<u>Sales of a Super Store</u>

1.INTRODUCTION

1.1 overview

Sales of a super store is a Machine learning task , here we forecast the super store sales which is an essential task for efficient management of a store . Machine learning can help us discover the related factors that influence sales in a superstore and estimate the sales in advance . we collect data from superstores in the form of datasets and we perform data preprocessing to extract useful data from raw-data then we perform visualization to analyze patterns in our transformed data and predict sales in the near future

1.2 Purpose

The purpose of this project is to visualize and analyze the superstore sales patterns to get a complete overview of sales and profits of historical sales to predict its sales in advance . we can provide the future demand of products to a superstore or any retail marketing enterprise . we can also help in increasing the supply according to customers demand in future so that there is no shortage of products and surplus of a product

2.LITERATURE SURVEY

2.1 Existing Problem

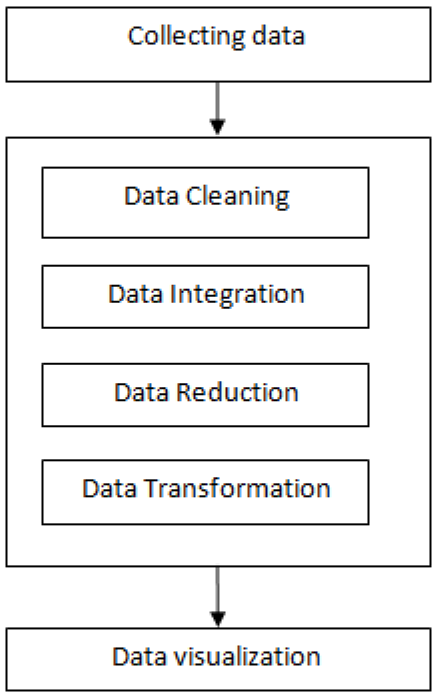
The existing problem in retail marketing (or) superstore sales is that there is no proper analytics ,predictions about the sales of products in near future as a whole if demand of a certain product increases then there is a shortage in other case products may be surplus at last which leads to loss and effects us in our marketings

2.2 Proposed solution

solution to the above problem can be provided by gathering information about products on which customers invest more or likely to invest more in future along with this we need to study industry trends and the competetion to get complete knowledge , analysis and predictions about the supply, demand and competetion for a product for this I have gathered the data into a dataset then cleaned the data and extracted useful data for my future predicitions . next I performed visualization on basis of types of products , sales ,quantity , discount on products, profits of historical data to get complete analysis about the information of products and predicting future sales accurately

3.THEORITICAL ANALYSIS

3.1 Block diagram



3.2 Hardware / Software designing

Hardware Requirement:

Windows 7 and above (64-bit)
RAM: 4GB
Processor: Minimum Pentium 2 266 MHz processor
Browsers: Chrome

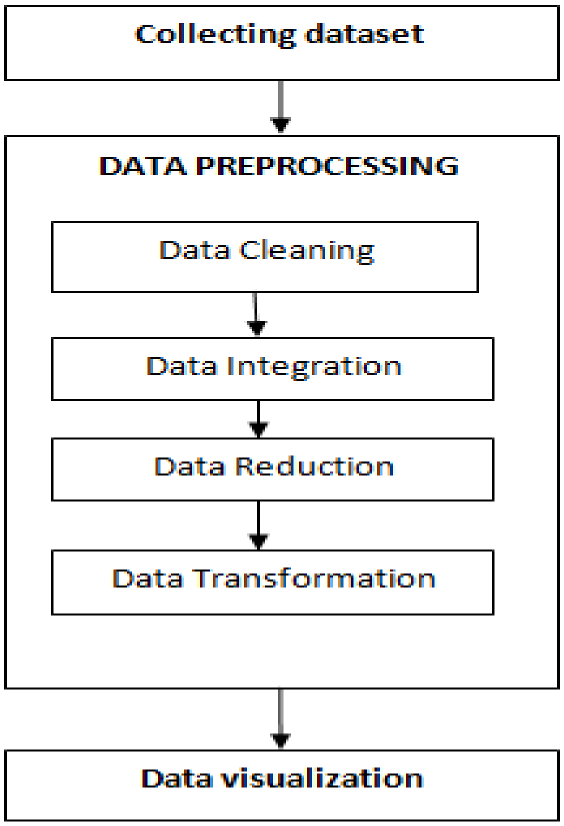
Software Required:

