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Module: Analytics Micro Courses

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Assignment Title: Business Case Study

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Actual Word Count: 2571

Extension: N   Extension Due Date:

I do wish my assignment to be considered for including as an exemplar in the **School Bank of Assessed Work.**

| |
|---|
| **The purpose of this template is to ensure you receive targeted feedback that will support your learning. It is a requirement to complete to complete all 3 sections, and to include this completed template as the first page of every assignment that is submitted for marking (your School will advise on exceptions).** |
| |
| **Section One:** Reflecting on the feedback that I have received on previous assessments, the following issues/topics have been identified as areas for improvement: *NB – for first year students/PGTs in the first term, this refers to assessments in your previous institution*

 • I should add precisely the information required in the assignment

 • I should take care of the word limit

 • Understanding the idea of the project and making the project accordingly. |
| **Section Two:** In this assignment, I have attempted to act on previous feedback in the following ways

 • I have added precisely the necessary information that was required in this assignment

 • I have taken care of the word limit

 • I understood the idea of the project and made the project accordingly. |

Section Three: Feedback on the following aspects of this assignment (i.e. content/style/approach) would be particularly helpful to me: (3 bullet points)

- Types of charts I used to showcase different information in part A

- Reflective analysis on tables in part A

- Relevancy of points in SAASU.

Part A

1. **Sales vs Profit of Products**
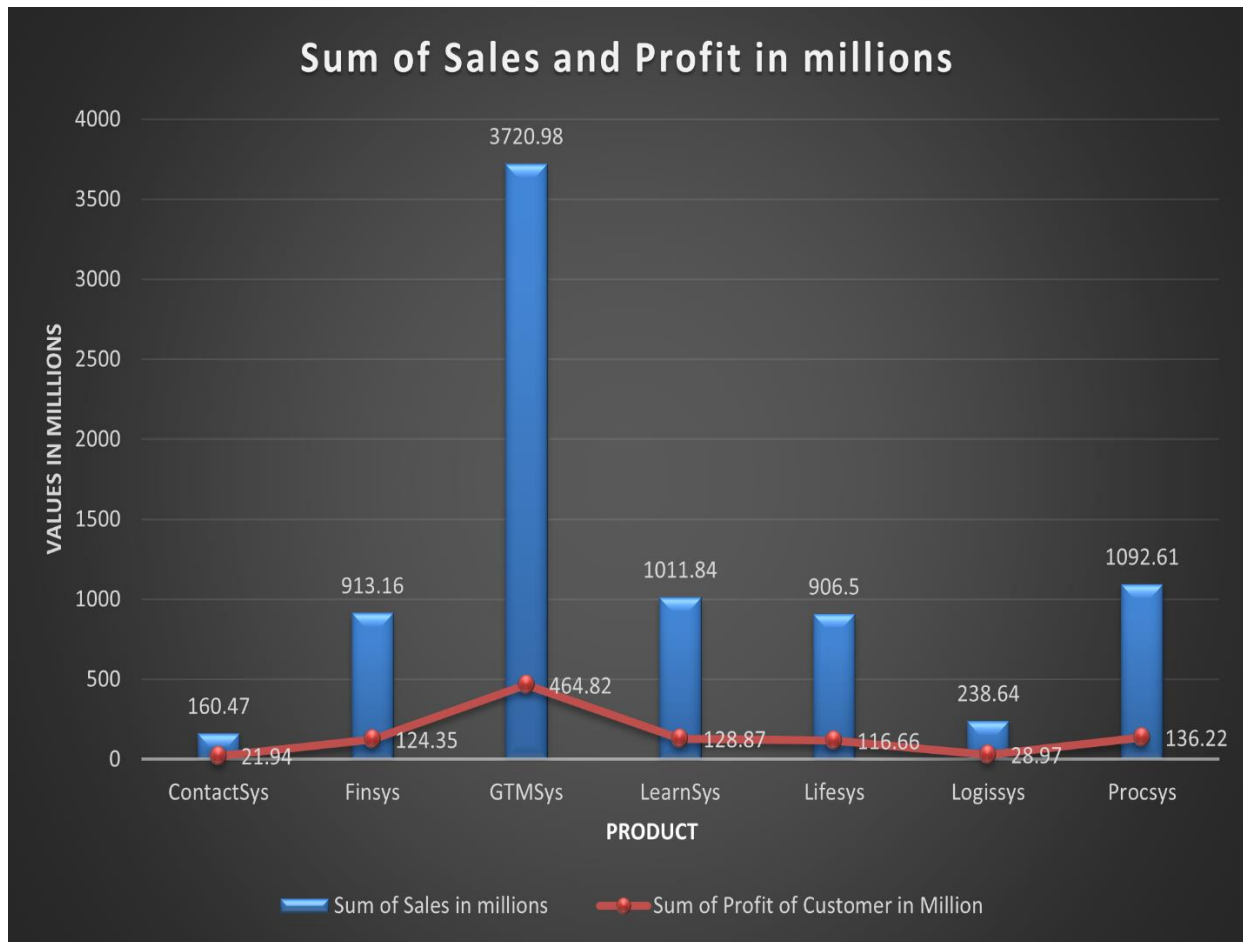
This is the graph representing Sales Value in Millions and Profit of Customers in Millions of different products offered by WSES. **GTMSys** holds the highest sales value and profit whereas ContactSys holds the lowest. I used **Pivot Table** to make these graphs.

