



CSCI 23072 GROUP PROJECT

PREDICTING MEDICAL DRUG SALES IN A specific area for Categorical drugs.



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01. About Us

Get to know who we are

Group Number - 05

Group Supervisor: Dr. (Mrs.) Madusha Chandrasena

Investigators:

- **CS/2020/004** - U.T.A.Perera
- **CS/2020/009** - E.M.S.S.B.Ekanayake
- **CS/2020/015** - B.R.G.Lakmal
- **CS/2020/036** - M.N.M.Nasmeen
- **CS/2020/053.** - I.P.W.P.W. Kariyapperuma



02.Introduction

Presentation Overview

- We can learn a bunch about drug sales problems in an area by seeing how much medicine is being sold there.
- By exploring a specific type of medicine categories, we're going to predict how much of it will be sold in the future.
- Then, based on how accurate our predictions are, we will want to figure out why those diseases are happened.



03. Problem Statement

What is this Research for?

- People who sell drugs and pharmacists in Sri Lanka have a lot of difficulties because of problems with **seasonality, weather patterns to local health crises, importing drugs, changes in exchange rates and various economic problems in Sri Lanka**. To help them out, we want to create a system using data science. This system will use information to predict things for the sellers.
- **Why is this so important?** Many people in Sri Lanka are having trouble because there aren't enough drugs available when they want it . So, if we can predict these issues beforehand, it might help a bit in solving these problems.



04.Aims and Objectives

What we are aiming?

We expect, our model predictions help sellers and pharmacists make better choices using the data they already have. This way, pharmacists can buy the right medicines when they need.



Aims and Objectives

Goals and Intentions

- To predict the number of medicinal sales drug wise, so that pharmacists can prepare early by maintaining the medicine stocks.
- In this way, we can prevent wastage of drugs through expiring and drug shortage.
- We can recognize most frequently spreading disease in a certain area by analyzing the pharmaceutical sales data.
- Analyze that data using our machine learning models and determine the accuracy.



05. Proposed Solutions

Exploring Potential Remedies

Pharmacists often make choices based on their previous experiences and what's happening around them. But sometimes, these decisions might not be right. In that case they might not get acceptable profit as well. That's why we believe our model is a best way to make decisions. It predicts outcomes very accurately, which helps in making better choices.



06.Methodology

Approach and Techniques



Data collection

Gathering data on drug sales from **local pharmacies** for a specified period.

Data preprocessing

- Row data analyzing
- Data cleaning
- Data categorizing
- Splitting data as test and train data

Machine Learning Model building

Based on this project we decided which model that we should use.

We come up with several models then we decide hands on time series forecasting.

Web app design and implementation

We'll use smart predictions to build a small web app using **flask web framework**.

It'll show upcoming sales predictions info in an easy way.

Deployment

Merge model and web app then deploy our predictions on locally hosted web application.

07.Timeline

Market Research



08.Next Steps

Moving Forward

What we do first?

Using what we gathered data, move to **collect our new knowledge** with building up our project.

What members are going to do?

- **CS/2020/004 (Tharindu)** -----> User Interface design
- **CS/2020/009 (Subhash)** -----> Machine learning + Project coordinating
- **CS/2020/015 (Gihan)** -----> Machine learning + Deep learning
- **CS/2020/036 (Nasmeen)** -----> Web development
- **CS/2020/053 (Pabodha)** -----> Web development + Power BI



09.Conclusion

- Health is wealth. For every person, good health is essential in their lives, and they try to maintain it.
- From using our prediction model, can find out most needed medicines for a particular time and area, therefore business can provide enough medicines as people need it and furthermore authorities can implement solutions for health issues of a particular area.
- It is possible to use our model to make healthiness society as well as to make the business profitable.



10. References

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Questions & Answers



12.Appendix

Other matireals

```
Pandas Excel: 1115 entries, 0 in 1114  
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 2   Assortment       1115 non-null    object    
 3   CompetitionDistance  1112 non-null    float64  
 4   CompetitionOpenSinceMonth  281 non-null    float64  
 5   CompetitionOpenSinceYear 761 non-null    float64  
 6   Prom2             1115 non-null    int64     
 7   Prom2Month        571 non-null    float64  
 8   Prom2Day          571 non-null    float64  
 9   Prom2Interval     571 non-null    object    
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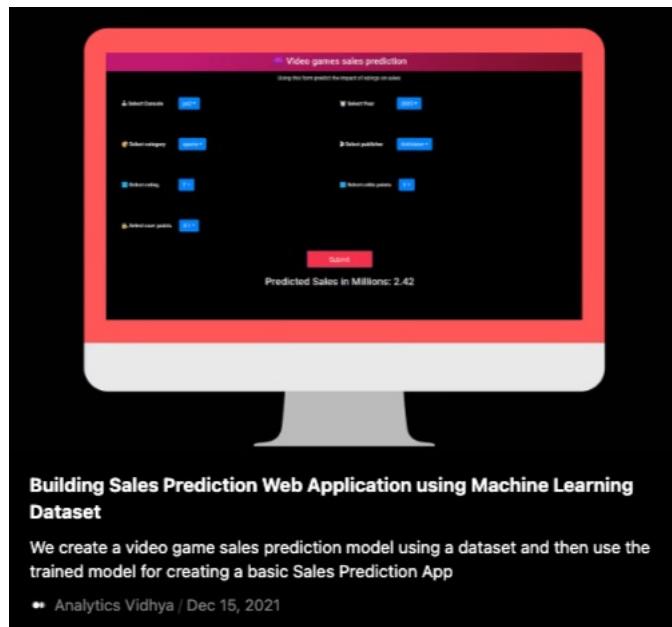
Time Series Forecasting For Sales Prediction
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THE END

THANK YOU FOR YOUR ATTENTION



Thank
You!