INTRODUCTION TO DATA MANAGEMENT PROJECT REPORT

(Project Semester August-December 2021)

Sales Dashboard

Submitted by

Gopinath Chalasani

11902216

B.Tech. C.S.E. (Hons.) KM036

INT217

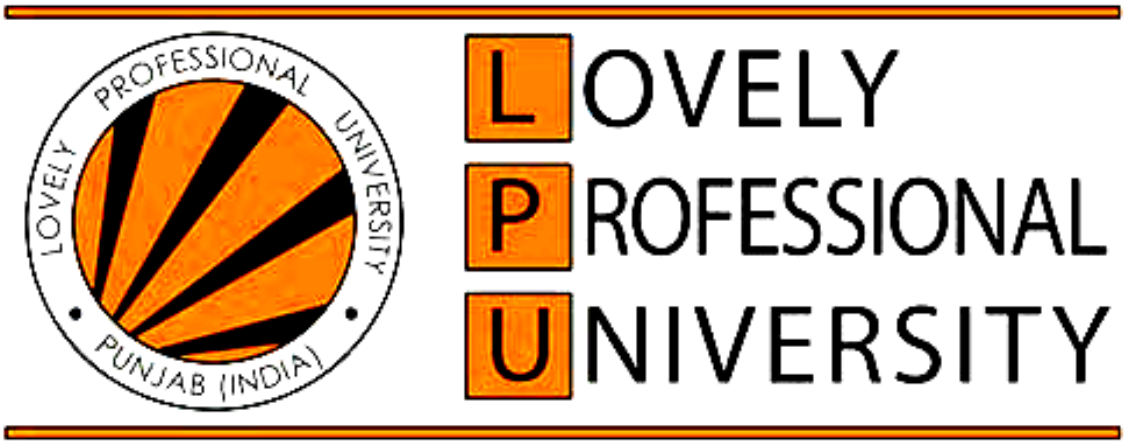
Under the Guidance of

Mrs. Ashu -23631

Discipline of CSE/IT

Lovely School of Computer Science & Engineering

Lovely Professional University, Phagwara



CERTIFICATE

This is to certify that Gopinath Chalasani (student's name) bearing Registration no. 11902216 has completed INT 217 project titled, **"Sales Dashboard"** under my guidance and supervision. To the best of my knowledge, the present work is the result of his/her original development, effort and study.

Signature and Name of the Supervisor
Designation of the Supervisor
School of Computer Science & Engineering

Lovely Professional University
Phagwara, Punjab.

Date:

Declaration by Student

To whom so ever it may concern

I, **Gopinath Chalasani, 11902216**, hereby declare that the work done by me on "**Introduction to data management- Sales Dashboard**" from **August, 2021** to **December, 2021**, is a record of original work for the partial fulfilment of the requirements for the award of the degree, **Bachelor of Technology Computer Science and Engineering (Hons.).**

Gopinath Chalasani (11902216)

Dated: 10.12.2021

Acknowledgement

I would like to express my special thanks of gratitude to my course Mrs. Ashu (23631) who *helped me in doing a lot of Research and I came to know about so many new things through this course I am really thankful to her.*
Secondly I would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

I am overwhelmed in all humbleness and gratefulness to acknowledge my depth to all those who have helped me to put these ideas, well above the level of simplicity and into something concrete.
I would like to express my special thanks of gratitude to all my faculty who gave me the golden opportunity to do this wonderful project on for the partial fulfilment of the subject Introduction to Data Management “Sales Dashboard” , which also helped me in doing a lot of Research and I came to know about so many new things. I am really thankful to them.
Any attempt at any level can't be satisfactorily completed without the support and guidance of my parents and friends.
I would like to thank my parents who helped me guiding me from time to time in completing this course.

Thanking you,
Gopinath Chalasani (11902216)

Contents

Introduction

INT-217 Introduction to Data Management course teaches us about various methods, functions and features provided in MS Excel in order to manage, modify or extract the information from a large Data Sets in cells.

One of the features of MS Excel is a Dashboard. A Dashboard is a graphical representation of various fields with the help of different tools like column chart, pie chart, line chart, combo chart etc. present in any Dataset and make them interactive with the help of slicers and timelines.

This form of graphical representation helps a user to easily find different types of information, patterns and a lot of things in the dataset. It also makes the mentioned processes more convenient.

In this project, I will be analysing a dataset that contains the data of around 1000+ rows of shipping information and will be doing analysis on various fields of the dataset like sales, discount, year, order priority, customer type, manager, shipping mode.

OBJECTIVES

Our main objective to make this project is to find various trends in the given dataset of around 1000+ shopping records with the help pivot charts and pivot tables provided in the excel and show them visually using charts. We will be analysing our various objectives and their results for different shipping information.

At the end of the project, we will make an interactive dashboard which will be consisting all of our objective analysis and display in visual way. It will also be consisting of various charts which will provide a graphical representation to all of our objectives .

This project is a very small representation of the new features of MS Excel that are being taught to us in the course.

I hope I will be able to mark clear idea of the objectives and their respective results visually.

SOURCE OF DATASET

I have taken this dataset from Coursera from the course "Excel Skills for Business: Intermediate I" (https://www.coursera.org/learn/excel-intermediate-1/home/welcome) from which I have done my basic excel certification at the time of pandemic.

Link to dataset-

https://www.coursera.org/learn/excel-intermediate-1/supplement/ZVGXI/download-the-week-6-workbooks

ETL PROCESS

EXTRACTION

In this step of the ETL process, I extracted the dataset from the website (i.e. from Coursera) and then downloaded the required dataset into my system.

TRANSFORMATION

This raw data had some irregularities which were making some trouble in making my project. In order to remove those, some steps were taken to transform my dataset.

For example, our dataset of shipping information did not contain the calculation of profit margin, subtotal, discount and order total. Profit margin is calculated by taking the difference of Retail price and Cost price. SubTotal is calculated by multiplying order quantity and retail price. Discount is calculated by multiplying subtotal and discount percentage. Order total is calculated by subtracting subtotal and discount. By all these we found out all the required information required for analysing our objectives.

LOADING

This updated dataset was then uploaded into a new file in order to save the changes made in the raw dataset.

ANALYSIS ON DATASET

Using different data from each shipping record such as Order No, Order Date, Order Year, Customer Name, Address, City, State, Customer Type, Account Manager, Order Priority, Product Name, Product Category, Product Container, Ship Mode, Ship Date, Cost Price, Retail Price, Profit Margin, Order Quantity, Sub Total, Discount %, Discount $, Order Total, Shipping Cost, Total, we find out the following information and analyse them and visualise them.

We make the raw data into table and them name the table accordingly.

Objective 1.

To find the sales and order values of different states

INTRODUCTION

Whenever a customer places an order he gives us the information regarding his state and the order value is calculated by the items he orders. So we take this information and then display the proportion of orders from different states.

DESCRIPTION

To Display the proportion of orders from different states we insert a pivot table in a new sheet and name the pivot table accordingly.