2. Relative Strength

Relative strength of products in different countries
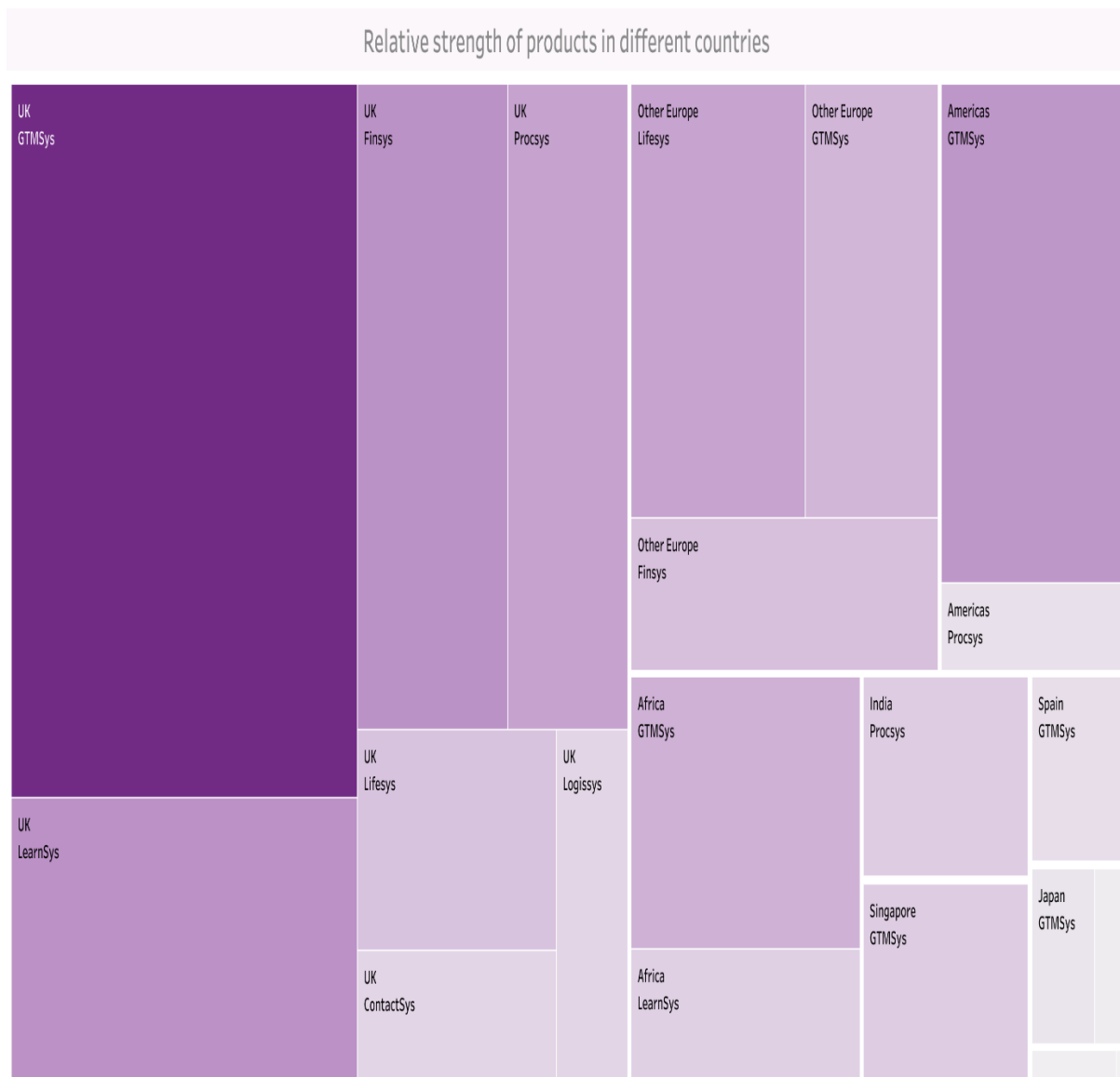
This graph represents **relative strength** of products in different countries. We can see that GTMSys holds good relative strength in comparison to other products, particularly in countries like UK, America and Africa and lowest in Japan. Also most of the products are performing well in UK inclusing GTMSys, Learnsys, Finsys and Procsys.

