IMPROVING THE ACCOUNTS RECEIVABLES AGING OF A FOAM DEALER FOR THE FOOTWEAR INDUSTRY

A Final Report for the BDM Capstone Project

Submitted by

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1. Executive Summary:

Sara Internationals (SI) is a foam dealer (a B2B type of business) for the footwear industry located in Pallavaram, Chennai, and operates with five employees with an annual turnover of around Rs. 80 lakhs. The business faces two challenges, according to the owner, Mr. Syed Nazeem, - cash flow management and competition. Both aspects are analyzed and found to be interdependent where optimizing cash flow will help with handling competitive pressures. By leveraging data analysis techniques to optimize Accounts Receivable (A/R) management, enhance cash flow, and reduce overdue balances, we enable data-driven decision-making and improve overall financial performance. Through digitizing and cleansing of the sales invoices, payment records, and customer details, and, deriving aging reports, detailed insights are drawn from the slicing and dicing of the data across various dimensions. Our methodology extensively used Excel with many in-built features and capabilities to analyze the data in-depth and help propose the appropriate recommendation and solution. It is recommended that SI implement A/R aging bracketing practices, segment and monitor its customers, continuously evaluate its credit policies and clearly communicate and proactively follow up with customers based on their respective credit standings.

2. Analysis Process:

On discussing the first of the two problem statements of the organization, notably not the primary issue, the competition, competition in the market cannot be eliminated but can be handled effectively by taking certain measures, may not be data-driven but by understanding the market, building better relationships with customers, and by keep innovating the products and the process to avoid getting outdated. Letting the customers know what we can do for them, and just understanding what we could do differently, and communicating the same to them in a

crafty narration, maybe a way to extend the customer lifecycle. By knowing your customers, we can build a better relationship with them, a social activity often helps us to uncover critical insights regarding the timing of purchases and related searches, and we can prevent customers from switching businesses with our competitors.

To understand your competition, it is most important to examine the marketplace. First, take a hard look at the things your competitor does. Second, look to see what your competitor *does not* do, and then try to fill in that part of the market. By constantly innovating, and changing while functioning well for their customer base, leading to a better position market.

Now looking at the primary business problem faced by Sara International is accounts receivables aging, the data that is pertaining to the issue is collected from the invoices and payment details of the customers and has been used to look at the various trends that have been developed over the year, that have informed us about the customer's payment patterns. The timeline of the data that was collected will be for the entire 2022. This has been used to find the payment patterns for the customers to assist in providing some suggestions on what needs to be done differently.

Quality considerations for the data, such as missing values, data cleansing, or data validation processes were taken care of as and when the data was entered into the Excel sheet as it was all done manually, so all the discrepancies have been resolved with the help of Mr. Nazeem in his office.

It is an effective approach to take each customer's total revenue into account so that the overall impact of the customer on the organization is correctly understood. This may then be

used to determine which customers are significantly boosting sales. We further group all past-due client bills according to the number of days past due so that the data is analyzed in-depth. We also analyze the sales data in various ways to gain insight into the slow or collectible payment patterns. Its major objective is to track delinquent client bills and the length of time they go unpaid.

A typical A/R (Accounts Receivable) aging report will have a monthly payment due aging buckets- starting with Current,30 days, 60 days, 90 days, and 120 days, etc. And each of the customer payment terms such as cash, 30 days, etc. are slotted against those buckets.

However, Sara International, their payment terms typically consist of only two terms- 1) 60 days and the other being 120 days. Hence, our approach to Sara International's customer payment analysis took into consideration a summarized A/R aging report that will have one total for each customer broken up by the age of the invoice, which will typically be grouped by: 60 to 90 days, 91 to 120 days, 121 to 150 days, 151 to 180 days, and over 180 days. Only 60 days term is applicable for regular customers and there are a few ad-hoc customers who were given favourable terms of 120 days to make them regular, these ad-hoc customers are namely P, Q, S, T, and U. Our recommended practice for managing accounts receivable is to adopt a pro-actively monitored data-driven approach to summarizing and analyzing the A/R report periodically and acting quickly when an invoice is past due.

Invoices for every month were grouped and summed in Excel and used in deriving monthly revenue for each customer. Similarly, Payments within a month by a customer were manually entered, grouped, and summed up in Excel and allocated to each bucket comparing the

payment date vs. terms of payment. To identify the total payments beyond terms, we applied Excel’s built-in StdDev mathematical formula.

Along with aging buckets, common metrics like the average days sales outstanding (DSO), percentage of overdue AR, and collection effectiveness index (CEI) have been calculated based on the aging report data and analyzed trends over time. These metrics provide a snapshot of how well customers are paying their invoices.

By looking at the aging buckets and other metrics, identify customers with outstanding balances and determine their payment status. Categorize accounts based on the aging buckets or the number of days past due. This analysis helps prioritize efforts to collect overdue payments. Look for common reasons behind delays, such as specific customers, or invoice types. This analysis can help to segment customers based on their payment behavior and financial stability. Prioritize high-value customers or those with significant overdue balances for personalized attention. Group customers based on their payment patterns, creditworthiness, or industry to tailor collection strategies.

Visualizing charts like bar charts, Pareto charts, pictographs, and pie charts are employed as a means for taking a visual look at the data of various customers' revenues. The recognition of data concentrations and the examination of changes are easier and more effective methods. Standard deviation can be computed and customers with greater deviations can be handled with caution.

Excel is the primary analytical tool utilized because it is user-friendly. Additionally, it contains built-in features and procedures that have been utilized to generate a variety of data

formats for our research. Additionally, it features built-in visualization capabilities that are used to create the numerous charts required for the investigation. Microsoft Excel is quite helpful when working with numerical data. As soon as we load the data into Excel, it also offers suggestions for the many charts that might be utilized with the current data.

