



**HOW WOULD THE
SALES BE NEXT
MONTH?**

Team niceTry()

Team code: 97

Slogan: "At least we have tried!"



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01

Introduction

In this part, we will have an overview of a problem. Therefore, we will introduce our Minimum Viable Product (MVP), its purpose and the opportunity it aim to address



Did you know?



It is claimed that most of BAs nowadays still prefer using experience more than the available datasets to predict the future sales.

Therefore, we have come up with an AI-model that can predict the future sales, which may creates the opportunities for inexperienced analyst to make a better decision.

02

Problem Statement

In this part, we will define the problem that the MVP are focus on solving. Besides, we will tell the weak points and the problem's inefficiencies.

Did you know?

In most of business, people sometimes depend on emotions to make decision. However, that choice may cause a high effect on the revenue of the whole industry.

Moreover, collecting thousands of data and calculating all of them will cost lots of time. Then, when they have all of the calculations, the business may have missed the 'golden hour', which also affects a lot on the revenue.

Therefore,...

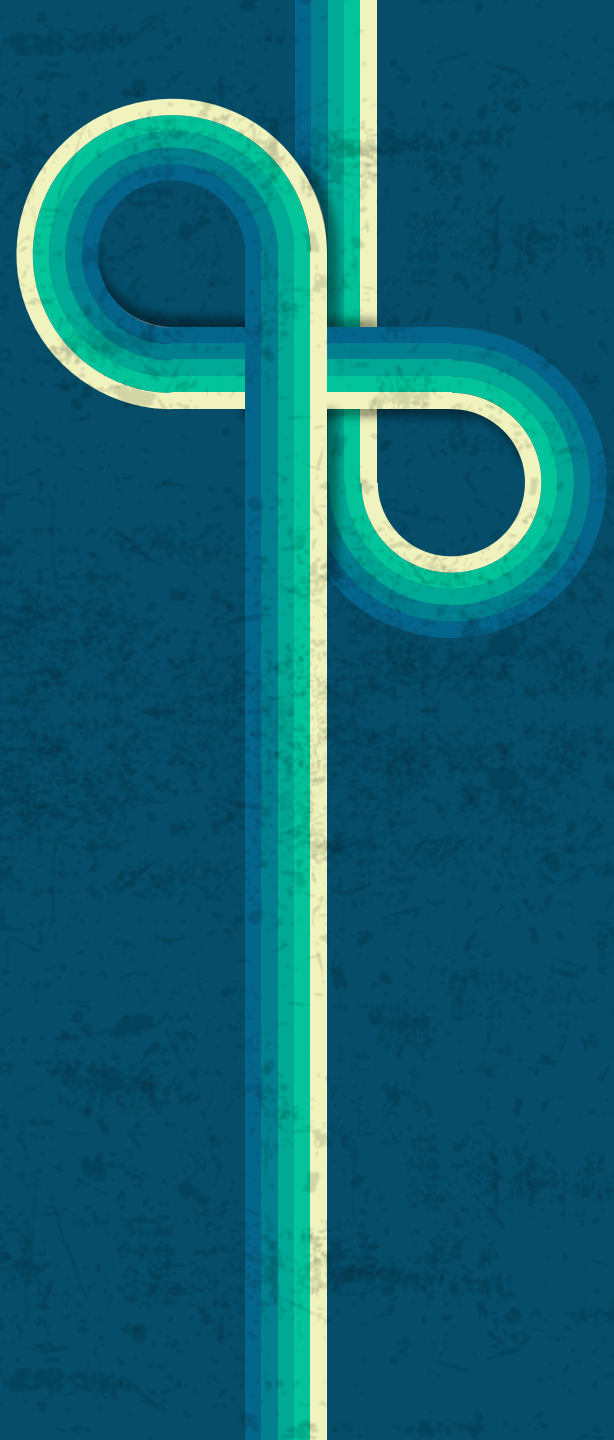
A decision-making support model has been made. Without emotion, just datas and numbers, this MVP will be the best sidekick for the BAs.

Besides, with the high-speed and exact accuracy of calculations, the error will be reduced comes with the extreme decrease from the affection to sales revenue.