3. WSES Proportion in bid

**Comparing WSES bid proportion in Products**
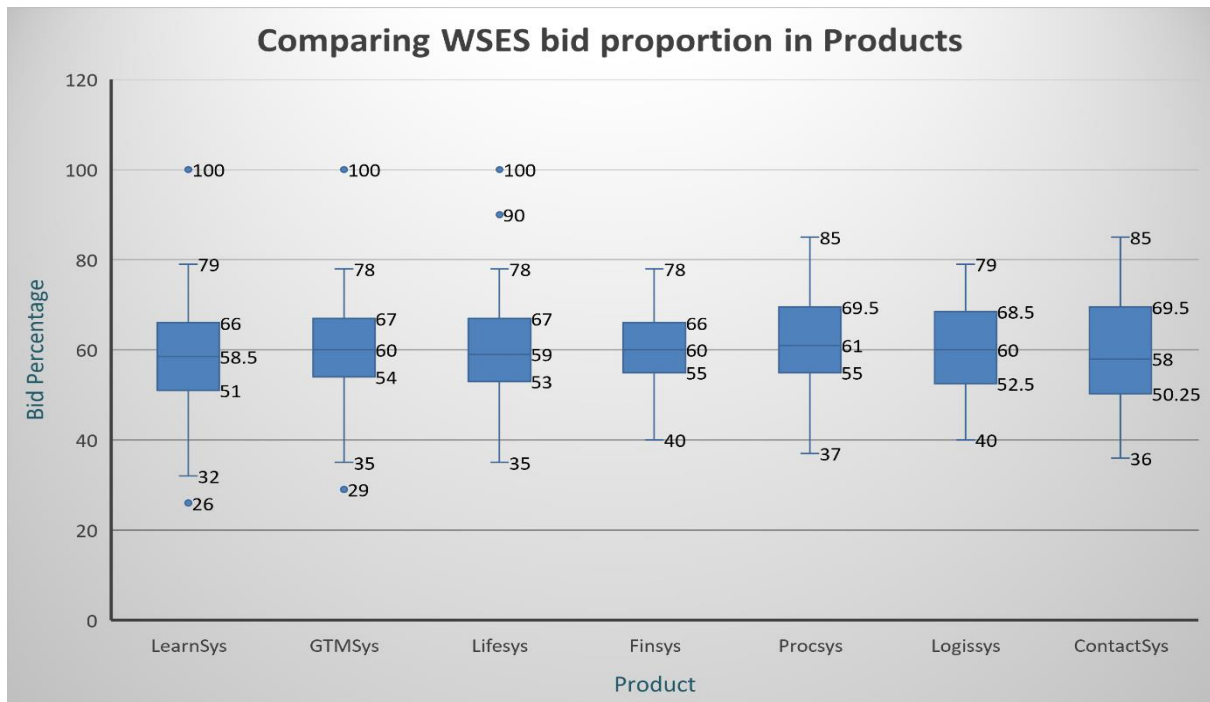
I used **Box and Whisker** graph to show the WSES Proportion in bid. There are three products in which WSES reportedly holds 100% bid proportion in some particular areas namely LearnSys, GtmSys and LifeSys stated by the outliers. Nearly every product's median lies between 58 to 61%.

4. Lost and Win

Comparison of Reporting Status

481 | 519

Reporting Status
■ Lost ■ Won
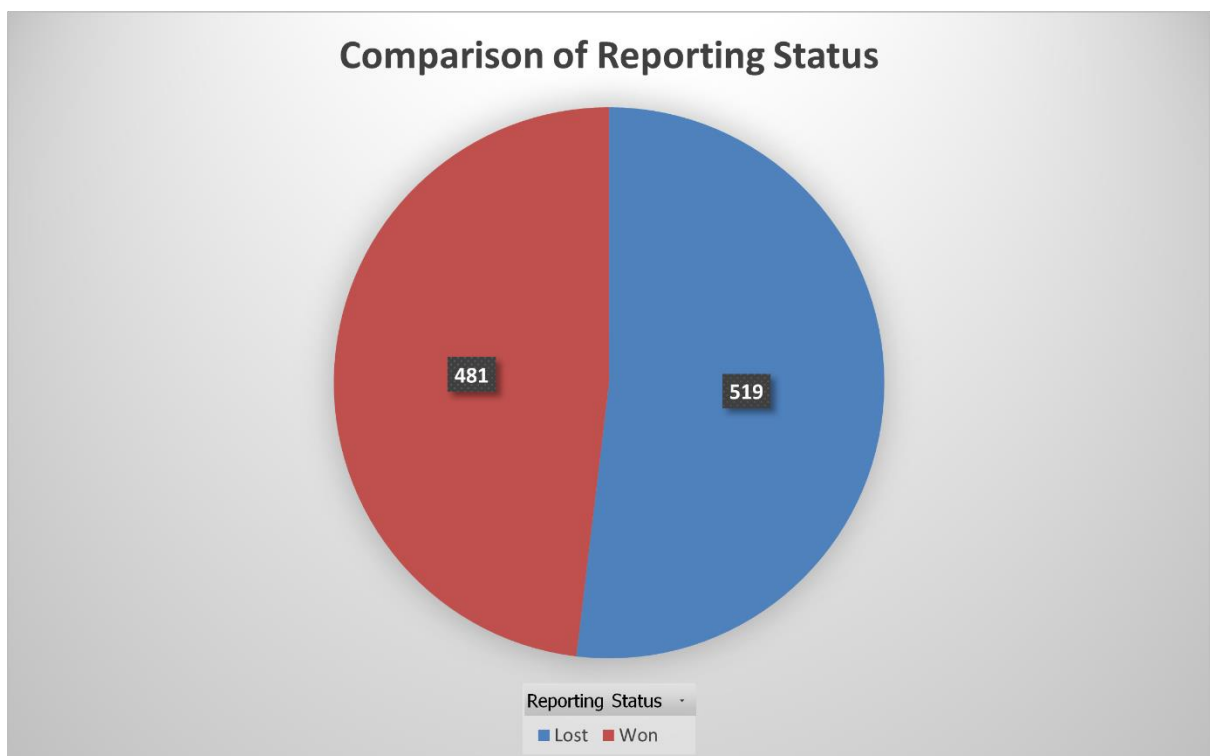
WSES had 1000 total number of opportunities. Out of these 1000 opportunities, it **won 481** and **lost 519** opportunities. Clearly the loosing percentage is **more** than the winning one.

