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outline

- ✓ Executive summary
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- ✓ Results
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Executive Summary

Data collection methodology:

- ✓ The data was of structured type and therefore collected internally from the organization's excel spreadsheets. It consists of the following tables: (1) Product, (2) Sales, (3) Territory, (4) Doctors, (5) Months.

Data wrangling methodology:

- ✓ Neither table had any blanks, duplicates, or any invalid values.
- ✓ Applied currency format to revenue and cost of sales columns of sales table.
- ✓ Added a new column to sales table to store profit values calculated as follows: $\text{sales}[\text{revenue}] - \text{sales}[\text{cost of sale}]$.
- ✓ Applied "Use first Row As Headers" to Territory table to give the columns descriptive names.
- ✓ Performed exploratory data analysis (EDA) using pivot tables and pivot charts in excel.

Summary of all results:

- ✓ Welshol generated the most revenue for all doctors and territories in Quarter1 of 2020. The same observation is notable in 2021.
- ✓ The top5 products by combined revenue in both 2020 & 2021 are Welshol, Ador, Mitardis, Colesdid, and Benitar. These products are sitting on revenues of between R4 219 231,50m - R2 685 355,20m.
- ✓ 01BD01607 , 01BD01404 , 01BD01303 are the top3 territories by revenue in 2020 & 2021. The said territories have accumulated between R1 441 579,00m - R1 228 139,70m throughout the years.
- ✓ Tridor, Glyzet, and Deepax have the least number of prescriptions in both the first and last 6months throughout the years. While Naisban is the least preferred product for depression treatment with only 15 prescriptions in 2020 and none in 2021
- ✓ Doctor Manvar Dolly B has made the most progress as far as profit margins are concerned. He went from not being in the top5 of highest earners in 2020 to being number1 in that list in 2021 with a profit of R48 592,74.

- ✓ Doctor Rekant Stanley Irwin is the highest earning in terms of combined profits for the year 2020 & 2021. He has earned R71296,36 in both years with the highest profit generated in December, while the lowest was in July indicating an overall downward trend in profit over the 12 months period.
- ✓ Hypertension is the biggest market across all territories in both 2020 & 2021 with a total of 20291 prescriptions, followed by Asthma & Depression with 10693 and 9409, respectively.

Introduction

Project background and context

- ✓ The project looks into past consumer data to understand current challenges and hence follows a prescriptive analysis approach with specific focus on measuring performance of doctors in different territories. Determining the revenue of all products and the prescription thereof can assist in inventory management of such products. Same applies to knowing doctors who have generated more profits throughout the years so that those with lower profit margins can learn from them.

Problems project addresses

- ✓ The main objective here was to measure KPI's which then enabled us to establish the following: (1) Revenue for all Products, Territories, Doctors for Quarter 1 in 2021, (2) Top 5 Products for 2020 and 2021 Combined in terms of Revenue, (3) 3 Territories which have grown their Revenue the most Year on Year, (4) 5 Doctors in those 3 Territories (in Q3 above) with highest Profits in 2021, (5) 3 Products trending downwards the most in terms of # Prescriptions in the last 6months, (6) The biggest market throughout the years, (7) Profit trend of the highest earning doctor over 12 months.

Section 1

Methodology

Methodologies

Executive summary

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EDA with Data Visualization

The following charts were plotted:

- ✓ Product vs Revenue clustered bar chart to compare all products by their revenue.
- ✓ Doughnut chart to capture top5 doctors by profit generated.
- ✓ Column chart to display top3 territories with highest revenues.
- ✓ Product vs prescription clustered bar chart to display 3 products with lowest number of prescriptions.
- ✓ Pie chart capturing 5 products that have grown their revenue throughout the years.
- ✓ Profit vs Months line chart to check profit trend of the highest earning doctor over 12 months.
- ✓ Column chart to compare the size of hypertension market in comparison to Asthma & Depression.