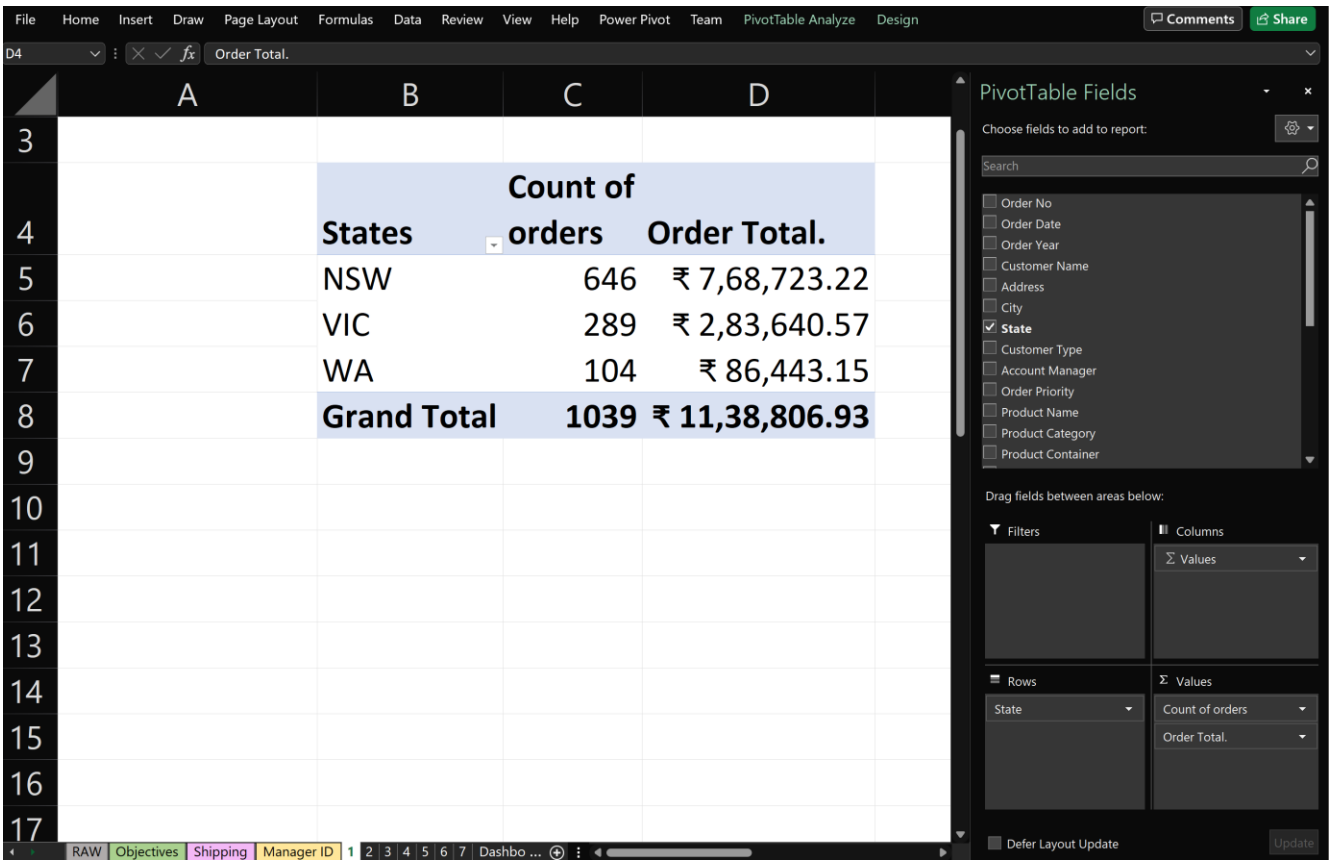
After inserting the pivot table in the new sheet we add State column in Rows and then add Total column into values section and then modify the value field settings to count, we add Total column second time and modify the value field settings to sum.

By this we get our desired result now we can add any chart which is applicable to visualise our objective.

RESULT

We get the total order value and total number of orders grouped by different states. There are 3 states NSW, VIC,WA which have count of orders as 646, 289, 104 respectively and order total as ₹7,68,723.22, ₹ 2,83,640.57, ₹ 86,443.15 respectively. We find out that NSW has over 62% of orders has more orders and VIC has 28% orders and followed by WA with 10% orders is he least.

VISUALIZATION



States	Count of orders	Order Total.
NSW	646	₹ 7,68,723.22
VIC	289	₹ 2,83,640.57
WA	104	₹ 86,443.15
Grand Total	**1039**	**₹ 11,38,806.93**

Table 1: Shows Count and Total value of orders from different states

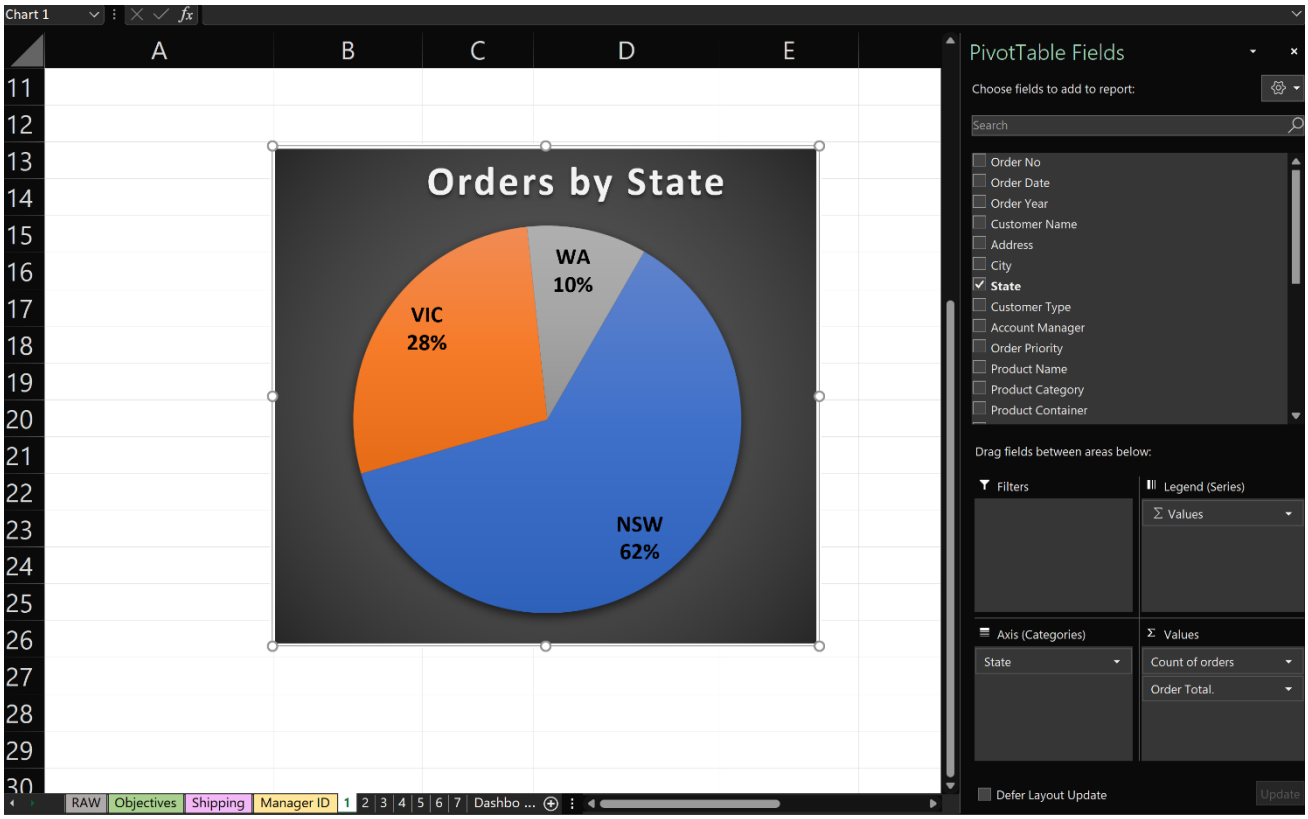


Figure 1: Shows Count of total orders from different states in pie chart

Objective 2.

