

IIT MADRAS

Bachelor of Science
Programming and data science

MID TERM
SUBMISSION

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TITLE

Resolving issues being faced by a yarn sales and marketing company using data analytics.

EXECUTIVE SUMMARY

Avon traders, a small yarn sales and marketing company based in Tronica City, Ghaziabad. They cater to the factories in and around Delhi mostly. These types of business face problems surrounding the management of their inventory, expanding their daily clients, making sure the standard security and safety protocols are followed at the warehouse, being accountable to the clients in terms of delivery time and quality, credit issues, etc. Earning the trust of their clients and maintaining standards surrounding quality and delivery are major keystones that keep them active and potentially thriving in this business.

Analyzing their data and creating reports can help them make more mindful decisions. Having a direction is always better than having no direction and taking erratic decisions, which is exactly why many businesses fail to flourish in the competitive market. Always being in the know about the latest trends in the market of clothing and yarn, gives them a competitive edge. Sales data analyzation can help them in deciding new prices for new articles, and optimize the current prices. It can also help in identifying emerging trends.

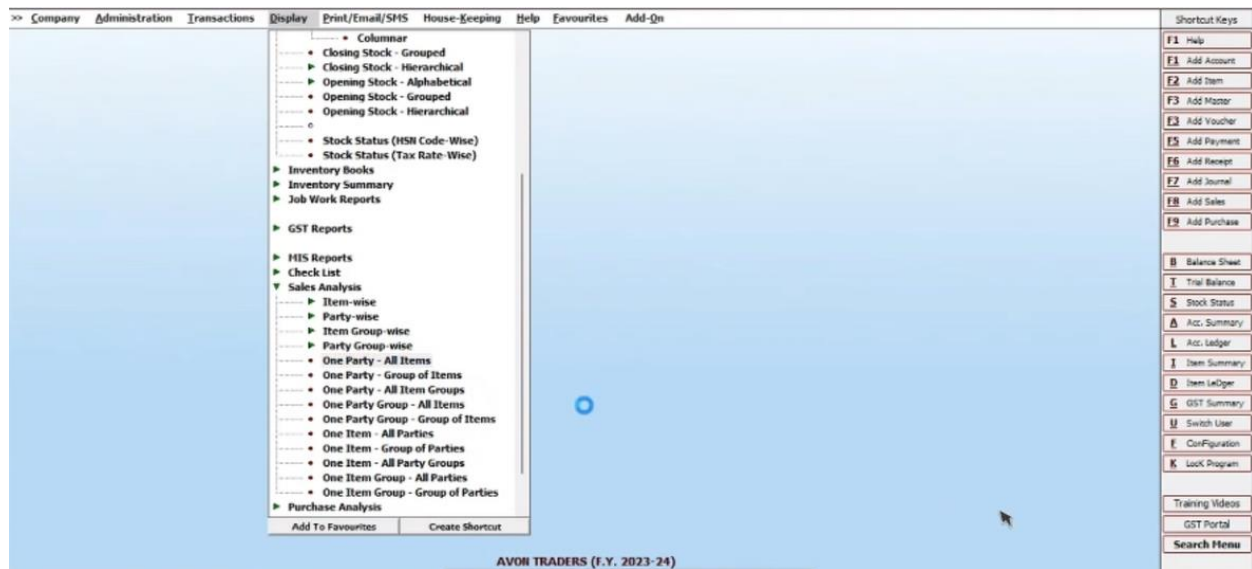
PROOF OF ORIGINALITY OF DATA

Pictures taken at the warehouse:



Each box contains 10 codes of strings. The number 50 denotes the article, and the code below it denotes the color of that article.

I had a talk with him over his data collection process. They record their data on a software. The name of the software is busy accounting software.



Here is a recording of me discussing with the owner about their data collection processes and the various nuances surrounding it:

[Recording and data collected](#)

LETTER AUTHENTICATED FROM THE ORGANIZATION

TO WHOMSOEVER IT MAY CONCERN

This is to certify that, I Tushar Punhani owner of Avon Traders, on request from Aditya Khurana, student of IIT Madras, I have provided data for sales, monthly expenditure details. I can confirm that Aditya sought my consent before collecting data and pictures from us and this can be used for academic project purposes.

We wish Aditya Khurana all the success in his project and welcome any suggestions he may have to improve our services.



METADATA AND DESCRIPTIVE STATISTICS

I asked for 4 excel data sheets from the owner ranging from client wise to article wise. One of the excel data sheet contains stock of the company (as of 8th May)

DATASET 1

File name: StockStatusMain.xlsx

Description: Stock of the warehouse (as of 8th May 2023)

Source: Avon Traders recorded data from various sales in Busy Accounting software

Columns:

- *Group Name/ Item Details:* Article, with its available colour options
- *Quantity:* Quantity of each thread (in cones) (for context: each box in the above provided photo contains 10 cones)
- *Unit:* Pieces (pc) of cones.