Results

Exploratory data analysis results:

- ✓ Welshol generated the most revenue for all doctors and territories in Quarter1 of 2020. The same observation is notable in 2021.
- ✓ The top5 products by combined revenue in both 2020 & 2021 are Welshol, Ador, Mitardis, Colesdid, and Benitar. These products are sitting on revenues of between R4 219 231,50m - R2 685 355,20m.
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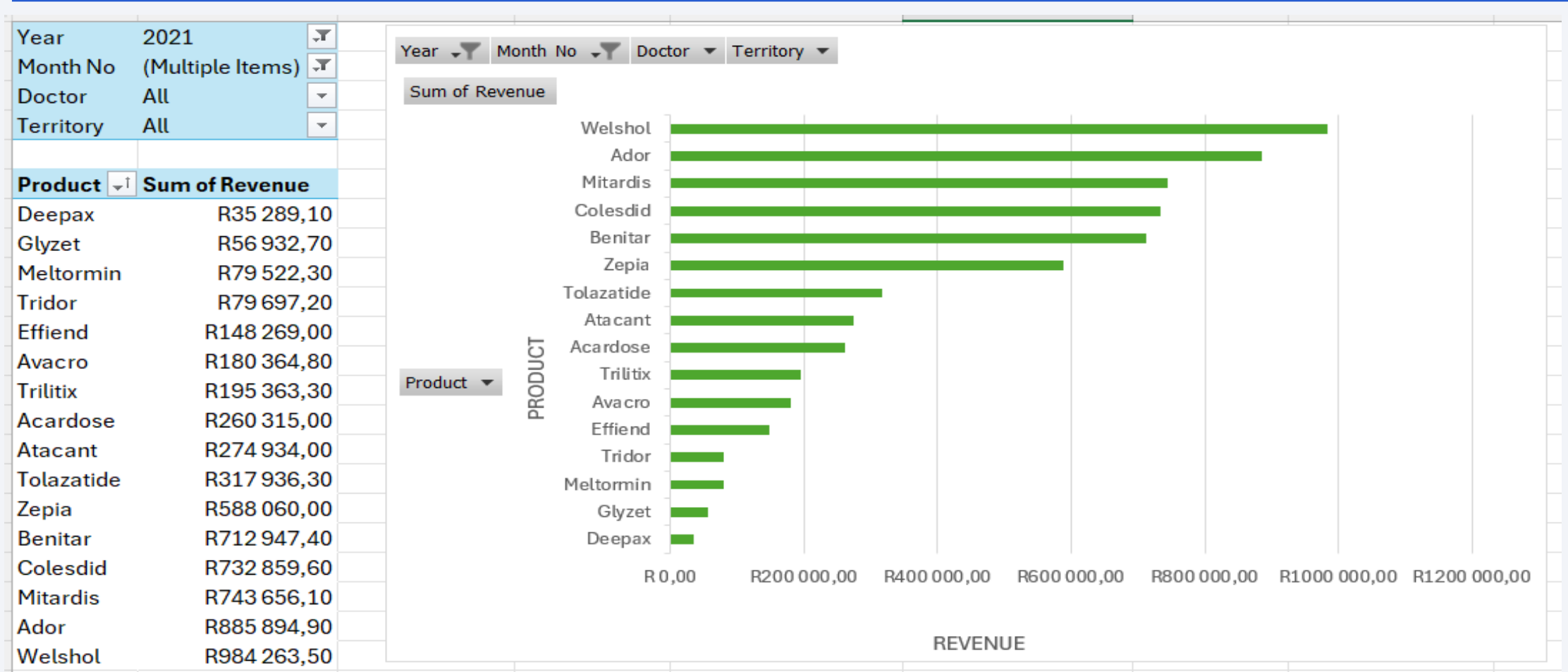
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 - ✓ Hypertension is the biggest market across all territories in both 2020 & 2021 with a total of 20291 prescriptions, followed by Asthma & Depression with 10693 and 9409, respectively.

The background of the slide is an abstract composition. It features a dark blue base color. Overlaid on this are numerous diagonal streaks in shades of red and cyan. A faint, light blue grid pattern is also visible, particularly in the lower half of the image. The overall effect is dynamic and technological.