To find total orders by different customer types

INTRODUCTION

Whenever a customer buys the product he has different categories such as Consumer, Corporate, Home Office, Small Business. We need to find out which category of customers have ordered more than others and also find the value of the total they ordered by pivot table

DESCRIPTION

To display the total orders by different customer types, First we will insert a pivot table in a new sheet and then name it accordingly.

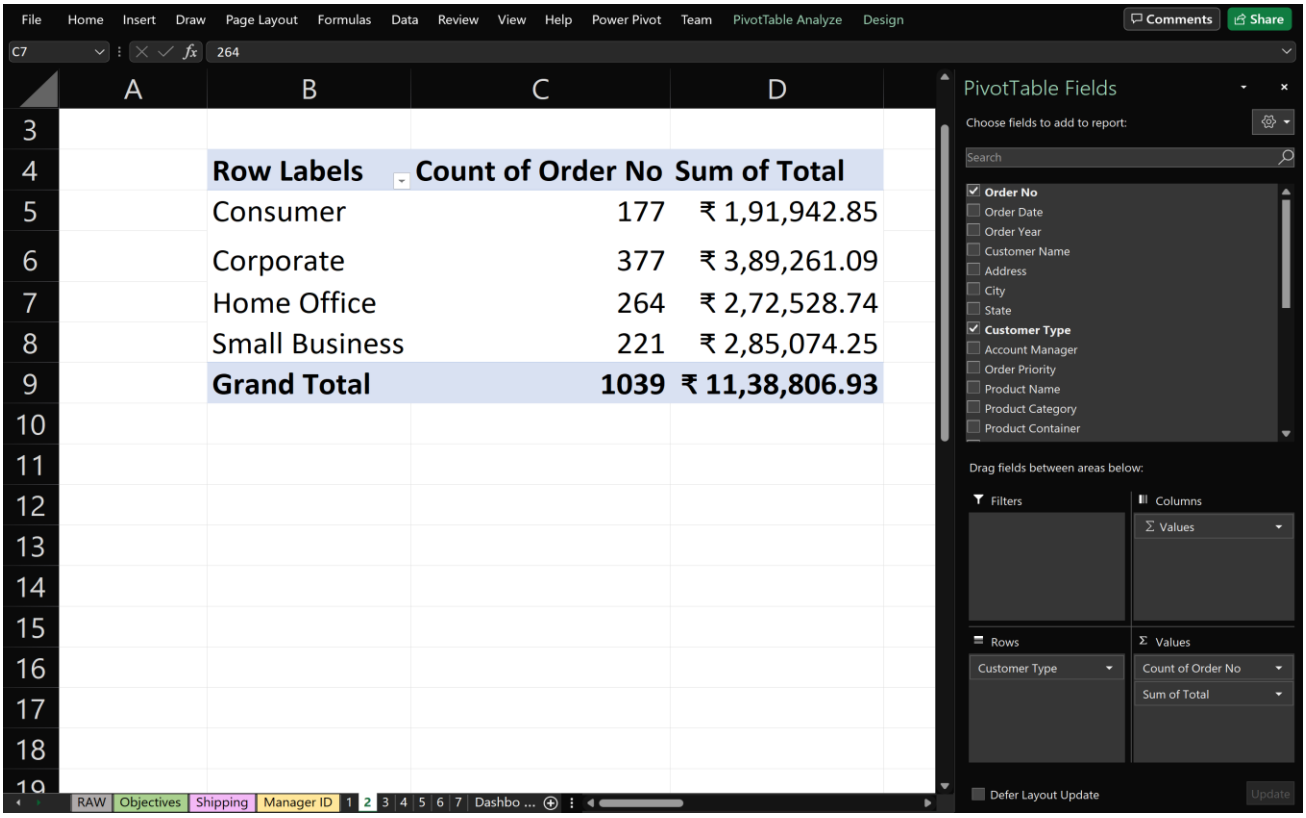
After inserting the pivot table in the new sheet we add Customer type column to Rows and then add Order no. column into values section and then modify the value field settings to count, we add Total column second time and modify the value field settings to sum.

By this we get our desired result now we can add any chart which is applicable to visualise our objective.

RESULT

We get the total order value and total number of orders grouped by different customer types. There are 4 customer types Consumer, Corporate, Home Office, Small Business which have count of orders as 177, 377, 264, 221 respectively and order total as ₹ 1,91,942.85, ₹ 3,89,261.09, ₹ 2,72,528.74, ₹ 2,85,074.25 respectively. We find out that Corporate type customers has over 36% of orders is the highest and Home office type has 26% orders and followed by Small Business with 21% orders and further followed by consumer with 17% which is the least.

VISUALIZATION



Row Labels	Count of Order No	Sum of Total
Consumer	177	₹ 1,91,942.85
Corporate	377	₹ 3,89,261.09
Home Office	264	₹ 2,72,528.74
Small Business	221	₹ 2,85,074.25
Grand Total	**1039**	**₹ 11,38,806.93**

Table 2: Orders by different customer types

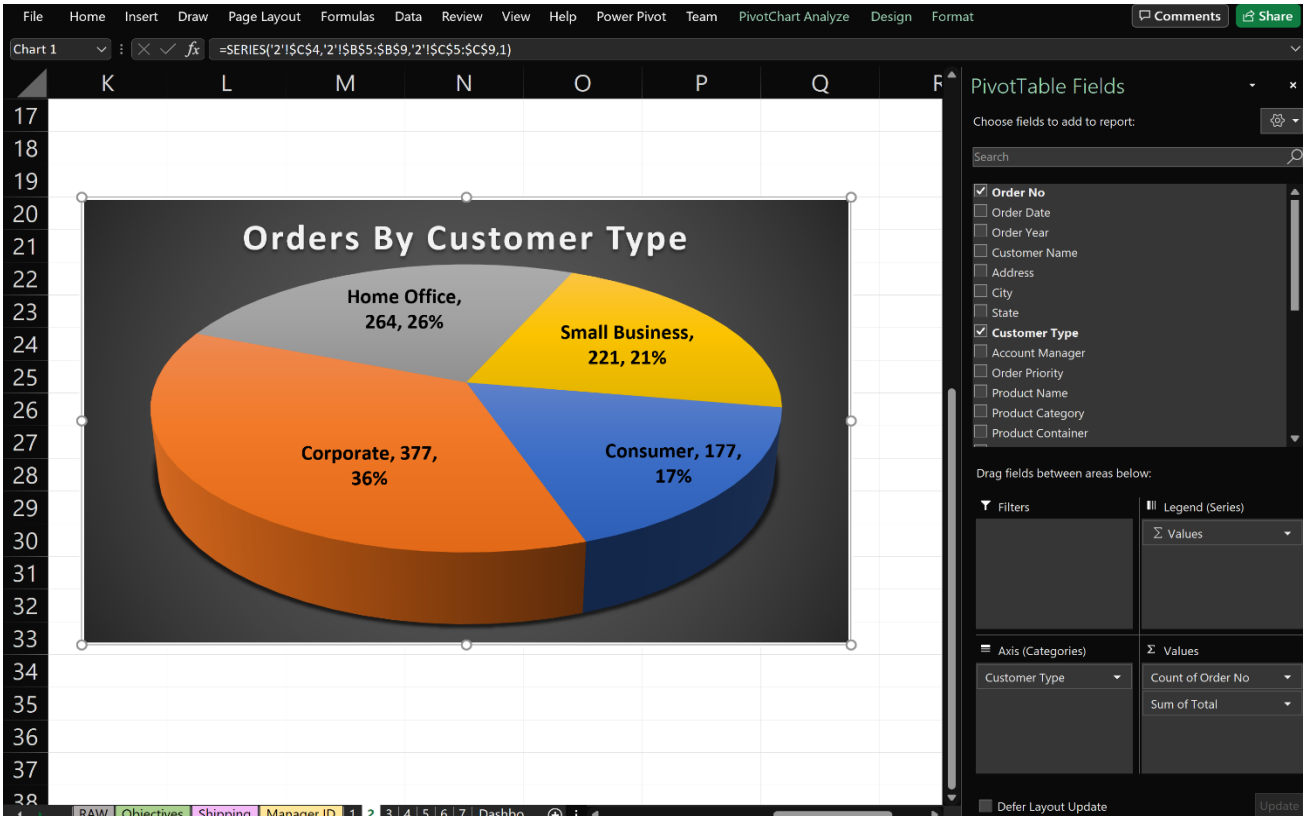


Figure 2: Representation of orders by different customer types in pie chart

Objective 3.