03

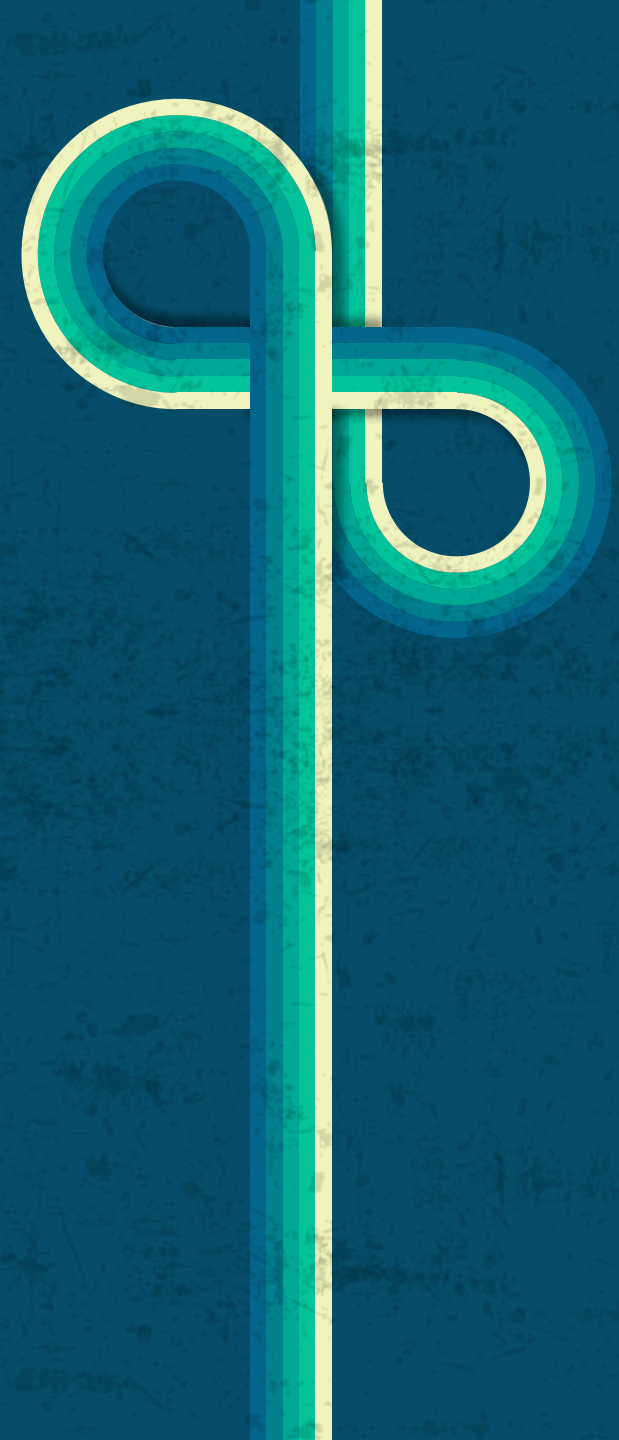
Solution Overview

At this section, we will move on what is our solution and the innovations of this solution, plus, the way our solution leverage AI models, techniques and algorithms



Solution Overview

Instead of calculating by hand, with AI it can calculate itself with hyper speed and higher accuracy lead to better results



It is not just calculations,

Without emotions, our solution is just focusing on the datas and their value to help BAs come up with the right plan.

