**Unicorn Project Spreadsheet Questions and Answers**

**Link for Solved worksheet.**[**https://docs.google.com/spreadsheets/d/18TFlRwe6nBTYR-WgDBKZBYTpN1oORZabuVBKCP-\_fRw/edit?usp=sharing**](https://docs.google.com/spreadsheets/d/18TFlRwe6nBTYR-WgDBKZBYTpN1oORZabuVBKCP-_fRw/edit?usp=sharing)

**1. What was the city with the highest sales?**

To find the city with the highest sales a pivot table was constructed. The city column was called to the rows field and sales into values. When calling the sales column into values, an aggregation was made with the default sum. The output was sorted in descending order in the rows field by using sum of sales as a criteria. New York City is the city with the highest sale.

**2. What is the average discount given for all orders?**

This question is solved using the above pivot table. The discount column is called to the values field and summarized by the average function. The average discount per order is 0.16.

**3. What is the most popular product among customers in the "Consumer" segment?**

The product name column was called into rows, the quantity of order into values and segment into the filter fields. The quantity of the order was aggregated by a sum function and the result was filtered only for Consumer in the filter field. The products were ordered in descending order in the rows field using the sum of quantity as a criteria. Staple envelope is the most popular product in the consumer segment with 1o4 orders.

4. **What is the total profit made for the "Office Supplies" category?**

In the pivot table, the category column was called to the row and filter fields, and profit was called to the values and aggregated by sum function. Office Supplies was selected in the filter section and this results $122,474.00 as total profit.

5. **Who is the customer who has made the most purchases?** (*Hint: use the “Order ID column to answer the question*.)

For this question the order ID cannot be used since a customer may have ordered several times. So, customer name was called to the rows and the sales was called to values. The total purchases from all order ID was aggregated by sum function for the individual customers. The list was ordered in descending order by the sum of sales. This gives Sean Miller as a customer with the most purchases of $25,042.00.

6. **What state made the most profit?**

Here, the state column was called to the row field and profit into the values field. The profit was aggregated to sum by default. The states were ordered in descending by using the sum of profit as a criteria. California is the state with the highest profit of $76,368.00.

7. **How many orders were shipped via "Standard Class" ship mode?**

Here, the ship mode column was called into the column field and the Order ID was called into the values field with COUNTA aggregation function. So, a total of 5968 orders have been shipped with the standard class.

8. **Which region had the highest sales in the month of June?**

To answer this question I created a month filed using a =MONTH(date) function. The region column is called into the row field, and the sales into the values field. The sales were aggregated by a SUM function. The specific sale in the month of June was filtered by month in the filter field by selecting the month number 6. The west region of the country has the highest sale in the month of June with a value of $55,953.00.

**9. Calculate the price per unit of each product (before discounts), and put it in a separate column. What's the most expensive product?** *Hint: use the quantity, sales, and discount columns.*

To find the unit price after discount the sale price was decided by the quantity of the order. To find the original price before the discount the unit price after discount is divided by (1-discount). This gives the original unit price. This column is used to order the products and the analysis shows that Cisco TelePresence System EX90 Videoconferencing Unit is the most expensive product and costs $7,546.00 per unit.

10. **Create a pivot table that shows the total sales for each manufacturer and category combination. In the "Technology" category, which manufacturer had the second highest sales?**

Here, the manufacturer column was called into rows and category into the column fields of the pivot table. The sale was called to the values field and the total sale was aggregated by the sum function. The manufacturer was sorted in descending order by using the Total sale by the Technology as a criteria. Accordingly, Cannon is the second highest manufacturer with a Total sale of $107,506.00.

11. **What is the subcategory of “Xerox 1887”?**

Here, the product name column was added to the rows, the subcategory column to the columns and the product name into the filter. In the filter, the product name Xerox 1887 was selected. The analysis shows that the Xerox 1887 belongs to the subcategory Paper.