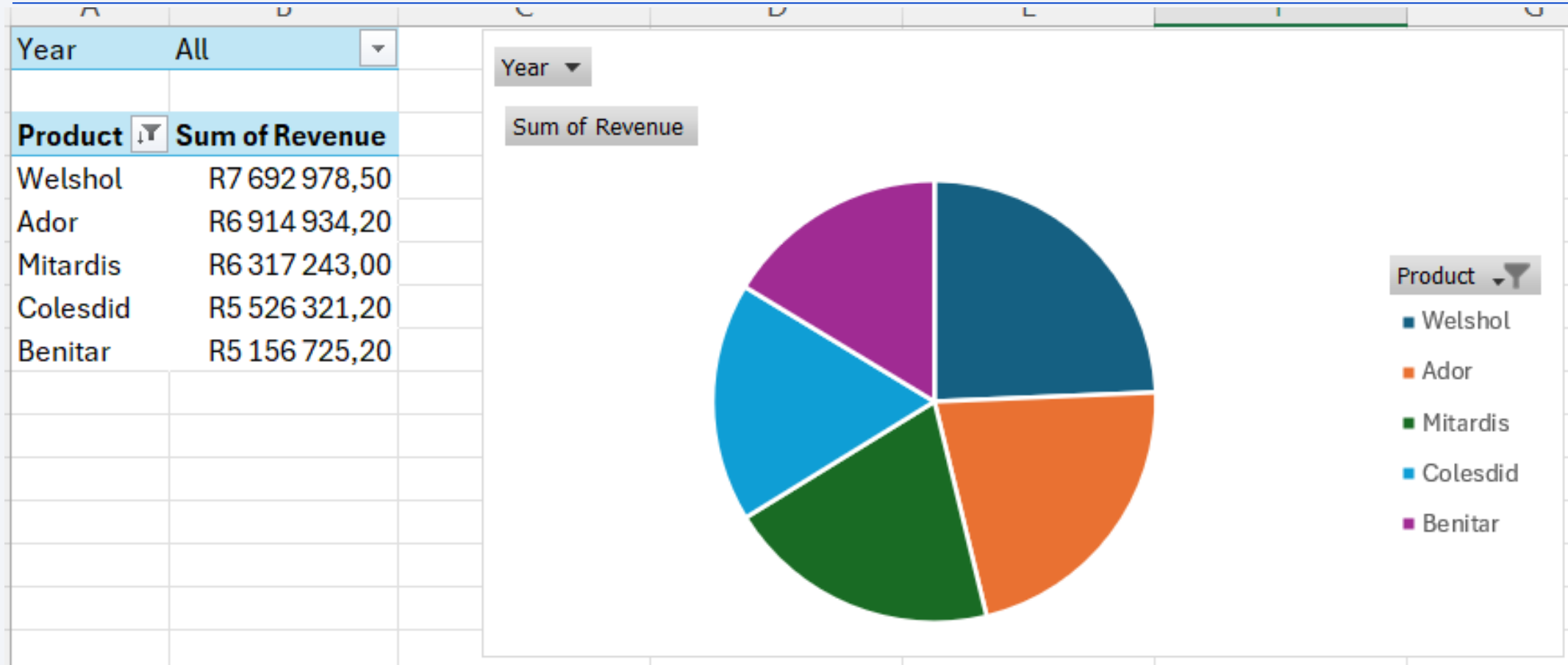
Section 2

Insights drawn from EDA

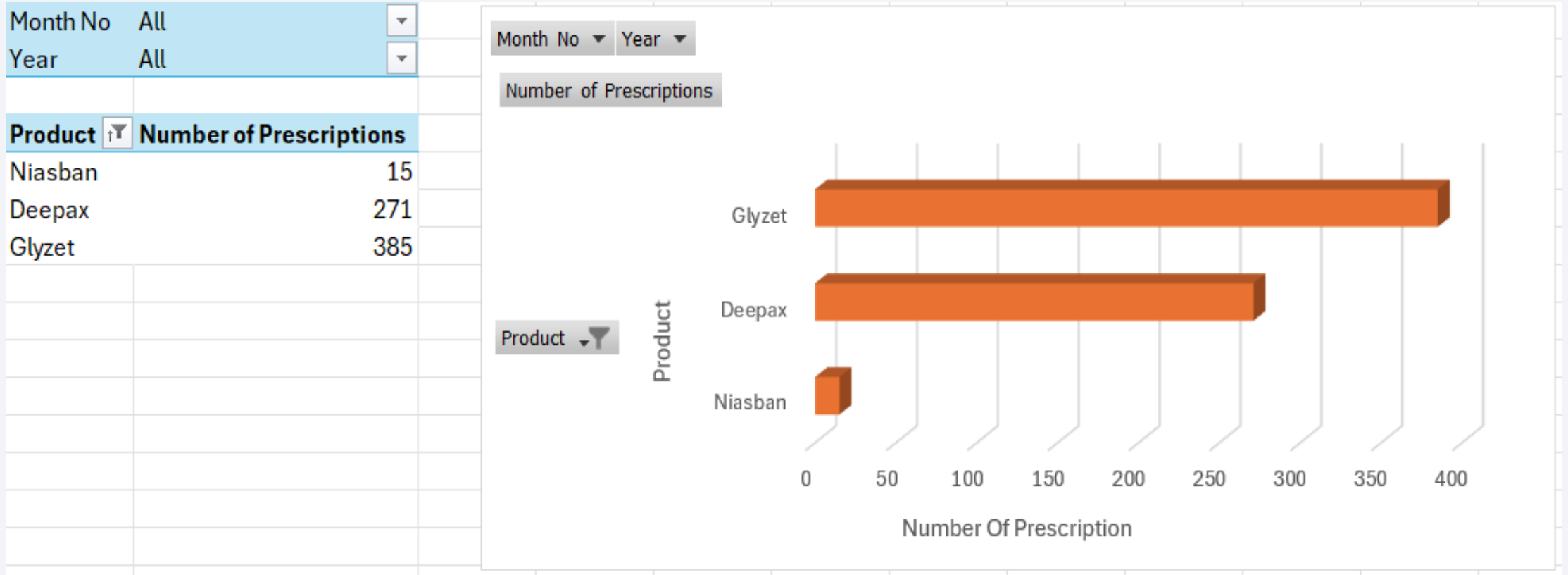
Revenue of all Products for All Doctors in Q1 2021