3. Results and Findings:

3.1. Insights from base data and derived data

The sale details of the past year were collected, dating from January 2022 to December 2022. The data was in the form of physical invoices and they are handled by an accountant who digitalizes the information and use it for accounting activities. Due to practical constraints, the data from the invoices have been recorded manually.

Approximately three to five invoices will be generated corresponding to a customer in a given month, the data that we have, have invoice dates as one of the columns referring to all the invoices issued in a month concerning a customer. Then the invoice number to uniquely identify a transaction. The name of the customer has been masked as requested by Mr. Nazeem. The terms as agreed between the organization and the customer, that is the number of days within which the due has to be paid is mentioned in a field and the mode of payment is predominantly through NEFT transactions. From this, we can derive the due date by which the payment is expected. The invoice amount is the total amount due on the invoice. The number of payments was added as fields specifying the days within which the customer pays the due, the difference between each payment is 30 days, and payment 4 and payment 5 alone have a difference of 60 days. And the field with the name Balance Due refers to a payment that has been paid beyond 210 days or is the total outstanding amount for each customer/client to date.

Now with the help of the base data consisting of customer details and their payment behavior, we can arrive at payment patterns for any customer and derive insights into the overall cash flow of the organization. Current is a field referring to the amount paid within the agreed terms. Then categorize aging buckets, which is the breakdown of outstanding amounts into different aging periods, such as 60-90 days, 91-120 days, 61-90 days, etc. And the total amount that has been paid beyond the terms is recorded as the last field in the below-given image.

INVOICE DATE	INVOICE NUMBER	CUSTOMER	TERMS	TOTAL AMOUNT	DATE DUE	BALANCE DUE	PAYMENT 1	PAYMENT 2	PAYMENT 3	PAYMENT 4	PAYMENT 5	PAYMENT 6
Jan-22	44562A	CUSTOMER A	60	₹ 22,147.00	03-02-22	₹ -		₹ 11,074	₹ 6,644	₹ 4,429		
Feb-22	44593A	CUSTOMER A	60	₹ 59,329.00	04-02-22	₹ -		₹ 29,665	₹ 17,799	₹ 11,866		
Mar-22	44621A	CUSTOMER A	60	₹ 55,599.00	04-30-22	₹ -		₹ 27,800	₹ 16,680	₹ 11,120		
Apr-22	44652A	CUSTOMER A	60	₹ 55,009.00	05-31-22	₹ -		₹ 27,505	₹ 16,503	₹ 11,002		
May-22	44682A	CUSTOMER A	60	₹ 45,361.00	06-30-22	₹ -		₹ 22,681	₹ 13,608	₹ 9,072		
Jun-22	44713A	CUSTOMER A	60	₹ 32,187.00	07-31-22	₹ -		₹ 16,094	₹ 9,656	₹ 6,437		
Jul-22	44743A	CUSTOMER A	60	₹ 42,389.00	08-30-22	₹ -		₹ 21,195	₹ 12,717	₹ 8,478		
Aug-22	44774A	CUSTOMER A	60	₹ 53,685.00	09-30-22	₹ -		₹ 26,843	₹ 16,106	₹ 10,737		
Sep-22	44805A	CUSTOMER A	60	₹ 33,039.00	10-31-22	₹ -		₹ 16,520	₹ 9,912	₹ 6,608		
Oct-22	44835A	CUSTOMER A	60	₹ 59,244.00	11-30-22	₹ -		₹ 29,622	₹ 17,773	₹ 11,849		
Nov-22	44866A	CUSTOMER A	60	₹ 29,645.00	12-31-22	₹ -		₹ 14,823	₹ 8,894	₹ 5,929		
Dec-22	44896A	CUSTOMER A	60	₹ 31,825.00	01-30-23	₹ -		₹ 15,913	₹ 9,548	₹ 6,365		
Jan-22	44562B	CUSTOMER B	60	₹ 36,759.00	03-02-22	₹ -		₹ 9,190	₹ 9,190	₹ 9,190	₹ 9,190	
Feb-22	44593B	CUSTOMER B	60	₹ 57,347.00	04-02-22	₹ -		₹ 14,337	₹ 14,337	₹ 14,337	₹ 14,337	
Mar-22	44621B	CUSTOMER B	60	₹ 56,902.00	04-30-22	₹ -		₹ 14,226	₹ 14,226	₹ 14,226	₹ 14,226	
Apr-22	44652B	CUSTOMER B	60	₹ 58,784.00	05-31-22	₹ -		₹ 14,696	₹ 14,696	₹ 14,696	₹ 14,696	
May-22	44682B	CUSTOMER B	60	₹ 38,143.00	06-30-22	₹ -		₹ 9,536	₹ 9,536	₹ 9,536	₹ 9,536	
Jun-22	44713B	CUSTOMER B	120	₹ 47,433.00	09-29-22	₹ **11,858**		₹ 11,858	₹ 11,858	₹ 11,858		
Jul-22	44743B	CUSTOMER B	60	₹ 45,693.00	08-30-22	₹ -		₹ 11,423	₹ 11,423	₹ 11,423	₹ 11,423.25	
Aug-22	44774B	CUSTOMER B	60	₹ 36,871.00	09-30-22	₹ -		₹ 9,218	₹ 9,218	₹ 9,218	₹ 9,217.75	
Sep-22	44805B	CUSTOMER B	60	₹ 54,135.00	10-31-22	₹ -		₹ 13,534	₹ 13,534	₹ 13,534		₹ 13,534
Oct-22	44835B	CUSTOMER B	60	₹ 59,645.00	11-30-22	₹ -		₹ 14,911	₹ 14,911	₹ 14,911		₹ 14,911
Nov-22	44866B	CUSTOMER B	60	₹ 43,803.00	12-31-22	₹ **10,951**		₹ 10,951	₹ 10,951	₹ 10,951		
Dec-22	44896B	CUSTOMER B	60	₹ 52,589.00	01-30-23	₹ **13,147**		₹ 13,147	₹ 13,147	₹ 13,147		

