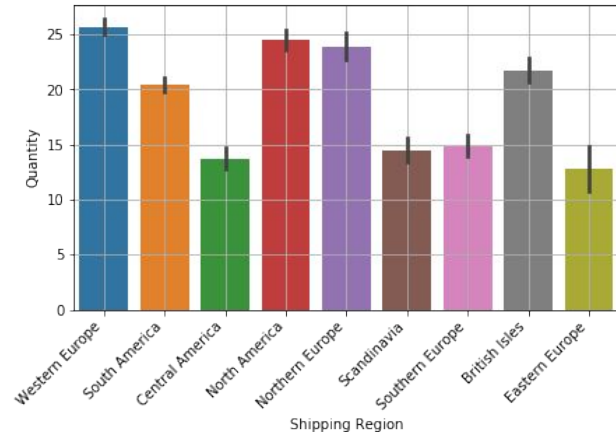
Effect of Discounts on Units Sold

- Does discount amount have an effect on product units sold?
- Answer: Yes
- Significant results only for 'n' discount versus no discount
 - Only exception: 10%
- Recommendation:
 - Remove 25% discounts
- Asterisks(*) signify statistical significance



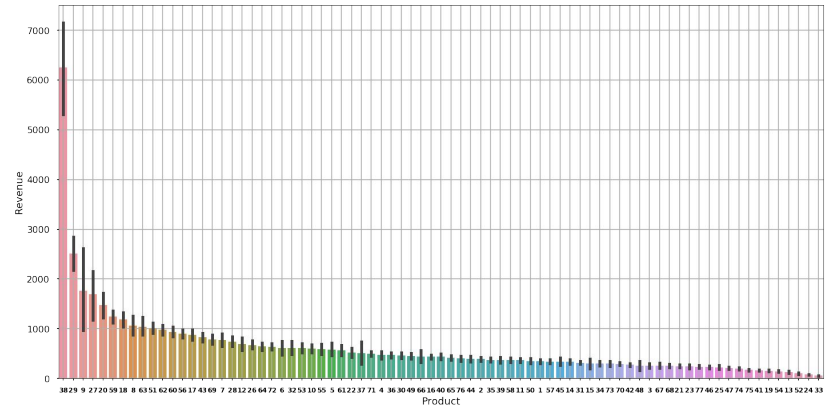
Effect of Shipping Region on Product Units Sold

- Does shipping region have an effect on product units sold?
- Answer: Yes
- Compare with other shipping region hypothesis
- Strong Region Comparisons:
 - C. America & N. America
 - C. America & W. Europe
 - N. America & S. Europe
 - S. America & W. Europe
 - S. Europe & W. Europe
- Recommendation:
 - Increase sales efforts in W. Europe, N. America, & N. Europe



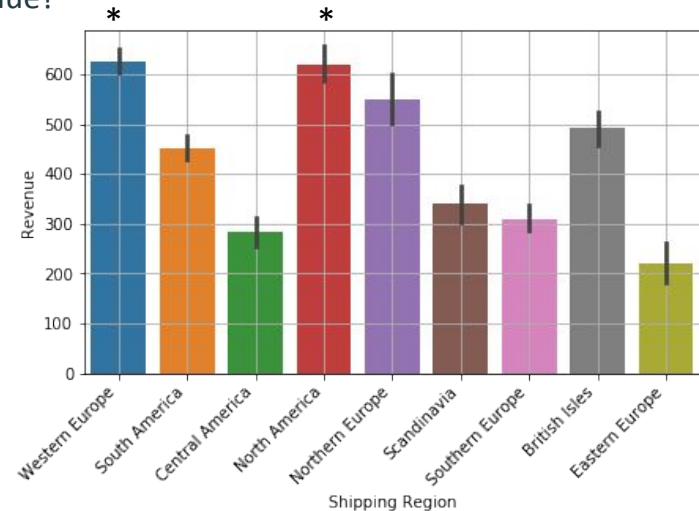
Effect of Discounts on Specific Product Revenue

- Do discounts on a product affect that product's revenue?
- Answer: Yes
- Makes sense based on first hypothesis
- Recommendation:
 - Promote product 38 as much as is feasible
 - Include discount in promo(s)



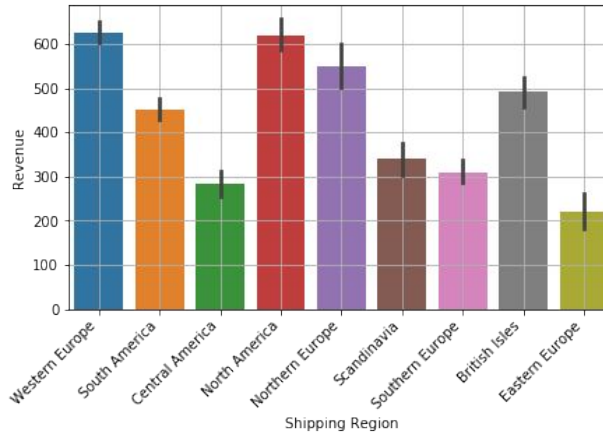
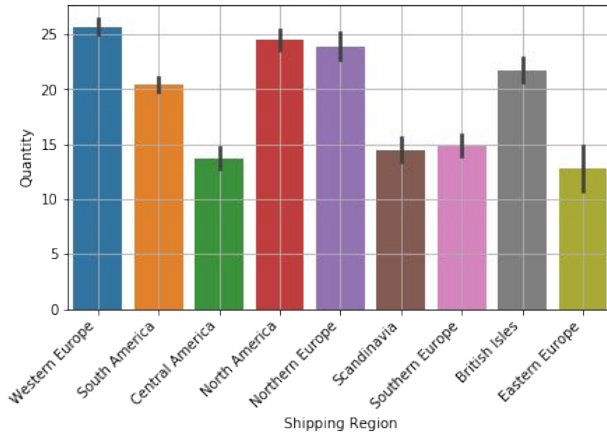
Effect of Shipping Region on Average Total Revenue

- Does shipping region have an effect on average total revenue?
- Answer: Yes
- Strongest Region Comparisons:
 - C. America & N. America
 - C.America & W. Europe
 - N. America & S. Europe
 - S. America & W. Europe
 - S. Europe & W. Europe
- Recommendation:
 - Halt shipping in Eastern Europe
 - Increase shipping in W. Europe & N. America
- Asterisks(*) signify statistical significance



Shipping Region Test Results Comparison

- Left: Region and product units sold
- Right: Region and average total revenue
- Very similar pattern - including exact same regional comparisons



Conclusion

- Discount amounts have an effect on units sold
 - Remove 25% discounts
- Shipping region affects product units sold
 - Increase sales for products shipped in W. Europe, N. America, & N. Europe
- Discounts on a product affect the product's revenue
 - Promote product 38 with discount(s)
- Shipping Region has an effect on average total revenue
 - Stop shipping from Eastern Europe
 - Increase shipping in W. Europe & N. America

Future Works

- Explore the performance of our shippers
- Explore the Western Europe & North American regions in other ways
- Discover efficacy of expanding into Asian markets



Thank you for your time and attention!

Questions?