1903685 – Shellya Nur Atqiya

Multiple Choice (5 marks per question)
1. What is data visualization?

    a) It is the graphical representation of information and data
    b) It is the numerical representation of information and data
    c) It is the character representation of information and data
    d) None of the above

2. What is true about data visualization?

    a) Data Visualization helps users in analyzing a large amount of data in a simpler way
    b) Data Visualization makes complex data more accessible, understandable, and usable
    c) Data Visualization is a graphical representation of data
    d) All of the above

3. Data visualization is also an element of the broader ....

    a) data process architecture
    b) data presentation architecture
    c) deliver presentation architecture
    d) None of the above

4. Data visualization tools provide an accessible way to see and understand .... in data.

    a) trends
    b) outliers
    c) patterns
    d) All of the above

5. Which method shows hierarchical data in a nested format?

    a) Treemaps
    b) Scatter plots
    c) Area charts
    d) Population pyramids

6. What are the common types of data visualization?

    a) Charts
    b) Tables
    c) Infographics
    d) All of the above

7. What are specific examples of methods to visualize data?

    a) Area Chart
    b) Bubble Cloud
    c) Dot Distribution Map
    d) All of the above

8. The importance of data visualization are ....

    a) Leading the target audience to focus on business insights to discover areas that require attention
    b) Revealing previously unnoticed key points about the data sources to help decision makers compose data analysis reports
    c) Helping decision makers understand how the business data is being interpreted to determine business decisions
    d) All of the above

9. What are the benefits of data visualization?

    a) Better analysis
    b) Identifying patterns
    c) Exploring business insights
    d) All of the above

10. The charts that are helpful in making comparisons between ....

    a) Bar charts
    b) column charts
    c) Pie charts
    d) Both Bar & Column Charts

Case Study (25 marks per question)

Visualisation #1: The Head of Consumer Banking is interested in which region has had the highest growth in customers in last 12 months, and for that region, which centres have had the highest growth in customers. Please consider and mockup a simple visualisation to answer her query.

Answer:

In this case, we want to compare the growth in customers for every region. For comparison, we could use line chart to show the differences or similiarities between values. Line charts compare data, reveal differences across categories, show trends while also revealing highs and lows. The straight lines connect the data points so we could see easily if one data point is higher or lower than the another one, so it helps us to see the growth in customers.

For example, if we have some data:

Table 1 Amount of Customers Banking in 2021

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
DKI Jakarta	480	470	530	580	630	600	620	560	580	630	610	700
Jawa Tengah	400	430	470	490	420	400	390	450	410	470	510	480
Jawa Timur	250	240	260	270	240	330	280	260	270	300	290	320
Bali	220	200	210	250	270	280	240	220	210	230	220	290
Jawa Barat	530	520	490	540	480	520	550	570	550	570	590	620

This table takes so much time to know which region had the highest growth in customer. But if we turn the data into line chart like this:
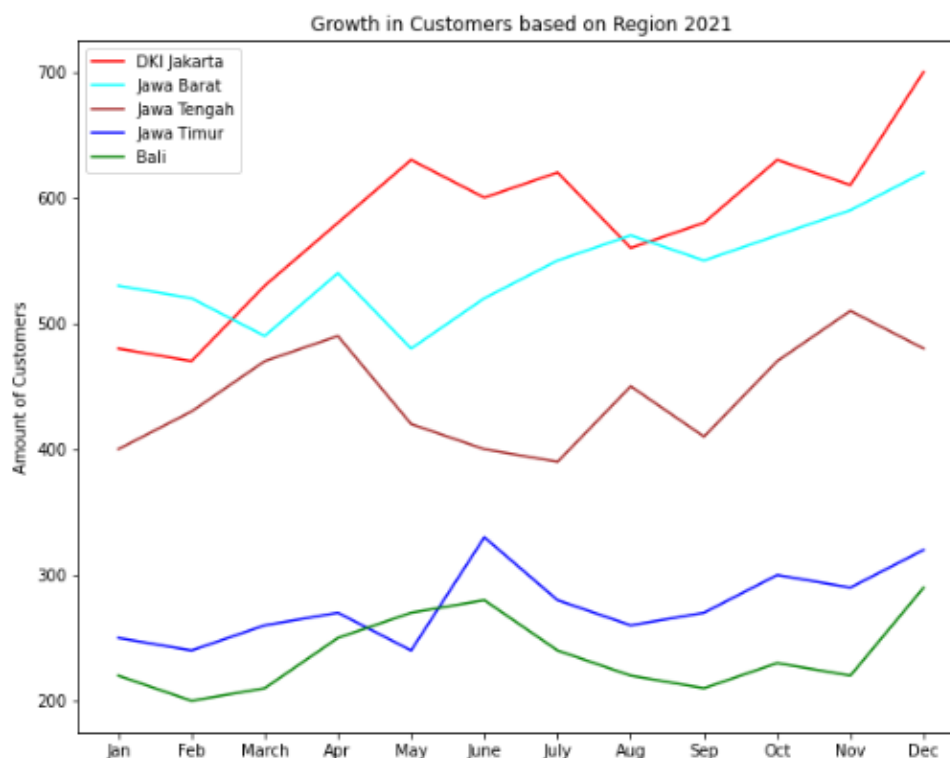
We could easily say DKI Jakarta had the highest growth in customers and reached the peak at December 2021.

For example we have another data, The Amount of Customers on DKI Jakarta's Centres 2021.

