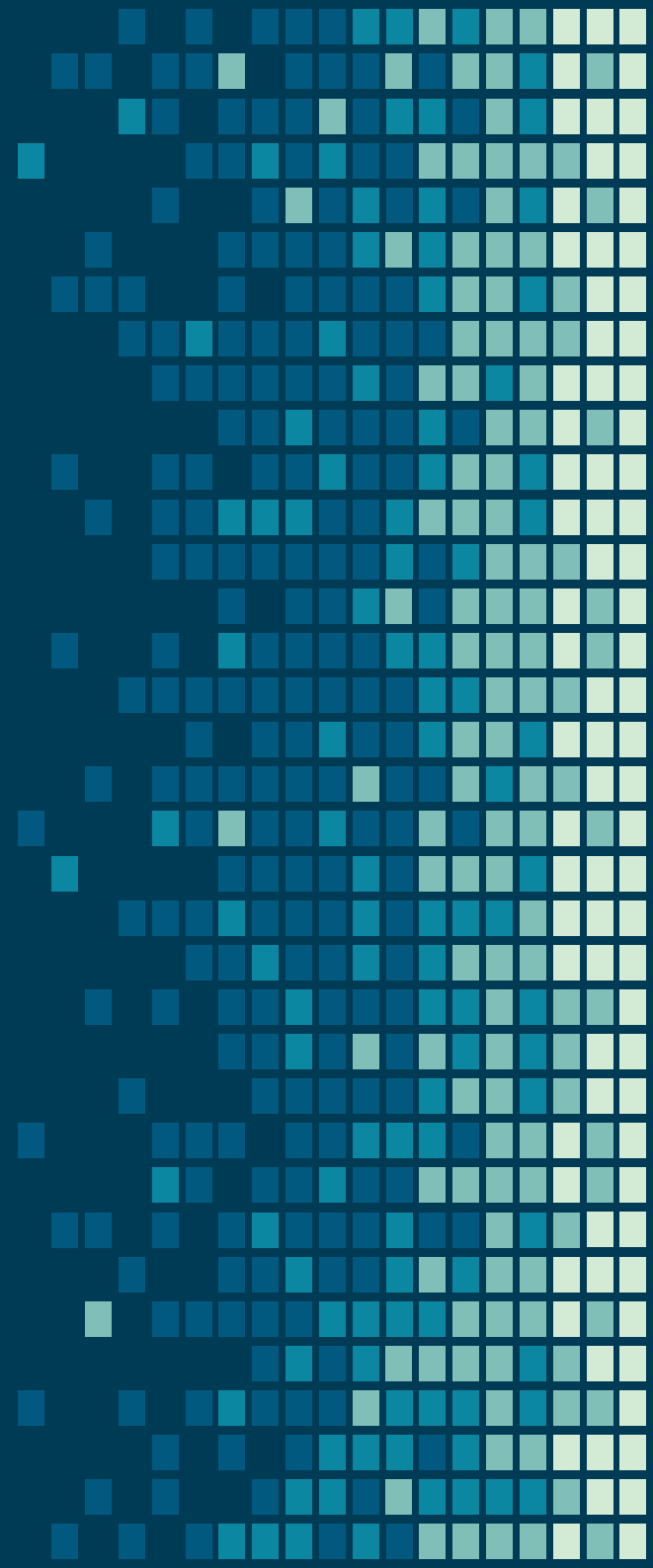




DSC VIT

RecOmax

Recommendation platform





Problem Statement

Creating a product **recommendation** system

With the help of Machine Learning **increase sales**

Reduce **time** spent by Sales Representatives



Solution

Create a **Product to Store** based recommendation system that is Centrally controlled

Recommendations made based on previous **sales history** of the product

Integrate **Online sales trends** to provide better real time product recommendation