=> No emotion, no wrong decision

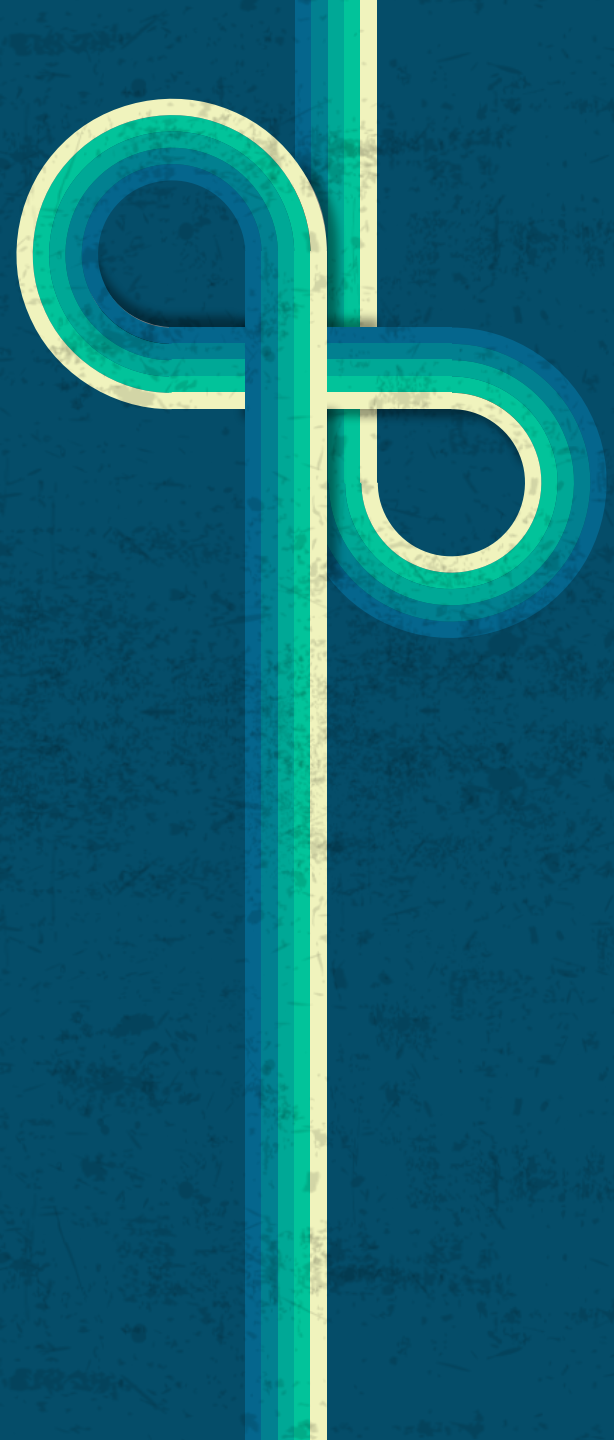
=> Best BA's assistant



As been mentioned before,

Our solution leverages the speed and the way the AI calculate thousands of values accurately.

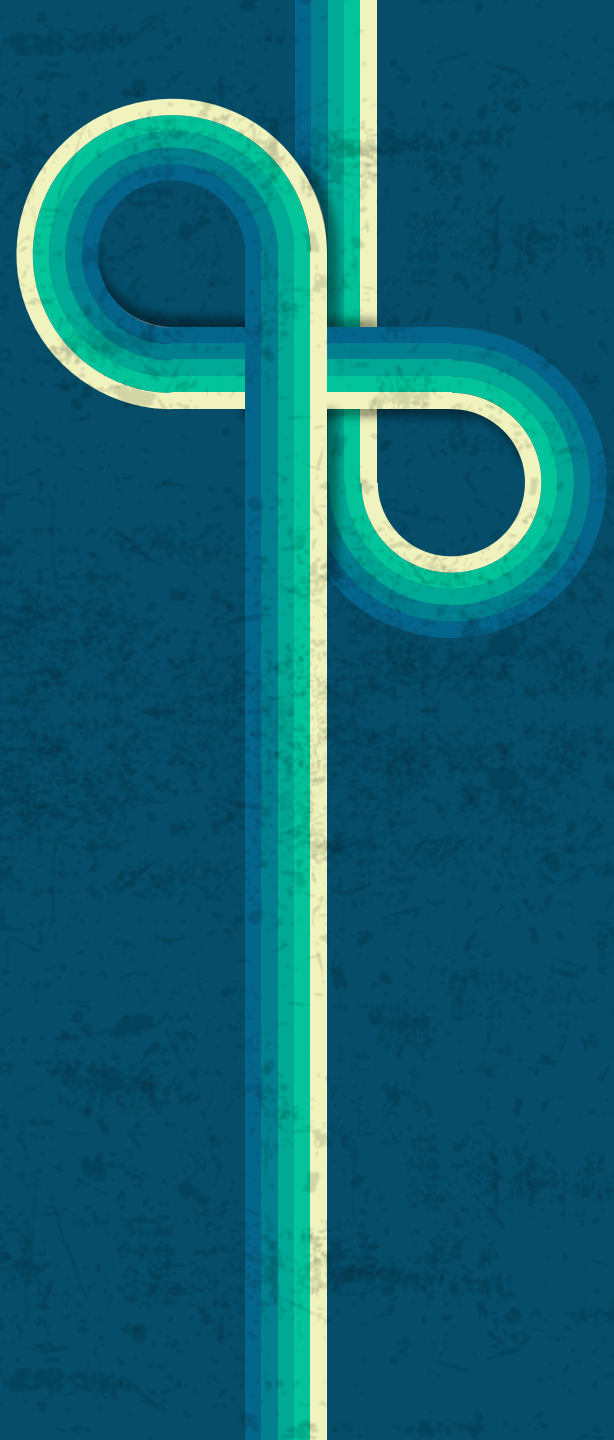
The loss of emotions from AI is also an advantage to be leveraged. We all know that numbers cannot lie, and AI is just focusing on the numbers to 'tell' us what to do



The highlight of our solution

In 2023, most of companies store a high volume of datas, from differents attributes and different values.

Our solution key is to find the exact value to do math, and join the value that is in common into a union, from that, the AI will support us to make a best decision for the monthly revenue.



04

Methodologies



We will describe the way we do the solution, and comes with some other explanations.

We use the linear model for the solution. But the question is, what is it?

According to an online reference, linear model is a type of machine learning model that assumes a linear relationship between the input features and the output.



About the key components, we have 5 main parts, including:

- ❑ Input Features (X)
- ❑ Weights (W)
- ❑ Bias (b)
- ❑ Linear Combination
- ❑ Output (Y)

The Layers:

1. Input layer

Input Features (X): represent the attribute of the input data.