Rows: 862 rows (also contains some data not necessary for analysis, will be cleaned)

DATASET 2

File name: SalesAnalysisItemWiseMonthly.xlsx

Description: Quantity of each type of article sold (with its colors) monthly

Source: Avon Traders recorded data from various sales in Busy Accounting software

Columns:

- *Group Name/ Item Details:* Article, with its available color options
- *Unit:* Pieces (pc) of cones.
- *Months:* From April 2022 to March 2023

Rows: 455 rows

DATASET 3

File name: SalesAnalysis.xlsx

Description: Quantity of each type of article sold monthly

Source: Avon Traders recorded data from various sales in Busy Accounting software

Columns:

- *Group Name/ Item Details*: Article, with its available colour options
- *Months*: From April 2022 to March 2023

Rows: 40 rows

DATASET 4

File name: Party-wiseSalesAnalysis.xlsx

Description: Tells us which party (customer company) bought what type of article and how many (From April 2022 to March 2023)

Source: Avon Traders recorded data from various sales in Busy Accounting software

Columns:

- *Party*: Customer Company
- *Articles*: Each type of article has its own column

Rows: 51 rows

Note that:

- 1) All the data (barring stocks) is from previous year sales (April 2022 to March 2023).
- 2) The number of rows is just given to provide an idea of the size of the data.
- 3) All of these excel sheets can be found in the drive link.

DESCRIPTIVE STATISTICS

From Dataset 1:

The article type which is in maximum amount in the stock (8th May 2023) is Nice 50 No., and it also has the most amount of color options.

There are 16915 cones of this article type.

I asked about certain anomalies in the data from the owner, for example, certain values were negative. The owner said that this discrepancy was caused because the companies they buy yarn from use different methods for management and different codes for their yarns, which resulted in this discrepancy. The data was cleaned to remove them.

From Dataset 2:

Data from April 2022 to March 2023

Most sales made in: September 2022 (24000)

Least sales made in: May 2022

Article type (with color) which was sold the most: BLACK Nice 50No Spun Polyester 2000Mtr (16590). 2360 cones of this article type were sold in the September. (Notice, this is a specific color, here black)

Article type (with color) which was sold the least: 1361B Nice 30No CF* Poly 1500Mtr

In the whole year: 183075 were sold

*CF stands for continuous filament, a type of yarn

From Dataset 3:

Data from April 2022 to March 2023

This data is basically the same as the above data, except this data is concise, as in it does not give the amount sold for each specific type of color. Now from the data:

Most sales made in: September 2022(24000)

Least sales made in: May 2022

Article type which was sold the most: Nice 50No Spun Polyester 2000Mtr (all colors) (71881)

Article type which was sold the least: Nice 10No Cotton 3000Mtr

In the whole year: 183075 were sold

From dataset 4:

Data is from April 2022 to March 2023

Party which purchased the most: Karnika Garments (47546)

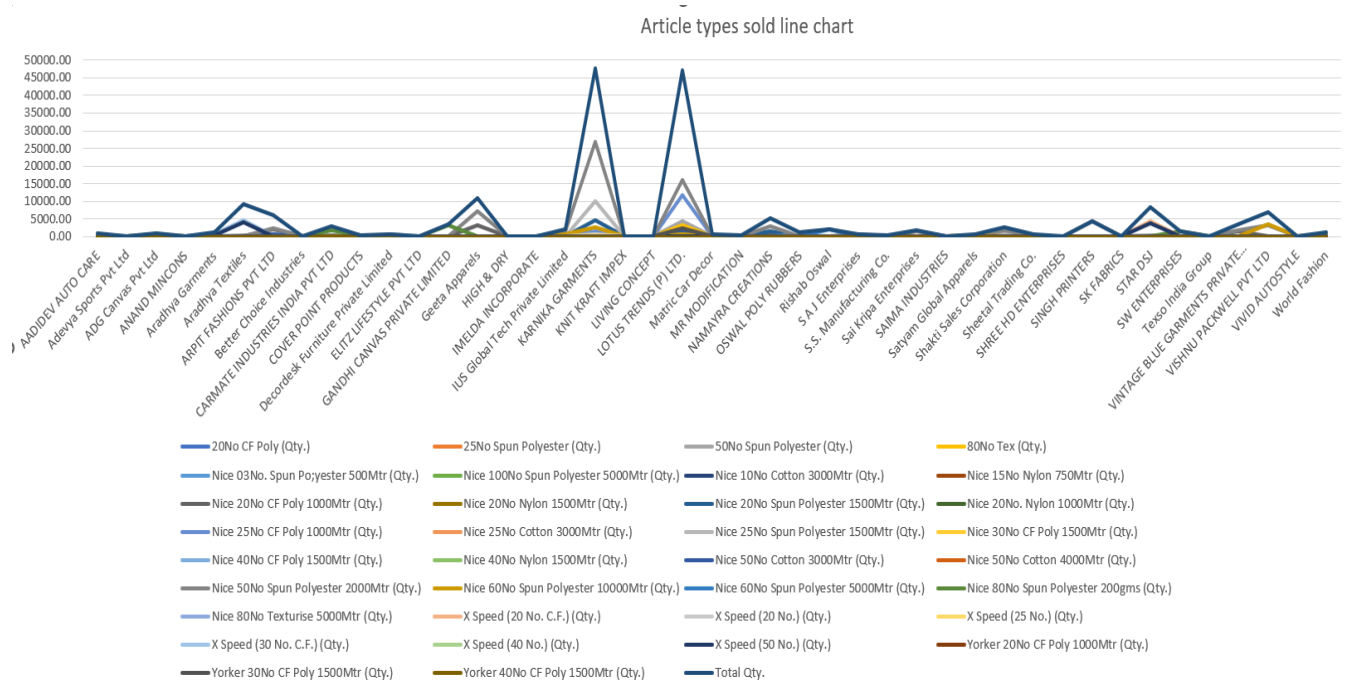
The two primary parties from the data seem to be Karnika Garments and Lotus Trends (P) Ltd. They respectively purchased 47546 and 47164 cones.