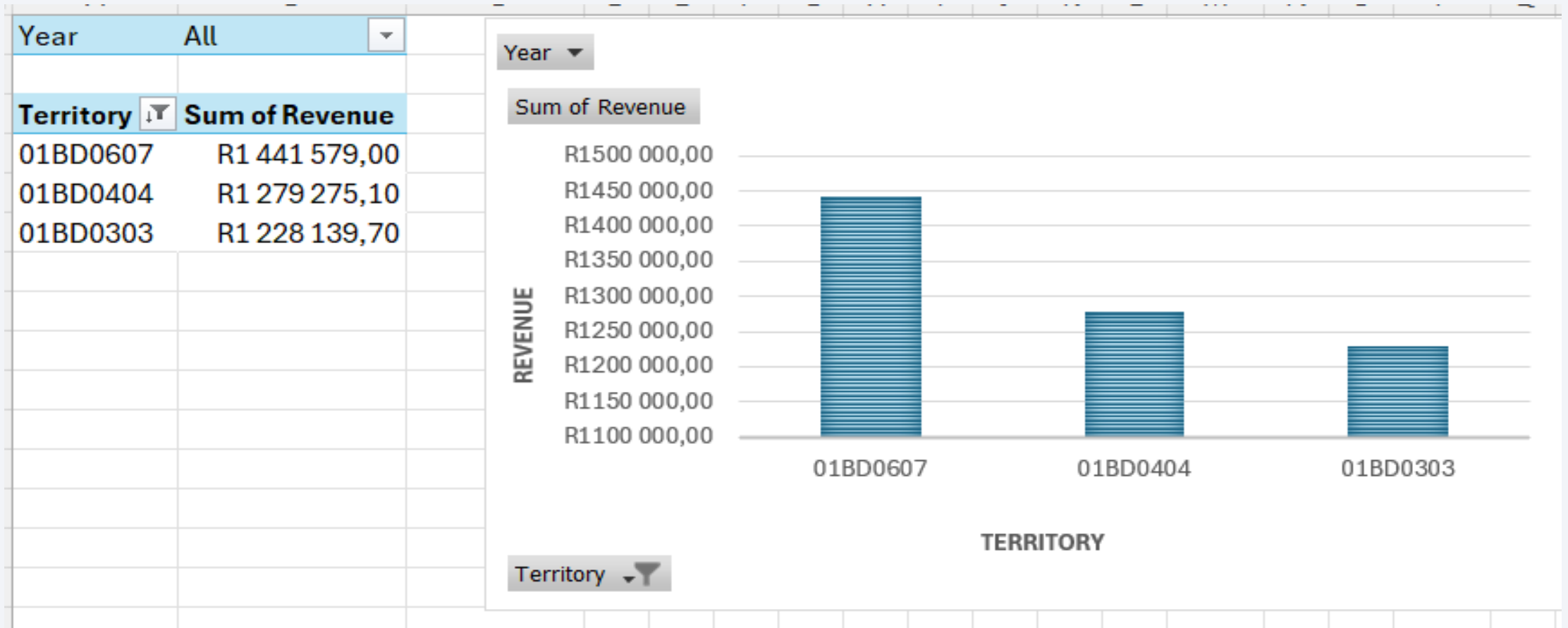
Top 5 products by revenue in 2020 & 2021