Fig 3.1- Screenshot of accounts receivable data

From the given data we can say that many customers are regular, and the rest in the minority occasionally do business with Sara International in cases of shortage of stocks or other emergencies. The total sales of the organization in the given year were ₹ 75,73,793. The average revenue a customer brings is around ₹5,04,920 in a financial year. At the end of the period, the total balance overdue that is the payments that have been paid beyond 210 days or the total outstanding amount is ₹ 1,96,436**.** For the period, the total amount that has been paid beyond the terms is ₹ 50,51,330- which on average was around 4 lakh per month, is almost

overdue that makes which makes it extremely difficult for Mr. Nazeem to manage his cash flow. For a business of this size, having two-thirds of sales overdue beyond terms makes it challenging for keeping the firm afloat and paying for the next round of operations, and pay for procurement.

CURRENT	60-90	90-120	>120	>180	Total Beyond Terms
₹ 11,074	₹ 11,074	₹ 4,429	₹ -	₹ -	₹ 15,502.90
₹ 29,665	₹ 29,665	₹ 11,866	₹ -	₹ -	₹ 41,530.30
₹ 27,800	₹ 27,800	₹ 11,120	₹ -	₹ -	₹ 38,919.30
₹ 27,505	₹ 27,505	₹ 11,002	₹ -	₹ -	₹ 38,506.30
₹ 22,681	₹ 22,681	₹ 9,072	₹ -	₹ -	₹ 31,752.70
₹ 16,094	₹ 16,094	₹ 6,437	₹ -	₹ -	₹ 22,530.90
₹ 21,195	₹ 21,195	₹ 8,478	₹ -	₹ -	₹ 29,672.30
₹ 26,843	₹ 26,843	₹ 10,737	₹ -	₹ -	₹ 37,579.50
₹ 16,520	₹ 16,520	₹ 6,608	₹ -	₹ -	₹ 23,127.30
₹ 29,622	₹ 29,622	₹ 11,849	₹ -	₹ -	₹ 41,470.80
₹ 14,823	₹ 14,823	₹ 5,929	₹ -	₹ -	₹ 20,751.50
₹ 15,913	₹ 15,913	₹ 6,365	₹ -	₹ -	₹ 22,277.50
₹ 9,190	₹ 27,569	₹ 18,380	₹ 9,190	₹ -	₹ 55,138.50
₹ 14,337	₹ 43,010	₹ 28,674	₹ 14,337	₹ -	₹ 86,020.50

Fig 3.2-Screenshot of Aging Buckets data

3.2. Total Revenue by Customers

Based on the described analysis methodology, we analyzed the customers and the revenue they bring to the table in a given financial year by constructing a bar graph, Fig 3.3, representing the relation between the customers and their corresponding sales value. We can easily say that the customers with higher contributions to the organization's revenue are regular customers who do business with Sara International throughout the year, whereas others are either customers who left or stopped doing business with the organization in the past year or customers who are occasional buyers in case of shortages from their suppliers or other emergencies.

For calculating the revenue generation from each customer, the whole cleaned data was selected and a pivot table was inserted. And columns containing customer names and total amounts have been selected. Then by using the in-built mathematical functionalities and post-processing capabilities, revenue contribution was automatically calculated.

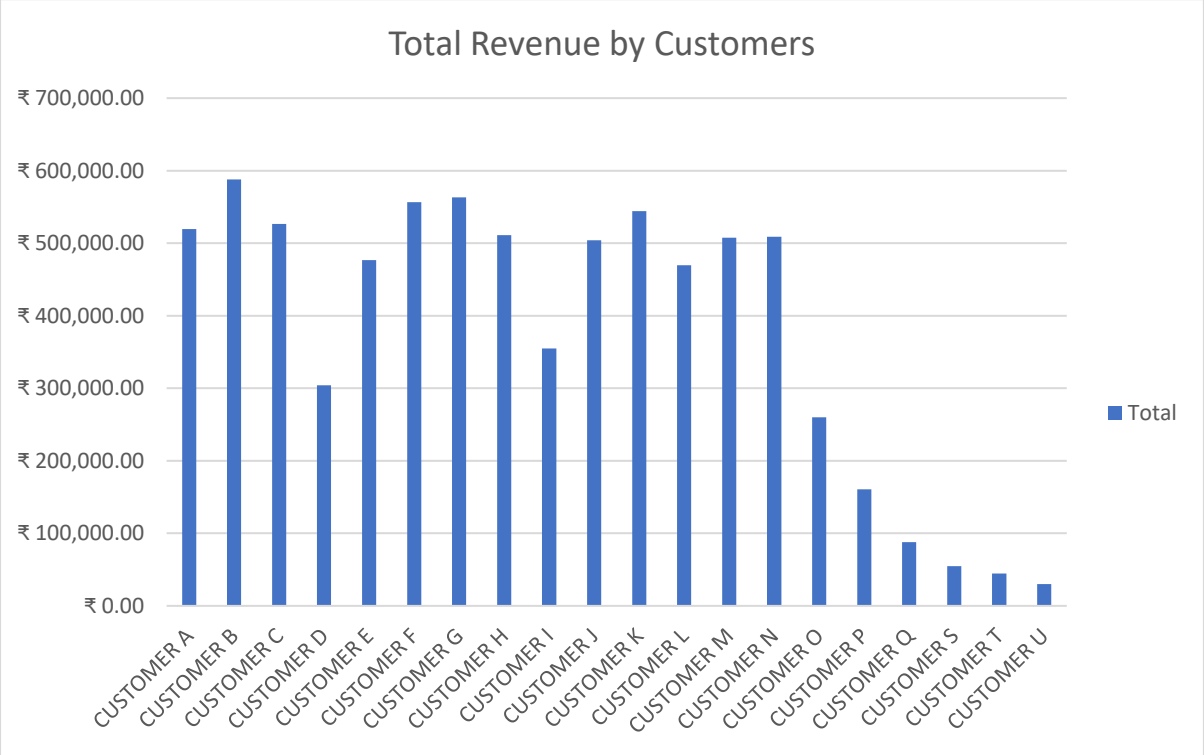

Fig 3.3-Representation of Revenue brought in by Each Customer

From Fig 3.3, Customers A, B, C, E, F, G, H, J, K, L, M, and N have been regularly involved in the business with Mr. Nazeem throughout the year, hence their payment patterns should be monitored closely as they can curb the cash flow being the major contributors. These segment of customers should be tracked closely to avoid stagnant cash flow.