To find sales by different account managers

INTRODUCTION

Whenever a customer buys a product through account manager the details get stored and recorded.

So we take this information and get the desired results by making a pivot table and then inserting the applicable chart

DESCRIPTION

To display the total sales by different account managers. First we will insert a pivot table in a new sheet and then name it accordingly.

After inserting the pivot table in the new sheet we add Account Manager column to Rows and then add Total column into values section and then modify the value field settings to Sum.

By this we get our desired result now we can add any chart which is applicable to visualise our objective.

RESULT

We get the total sum of sales made by different account managers and we find that Connor Betts, Yvette Biti top the list by ₹ 1,35,493.75; ₹ 1,48,146.81 respectively and the least sales were made by Stevie Bacata with ₹ 6,771.19 and needs improvement in his performance

VISUALIZATION

Row Labels	Sum of Total
Aanya Zhang	₹ 69,318.89
Charlie Bui	₹ 55,738.25
Connor Betts	₹ 1,35,493.75
Leighton Forrest	₹ 86,080.42
Mihael Khan	₹ 84,170.63
Natasha Song	₹ 1,20,790.29
Nicholas Fernandes	₹ 64,114.24
Phoebe Gour	₹ 78,760.56
Preston Senome	₹ 18,350.05
Radhya Staples	₹ 72,189.38
Samantha Chairs	₹ 79,645.75
Stevie Bacata	₹ 6,771.19
Tina Carlton	₹ 1,19,236.70
Yvette Biti	₹ 1,48,146.81
Grand Total	**₹ 11,38,806.93**

Table 3: Sales amount by different account managers in different years

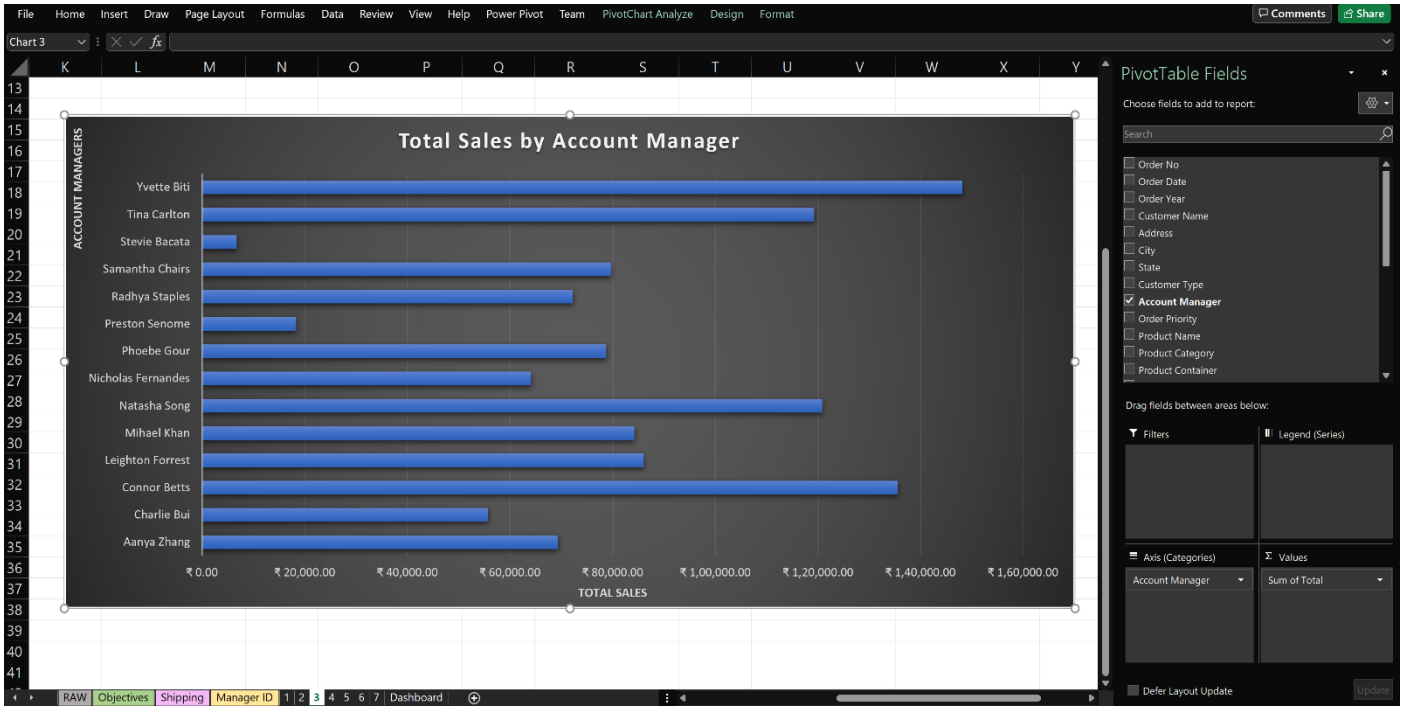


Figure 3: Representation of sales amount by different account managers in clustered bar chart

Objective 4.

Top 5 customers based on total sales

INTRODUCTION

Whenever a customer places an order he gives us the information regarding his name and the order value is calculated by the items he orders. So we take this information and then display the top 5 customers who bought more worth of items.

DESCRIPTION

To display the top 5 customers based on their total purchase. First we will insert a pivot table in a new sheet and then name it accordingly.

After inserting the pivot table in the new sheet we add Customer Name column to Rows and then add Total column into values section and then modify the value field settings to Sum.

Then under the auto sort option under Customer name column of the table select value filters and select top 10 option and type 5 under top 10 filter.