For instance:

$X = [25, 28, 30, 32, 35]$ (shoes have been sold)

=> the sold quantity is the input feature

The Layers:

2. Output layer

- **Weights (W):** Directly connected to each input feature, controls their impact on the output
- **Bias (b):** Additional term accepting predictions when all X values are zero
- **Linear Combination:** The output is the resulted of the weighted sum of input features and the bias, mainly be calculated as:

$$Y = X \times W^T + b \text{ (} W^T \text{ is a transpose matrix)}$$

The Layers:

2. Output layer

- Let's continue the last example.
- When we have the numbers of shoes sold, we have a price (associated with the X)
- $W = [10]$ (price of 1 pair of shoes)
- bias is an additional term, take $b = 30$ (just an example)

The Layers:

2. Output layer

- Now, let's move on to the Linear combination. With the formula:

$$Y = X \times W^T + b$$

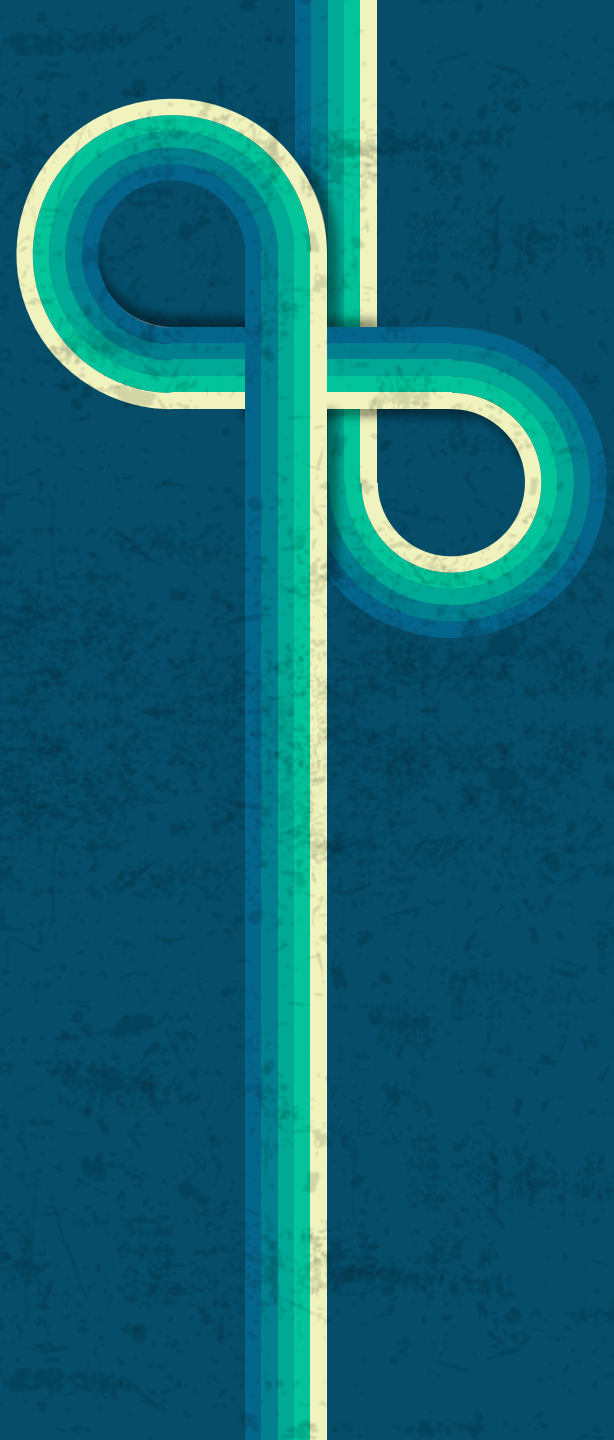
- Using all of the informations given, the prediction Y would be:
- $Y = [25 \times 10 + 30; 28 \times 10 + 30; 30 \times 10 + 30; 32 \times 10 + 30; 35 \times 10 + 30]$

=> $Y = [280, 310, 330, 350, 380]$ (The cost that X sold)

05

Core Functionality

We will simply explain how will the MVP mainly focus on what to do.



