* **PROJECT TITLE**

Drug Sales Analysis For Live To Love Pharmacy

* **INTRODUCTION**

This project analyzes drugs sales from the various locations of Live to Love Pharmacy to identify low performing areas to inform the implementation of appropriate marketing strategies and to prevent expiries.

* **OBJECTIVE**

The objectives of this project are to;

1. Determine total sales per location per month
2. Determine grand total sales for the all four locations per month
3. Determine top five sales drivers per location.

* **DATA DESCRIPTION**

The data for this work was randomly generated using Python programming language in Visual studio. The data consisted between 500 and 600 rows with attributes such as DrugID, Drug Description, Usage rate per month (from January to June) and unit price. The data was checked for duplicate and missing values. Inconsistent data format, spelling errors, empty rows and columns were also checked. No errors were identified.

* **METHODOLOGY**

Microsoft Excel 2016, MySQL, PowerBI and Tableau were used to carry out descriptive data analysis such as summation and categorization. Insights derived were presented in graphs and tables. This data analysis technique was chosen as it helped in describing the various features of the data therefore helping in knowing the areas that record high sales and the major sales contributors in terms of drugs to inform marketing strategies and drug management policies.

* **RESULTS**

1. **Total sales per location per month and grand total sales per month**

From the drugs sales per month per location and Total sales per month Tables;

In January, Tamale recorded the highest drug sales (GH¢1.64M) followed by Cape coast (GH¢1.62M), Sekondi (GH¢1.34) and Accra (GH¢1.33M). The total sales recorded for all the areas in January was GH¢5.93M, which was the third highest total monthly drug sales recorded in the first half of the year.

In February, Cape coast recorded the highest drug sales (GH¢1.70M) followed by Tamale (GH¢1.65M), Sekondi (GH¢1.39M) and Accra (GH¢1.28M). The total sales recorded for all the areas in February was GH¢6.02M, which was the highest total monthly drug sales for the first half of the year.

In March, Cape coast recorded the highest drug sales (GH¢1.64M), followed by Tamale (GH¢1.62M), Sekondi (GH¢1.35M) and Accra (GH¢1.29M). The total sales recorded for all the areas in March was GH¢5.91M, which was the fourth highest, total monthly drug sales for the first half of the year.

In April, Cape coast recorded the highest drug sales (GH¢1.65M), followed by Tamale (GH¢1.57M), Sekondi (GH¢1.42M) and Accra (GH¢1.26M). The total sales recorded for all the areas in April was GH¢5.81M, which was the fifth highest total monthly drug sales recorded for the first half of the year.

In May, Tamale recorded the highest drug sales (GH¢1.69M), followed by Cape coast (GH¢1.60M), Sekondi (GH¢1.38M) and Accra (GH¢1.31M). The total sales recorded for all the areas in May was GH¢5.98M, which was the second highest, total monthly drug sales for the first half of the year.

In June, Tamale recorded the highest drug sales (GH¢1.65M), followed by Cape coast (GH¢1.60M), Sekondi (GH¢1.387) and Accra (GH¢1.27M). The total sales recorded for all the areas in June was GH¢5.88M, which was the least total monthly drug sales recorded for the first half of the year.

1. **Top sales drivers per location**

Per the Tables, Amaryl tablet 4mg was the top sales driver (GH¢48.56K) in Tamale and across all the four locations.

Clindamycin capsules was the top sales driver (GH¢45.33K) in Cape coast and the second top sales driver across all four locations.

Artemether/Lumefantrine 80/480mg tablet was the top sales driver (GH¢44.79K) in Accra and the third top sales driver across all locations.

Clarithromycin 500mg tablet was the top sales driver in Sekondi and the fourth top sales driver across all locations.

Lactulose was among the top five sales drivers in both Sekondi and cape coast.

Diphenhydramine was among the top five sales drivers in Accra and Tamale.

* **INTERPRETATION**

The results show that Accra consistently recorded the lowest drug sales among the four locations for the first half of the year. This should be a matter of concern to management even though it is not surprising. With Accra being the capital of the country, it is a well-known fact that many of the pharmaceutical companies are located there leading to stiff competition for clients, which can negatively affects sales. Management should therefore look at it marketing strategies to improve its clientele base in the midst of the competition. Issue of poor drug management policies can also be blamed for lower sales. Over stocking, ineffective expiry monitoring and poor requisition or procurement planning can lead to expiration and frequent stock outs. Management must also look at the security of the various locations. CCTV cameras can be installed to prevent pilfering which also can cause low sales. Management may also consider rotating supervisors at the various locations so that supervisors in areas that record high sales can go and implement strategies to improve sales at low-sale areas. Tamale and Cape coast shared equally the top spot in terms of monthly sales. Whiles Cape coast topped as the location with highest sales in February, March and April, Tamale was number one for January, May and June. These areas recording higher sales can be attributed to the presence of relatively fewer pharmacies, strong marketing strategies by supervisors, effective drug management strategies. Disease pattern can also be a factor in the determination of sales.

June recorded the highest sales for the first half. This has always been the case and therefore does not deviate from the trend. Live to Love pharmacy organizes client day in the month of June every year to carry out free medical screening for clients. Clients are also educated on what to do to prevent contracting diseases. This annual activity had always helped to improve attendance in the month of June every year leading to the recording of high sales.

Tab Amaryl 4mg, Cap. Clindamycin 300mg, Tab. Artemether/Lumefantrine 80/480mg, Tab. Clarithromycin 500mg, lactulose and diphenhydramine were among the top five most used drugs in terms of sales across the four locations. Management must therefore pay attention to these drugs and ensure their availability at all times to ensure quality pharmaceutical care.

* **CHALLENGES AND SOLUTIONS**

No challenges were encountered in the course of the data processing and analysis.

* **CONCLUSION**

This project helps Live to Love Pharmacy to identify low and high performing locations in its operational areas. It also aids to identify high and low performing drugs in its drug portfolio across the various location. This informs drug budgetary allocation and marketing strategy development and implementation. The analysis also helps to prevent drug expiration and stock outs to achieve quality health for clients.

* **RECOMMENDATIONS /FUTURE WORK**

Future work on drug sales analysis would consider the inclusion of data features such as expiry and entry dates for enhanced expiry monitoring mechanism. Therapeutic class of each drug would also be considered to help identity the most used classes of drugs per location and across all operational areas. This would help in identifying the disease pattern in the various locations

* **TOOLS AND TECHNOLOGIES USED**

1. Python for random data generation
2. Microsoft Excel for data cleaning
3. SQL for data extraction and manipulation.
4. PowerBI for visualization of key results.
5. Microsoft Word for project documentation

* **CALL TO ACTION / CONTACT INFORMATION**

If you are interested in discussing how this analysis can be applied to your business or learning more about my data analysis expertise, feel free to reach out through my LinkedIn Profile (<https://www.linkedin.com/in/joseph-atta-benyah-63a3151a7>) or check out my portfolio on GitHub."