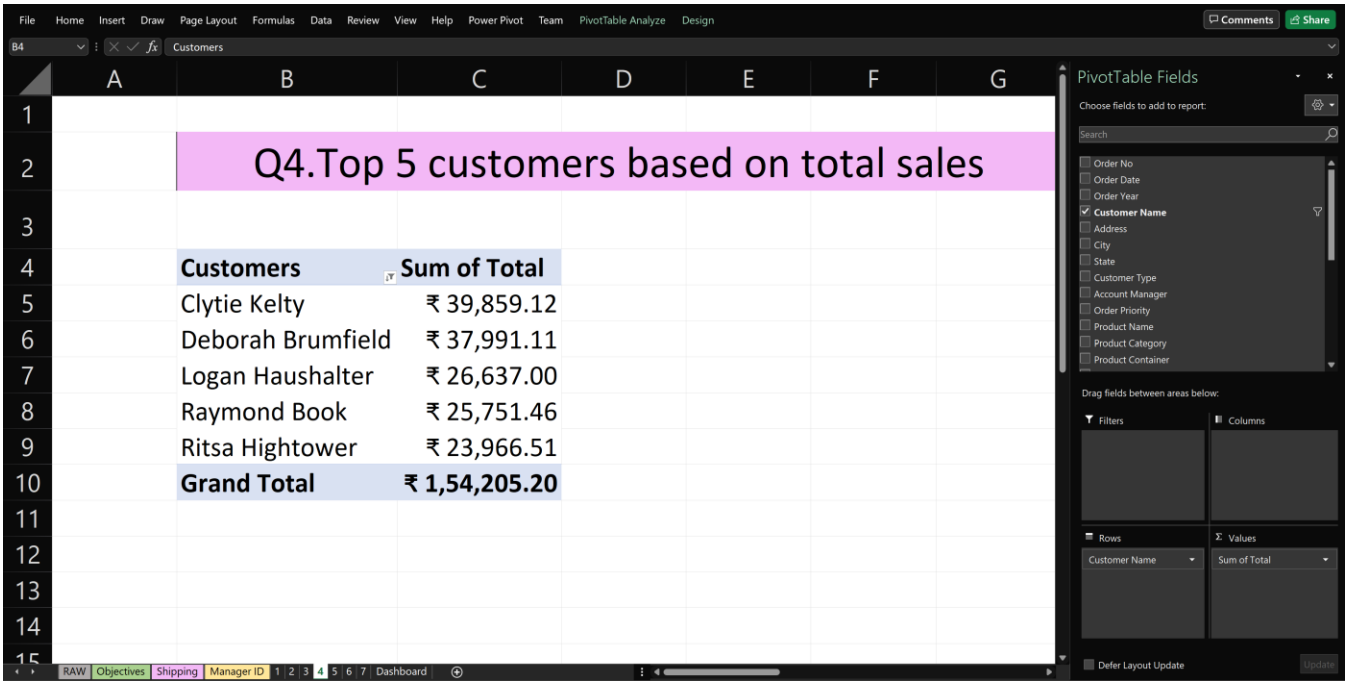
By this we get our desired result now we can add any chart which is applicable to visualise our objective.

RESULT

We get to find the top 5 customers who shopped the most according to total value of the purchase.

The top 5 customer account to total of Rupees 1,54,205.20 . The most purchase is done by Clytie Kelty followed by Deborah Brumfield with purchase value of ₹ 39,859.12 and ₹ 37,991.11 respectively.

VISUALIZATION



Q4.Top 5 customers based on total sales

Customers	Sum of Total
Clytie Kelty	₹ 39,859.12
Deborah Brumfield	₹ 37,991.11
Logan Haushalter	₹ 26,637.00
Raymond Book	₹ 25,751.46
Ritsa Hightower	₹ 23,966.51
Grand Total	**₹ 1,54,205.20**

Table 4: Top 5 customers based on total purchases

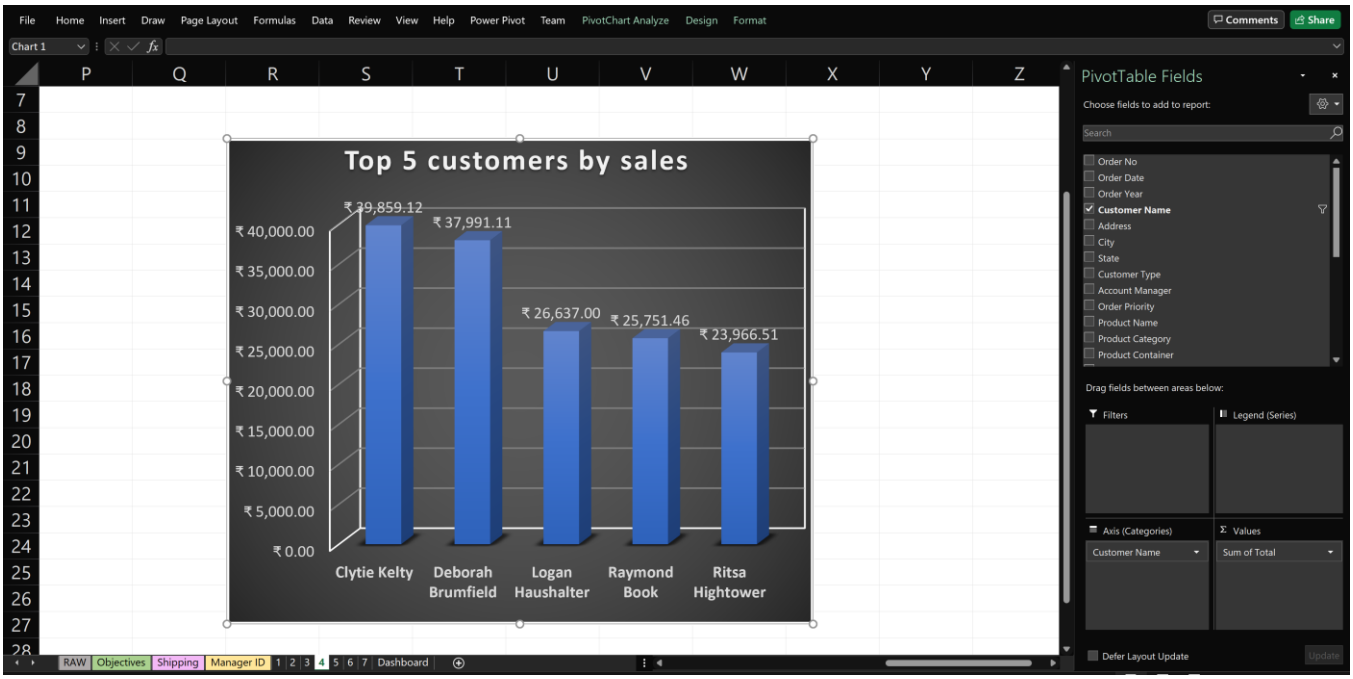


Figure 4: Representation of total purchases by top 5 customers in 3-D clustered column

Objective 5.

To find the sum of sales in years divided in quarters statewise

INTRODUCTION

Whenever a customer places an order he gives us the information regarding his state and the order value is calculated by the items he orders, date is also displayed at the time of placing the order. So we take this information and then display the sum of sales in years divided in quarters state wise.

DESCRIPTION

To display the sum of sales in years divided in quarters state wise. First we will insert a pivot table in a new sheet and then name it accordingly.

After inserting the pivot table in the new sheet we add Orders date column to Rows and then add Total column into values section and then modify the value field settings to Sum.