Bottom 3 Products by number of prescriptions



Top 3 territories by combined revenue in 2020 & 2021



5 Doctors with highest profit in 2021

Territory	(Multiple Items)
Year	2021
Doctor	Sum of Profit
Manvar Dolly B	R48 592,74
Rekant Stanley Irwin	R36 648,52
Murry Robert L	R36 289,85
Winter Robin Okner	R33 873,65
Lorenzo Robert	R31 267,18

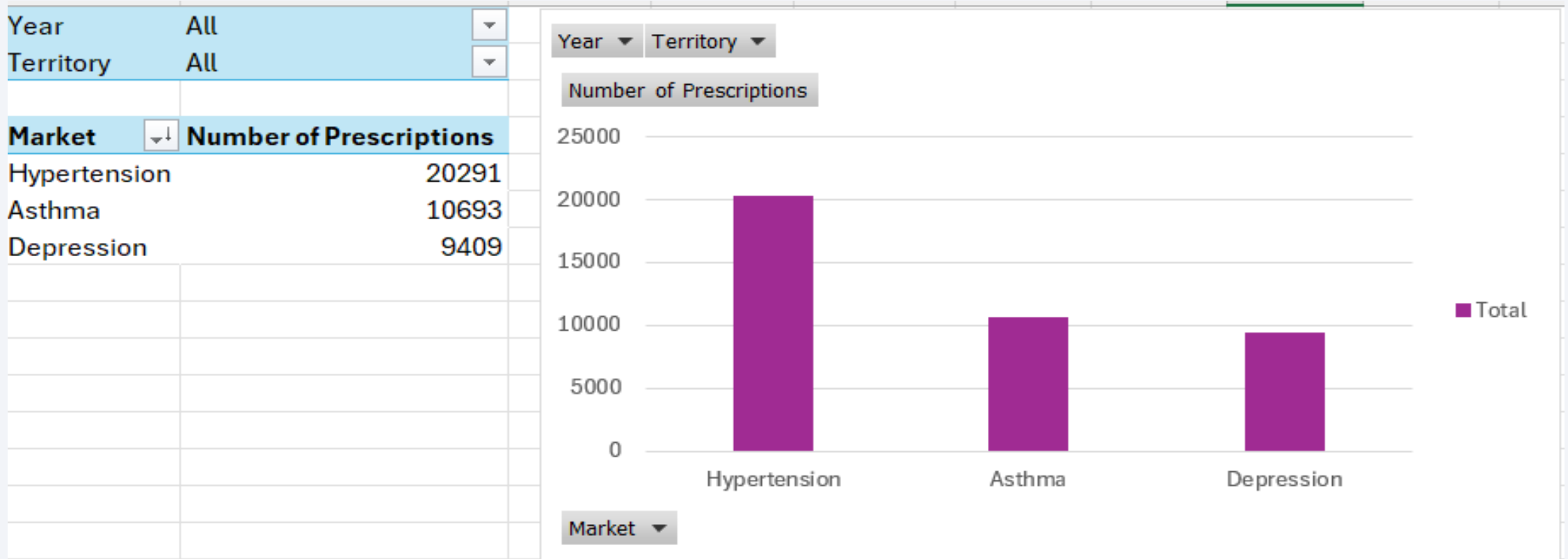
Territory Year

Sum of Profit

Doctor

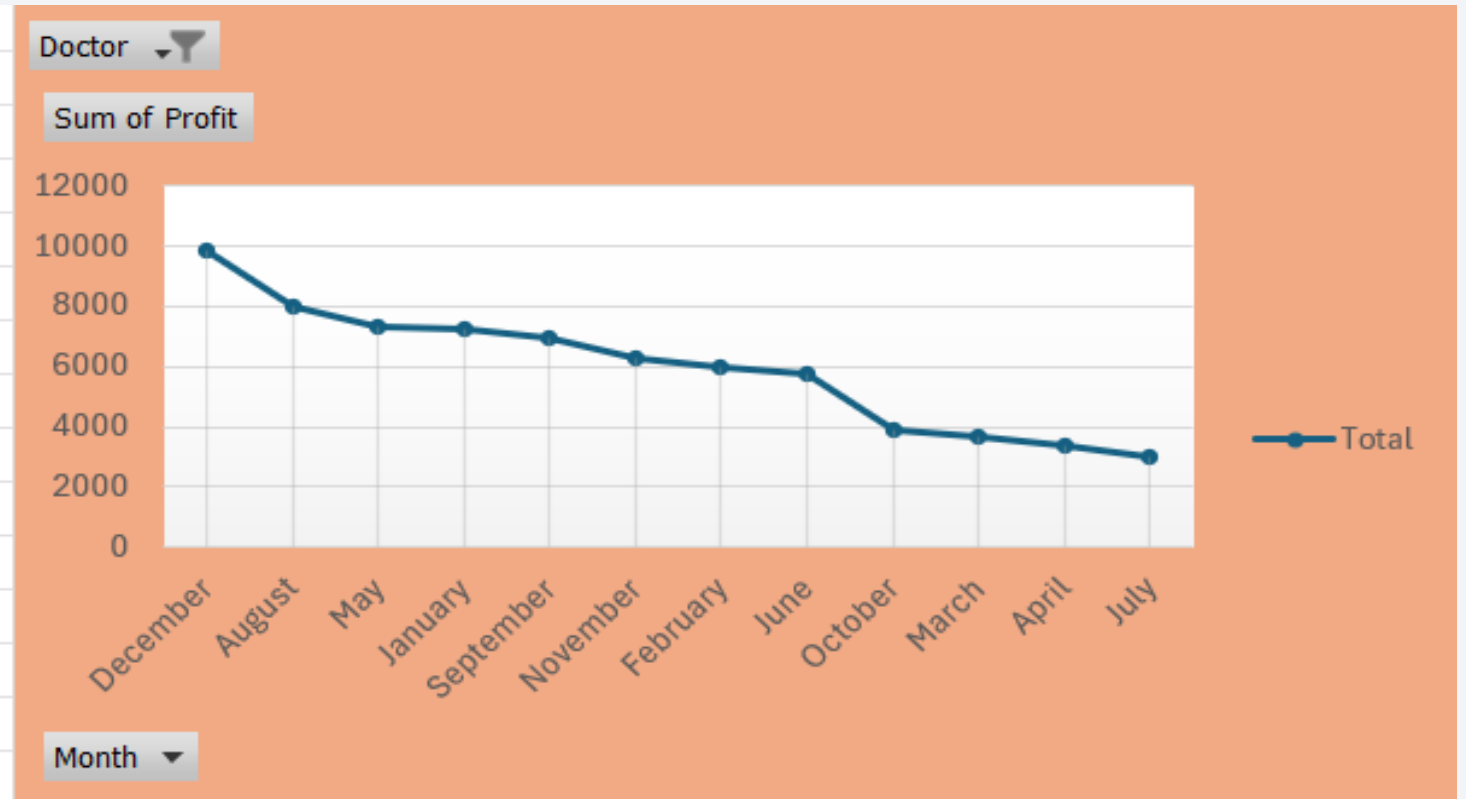
- Manvar Dolly B
- Rekant Stanley Irwin
- Murry Robert L
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- Lorenzo Robert

Number of prescriptions per market



Doctor Rekant Stanley Irwin's profit over 12 months

Doctor	Rekant Stanley Irwin
Month	Sum of Profit
December	9872,464
August	7966,728
May	7342,965
January	7236,852
September	6925,315
November	6255,183
February	5980,26
June	5770,64
October	3911,93
March	3670,302
April	3378,96
July	2984,765



Conclusions

- The main objective of the project was to look into consumer data and measure KPI's in order to determine which doctor performed best.
- Welshol is the most prescribed product of them all and hence more common for treating hypertension. With revenue increases from R3.4m to R4.2m between 2020 & 2021 it is therefore, undebatable that revenue is dependent on year and number of prescriptions. Doctors with lower revenues need to ensure that they always have Welshol in their inventory that its quantity surpasses that of any other product.
- 5 doctors with highest profits belong to 404 & 607 however, doctor Manvar Dolly B has made more profit than Rubin Fred Gilbert while they belong to the same territory. Therefore, high profits have nothing to do with the territory the doctor is operating in.
- With only 15 prescriptions in 2020 and none in 2021, Naisban is the least preferred product for depression treatment. Clearly demand for this product deteriorated to the point it ceased to exist at all. Doctors need not include Naisban when placing orders for supplies going forward to avoid sitting with stock that is not going to move from their inventories.

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- As the biggest market across all territories in both 2020 & 2021 with a total of 20291 prescriptions, Hypertension is the most problematic illness than is Asthma and Depression. Doctors with lower profit margins need to target patients suffering from hypertension more to boost their earnings.
 - Dipping of doctor Rekant Stanley Irwin's profits between December and July is indicative of the fact that there is an overall downward trend in profits in the months leading up to winter season. Clearly profits are directly impacted by season and therefore, he must ensure service of all work equipment is up to date and that more resources are dedicated to months in summer season. This can further assist in management of finances, where more budget can be allocated during the busiest months.