5. Sales and Profit for each Class
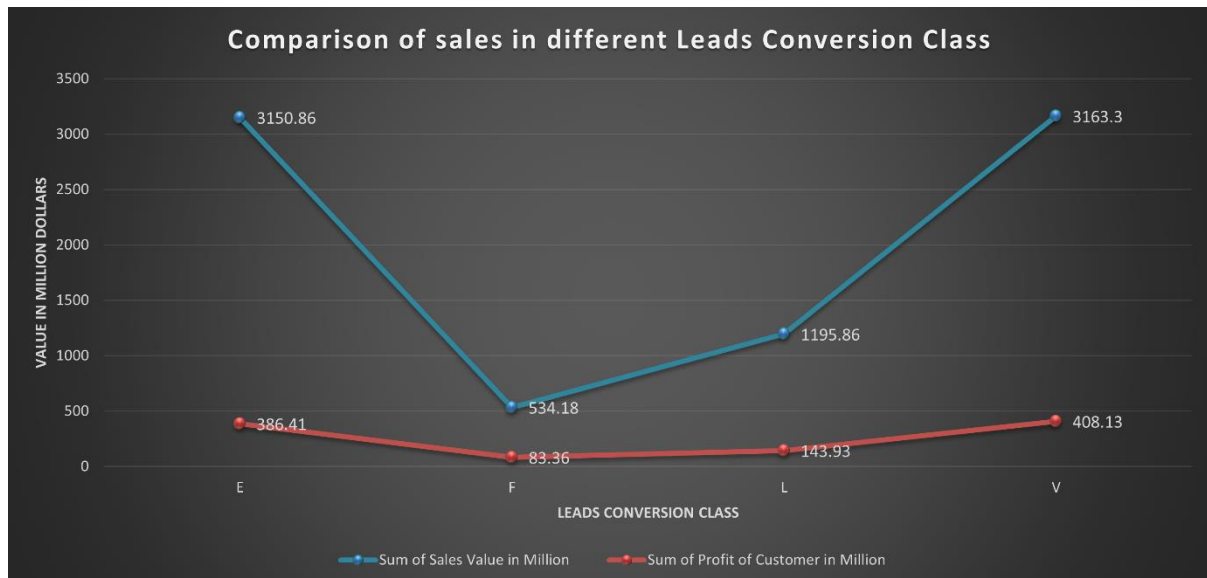
Here **E, F, L and V** represents different classes that states:

E   Excellent chance of sales conversion
V   Very good chance of sales conversion
F   Very good chance of sales conversion
L   Low chance of sales conversion

It can be noticed that **'V'** class has maximum sales and maximum profit followed by 'E', 'L', and 'F' respectively.

We can see that Excellent chances of sales conversion **does not** necessarily mean highest sales and profit values. Same goes with 'F' and 'L'. 'L' class has better sales and profit values than 'F'.

2. I will be explaining the descriptive statistics of sales, profit percentage and WSES bid proportion

Sales(in Millions)

WSES Sales(in Millions)		
Mean	8.0442	
Median	8	
Mode	7.35	
Standard Deviation	1.982933631	
Sample Variance	3.932025786	
Kurtosis	-0.216769107	
Skewness	0.01033056	
Range	12.59	
Minimum	1.64	
Maximum	14.23	
Sum	8044.2	
Count	1000	
Confidence Level(95.0%)	0.123050323	

Range of Sales is **12.59 Million Dollars**. Highest Sales value include **14.23** and minimum sales value include **1.64**. Company made total sales of **8044 Million Dollars.**

Its **skewness coeffecient** is **0.01.** It is positively skewed. It means, mean of the sales will be more than the median and mode that is evident through data too.