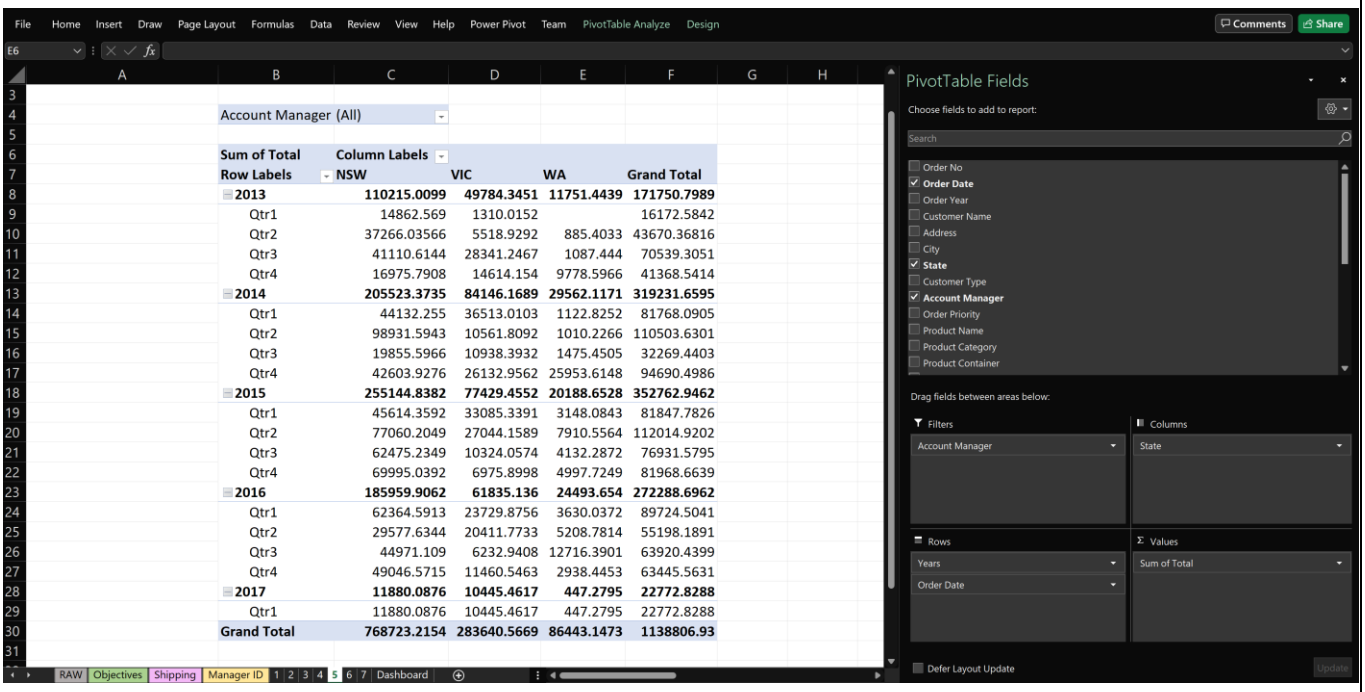
Then we right click on the dates in the table and select quarters and years to group them in quartes with different years.

By this we get our desired result now we can add any chart which is applicable to visualise our objective.

RESULT

We get to find the sum of sales of different years divided in quarters state wise. We find that most sales happened in the year 2014 followed by 2013 with ₹ 3,52,762.95 and ₹ 3,19,231.66 respectively.

VISUALIZATION



Account Manager	(All)			
Sum of Total	Column Labels			
Row Labels	NSW	VIC	WA	Grand Total
2013	110215.0099	49784.3451	11751.4439	171750.7989
Qtr1	14862.569	1310.0152		16172.5842
Qtr2	37266.03566	5518.9292	885.4033	43670.36816
Qtr3	41110.6144	28341.2467	1087.444	70539.3051
Qtr4	16975.7908	14614.154	9778.5966	41368.5414
2014	205523.3735	84146.1689	29562.1171	319231.6595
Qtr1	44132.255	36513.0103	1122.8252	81768.0905
Qtr2	98931.5943	10561.8092	1010.2266	110503.6301
Qtr3	19855.5966	10938.3932	1475.4505	32269.4403
Qtr4	42603.9276	26132.9562	25953.6148	94690.4986
2015	255144.8382	77429.4552	20188.6528	352762.9462
Qtr1	45614.3592	33085.3391	3148.0843	81847.7826
Qtr2	77060.2049	27044.1589	7910.5564	112014.9202
Qtr3	62475.2349	10324.0574	4132.2872	76931.5795
Qtr4	69995.0392	6975.8998	4997.7249	81968.6639
2016	185959.9062	61835.136	24493.654	272288.6962
Qtr1	62364.5913	23729.8756	3630.0372	89724.5041
Qtr2	29577.6344	20411.7733	5208.7814	55198.1891
Qtr3	44971.109	6232.9408	12716.3901	63920.4399
Qtr4	49046.5715	11460.5463	2938.4453	63445.5631
2017	11880.0876	10445.4617	447.2795	22772.8288
Qtr1	11880.0876	10445.4617	447.2795	22772.8288
Grand Total	768723.2154	283640.5669	86443.1473	1138806.93

Table 5: Sum of sales in years divided in quarters of different states

Figure 5: Representation of sales in different years divided in quarters of different states in area chart

Adding slicers

I added slicers by selecting the required pivot table and then clicking on pivotable analysis and then selecting insert slicer and selecting the slicer required.

Then I added slicers for different categories such as Customer Type, Shipping mode, Category, Priority, Container, State.

I linked all the slicers with the respective tables by selecting the slicer and then clicking on slicer option above and selection report connections options and checking the tables to which the respective slicer must be added.

I didn’t connect state category slicer to objective 1 and customer type category slicer to objective 2 which will make it absurd if added.

Adding Timeline

I added the timeline by selecting a pivot table and then clicking on pivotable analysis and then selecting insert timeline option and checking the order date.

I linked the timeline with the respective tables by selecting the timeline and then clicking on timeline option above and selection report connections options and checking the tables to which the respective timeline must be added.

I selected quarters option from the dropdown in the timeline.

Creating power pivot relationship

Firstly got to file and select “Options” then got to add-ins from the left pane and check whether “Microsoft Power Pivot for Excel” is under active application add-ins of it is not present select from inactive application add-ins and click on “OK”. This may take a few minutes to add to the top bar.

After restarting the excel file click on Power Pivot and select “add to data model” option and specify the first table to add to data model in this case it was the shipping table consisting of all the shipping information.

Then continue the same process and select the second table in which there are unique identification numbers of each account manager.

Now go to Design tab under power pivot window and select “create relationship” option and specify which two columns of different tables must be linked. Here in this case we have to select shipping table and select account manager row then select ids table in next option and select manager name, make the relationship by clicking “ok”.

Now the relation between the shipping table and ids table is made.

Objective 6.

Find profit made by each account manager by their UID

INTRODUCTION

Whenever a purchase is made the details are stored and the profit is calculated by the subtracting cost price and selling price. The Shipping table and UID table have an active relation between the account managers name. We get to know the profits made by account manager by their UID by making a pivot table from the tables given.

DESCRIPTION

We got to the “power pivot” tab above and then select “Manage” option, In the “Power pivot” window under “Home” tab select the “pivot table” option and specify the location where the table needs to be created.

Under “PivotTable Fields” pane on the right hand side select the “UID number” column from “IDs” table and place it under Rows.