3.3. Monthly Revenue

Fig 3.4, is a bar graph that was constructed using the inserted pivot table and just by choosing the desired columns invoice months and their revenue, we can see a dip in revenue during the months of December and January, the reason being the shoes made by the customers are exported majorly to European countries where they experience summer during this period, which in turn results in a decline in demand for the shoes, which in turn affects the revenue of the organization.

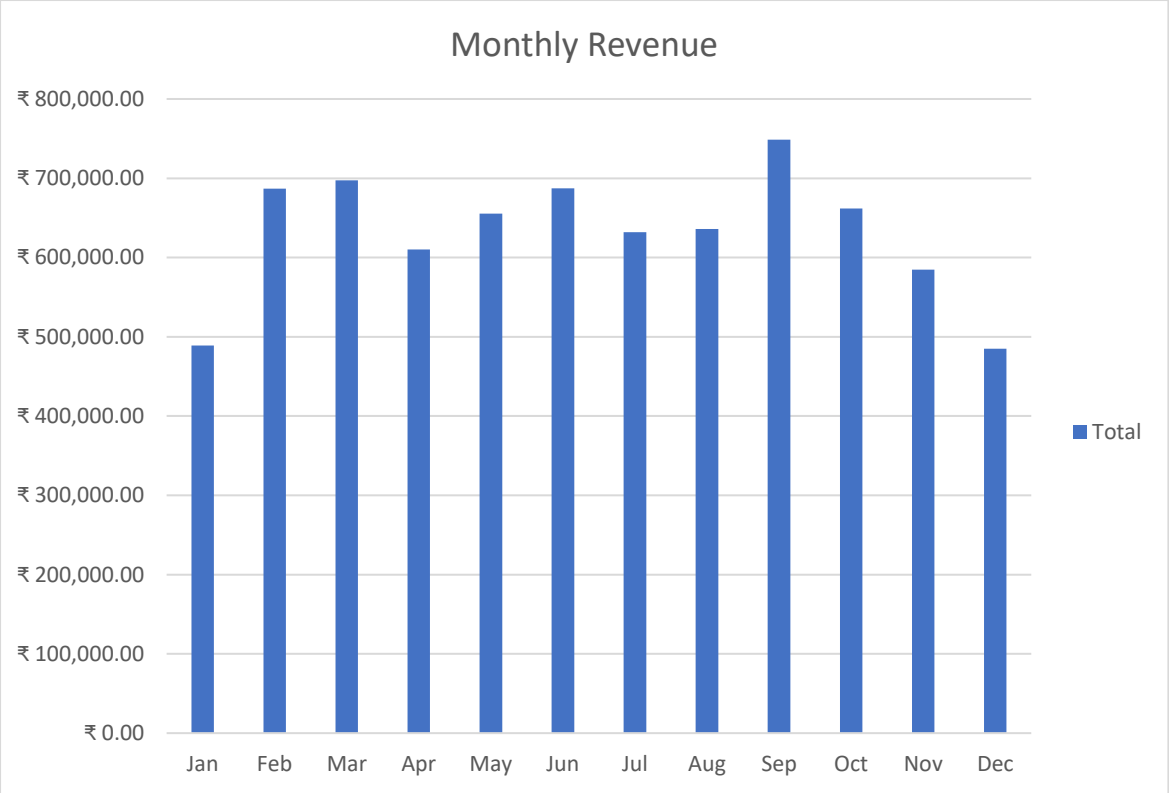

Fig 3.4-Bar graph representing Monthly Revenue

3.4. Balance Due Proportion by Customers

Customize the pivot table layout by, applying formatting, and applying any necessary calculations or filters. With the pivot table selected, insert a pie chart. Assign data series and choose the range for the values and the labels from the pivot table Fig 3.5 has been

constructed. Customers F, B, and D, are found to be frequent defaulters from Fig 6.3 as they contribute to high total amounts of outstanding, their payment patterns and the terms agreed upon should be negotiated and revised. On the contrary, the prompt customers are A, C, E, G, H, and I