Java JDK 10
Weka
Eclipse IDE

4.EXPERIMENTAL INVESTIGATIONS

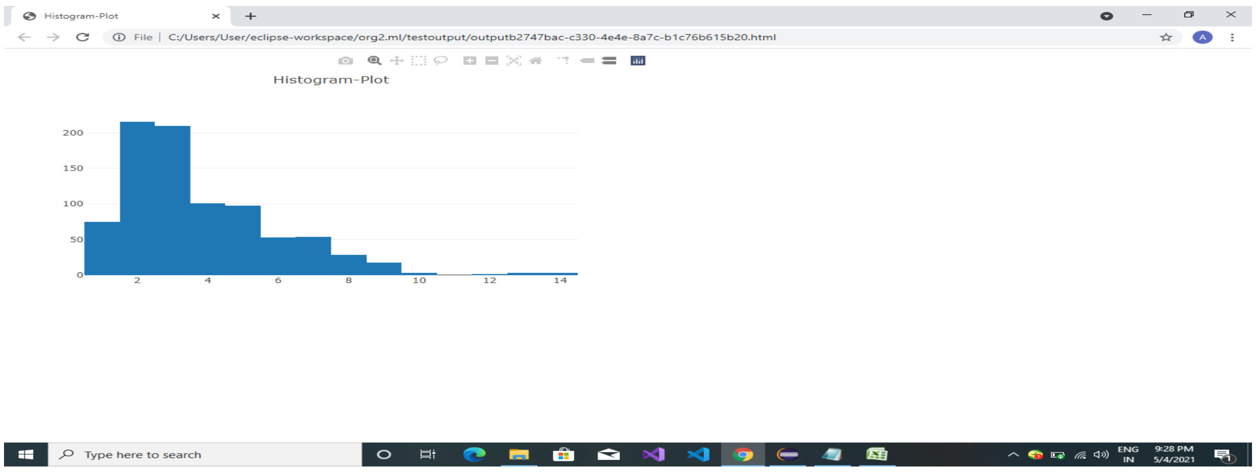
Analysis is done on sales of superstore data using data visualization techniques using tablesaw library . Predictions are done using Histogram plot, Box plot , Bar plot and Scatter plot