Our MVP mainly concentrate on

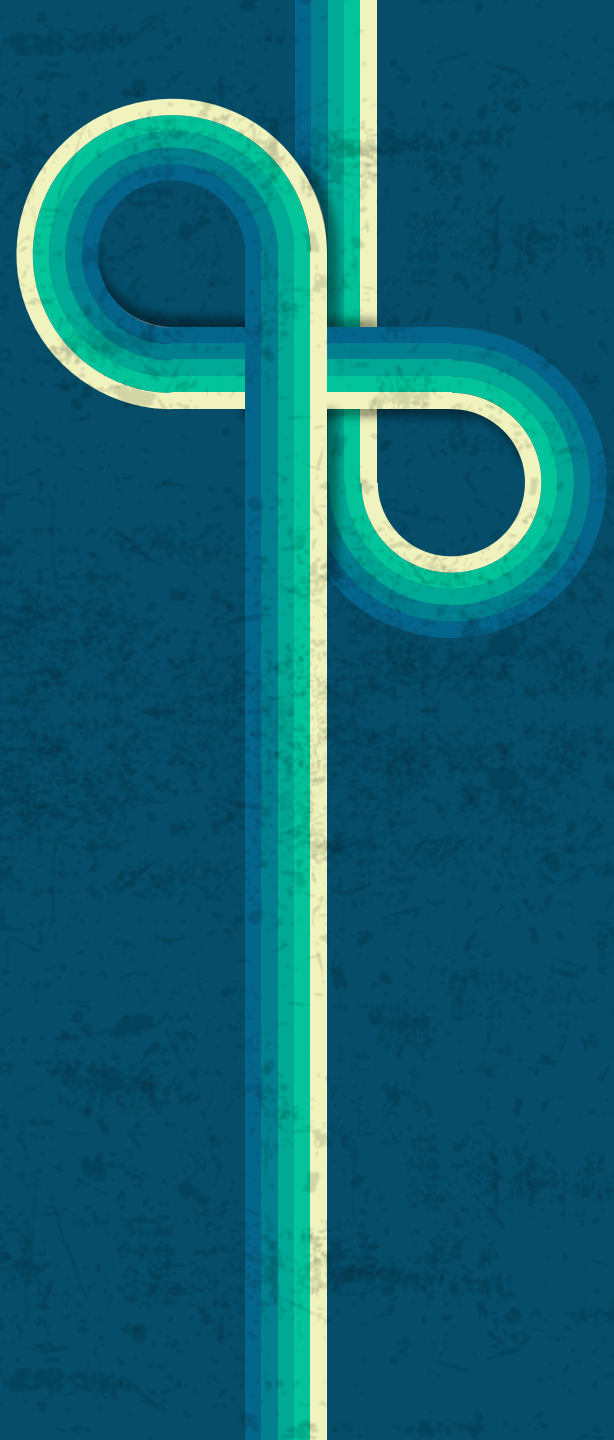
- Calculating weekly or monthly revenue or determining profit over a specific period through linear regression



06

Performance Metrics

We will reveal the key performance metrics that will be used to find out the success of the MVP.



All we do is...

Split the data into small sets and separate them into training sets and testing sets.

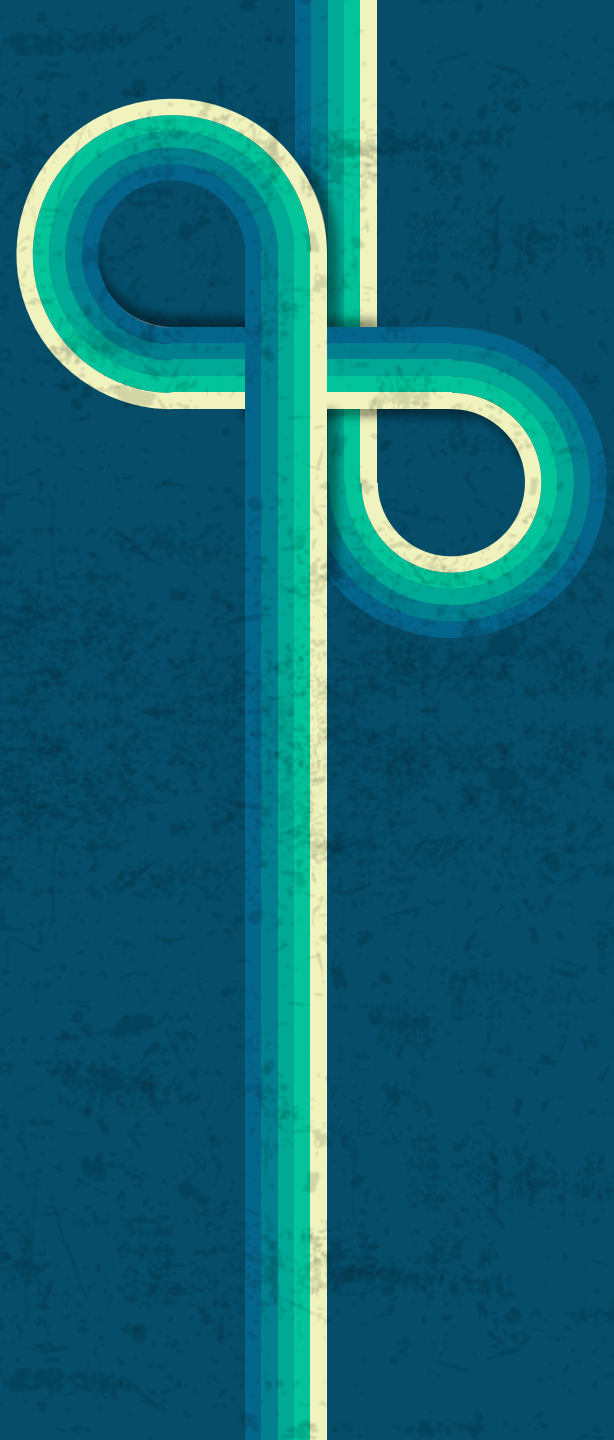
Moreover, we need to find out the loss function of the MVP and make a subtraction between 100% (real result) and the loss function to find out the accuracy of the program.