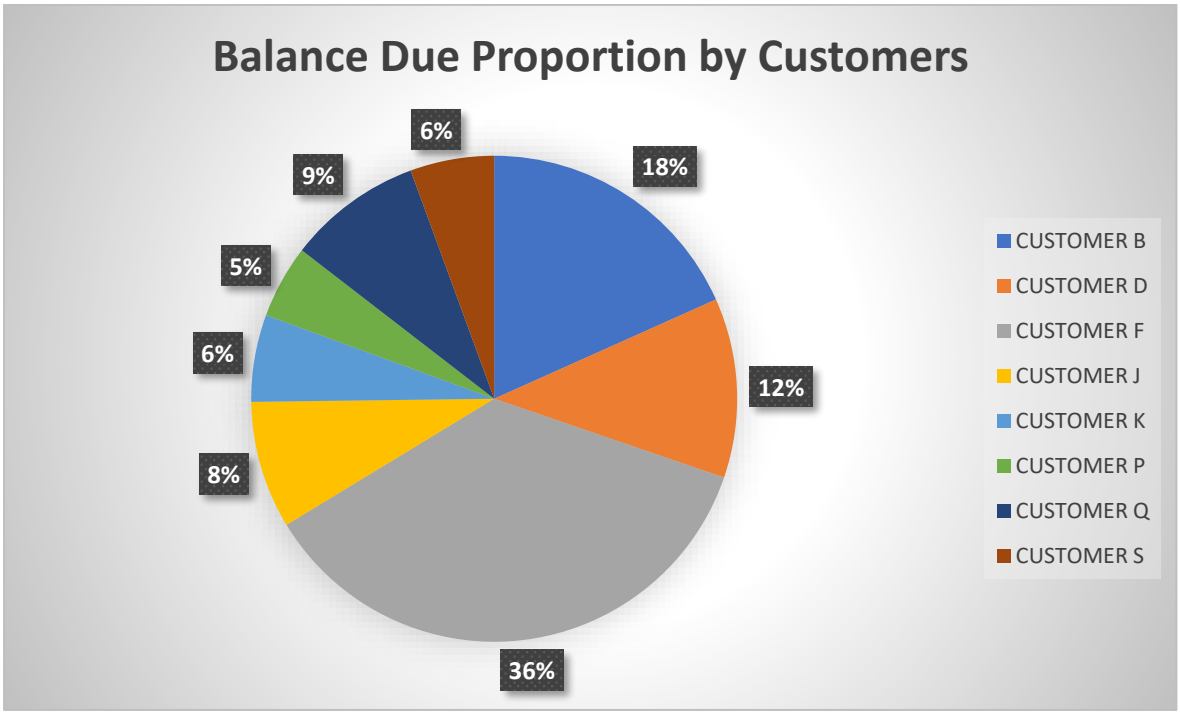

Fig 3.5-Representation of the proportion of Balance due by respective Customers

3.5. Payment Patterns of Customers

Different customers have different payment patterns depending on their business operations and their budget. As discussed earlier our dataset has six payment windows each differing from 30-60 days. Different proportions of the total amount are paid at different payment windows. Customers with a higher number of installments must be noted and this can be done with the help of interpreting Fig 3.6, the line graph representing the payment pattern of various customers in the past year, on enquiring about the same to Mr. Nazeem it is found to

be that these customers are his long-term customers and certain adjustments have to be made with them to maintain his business relationship with them.

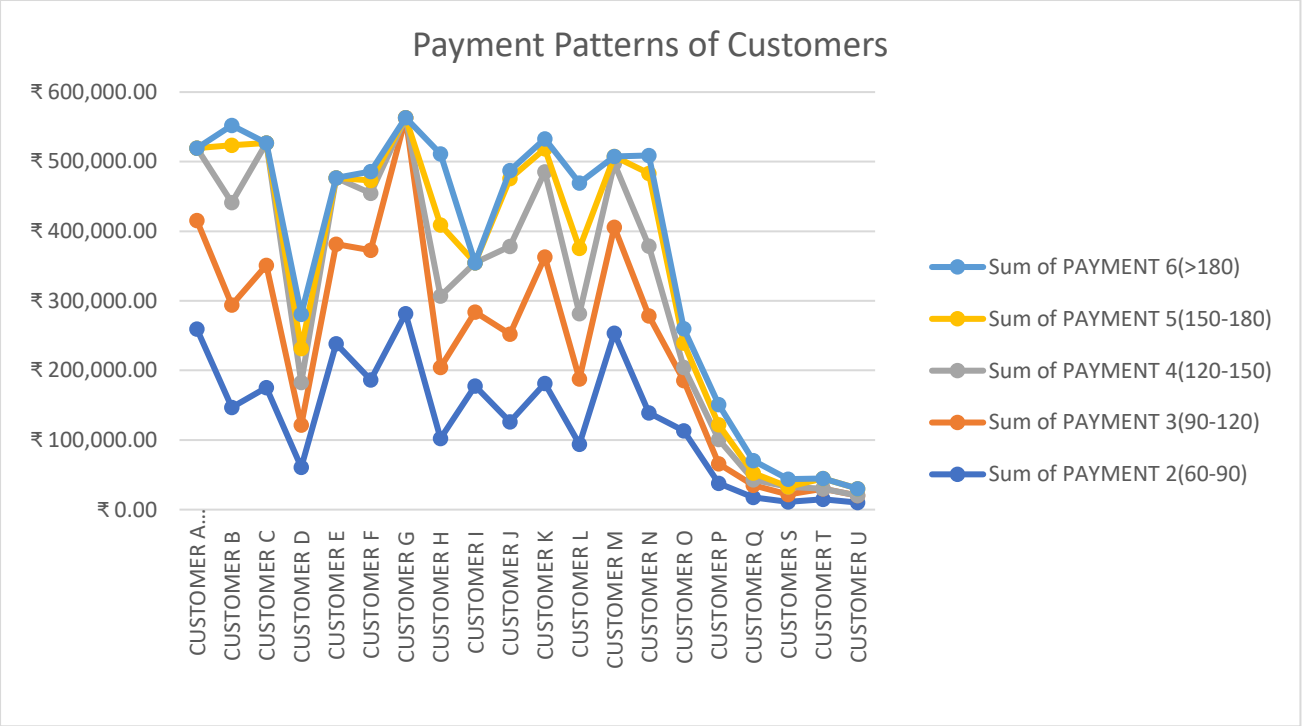

Fig 3.6-Payment Patterns of Customers

Below given is the pivot table used to construct Fig 3.6, by using this pivot table and the in-built functionalities of Excel the line graph has been constructed.