Kurtosis value of the sales is **-0.217**. It can be stated that the distribution is **Platy Kurtosis**. The distribution curve will be **flat** and value of the mean will be equal to Standard Deviation.

Range of Sales is **12.59**. It can be considered as high if we look it in relation to minimum and maximum values.

This table holds the standard deviation of approximately **2** which signifies **high standard deviation**. This signifies the data will be spread through the whole distribution.

Profit %

Profit %	
Mean	50.703
Median	50.5
Mode	46
Standard Deviation	10.1404941
Kurtosis	-0.246106192
Skewness	-0.059446152
Range	60
Minimum	19
Maximum	79
Count	1000

Profit % accounts for another important measure in a company. Its mean value is **50.7%**.

It shows a standard deviation of **10.14** which is very high and signifies high distribution of profit percentage. It is evident through data too that the profit of the company varies from one product to another product and through different regions.

Negative value of **Kurtosis** suggests that my distribution is flatter and comes under category of **Platy** Kurtosis. We can correlate it to high standard deviation too.

Negative value of **Skewness** means that the distribution is **left** skewed.

WSES Bid Proportion

WSES Bid Proportion	
Mean	60.49
Median	60
Mode	56
Standard Deviation	11.33500694
Kurtosis	2.43284037
Skewness	0.856813401
Range	74
Minimum	26
Maximum	100
Sum	60490
Count	1000

On **Average** WSES holds **60.49%** proportion of bid in all bids made during the time period.

The **median** bid percentage is 60 and the **mode** is **56**, that signifies WSES holds a little more than half bid proportion in most number of deals.

Positive value of **Skewness** signifies that the distribution curve is **positively skewed** and its distribution curve has more values towards the lower side.

Positive value of **Kurtosis** states that the distribution curve is **Leptokurtic**.

It has a wide range of **74**. This is a good signal for the think tank of WSES as it signals that they are making decisions by putting some efforts into the decisions.

3. Problem that can be represented infront of the stakeholders.
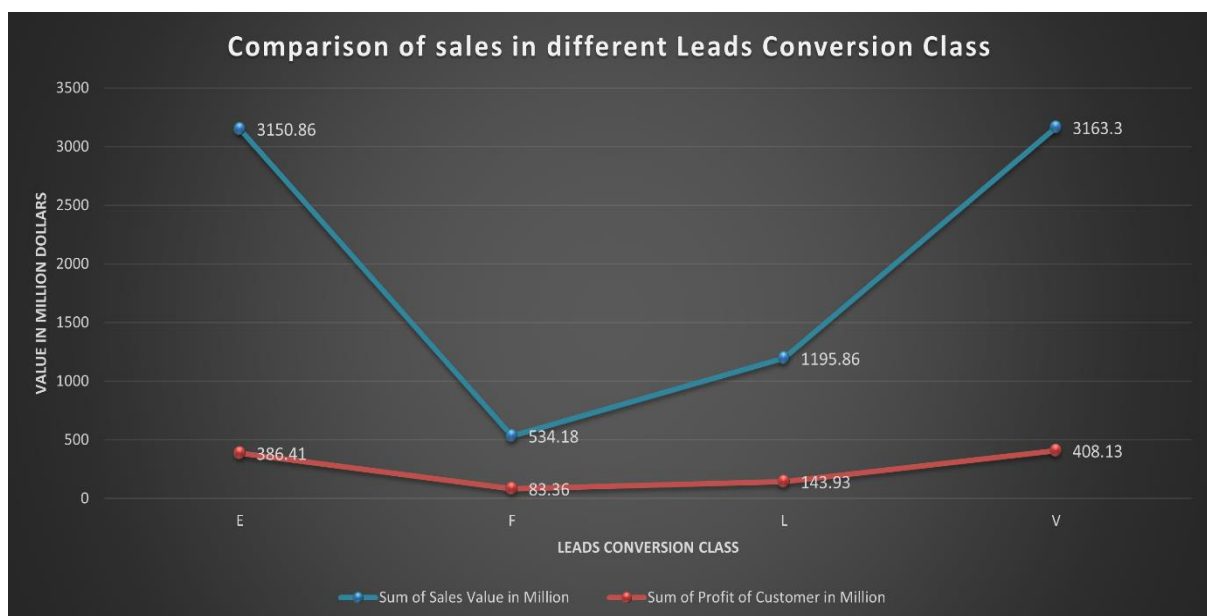
Identify the problem

As discussed before E, F, L and V represents different classes that states:

    E   **Excellent chance of sales conversion**
    V   **Very good chance of sales conversion**
    F   **Fair chance of sales conversion**
    L   **Low chance of sales conversion**

This is a chart produced by placing Leads Conversion Class onto x-axis and value in million dollars onto y-axis. Technically speaking, the sales and profit of different classes should go on in the order **E > V > F > L**. By figure, we can see that **'V'(sales: 3163.3 million dollars, Profit: 408.13 million dollars)** represents higher sales and profit than **'E'(sales: 3150.86,**

profit: 386.41 million dollars). Technically E's sales and profit **should have been** bigger than V.