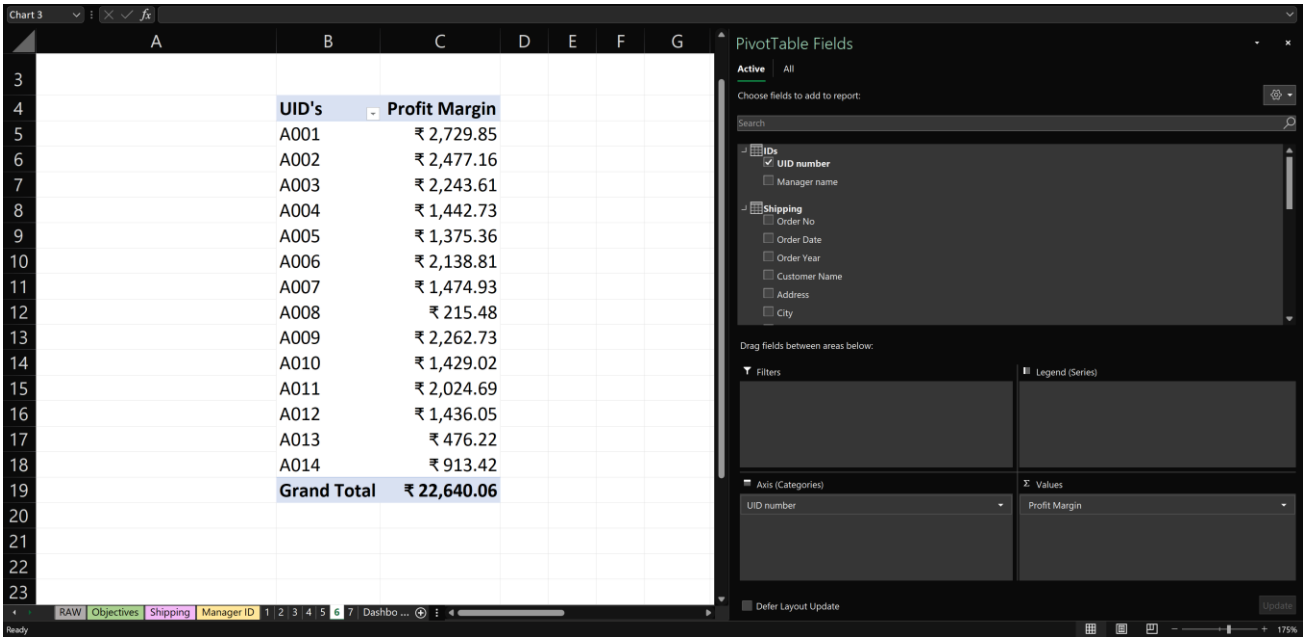
Place the “Profit” column of “Shipping” table under values.

By this we get our desired result now we can add any chart which is applicable to visualise our objective.

RESULT

We found out the profit margin earned by account managers by their account ID’s and visualised it using the applicable chart.

VISUALIZATION



UID's	Profit Margin
A001	₹ 2,729.85
A002	₹ 2,477.16
A003	₹ 2,243.61
A004	₹ 1,442.73
A005	₹ 1,375.36
A006	₹ 2,138.81
A007	₹ 1,474.93
A008	₹ 215.48
A009	₹ 2,262.73
A010	₹ 1,429.02
A011	₹ 2,024.69
A012	₹ 1,436.05
A013	₹ 476.22
A014	₹ 913.42
Grand Total	**₹ 22,640.06**

Table 6: Profit made by each account manager by their UID

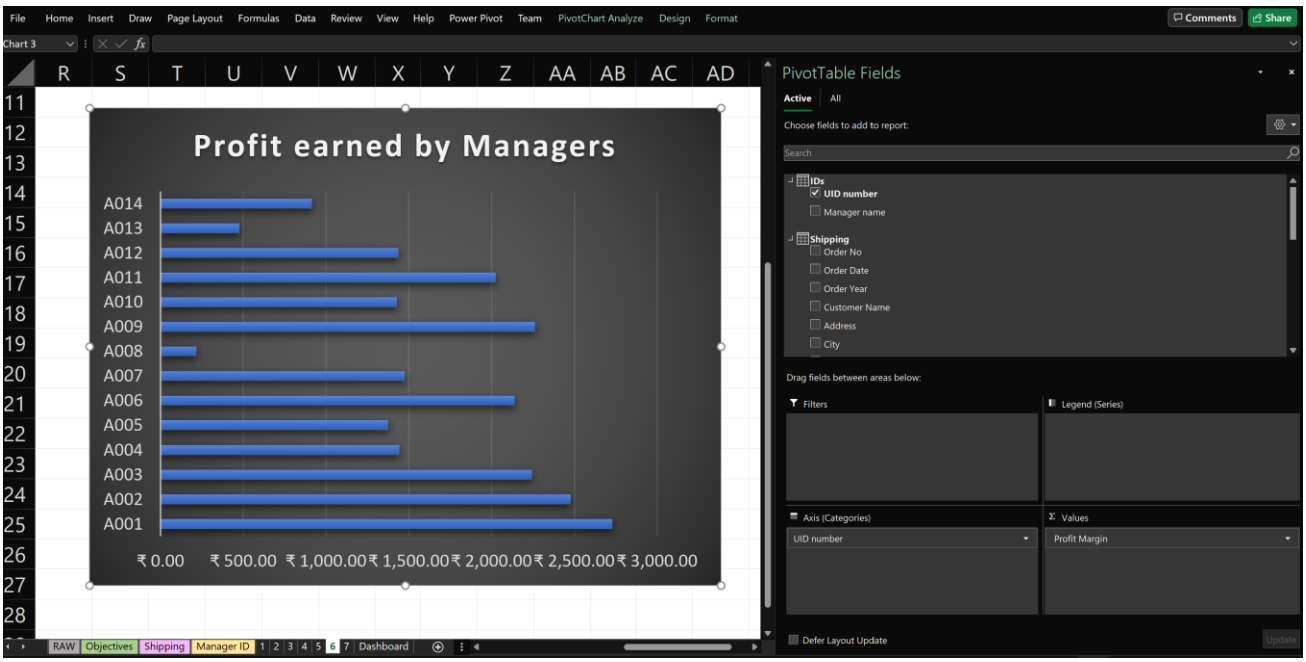


Figure 6: Representation of profit made by each account manager by their UID in clustered bar chart

Objective 7.

Find discount given by managers by their UID

INTRODUCTION

Whenever a purchase is made the details are stored and the discount is calculated by the multiplying "Sub total" column by "Discount%" column. The Shipping table and UID table have an active relation between the account managers name. We get to know the discounts given by account manager by their UID by making a pivot table from the tables given.

DESCRIPTION

We got to the "power pivot" tab above and then select "Manage" option, In the "Power pivot" window under "Home" tab select the "pivot table" option and specify the location where the table needs to be created.

Under "PivotTable Fields" pane on the right hand side select the "UID number" column from "IDs" table and place it under Rows.

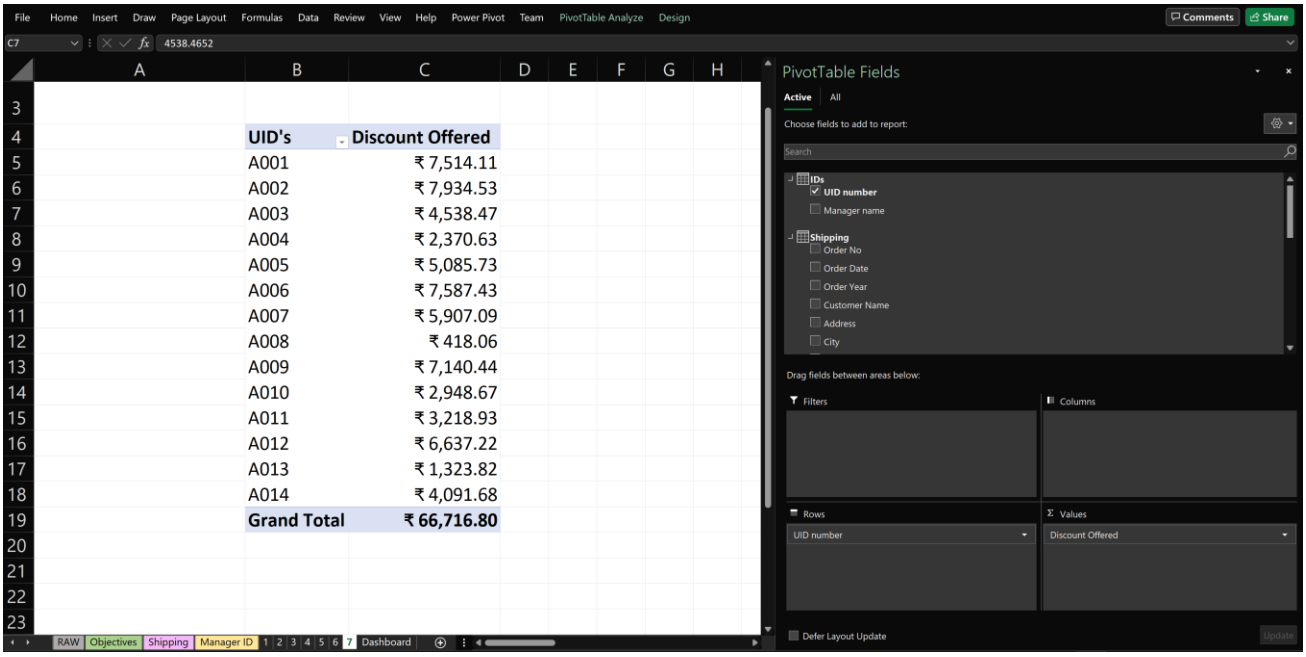
Place the "Discount" column of "Shipping" table under values.