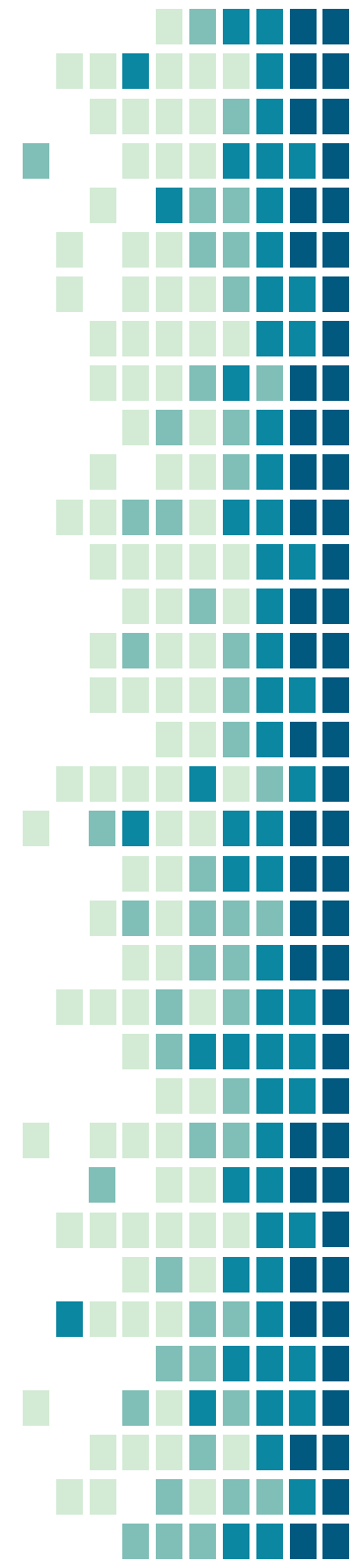
Recommendation engine

This engine works on the provided data set.

It aims to recommend to the end user similar items based on the current selection.

The data set provided looks minimal, but we used data analysis to generate features for each individual item from the given data.

As this is an online data set, the trend analysis of this data is integrated into the Prediction engine also.





Prediction engine

This engine works off a Kaggle data set.

The main aim of the engine to is predict the sales of a specific item in a specific store location for the next month.

The engine makes two types of predictions

- + When historical sales data is present
- + When historical sales data is absent.





Prediction engine contd.

This engine works off a Kaggle data set.

When historical sales data is present, that is when we have sales data of a particular item from particular shop and

When historical sales data is absent, the engine analyses trends in item sales based on factors such as store locations, date-time features and various other measures.

The prediction engine has a Root mean square error of 1.33.