Collect Data

The plan that I created to collect the relevant data is:

Defining objectives: I want to collect and represent data that clearly states the Sales and Profit associated with all the chances of sales conversion namely, E, V, F and L. Later I will be doing Regression analysis of the WSES's sales.

Identifying Data Source: The data source we will be using is https://canvas.bham.ac.uk/courses/68302/files/15887438?wrap=1 . This datasource holds WSES's ongoing deals and their bid proportion.

Analyze Data
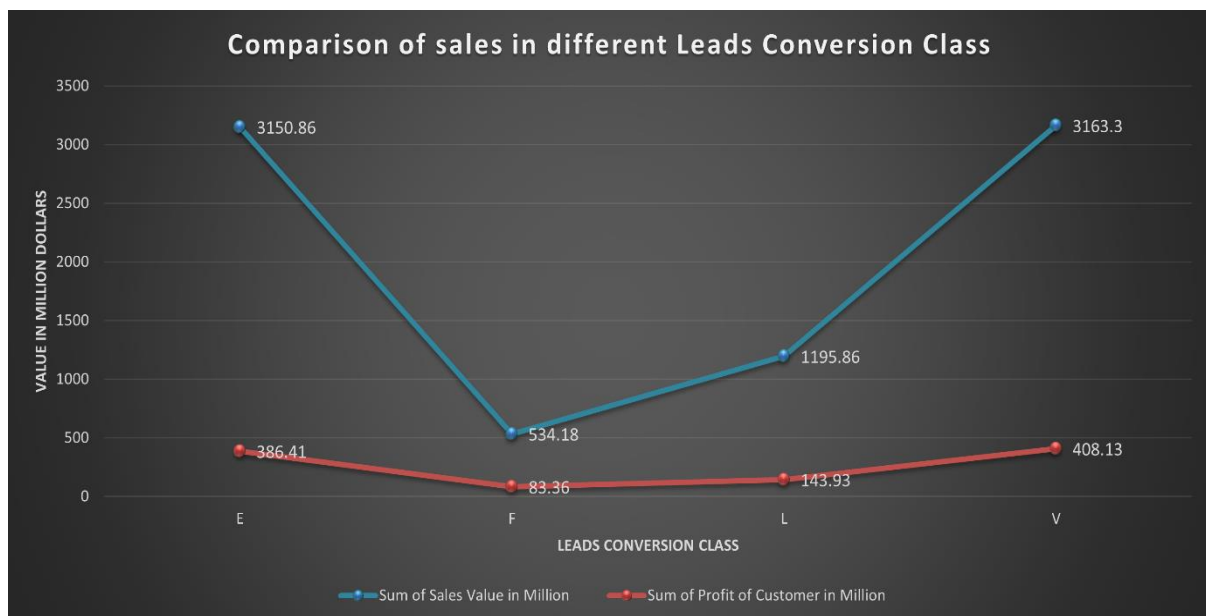
Here, I have used **Pivot chart** feature of Excel to a **dual line chart**. If we take a close look at the sales and profit numbers of E, V, F and L, we can notice that **'V'(sales: 3163.3 million dollars, Profit: 408.13 million dollars)** represents higher sales and profit than **'E'(sales: 3150.86, profit: 386.41 million dollars)**. Technically E's sales and profit **should have been** larger than V. Same goes for F and L. **'L'(sales:1195.86, profit: 143.93)** represents higher sales and profit than **'F'(sales: 534.18, profit: 83.36).**

Possible reason for this statistical problem:

Predictive Modelling: To improve the precision of sales and profit estimation techniques, apply machine learning algorithms and advanced analytics. Revise and improve forecasting models to associate correct class to a correct product on a regular basis.

Regression Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	4	36.94	9.2357	2.36	0.052
Profit %	1	0.62	0.6203	0.16	0.691
Leads Conversion Class	4	36.08	12.0283	3.08	0.027

Conclusion

Future predictibility of sales is very important to an operational organization. Any wrong predictions in it can affect a company in more ways than imaginable. Different statistical tools need to be accurately used to do correct predictive modelling. Impact of wrong predictive modelling can be seen in **wrong allocation of resources**, formation of **wrong strategies** and **lost of trust** among stakeholders. Therefore, WSES should use improved **predictive models**, all the **statistical measures** should be constantly observed and **external audits** by third party companies can be performed for better forecasting.

Part B

Dashboard

Cashflow

Select account -   **1m** 3m 6m 1y 2y

0

3 Jan 24

Current Balance **0.00** AU

Never reconciled. Reconcile now | Import bank statement

Accounts Receivable   Details Summar ×

Contact	Due	Amount
Stagg, johnny mouse mat	28 Dec 23	66.00
Toyota [Barfson, Jeremy]	05 Jan 24	11,000.00
	Total	**11,066.00** A...