12. **Create a new column that calculates the number of days between the order date and the ship date for each order. Create a conditional formatting “color scale” for this column, from greenish to reddish.**

The columns order\_date and ship\_date were copied and pasted from data sheet. The difference in number of days between the order and ship dates was calculated by using the DATEDIF function. The two dates were given as parameter and “D” as the unit for return in dates. The resulting days column was formateded by conditional formating using the color scale rule. Lowest value as green and the highest value as red. The middle value was not specified.

13. **What is the number of days between order date and shipping date for order id - “CA-2015-100363”?**

The oeder\_id, order\_date and ship\_date were copied into a new sheet. The number of days between the order and shipment was calculated using the DATEDIF function as described above. The order\_id column was filtered for the desired item.

14. **What is the shipping price for order id “CA-2015-100678”?**

Here, the question is answered by using a pivot table. The order\_id is called into the rows field and shipping price into the values field of the pivot table. The value field aggregates the shipping cost with the sum function. To filter for the desired order, the order\_if is called into the filter field. The total shipping cost for order\_ID CA-2015-100678 is $47.96.

Also Implemented with Index and Match Formulas in separate sheet.

INDEX(shippprice\_range,MATCH(C2,orderid\_range, 0), 1)

15. **Create a new column that concatenates the customer name, city, and state into a single string for each order.**

To answer this question, the customer\_name, shipping\_city and shipping\_state columns were called into a new sheet. For concatenation, we used a CONCATENATE function with five arguments, of which two arguments are empty spaces between the three values.

16. Use the IFS function to create a new column that categorizes each order as "**High**," "**Low**," or "**Loss**" based on profit and sales criteria.

"**High**" is considered as:

- If sales are above 200 and profit is above 20

- If profit is above 40.

For other cases:

- If the profit is equal or below 0 this is categorized as “**Loss**”

- Any other case this is categorized as "**Low**"

For this question, the order\_id, profit and sale columns were copied into a new sheet. To categorize the profit and sale values into high, low and loss, the IFS, OR, and AND functions together with the category values were used in the order provided and given the column name categories.

1. Use conditional formatting to color the columns with the values “**High**” in green, the value “Low” in yellow and the value “**Loss**” in red.\*\*

For color formatting, conditional formatting was used on the categories column. The ‘text contains’ criteria was used to format the values with the three colors.

1. How many “**Loss**” cases do you have?

To count the number of ‘Loss’ in the column categories, we used a COUNTIF function with the condition “Loss”. A total of 2029 losses were recorded in the categories column.

3. **In a new sheet, create a dropdown of category and product which returns the price for a unit (which you previously solved in exercise 9.)**

To answer this question we copied the category, product and price columns into a new sheet and each column was named in the data ranges. In a new cell, in the same sheet, the data validation was done for category. Next, we filtered the products in the same sheet based on the category using the FILTER function. For data validation of products the column containing the filtered formula was referred in a range. By doing so the list of products updates automatically depending on the category selected. The corresponding price for all the products are obtained by the index function provided, by only changing the named ranges.

OPTIONAL Part

All optional questions are solved in the same Google Sheet Workbook along with Dashboard.

**Summary of the excel exercise**

There is a big variation in the overall sale and profit between the regions. While the WEST region of the country contributes the biggest sale and profit to the company, the SOUTH region has the smallest sale which is nearly a third of the sale in the WEST region. The company might need to investigate why the sale is lower in the SOUTH region. A total of 10 cities from all four regions have recorded net loss of profit. Customer need assessment might be needed in the cities if there is a shift in product need or a gap in service provision.

More than 180 manufacturers sell their products via UNICORN. Their products are categorized into furniture, office supplies and Technology. The three categories show only slight differences in terms of total sale. Technology products from the Canon manufacture are the highest in terms of sale as well as profit. The unit prices of the products sold by UNICORN vary widely from $7500 to $1.3 for EX90 video conferencing unit and Computer Printout Index Tabs, respectively, indicating the diversity of products being sold by UNICORN.

The number of days needed from ordering to shipping is variable and it ranges from 0 days to a maximum of 12 days. The number of days correspond to the shipping method and generally the standard method of shipping takes longer than the others.