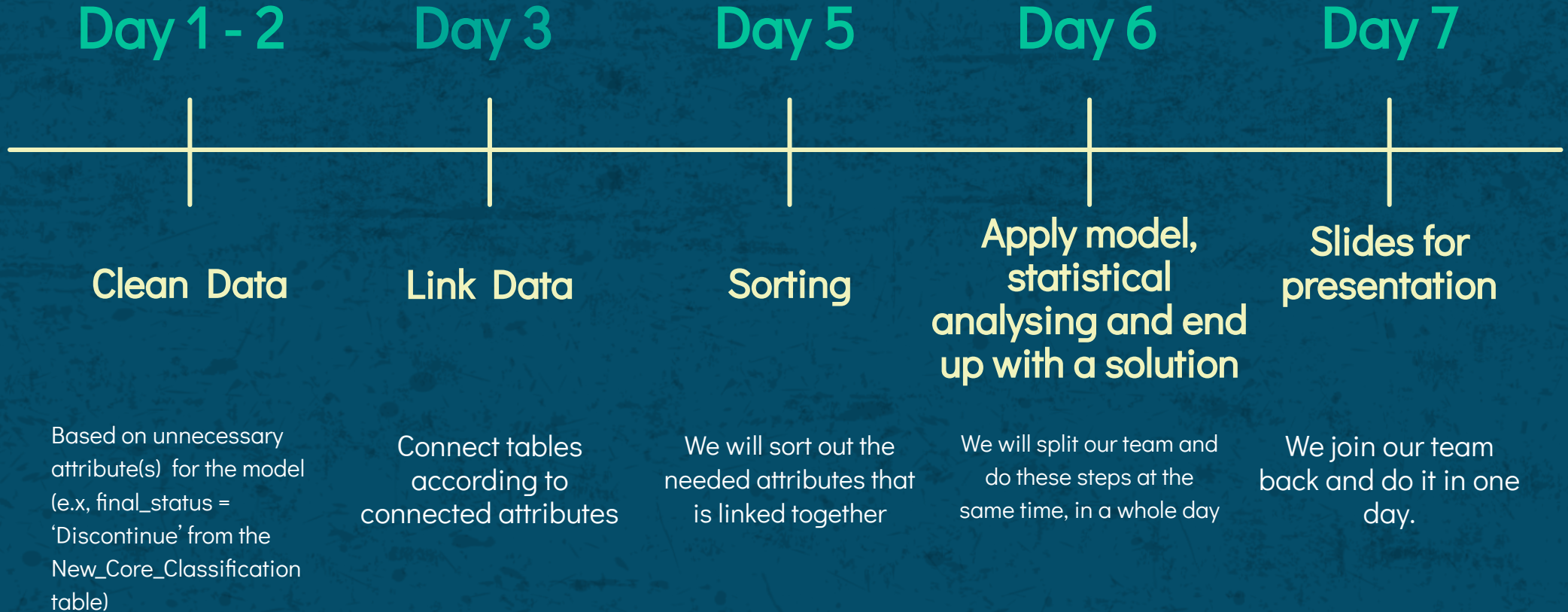
07

Timeline and Roadmap

Our research and idea-generating process



Timeline



Our MVP's roadmap

Adding method to sort out the right price for the right store type

Using clustering algorithms to speed up the time for statistical analysis

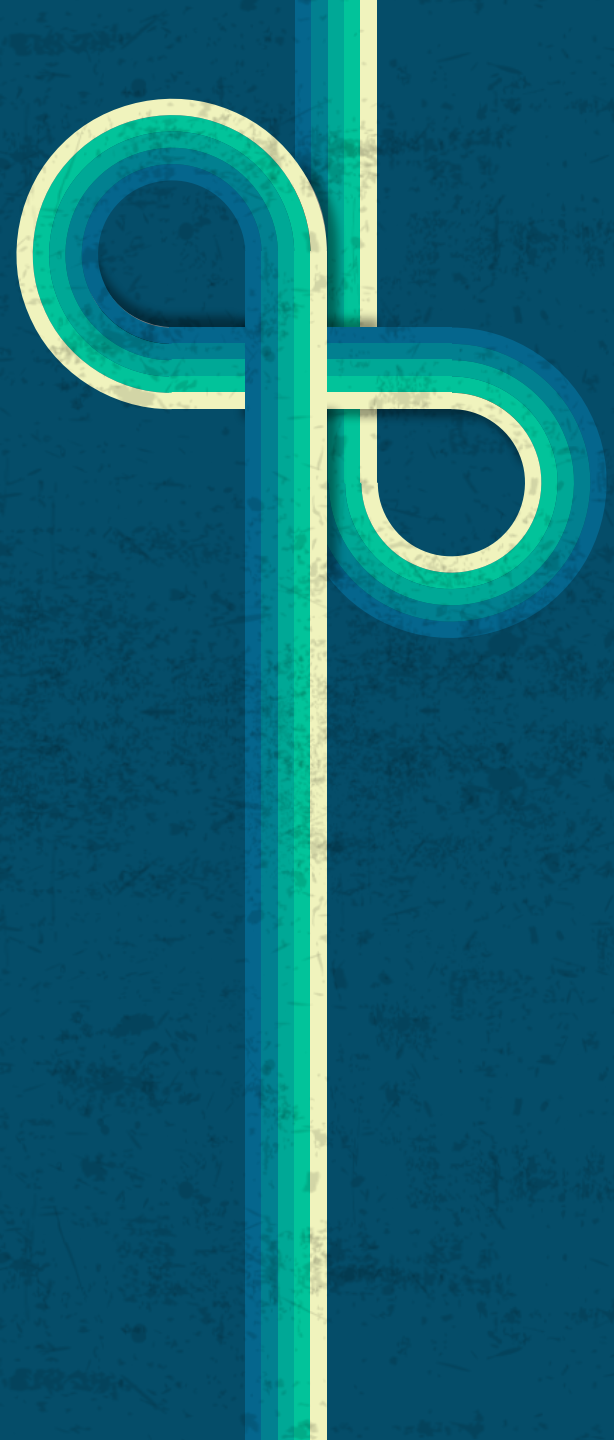