Row Labels	Sum of PAYMENT 2(60-90)	Sum of PAYMENT 3(90-120)	Sum of PAYMENT 4(120-150)	Sum of PAYMENT 5(150-180)	Sum of PAYMENT 6(>180)
(blank)	**2628276.796**	**2205649.796**	**1444826.757**	**682447.6497**	**416156.0665**
CUSTOMER A	259729.5	155837.7	103891.8		
CUSTOMER B	147026	147026	147026	82624.75	28445
CUSTOMER C	175587.2479	175587.2479	175587.4243		
CUSTOMER D	60852.2	60852.2	60852.2	49110.2	49110.2
CUSTOMER E	238441.5	143064.9	95376.6		
CUSTOMER F	186380.4	186380.4	81838.95	18571.75	12601.25
CUSTOMER G	281636	281636			
CUSTOMER H	102245.4	102245.4	102245.4	102245.4	102245.4
CUSTOMER I	177474.5	106484.7	70989.8		
CUSTOMER J	126015.25	126015.25	126015.25	97866	11490.5
CUSTOMER K	181446.6649	181446.6649	122501.3323	32997.66634	14568.66652
CUSTOMER L	93886	93886	93886	93886	93886
CUSTOMER M	253705.5	152223.3	91665.4	9816.8	
CUSTOMER N	139155	139155	100444.75	104417.25	25519
CUSTOMER O	113391.5	72081.5	18999.1	34852.1	20642
CUSTOMER P	37773.6	28197	34878.35	21157.6	29087.85
CUSTOMER Q	17585.6	17585.6	7653.8	9931.8	17585.6
CUSTOMER S	10974.6	10974.6	10974.6		10974.6
CUSTOMER T	14905	14905		14905	
CUSTOMER U	10065.33333	10065.33333		10065.33333	
Grand Total	**2628276.796**	**2205649.796**	**1444826.757**	**682447.6497**	**416156.0665**

Fig 3.7-Example of a pivot table used for plotting the line graph given in Fig 3.6

3.6. Proportions Paid on Different Aging Buckets by Various Customers

AR aging pictograph, Fig 3.7, with aging buckets, visually represents the distribution of outstanding accounts receivable across different aging periods. It provides a graphical representation of the proportion of AR balances falling into specific timeframes, typically categorized as aging buckets. The pictograph consists of a set of bars or columns, each representing an aging bucket. The height or length of each bar corresponds to the amount or percentage of AR balances within that aging period.

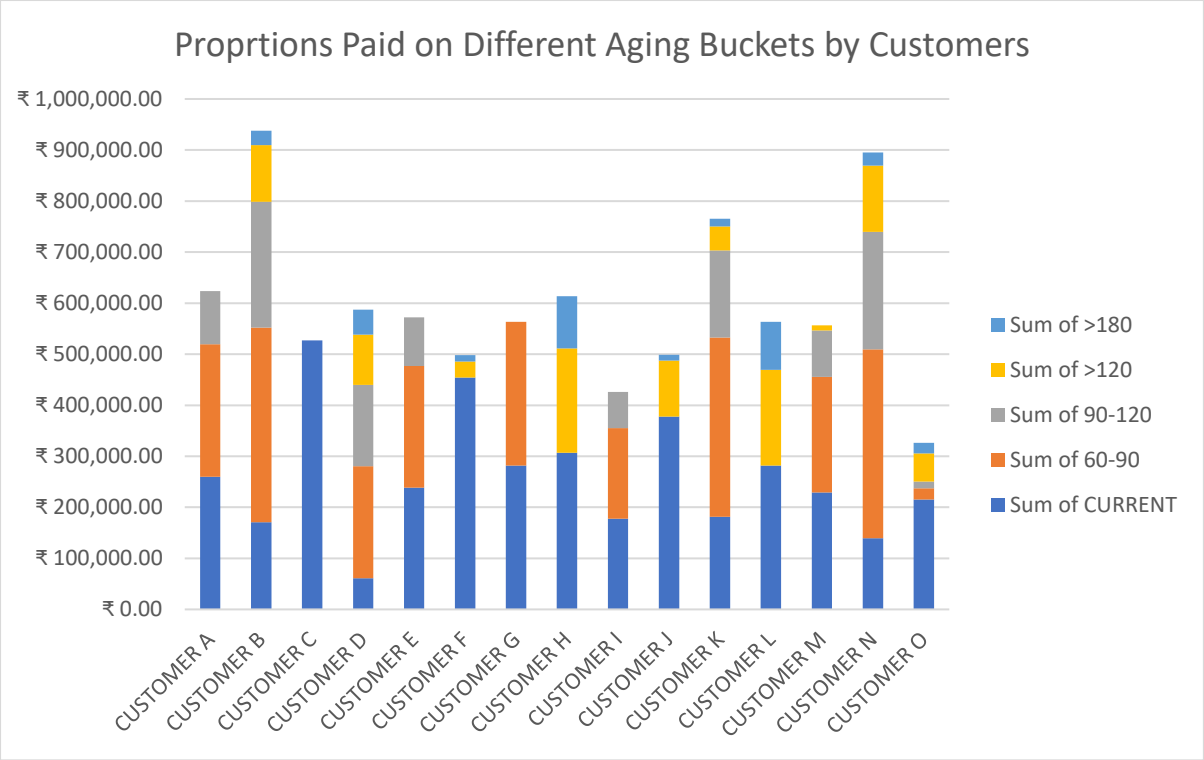

Fig 3.8-Pictograph representing customers with respective A/R aging buckets

Let us consider the AR aging pictograph given above with five aging buckets: 0-60 days (Current), 61-90 days, 91-120 days, 120-180 days, and greater than 180 days. The bars in the pictograph would represent the distribution of outstanding balances across these aging periods. For instance, customers G, K, and N pay a good proportion of their dues in the

second payment window which is 60-90 days as this aging bucket has a larger bar compared to the others, Conversely, customers H, N, L, and B has a significant proportion of their payments in 120-180 days aging bucket, it suggests that their terms and conditions have to be reviewed and should monitor their payment patterns more closely as they also have records of paying beyond 180 days, even though the proportion was less.