5.FLOWCHART



6.RESULT

The main objective of this project is to make use of historical sales data of a superstore to predict its sales in advance, in doing so we found that most of the sales have been triggered by the standard class of shipment mode obviously we see more profits/loss have been availed from the standard shipment class. But, there are not higher range profits seen in this feature discounts attract more sales. But, discounts attract mostly the Standard Class shipment. Same day shipment mode receive the least disount offers , the more discounts have been offered and redeemed, the lesser profits the segments have achieved. Products with no discounts show high range of profits but as the discount range increases, we only see more and more loss with hardly any profit , we also observed from the graphs that the sales to profit ratio is same in every category , no matter how they are visualized .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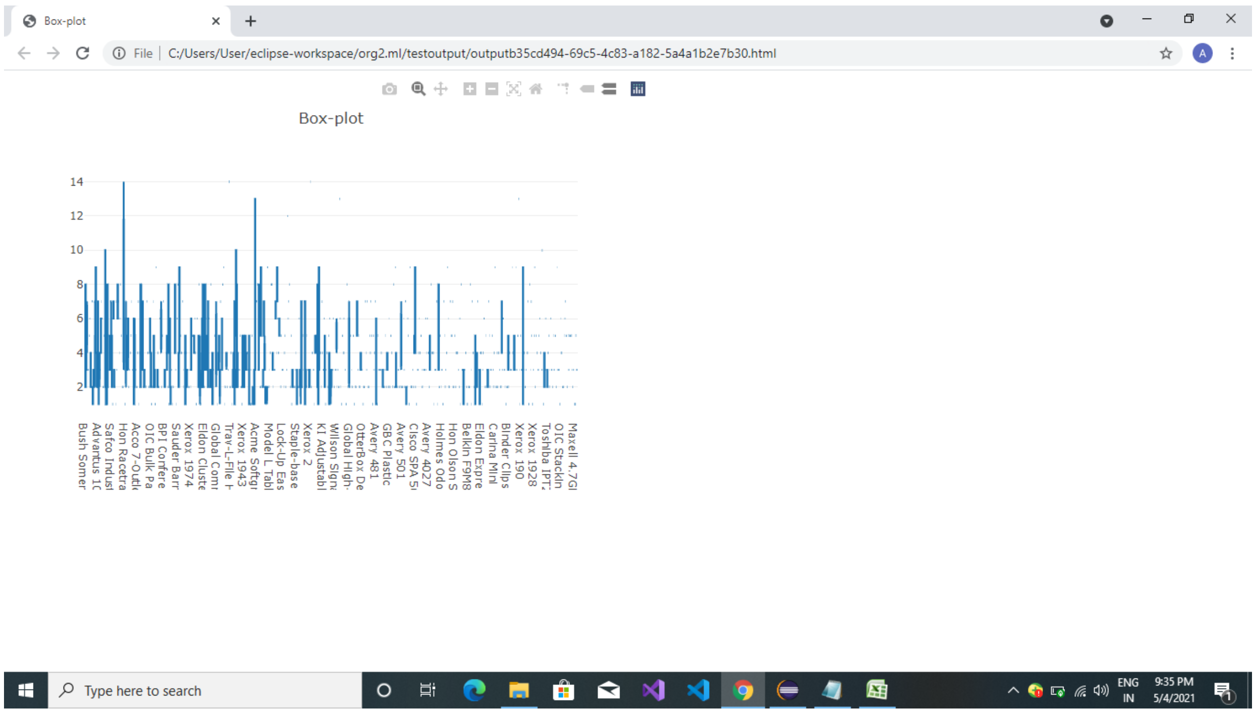
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BPI Confere
Sauder Barr
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Trav-L-File H
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Avery 4027
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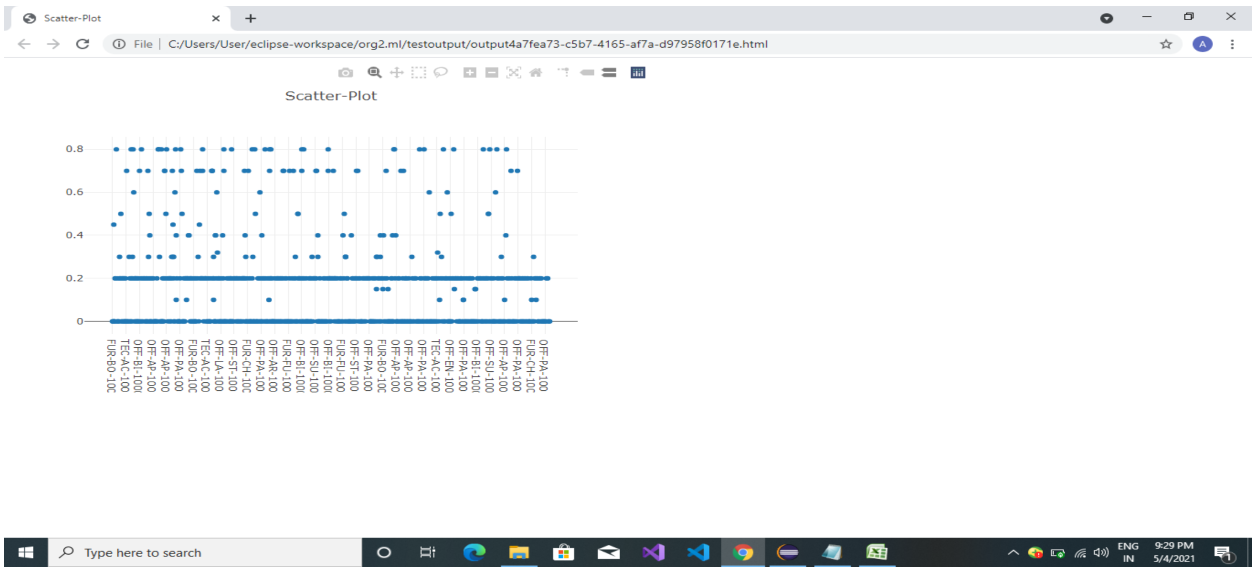