Using binary search tree (BST) to reorganise data and delete outliers

Using a different algorithm to seek out the a more accurate result

08

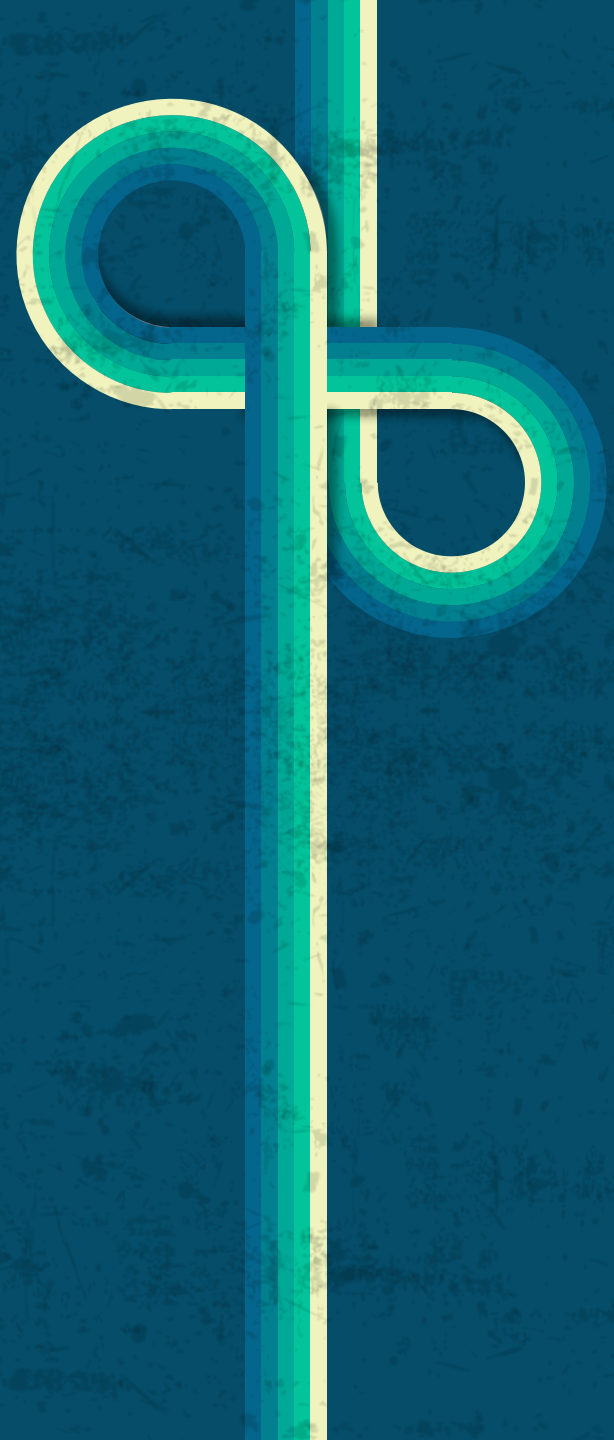
Limitations and Future Enhancements

This section will list out all the drawbacks that we have and making a plan to have some specific updates for our MVP.