Showing 1 to 2 of 2

Accounts Payable   Details Summar ×

Contact	Due	Amount
Weldit and hope [Maynott, Brian]	05 Jan 24	550.00
Weldit and hope [Maynott, Brian]	05 Jan 24	1,100.00
Itzall sheet products [Hamsteri, Ricardo]	20 Jan 24	4,831.20
Syrup property co [Trumpet, Donald]	01 Aug 24	13,200.00
	Total	**19,681.20** A...

Showing 1 to 4 of 4

Activities   ×

Top 20 More

Title	Due
No items were found	

Profit & Loss Summary

01 Jul 23 to 30 Jun 24

Income	15,160.00
Cost of Sales	5,565.79
Gross Profit	**9,594.21**
Expense	13,250.00
Operating Profit	**-3,655.79**
Other Income	0.00
Other Expense	0.00
Net Profit	**-3,655.79**

Balance Sheet

01 Jul 23 to 30 Jun 24

Assets	17,541.41
Liabilities	21,197.20
Net Assets	**-3,655.79**

Now we will be discussing different aspects of the dashboard part by part.

Profit and Loss Summary

Profit & Loss Summary

01 Jul 23 to 30 Jun 24

Income	15,160.00
Cost of Sales	5,565.79
Gross Profit	**9,594.21**
Expense	13,250.00
Operating Profit	**-3,655.79**
Other Income	0.00
Other Expense	0.00
Net Profit	**-3,655.79**

Total income generated by the company University of Birmingham is **15,160 Dollars**.

Cost of making total sales is **5565.79 Dollars**.

The resulting gross profit we make is **9,594.21 Dollars**.

Other expenses of the company makes a total of **13,250 Dollars**. Due to this, Univesity of Birmingham accounts a loss of **3655.79 Dollars**.

Trial Balance

Account	Debit	Credit
Asset: Accounts Receivable	11,066.00	
Asset: Inventory	4,176.21	
Asset: Tax Paid on Purchases	2,299.20	
Cost of Sales: Stock	5,565.79	
Expense: Rent	12,000.00	
Expense: Subscriptions	1,200.00	
Expense: Sundry Expenses	50.00	
Income: Sales		15,160.00
Liability: Accounts Payable		19,681.20
Liability: Tax Collected from Sales		1,516.00
Total	**36,357.20**	**36,357.20**

The trial balance is an essential step in the accounting process that is useful for financial analysis, auditing, internal control, financial statement preparation, and error identification. It guarantees the integrity and accuracy of a business's financial records, which lays the groundwork for wise decision-making and adherence to accounting rules. Different types of accounts are either labelled as Debit or Credit.

Discussion on some un-elaborated accounts:

- **Asset Tax paid on purchases:** A part of the overall cost of inventory is the tax paid on purchases, sometimes known as input tax or purchase tax. Depending on the jurisdiction, this tax is usually linked to either the Goods and Services Tax (GST) or the Value Added Tax (VAT) in accounting.
- **Cost of Sales(Stock):** "Cost of sales" in accounting refers to the actual expenses incurred directly in producing the goods or services that a business sells in a given time frame. It comprises the expenses that are closely related to the creation of products or services, like labor, raw materials, and production overhead.
- **Rent:** 12 months rent was collected.
- **Subscriptions:** Classy chassis monthly subscription.
- **Sundry Expenses:** Small, random, or miscellaneous expenses that don't fit into any particular group are referred to as "sundry expenses" in accounting. Usually of a small nature, these costs are not substantial enough to justify individual identification. Here Sundry Items include large screws, short screws, metal sheet etc.
- **Sales:** Entire money a business receives from consumers for the exchange of goods or services during a given time period is referred to as "sales" in accounting. Here, sundry items like long screws, short screws, metal sheet, services like large weld, short weld and combo items are sold and taxed upon.

- **Tax collected from Sales:** In accounting, "tax gathered from sales" usually refers to the entire sum of money that a company collects from customers as part of a sales transaction on behalf of the taxing body. Here, sundry items like long screws, short screws, metal sheet, services like large weld, short weld and combo items are sold and taxed upon.

Inventory

In the items section under inventory, 5 items are listed along with their on hand money, average cost and selling price.

The term **"inventory"** in business refers to the products and supplies that a business has on hand for manufacturing or resale. We need inventory for managing seasonal demand, facilitating production planning, preventing stockouts, optimizing production, cutting lead times, balancing costs and meeting customer need. Depending on the stage of production or the sort of business, there are several kinds of inventory. The following are a few typical inventory types:

- **Raw Materials:** These are the unprocessed components that have not gone through assembly or transformation processes in the production process For eg: Short screws, Long screws and Metal Sheet. **(Jenkins, 2023)**
- **WIP, or work-in-progress:** Partially completed items that are still in the production process are included in WIP inventory. Although they have undergone some manufacture, these items are not yet final goods.
- **Finished Items:** Products that are manufactured and are prepared for distribution or sale are included in the inventory of finished goods. Example: Combo Items etc.
- **Inventory for upkeep, repair, and operation (MRO):** This kind of inventory consists of supplies required for facility and equipment upkeep, repair, and operation. It might include supplies, tools, and spare parts.