By this we get our desired result now we can add any chart which is applicable to visualise our objective.

RESULT

We found out the discount given by account managers by their account ID's and visualised it using the applicable chart with the help of power pivot option.

VISUALIZATION



UID's	Discount Offered
A001	₹ 7,514.11
A002	₹ 7,934.53
A003	₹ 4,538.47
A004	₹ 2,370.63
A005	₹ 5,085.73
A006	₹ 7,587.43
A007	₹ 5,907.09
A008	₹ 418.06
A009	₹ 7,140.44
A010	₹ 2,948.67
A011	₹ 3,218.93
A012	₹ 6,637.22
A013	₹ 1,323.82
A014	₹ 4,091.68
Grand Total	**₹ 66,716.80**

Table 7: Discount given by managers by their UID

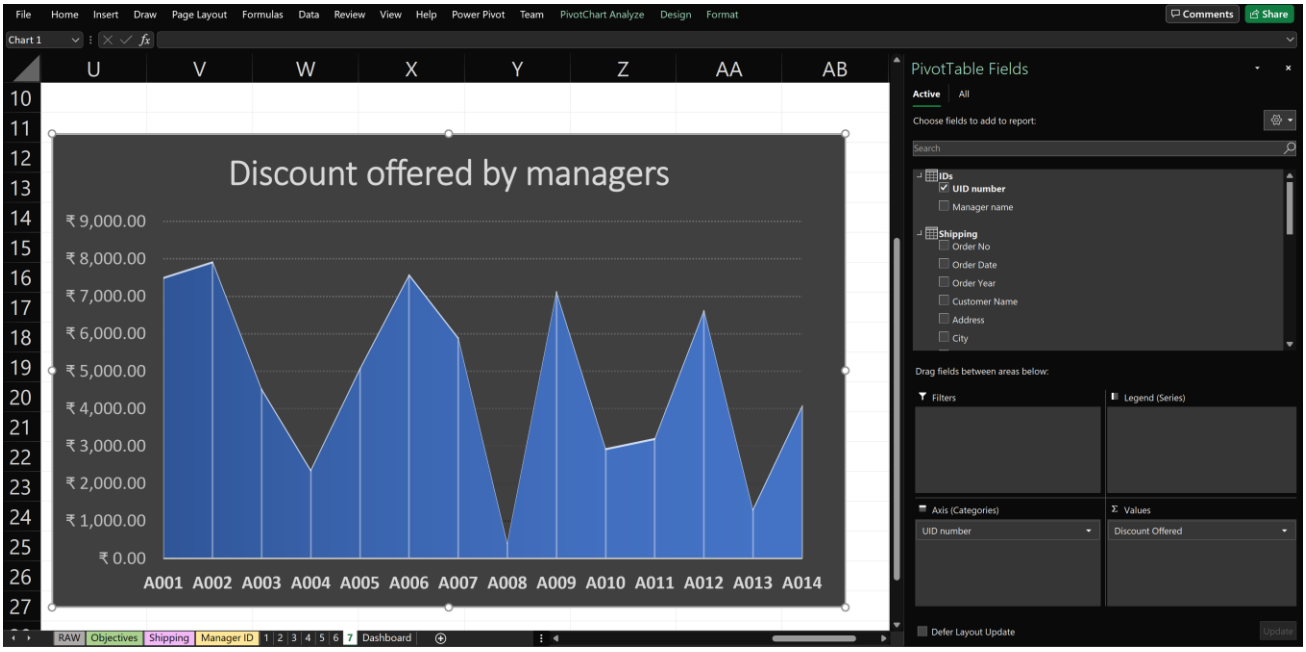


Figure 7: Representation of discount given by managers by their UID in area chart

RESULT

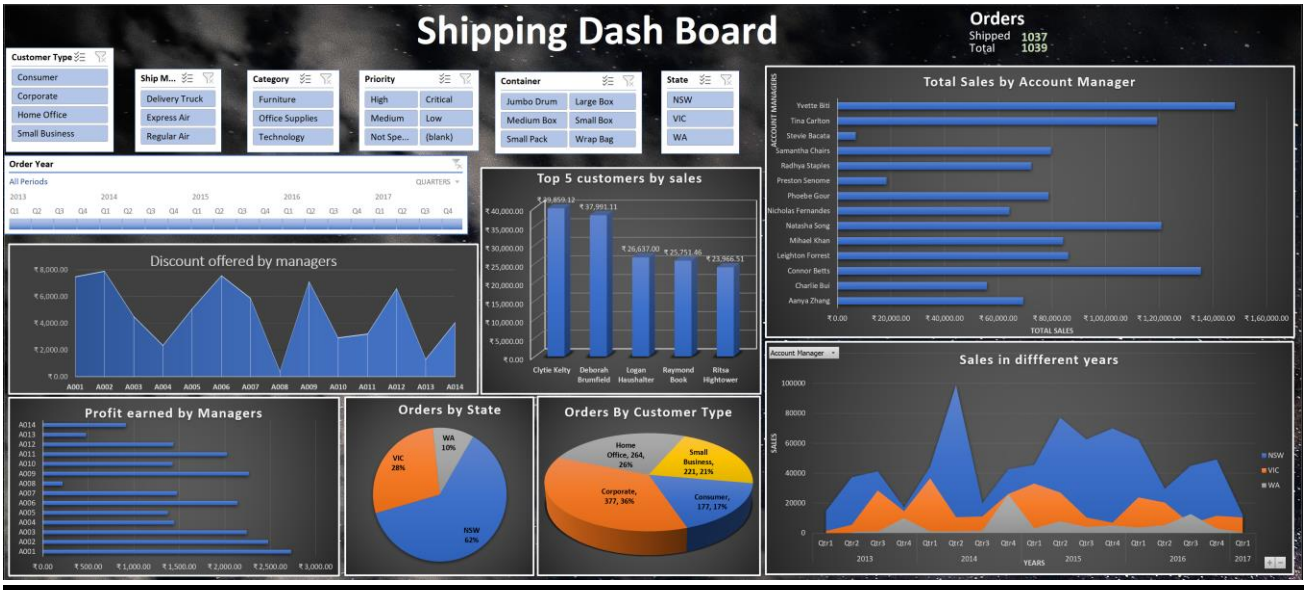


Figure 8: Complete dashboard interactive with slicers and timeline.

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