Table 2 The Amount of Customers on DKI Jakarta's Centres 2021

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Centres A	120	127	138	167	184	178	183	148	159	180	178	246
Centres B	95	82	106	110	119	112	115	106	107	117	110	118
Centres C	98	95	102	105	115	109	113	107	107	115	109	115
Centres D	88	83	94	102	107	101	107	101	103	110	108	113
Centres E	79	83	90	96	105	100	102	98	104	108	105	108

In order to know which centres that had the highest growth in customers, we can turn the table into line chart again.
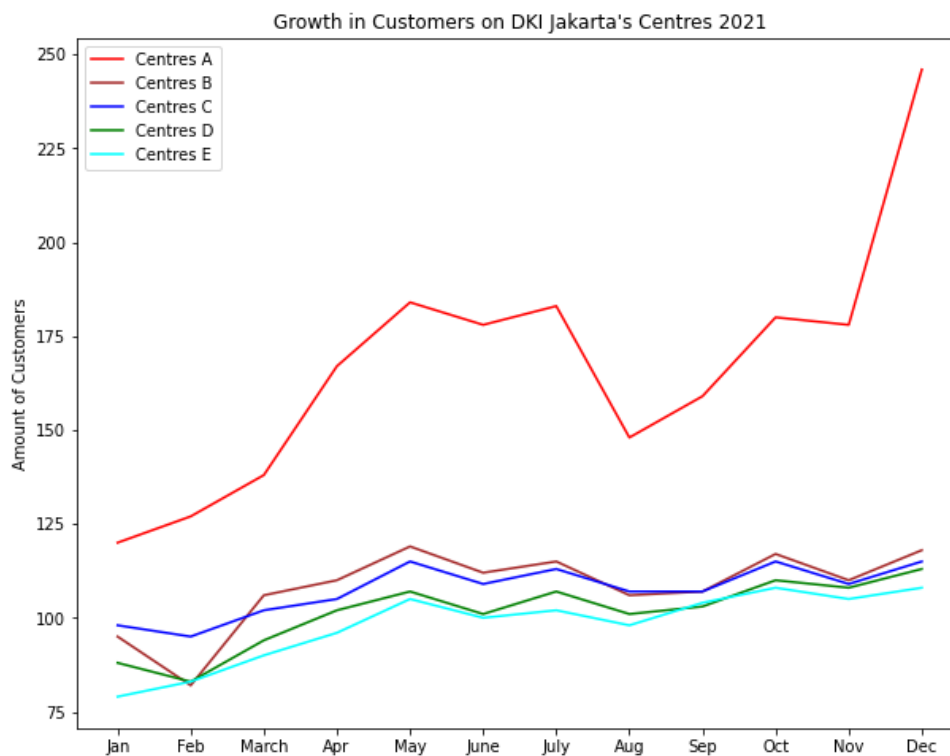
Obviously it's clear that Centres A had the highest growth in customers.

Then it answer the Head of Customer Banking's query, region that had the highest growth in customers is DKI Jakarta and centres that had the highest growth in customers is Centres A.

Visualisation #2: The Head of Operations is curious as to whether the number of visits is drive exclusively by number of customers, or whether instead there are some centres with many customers and few visits or vice versa. Please consider and mockup a simple visualisation that will make this answer clear.

Answer:

In this case, we want to see the relationship between the number of visits and number of customers. For relationship, we could use scatterplot, scatterplot show how much one variable is affected by another.

For example, if we have:

Table 3 Number of Customers and Visits in 10 Centres

	Customers	Visits
Centres A	30	60
Centres B	35	72
Centres C	40	86
Centres D	45	90
Centres E	50	99
Centres F	55	110
Centres G	60	115
Centres H	65	125
Centres I	70	140
Centres J	75	145

We could see the relationship between the variables with scatterplot:
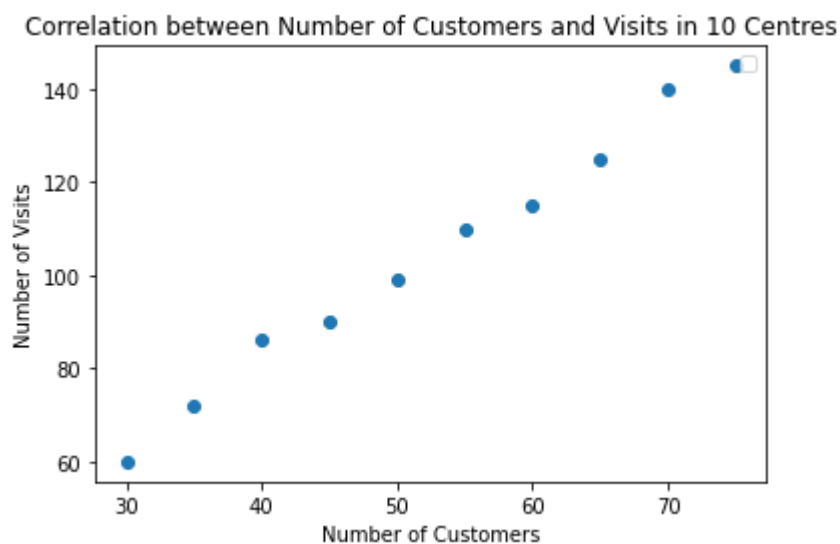
The data points make a straight line going from the origin out to high x- and y-values, then the variables are said to have a positive correlation. This means that the number of visits is drive exclusively by number of customers, if there are many customers, then there are also many visitors.