3.7. Concentration of Payments over Aging Buckets by Customers

Heatmap proves to be an effective way to represent the concentration of aging buckets by different customers, conditional formatting rules were applied to the customized pivot table to construct this heatmap. The heatmap can reveal the concentration of outstanding balances across different aging buckets. It helps identify whether a significant portion of AR balances is concentrated in a specific aging period, such as a high concentration in the 61-90 days bucket. Though we can observe lighter intensity over >180 buckets it is still a concern as the payment is beyond terms by almost 6 months. It can help pinpoint specific customers or aging periods where there is a persistent pattern of late payments, enabling targeted actions to improve collections.

Row Labels	Sum of CURRENT	Sum of 60-90	Sum of 90-120	Sum of >120	Sum of >180
CUSTOMER A	259730	259730	103892	0	0
CUSTOMER B	170743	381405	246238	111070	28445
CUSTOMER C	526762	0	0	0	0
CUSTOMER D	60852	219925	159073	98220	49110
CUSTOMER E	238442	238442	95377	0	0
CUSTOMER F	454600	0	0	31173	12601
CUSTOMER G	281636	281636	0	0	0
CUSTOMER H	306736	0	0	204491	102245
CUSTOMER I	177475	177475	70990	0	0
CUSTOMER J	378046	0	0	109357	11491
CUSTOMER K	181447	351514	170068	47566	14569
CUSTOMER L	281658	0	0	187772	93886
CUSTOMER M	229164	226635	90654	9817	0
CUSTOMER N	139733	369536	230381	129936	25519
CUSTOMER O	215481	21850	13110	55494	20642

Fig 3.9-Heatmap corresponding to Customers and aging buckets

The heatmap allows for a customer-centric analysis by presenting the AR aging patterns for individual customers or customer segments. By examining the heatmap in Fig 3.9, we can identify customer C who consistently pays on time, and have a lower tendency for late payments, conversely, customers B, D, H, J, L, and N exhibit higher aging trends. This insight helps prioritize customer engagement and tailor collection approaches based on their payment behavior.

3.8. Standard Deviation of Total Payment Beyond Terms

A bar graph indicating the standard deviation (σ) of payment beyond terms is constructed with the help of a customized pivot table and in-built functionalities of Excel depicted in Fig 3.10. Analyzing the standard deviations of total payments beyond terms by customers in an accounts receivable (AR) aging report can provide valuable insights into customer payment behavior and potential areas of concern. Higher standard deviations indicate a wider range of payment patterns, suggesting customers with inconsistent payment habits. By examining the standard deviations, we can also assess the level of risk associated with each customer. Customers with large standard deviations may have unpredictable payment patterns, which could pose a higher risk of delayed or missed payments. Here customers B, D, K, N, and O have high deviations in their payments. Identifying these warning signs allows for proactive measures to address the underlying issues and mitigate the risk of payment delays.

Insights from the standard deviations can inform decision-making processes related to credit terms, credit limits, or collection strategies. Customers with consistently high standard deviations may require stricter credit terms or more rigorous credit assessment, while those with low standard deviations may be eligible for extended credit terms or potential cross-selling opportunities.

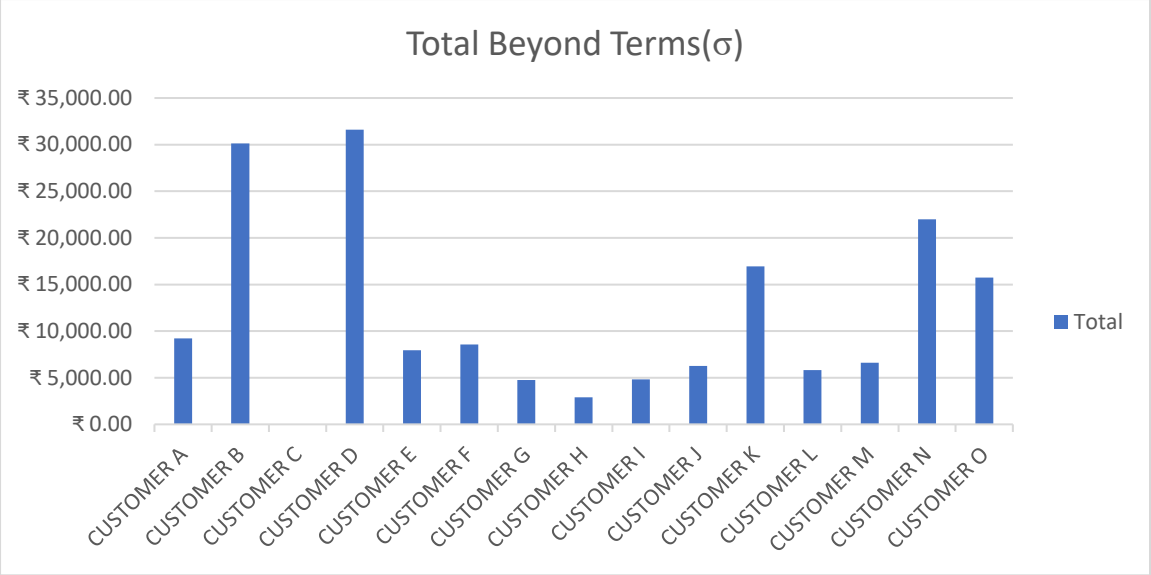

Fig 3.10-Bar chart representing Standard deviation of payment beyond terms by customers

3.9. Collection Efficiency Index

The collection efficiency index of Sara International (SI), the specific period for the year 2022, is calculated by determining the total outstanding AR balances at the beginning and end of the year. assuming AR balances to be null at the beginning, balances at the end of the year can be derived by adding up all the outstanding AR balances across different aging buckets to get the total amount. Then compute Collection Efficiency Index (CEI) using the following formula:

Collection Efficiency Index = (Actual Collections / Total Outstanding AR Balances) * 100

CEI of SI = (25,22,463/52,47,766) * 100 = 48.06%

(Total Outstanding = Balance Overdue + Total Beyond Terms)

CEI helps to assess the effectiveness of the organization’s collections efforts. A higher percentage indicates a more efficient collection process, whereas a lower percentage suggests potential challenges in collecting outstanding AR balances. Monitoring this index over time allows you to identify trends and take proactive measures to improve collections and optimize cash flow.