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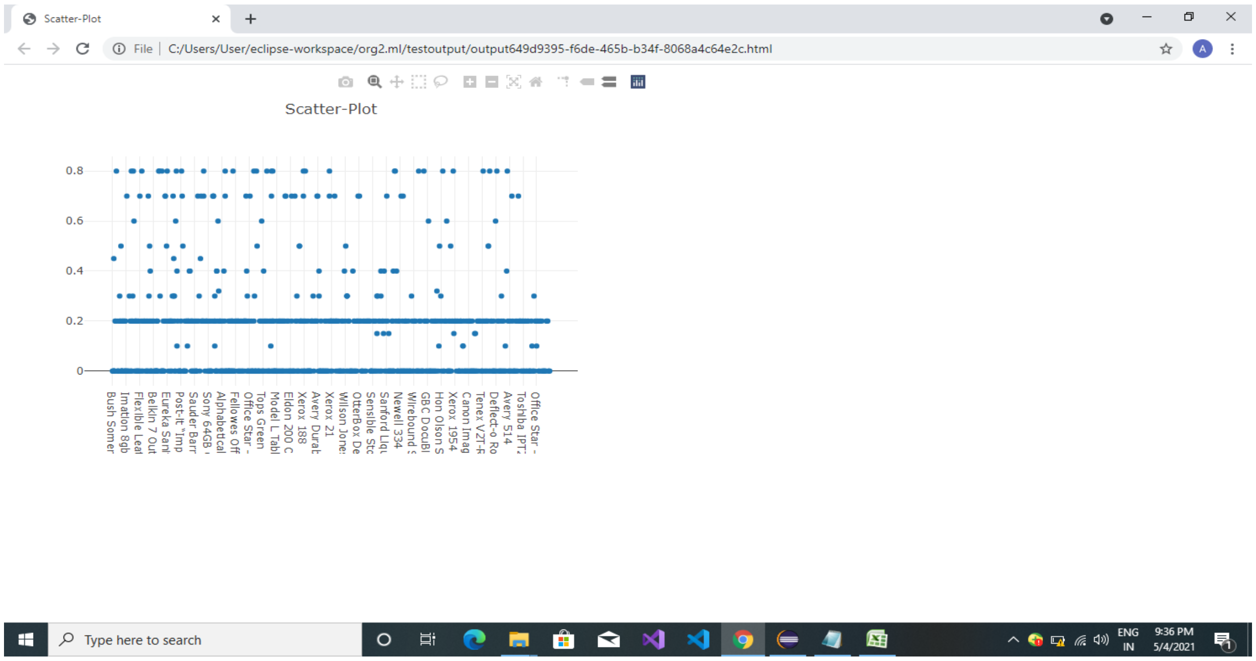
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Eldon 200 C
Xerox 188
Avery Durat
Xerox 21
Wilson Jone
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Sensible Stc
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Newell 334
Wirebound
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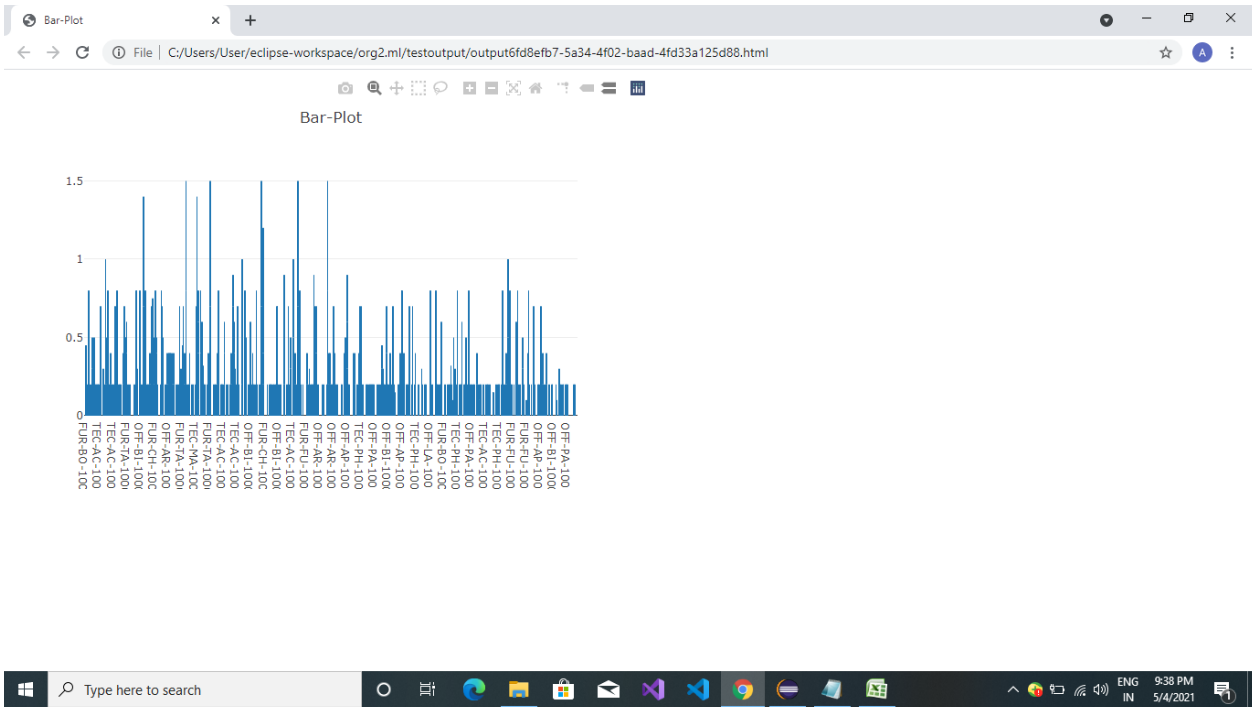
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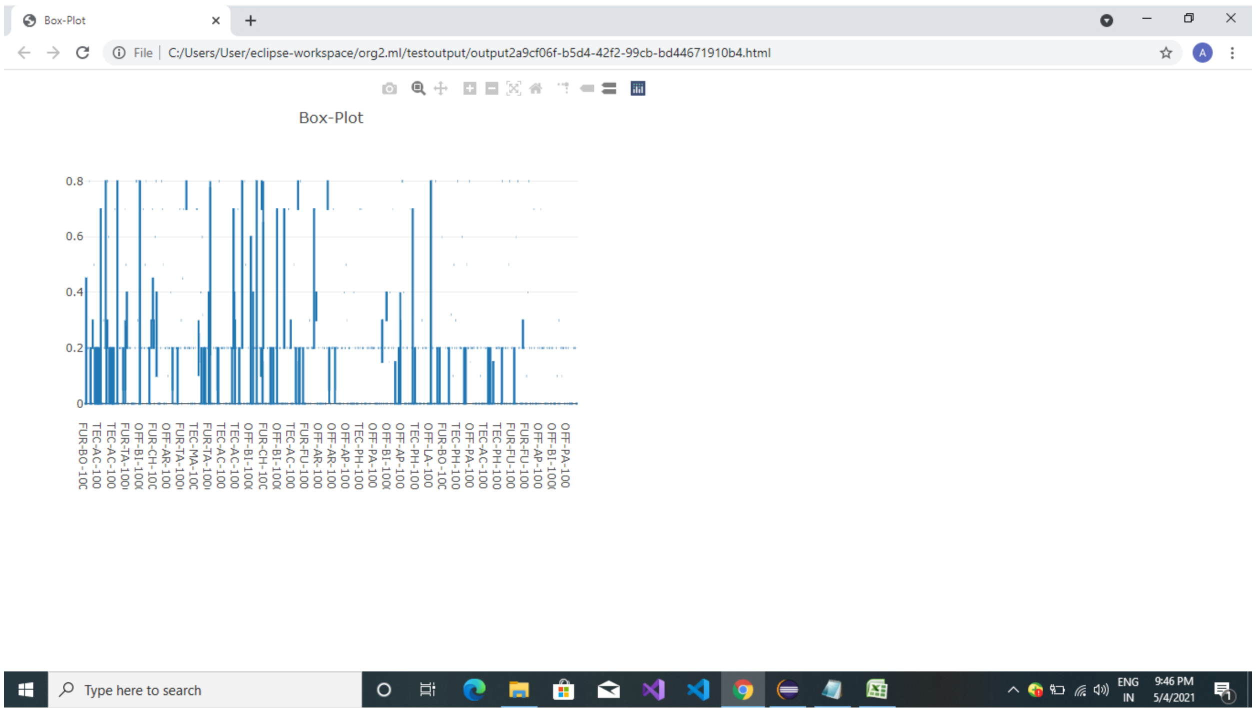
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7.ADVANTAGES AND DISADVANTAGES