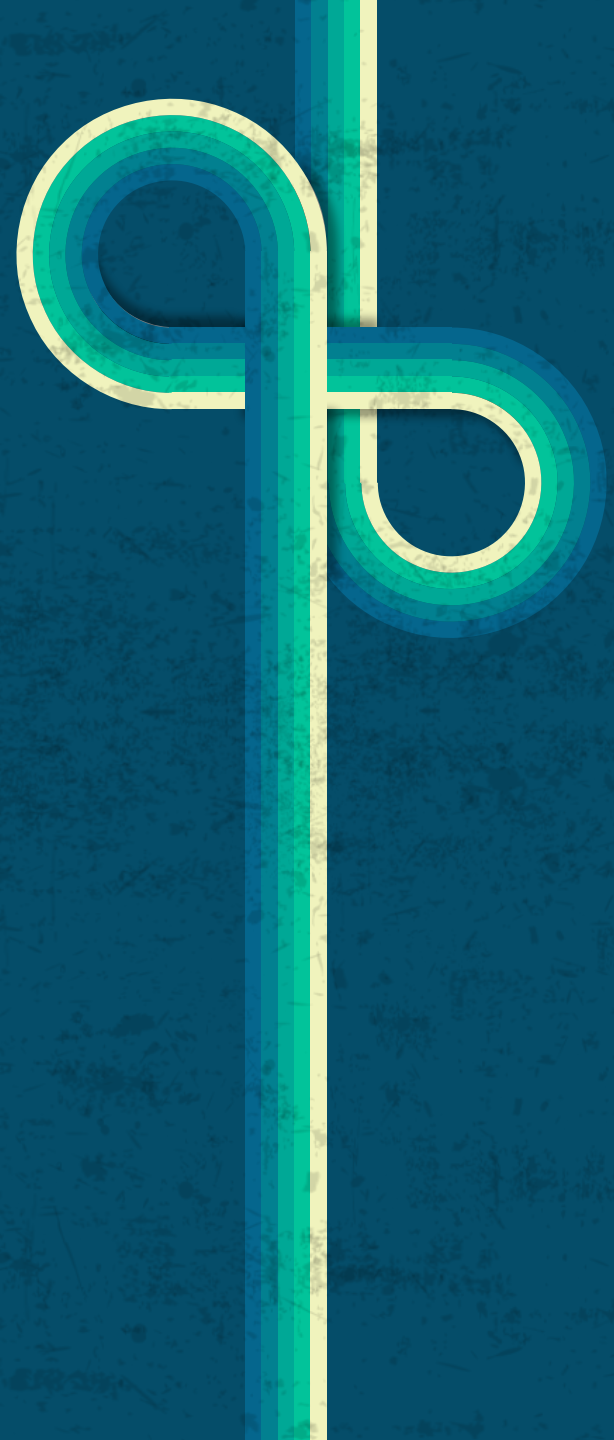
Limitations

- Unable to find the exact price for items at a specific store (e.x,. don't know if a flagship store will use the net price, listing price or retail price for item A.)
- Use a very simple algorithm that might have a low accuracy due to the high value of loss function.
- Have not linked all of the datas into a group.
- Depend on person's experience of anatomization to find out statistical analysis.
- There are some attributes that we do not know what they mean and their mission in the data.



Future enhancements

- We will find a way to know which type of store will use the correct corresponding price.
- We will try to apply a new and better algorithm to the model (ARIMA, for example)
- We will spend our time trying to get to know the attributes that we don't know yet
- We will use our precious time to finding out the way to apply clustering algorithms to make statistical analysis.



09 Conclusion



- The AI sales prediction model uses machine learning to forecast monthly sales revenue based on historical data.
- Provides quick and accurate projections, allowing even inexperienced analysts to make data-driven decisions.
- The ultimate goal is to eliminate guesswork from sales predictions, becoming a valuable tool for optimizing business operations and strategy.

09 Conclusion



- Can be enhanced with more advanced models. Limitations include dataset completeness and model accuracy issues. Future plans are improving algorithms, incorporating statistical analyses and optimizing the program

References

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et.aspx?tintucid=138466](https://english.mic.gov.vn/mra/Pages/TinTuc/tinchiti
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Any questions ?