4. Interpretation and Recommendation:

4.1. Interpretations

Customer Revenue – The Top customers are B, C, F, G, and K as they contribute 37% of the firm's revenue. The trends of irregular payment patterns observed in the later part of the analysis in some of these customers, namely F, B, and K should be handled with caution, as any measures that have to be taken to resolve the A/R aging should not adversely affect the future of the business relationship with these set of customers. This can be done by giving mild leverage on their credit policies and by well-narrated communication.

Monthly Revenue – Customers of Sara International export shoes to Europe predominantly, hence if there is a soar in demand for shoes, the firm's production and revenue increase as an effect. Months of Feb, Mar, Jun, Sep, and Oct have the highest revenue of about 6,50,000 INR on average, in the year, as it is the end of summer and mid-way through autumn in European countries, adding on to that generally people in Europe change their shoes once every three months. Likewise, we can observe a dip in revenue during the European summer months of December, and January with a average revenue of 4,50,000 INR.

Balance Overdue by Customers – Customers F (36%), B (18%), and D (12%) contribute around 60% of balance overdue. The firm should assess and review its credit practices and can also entice customers with discounts if the balances were settled within the terms, this would make the customers push their payments to early payment windows.

Segmenting customers – Customers B, H, K, M, L, J, and N have records of paying bills beyond 180 days (on an average of about 40,000 to 1,00,000 INR). And we can segment them into slow-paying customers as they also have a very less proportion of the amount in

current payments. The organization must be persistent with customers in this segment. The firm should charge for late payment as a penalty for their reduced cash flow. And also, should make additional efforts to proactively follow up on payments that are beyond terms.

Customers A, C, E, I, and G settle more than 60-70% of their accounts within their terms. So, this best-paying segment of customers can be given extended credits and concessions to encourage them to grow their business and consequently help Sara International.

Best Paying vs. Worst Paying customer – We can observe that customers B, D, H, L, N, and K have poor payment patterns by paying 50-70% of their balance beyond the term, which affects the cash flow of the firm. From the heatmap in Fig 3.9, we can pinpoint the concentration of payments of different customers, which helps us to tailor customized measures to collect the A/R in accordance with each customer. Even though customer F has contributed significantly to the balance overdue, interestingly customer F has made its major share (greater than 50%) of payment within current terms, on inquiry it is found that its recently incurred loss is a reason for the balance overdue.

Customers with large standard deviations, tend to have inconsistent payment patterns, which poses a cash crunch or missed payments. Here customers B, D, K, N, and O have high deviations, of about 30,000-50,000 INR, in their payments depicting the inconsistency in their payment patterns. These customers may require stricter credit terms or more rigorous credit assessments.

It is suggested to Sara International target to move its overall CEI from the current 48% to 60% for next year as suggested and probably will relieve competitive pressure by being able

to invest more in higher-value product development to get an edge over the competition and to sustain and gain existing customers and new customers respectively.

4.2. Recommendations

1. Segmentation of Customers: Segment customers based on their payment behavior and financial stability. Prioritize high-value customers or those with significant overdue balances for personalized attention. Group customers based on their payment patterns, and creditworthiness to tailor collection strategies.

2. Assess Credit and Collection Policies: Review credit and collection policies to ensure they align with the organization's goals. Evaluate the credit approval process, terms and conditions, credit limits, and collection procedures. Identify areas for improvement or potential policy changes to mitigate future A/R aging issues.

3. Effective Communication and Proactive Follow-up: Establish effective communication channels with customers to address overdue payments. Implement proactive follow-up strategies such as reminder emails, phone calls, or personalized collection letters. Timely communication can help resolve payment issues and prevent further aging.

4. Implement AR Automation: Consider implementing AR automation solutions, such as electronic invoicing, online payment portals, or automated reminders. Automation can streamline the AR process, reduce errors, improve cash flow, and expedite collections.

5. Monitor and Track Progress: Continuously monitor AR aging metrics and track the progress of improvement initiatives. Regularly review reports and compare them against benchmarks or targets. Identify any emerging issues and take proactive measures to address them promptly

6. Review and Adjust Strategies: Regularly review the effectiveness of implemented strategies and make necessary adjustments. Analyze the impact of process changes, policy

updates, or collection efforts on AR aging. Iterate and refine strategies based on the outcomes to achieve sustained improvements.

On looking at the potential solutions to handle our secondary problem, the competition, we can recommend the following:

1. Understanding the competitors - As already mentioned before, a way of attracting new customers is by planning on giving better by offering, some value-added service or offering differentiated products from counterparts, this could be done with the help of improved cash flow that we get from enhancing the A/R aging problem.

2. Proactive measures to handle fellow competitors - Customers have been loyal to Sara International since its inception. Competitive intelligence assessment may identify some action that could be taken accordingly. By giving the ad-hoc customers the leverage of credit Sara International should look to gain their loyalties. Eventually, it may give the firm a competitive edge over other competitors.

As we can see that both business issues are interdependent, improving cash flow as the result of solving the primary issue of A/R aging would help the firm to take the necessary steps to take an edge over its competitors either by providing credits to new customers or thereby gaining their loyalty, and expanding the revenue or use the cash flow to improve the variety and quality of their service and products. Thus, the recommendations to get through the primary issue have been provided after a detailed data-driven analysis.