Nice 50No Spun Polyester 2000Mtr seems to be the most purchased, with each of the above parties purchasing 26757 and 16056 cones respectively of this article type.

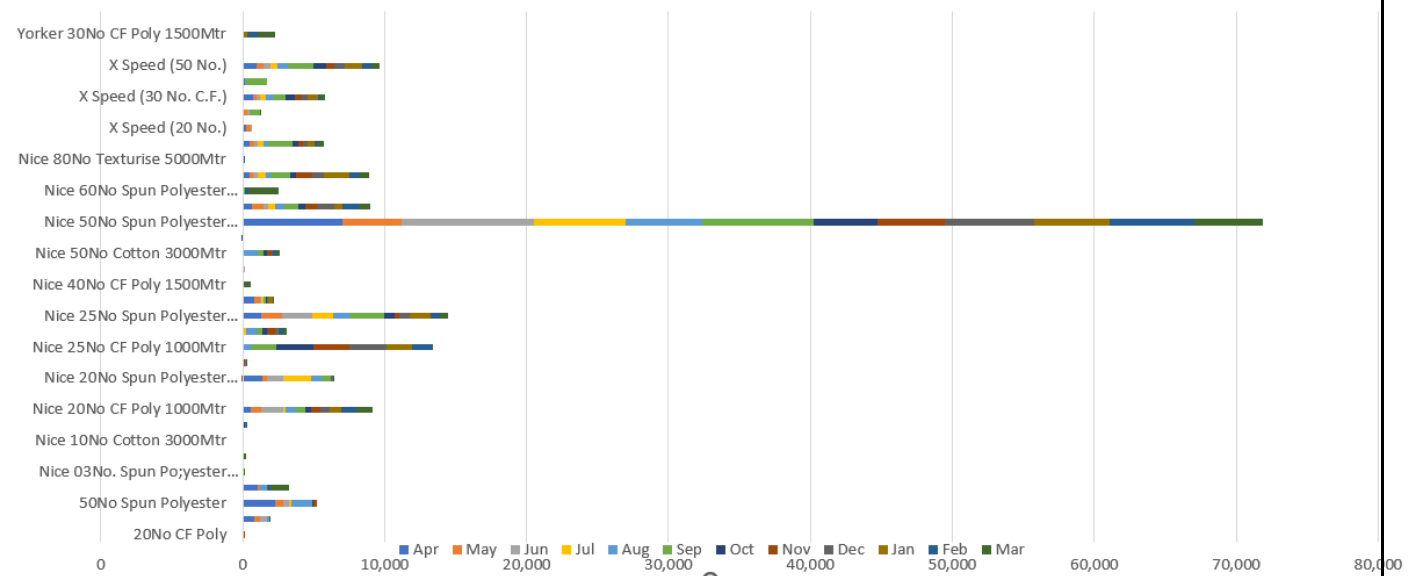
The least number of cones sold to a party was only 20! The party being ADG Mincons

Again, Nice 50No Spun Polyester 2000Mtr was sold the most, with 71881 cones sold. Analysis tool: MS Excel.

