Predicting Bakery Sales

# **Gloria Moore Summer 2021** <https://github.com/gloriaypradal/Bakery_Sales_Predictions>

Name of the repository for this project is: My bakery Sales

# Which Domain?

Data to use is going to be collected from:

* [Square | Solutions For Your Small, Medium & Large Business (squareup.com)](https://squareup.com/us/en) : From this website I will collect the sales of my bakery since I opened and started to use this site, Since I opened my business in July 2020 I started using **2** different platforms to invoice my clients and collect payments, Square has been the most used
* <https://app.invoicesimple.com/invoices> : Second most used invoice system to register sales for my business.
* [Instagram](https://www.instagram.com/) : I have requested my business analytics report to Instagram to support my analysis and define marketing strategies and how posts has been affecting my sales
* <https://developers.facebook.com/docs/instagram-api/guides/hashtag-search/> : To support my marketing decisions I will use the social media Hashtag analytics from Instagram
* <https://data.census.gov/cedsci/table?q=S0101&tid=ACSST5Y2019.S0101&g=1600000US1212925> : My Business is located in Clermont, the analysis of demographic data as population, age range population distribution will be helpful to support marketing ideas as well
* <https://worldpopulationreview.com/us-cities/clermont-fl-population> demographic visualizations for Clermont Florida
* <https://www.kaggle.com/hosubjeong/bakery-sales?select=Bakery+Sales.csv> : In this website a group of data scientist made predictions on bakery sales, this project will be used as reference for codes and analysis examples.
* <https://manage.wix.com/dashboard/346b8614-ffe4-4ff5-9301-fa97c5e87783/analytics/reports/f880603f-f134-4374-aa6b-73719ec7fb43?columns_to_show=14.Country%2C15.Region%2C16.City%2C25.Page%20Views%2C26.Site%20Sessions%2C27.Unique%20Visitors&date=this%20year> : Business Wix account URL, I will use the data of my website visits to analyze how much I sell compared with visits, and analyze my sales by visits by geographic location, date, etc.
* <https://www.dialmycalls.com/blog/top-6-tips-boost-sales-your-bakery> : Theory of how to increase my bakery sales
* <http://www.flhealthcharts.com/ChartsReports/rdPage.aspx?rdReport=Birth.TenYrsRpt&cid=25> : Florida resident Live Births 10 years report, this data will be used to also support marketing and sales strategies.

# Which Data?

The data to use in the project will be mainly on .csv format, the sites listed above allows to do so. Birth data by year will be obtained using Web Scraping, and some visualizations of the business analytics have been plotted by Wix business center, however other plots will be built to support analysis.

Example of some visualization created by Wix

A computer screen capture

Description automatically generated with low confidence

Data from Wix will be download as .csv files, and it will be used to verify from where most of my visitors comes, as well as to predict website visits in the future.

Table Birth Rate, this data also will be helpful to predict numbers of births in the future to support bakery marketing strategies

A picture containing text, indoor, screenshot, display

Description automatically generated

Square data will be downloaded as .csv format, this is glimpse of how one of the report looks

A picture containing text, computer, indoor, electronics

Description automatically generated

This data sets are the most complete ones and from this data set is going to be obtained the target variable: sales (US$)

# Research Questions? Benefits? Why analyzes these data?

Question: How much am I going to sale in the next months? And how to increase my sales?

I opened my business in July of 2020, since then, my sales have been some months down and some months up, I would like to know what are the main factors that make my sales go up and down and what insights can I get from all the data so far collected from my sales and social media to increase my sales, what month should be the marketing target and why? what are the results of my social media marketing? Is this affecting my sales by month? I have a lot of questions that can be answered with this project. So far I have been sending promotions, and paying Facebook to boosting posts that I am not sure that are resulting in sales, So far I don’t know where most of my website visitors come from, or how often I do a sale. This project will be helpful for my small and new business to make it growth (and now if its growing) and address my efforts where I really need it.

# What Method?

Most of the data will be collected downloading the files, I have done most of it, Birth data will be collected using BeautifulSoup. Jupyter notebook will be used for this project, for visualization I ‘m planning to get Tableau, I am still deciding based on cost. Data from Instagram is still in process to be obtained because a lot of features of Instagram APi has been changed and I am in the process of understand how to obtain my business data

Graph analysis as I mentioned will be done using Matplotlib of tableau

Sales will be predicted using Linear Regression, as well as Birth rate and Population in Clermont/Florida

# Potential Issues?

* Instagram metrics has been hard to obtained, what it makes difficult its analysis to support marketing strategies.
* Number of observations on the sales data is just 440 from square report that is the largest data set, this data set will be merged with Invoices report to complete the sales report.
* Time, always time is a factor that can affect the detail of the analysis.

# Concluding Remarks

This project will be very important for my business, even that a big part of this project will based on graph analysis, is something that I need to do because I haven’t analyze any of my information, I have been working with 3 different platforms and I have data available that can help me to design a better marketing strategy, or at least a more effective one, decisions process based on data is what is driving this new era of business, and now that I’m full time with my business I need to put all my effort to make it growth. Sales prediction has been always popular, Linear regression is a basic model to use, however, using other metrics to help me to understand how my business is moving, will be totally worth it for me and my family, I think I can also predict sales by location using the traffic of my website and dedicate some marketing to some specific areas of central Florida.

References

<https://www.kaggle.com/hosubjeong/bakery-sales?select=Bakery+Sales.csv>

<https://www.investopedia.com/articles/stocks/04/100604.asp>