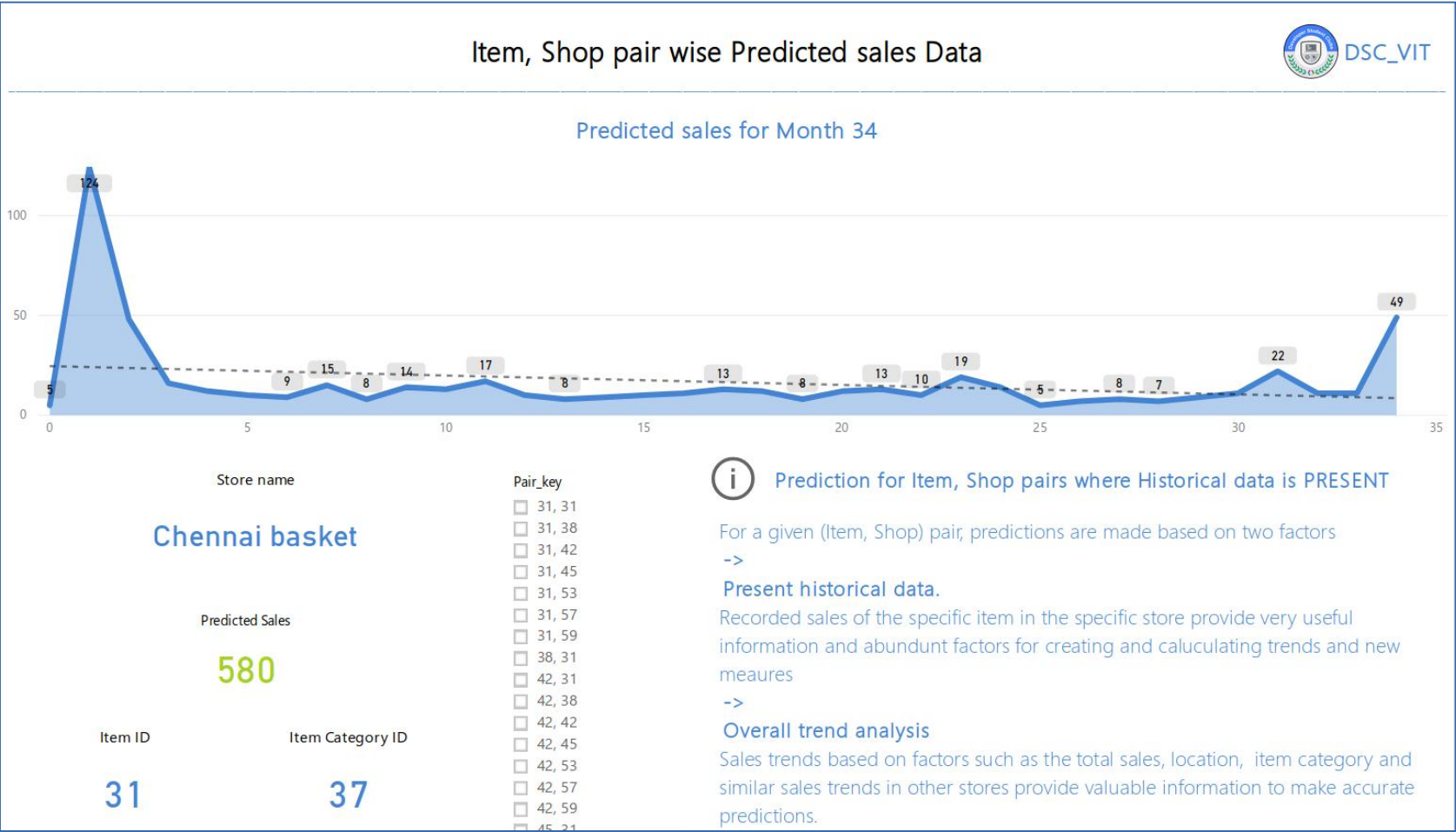
Data Dashboard

A fully interactive dashboard to present our final platform to the client with data visualizations and information regarding the working of various features in the platform.

We used the professional Business Intelligence tool Power BI to prepare the client end report (dashboard)



Report





Notebooks

```
In [27]: # Enter product ID to get a list of 20 recommended items

# User entered value
product_id = 'B00L5JHZJ0'

product_data = [data_model_norm.loc[product_id][['Count', 'Rating', 'Unreliability']].values]

recommended_products = engine.kneighbors(X=product_data, n_neighbors=20, return_distance=False)

# List of product IDs form the indexes
products_list = []

for each in recommended_products:
    products_list.append(data_model_norm.iloc[each].index)

print("Recommended products: ")
print(products_list)

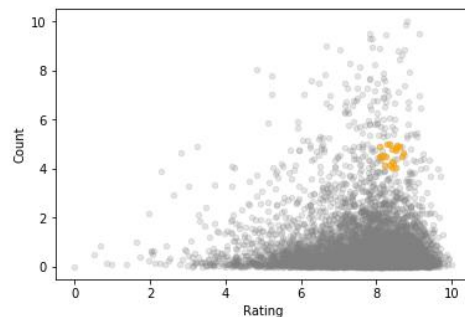
# Showing recommended products

ax = data_model_norm.plot(kind='scatter', x='Rating', y='Count', color='grey', alpha=0.20)
data_model_norm.iloc[recommended_products[0]].plot(kind='scatter', x='Rating', y='Count',\
                                                    color='orange', alpha=0.5, ax=ax)

ax2 = data_model_norm.plot(kind='scatter', x='Rating', y='Unreliability', color='grey', alpha=0.20)
data_model_norm.iloc[recommended_products[0]].plot(kind='scatter', x='Rating', y='Unreliability',\
                                                    color='orange', alpha=0.5, ax=ax2)
```

```
Recommended products:
[Index([u'B00L5JHZJ0', u'B00021C1LI', u'B00FAE0CP0', u'B00178TVXG',
       u'B000ZLVUY0', u'B000804YM4Y', u'B000L9YYTS', u'B001MMV40U',
       u'B000F63TW0', u'B0000Q2DL4', u'B001330XFA', u'B001HTYJL0',
       u'B000TAE0RK', u'B0023A7JF4', u'B001TJXI5U', u'B008RVYJS8',
       u'B0008IV7BU', u'B001C6H6F8', u'B000G33KE0', u'B000GHW5G6'],
      dtype='object', name=u'ProductId')]
```

```
Out[27]: <matplotlib.axes._subplots.AxesSubplot at 0x7f9fa8552110>
```





Product roadmap

Overtime we have planned on making this project in to a full fledged tools with big data integration and real time online data integration.

Using big data tool such as Hadoop and Mapreduce, we want to take this project one notch higher by computing tremendous amounts of data.

Another plan is to based on the fact that online sales data is available almost immediately. This means that using that data will give the engine an edge over any older historical data prediction model.



THANKS!

Team DSC_VIT powered by Google Developers

Any questions?

You can find me at -

+91 9945120209

rohan.rodriques2016@vitstudent.ac.in