RESULTS AND FINDINGS



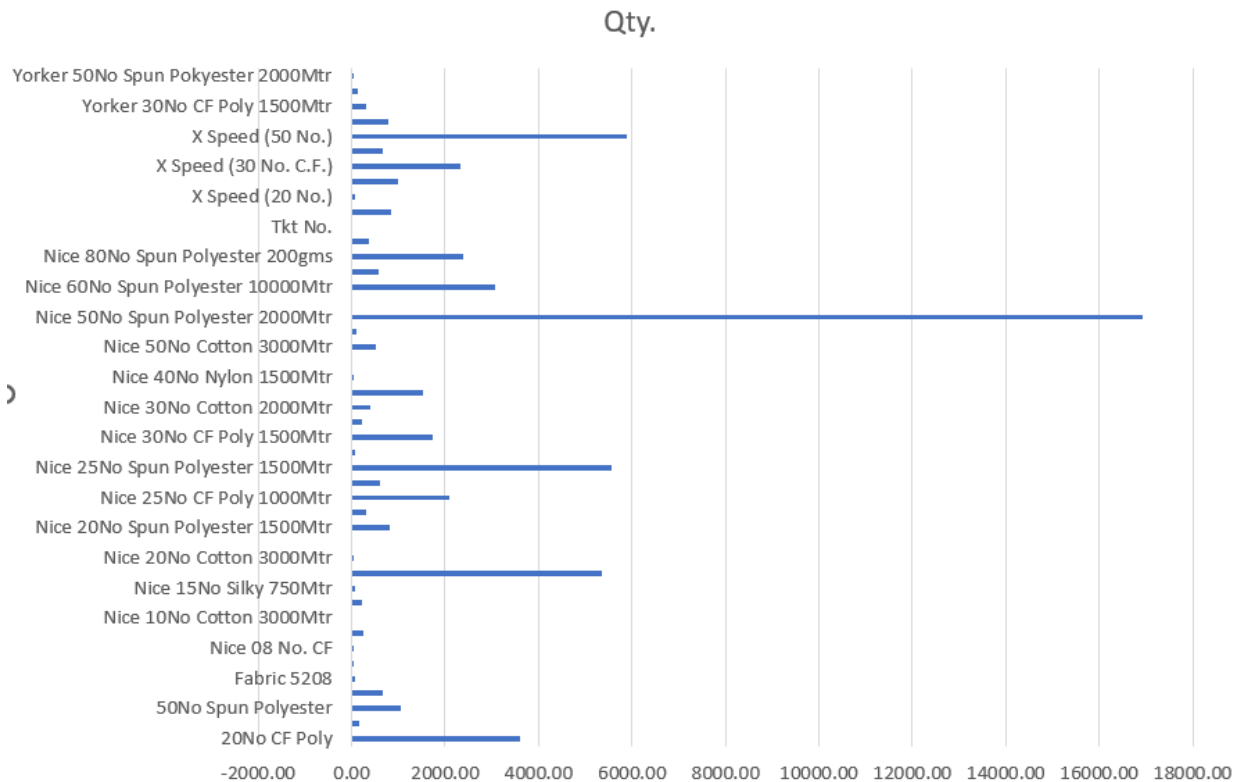
The article type that seems to be the most popular is Nice 50No Spun Polyester 2000Mtr, with Karnika Garments and Lotus trends, being the primary customers. This graph is saved in the excel sheet Party-wiseSalesAnalysis.xlsx.



From the above data, Nice 50No seems to be the most popular choice. The colors denote the amount of that particular data type sold in that month.

Now, it can be seen how managing such an inventory can turn out to be an issue. There is a specific type of yarn that should always be in stock. And even so, that yarn seems to be the most popular, the clients also buy sufficient quantities of other types of yarn. Maintaining their quantities also is necessary. Although it seems like there are some yarns that are being sold in miniscule quantities as compared to the more popular ones.

The stock looks like this:



The above graph is from a cleaned excel sheet (CleanedStock.xlsx) from StockStatusMain.xlsx.

There are certain things that can be taken from comparing the above 2 graphs. Before comparing we need to be mindful of the quantity (x graph). It seems like 20No CF Poly, considering its past sales, should not be stocked upon more. And instead, a good decision would be to stock more on Nice 25No 1000Mtr, considering its past sales and current stock (8th May 2023).

Various other conclusions can be derived from the above graphs, so that the stock can reflect the sales a bit more, and money can be saved by not purchasing yarns that are not going to be sold in the long run.

It also needs to be noted that they do not have a set price for each article type. The price that they sell for depends on the article type of

course, but also the party they are selling to. It also depends on the quantity of the article being sold.

I asked him for roundabout prices for some of the more popular articles, and they are as follows:

Nice 20CF – Rs. 85 per cone.

Nice 30CF – Rs. 75 per cone.

Nice 50No. – Rs. 60 per cone.

Each box contains 10 cones of that particular article type (and color, since each article type may be available in multiple color options denoted by the code written with the article type).

Also, the numbers above are number of cones.