Advantages

- ➤ Better understanding of data
- ➤ Accurate analysis
- ➤ easy to find relation between different attributes
- ➤ ease of future sales prediction
- ➤ Exploring future trends

Disadvantages

- ➤ Visualization provides estimation not accuracy
- ➤ Baised
- ➤ Lack of assistance
- ➤ Improper design issue
- ➤ Wrong focused people can skip important areas

8.APPLICATIONS

This solution of data visualization can be applied in following sectors :

- Banking Services

- Healthcare industries
- Insurance Sector
- Military
- Retail Marketing

9.CONCLUSION

we've visualized and analyzed various use cases in the superstore dataset . we got some insightful results about the profit and sales that can be used to improve future policies. we also found a trend over the year so prepartions in stores and warehouses for the next year can be made accordingly .

10.FUTURE SCOPE

Enhancements that can be made in future includes :

- ✓ Displaying of critical data in visually interactive forms
- ✓ Preventing chances of errors in decision-making
- ✓ Identifying key features that impact business results
- ✓ We can develop a forecast for future steps to be taken
- ✓ We Can grasp large chunks of complex data in an easy visual form
- ✓ We Can display trends over any period of time

11.BIBILOGRAPHY

References:

- https://www.kaggle.com/juhi1994/superstore
- https://www.r-bloggers.com/2020/12/superstore-retail-analysis/
- https://medium.com/clique-org/superstore-sales-use-case-data-analytics-and-visualization-62afacd0777
- https://www.youtube.com/watch?v=WRk9t5yo5Zs
- https://www.youtube.com/watch?v=3es54FafNC0

✈APPENDIX

A . Source Code

☞ Superstore.java

```
package org2.ml;
import java.io.IOException;
import tech.tablesaw.api.Table;
import tech.tablesaw.plotly.Plot;
import tech.tablesaw.plotly.components.Figure;
import tech.tablesaw.plotly.components.Layout;
import tech.tablesaw.plotly.traces.BoxTrace;
import tech.tablesaw.plotly.traces.HistogramTrace;
import tech.tablesaw.plotly.traces.ScatterTrace;
import tech.tablesaw.plotly.traces.BarTrace;


public class Superstore {
        public static void main(String args[])
        {

                try {
                        Table Superstore_data =
Table.read().csv("C:\\Users\\User\\eclipse-workspace\\org1.ml\\src\\main\\java\\org1\\ml\\S
uperstore-sales.csv");

              //Histogram plot
                        Layout layout1 = Layout.builder().title("Histogram-Plot").build();
                   HistogramTrace trace1 =
HistogramTrace.builder(Superstore_data.nCol("Quantity")).build();
                   Plot.show(new Figure(layout1, trace1));

                        //Box plot
                        Layout layout2= Layout.builder().title("Box-Plot").build();
                        BoxTrace trace2  =
BoxTrace.builder(Superstore_data.categoricalColumn("Product ID"),
Superstore_data.nCol("Discount")).build();
                        Plot.show(new Figure(layout2, trace2));
```

```
				//scatter plot
			Layout layout3 = Layout.builder().title("Scatter-Plot").build();
			ScatterTrace trace3  =
ScatterTrace.builder(Superstore_data.categoricalColumn("Product ID"),
Superstore_data.nCol("Discount")).build();
			Plot.show(new Figure(layout3, trace3));



			//Box plot2
			Layout layout4 = Layout.builder().title("Box-plot").build();
			BoxTrace trace4  =
BoxTrace.builder(Superstore_data.categoricalColumn("Product Name"),
Superstore_data.nCol("Quantity")).build();
			Plot.show(new Figure(layout4, trace4));

			//scatter plot2
			Layout layout5 = Layout.builder().title("Scatter-Plot").build();
			ScatterTrace trace5  =
ScatterTrace.builder(Superstore_data.categoricalColumn("Product Name"),
Superstore_data.nCol("Discount")).build();
			Plot.show(new Figure(layout5, trace5));

			//Bar plot
				Layout layout6 = Layout.builder().title("Bar-Plot").build();
				BarTrace trace6  =
BarTrace.builder(Superstore_data.categoricalColumn("Product ID"),
Superstore_data.nCol("Discount")).build();
			Plot.show(new Figure(layout6, trace6));

		} catch (IOException e) {
				// TODO Auto-generated catch block
				e.printStackTrace();
		}
	}



}
```

☞ pom.xml

```
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  <artifactId>org2.ml</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <dependencies>
  <dependency>
    <groupId>nz.ac.waikato.cms.weka</groupId>
    <artifactId>weka-stable</artifactId>
    <version>3.8.0</version>
  </dependency>
  <dependency>
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    <version>0.38.1</version>
   </dependency>
   <dependency>
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            <artifactId>tablesaw-jsplot</artifactId>
            <version>0.38.1</version>
</dependency>
<!-- Thanks for using https://jar-download.com -->

  </dependencies>

   <properties>
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       <maven.compiler.target>1.8</maven.compiler.target>
    </properties>
    </project>
```