- **Management needs to action on:** There were products that were bought in large quantity than required. Companies should correctly analyze the present inventory and perform calculations to future predict the required inventory to estimate needs of the company. **(Jenkins, 2023)**

Accounts Payable

In accounting, Accounts Payable (AP) is a liability account that shows how much a business owes suppliers or creditors for products and services that it has received but hasn't yet compensated for. Put differently, accounts payable refers to the immediate financial responsibilities incurred from purchasing products or services on credit.

Here are some essential details regarding accounts payable:

Nature of the Account: Due to its representation of an upcoming payment obligation, accounts payable is a liability. The company's capital or bank account is usually shown as the balance sheet's equivalent to accounts payable.

Documenting Transactions: When a business makes a credit purchase of goods or services, the transaction is first documented by raising the accounts payable and noting the cost or asset on the opposite side of the entry. Usually, the entry is recorded as a debit to an expense or capital account and a credit to accounts payable. **(Kamala, 2016)**

Companies want its account payable to be small because:

Management of Cash Flow: A business can more effectively control its cash flow by keeping a specific amount of accounts payable. A company might extend its cash holding period by utilizing the longer payment terms provided by its suppliers.

Efficiency of Working Capital: Working capital, which is a word used to describe a company's short-term assets and liabilities, includes accounts payable. Optimizing working capital efficiency requires finding the ideal balance between accounts payable and accounts receivable (amounts owed to the business by customers). An extended period of payment may facilitate this improvement. **(Kamala, 2016)**

Accounts Receivable

Accounts Receivable		Details	Summary
Contact	**Due**	**Amount**	
Stagg, johnny mouse mat	28 Dec 23	66.00	
Toyota [Barfson, Jeremy]	05 Jan 24	11,000.00	
	Total	**11,066.00**	AUD

Showing 1 to 2 of 2

The accounting term "**Accounts Receivable**" (AR) describes sums owing by clients to a business for the products provided or rendered services but have yet to be compensated for. Stated differently, it stands for the unpaid sums that the business anticipates getting in the future. On the balance sheet of the corporation, accounts receivable is an asset.

Important details about accounts receivable are as follows:

Acknowledgment of Revenue: An organization records the revenue related to credit sales or services in its statement of earnings when it offers products or services for sale. It also enters the equivalent amount in accounts receivable at the same time.

Classification of Assets: On the balance sheet, accounts receivable are categorized as an active asset since they reflect money that the business anticipates being collected in a shorter period of time, say a year. **(Smith, 1992)**

Companies want its account receivable to be small because:

Decreased Risk of Bad Debt: Poor debts and accounts that cannot be collected are less likely to occur when the amount of accounts receivable is smaller. The likelihood that a customer will fail to make payments increases with the amount of time an invoice is pending.

Faster Inventory Turnaround: In businesses that sell tangible products, a lower accounts receivable balance facilitates quicker inventory turnover. Lowering storage expenses and minimizing depreciation frequently call for quick inventory turnover. **(Smith, 1992)**

Reflective Analysis

ERP software is nowadays essential tool for any business or organization in the world. I think one needs to categorize the present data to attain meaningful and reliable results. Here I believe are the core points as of why an ERP is needed as for digitization of business:

Centralized Data Management: ERP systems combine and simplify key corporate operations from several divisions, including manufacturing, supply chain management, finance, and human resources. I believe it is important to monitor that who have access to what type of data.

Better Decision-Making: Access to real-time data and analytics is made possible by ERP software to provide them to managers and executives. ERP systems have analytical capabilities that let firms see patterns, opportunities, and possible problems. In my point of view, decision making in organizations today is becoming more and more data driven and need to implement and manage ERP software today is now more than ever.

Supply Chain Management: By enabling transparent operation at inventory levels, manufacturing schedules, and order completion, ERP systems are essential to the efficient working of the supply chain. This enhances the general productivity of the supply chain by cutting lead times and stockouts.

Savings on costs: Cost reductions are frequently one of the long-term advantages of ERP deployment, despite the possibility of upfront expenditures. Enhanced efficiency, decreased mistakes, and more efficient use of resources all add to total affordability. **(Mishra, 2008)**

Concluding, software systems like ERP offer diversity of services. But according to my understanding one should be very careful while implementing these kind of softwares and providing access to different kinds of information pertained by these softwares of the company. Information in wrong hands can lead to data stealing, data manipulation etc. Investors can loose interest if the data presented before them is not correct. Hence, softwares like SAASU and any other ERP can be boon to an organization if used cautiously.

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