**Data Visualization & Interpretation   
(DSECL ZG555)**

**BANKING DATA ANALYSIS]**

You work for one of the leading Banks as a data analyst. The bank has a very huge customer base. Along with the routine banking operation support, the bank also has a diversified product portfolio, which is also made available to the bank customers from time to time. For this purpose, the bank’s marketing department runs several campaigns and many details about those campaigns are documented properly. Time to time, the marketing executives refer back to this recorded data in order to figure out the success rate of the campaign.

When the marketing campaign is run, the customers are selected randomly from the huge customer base of the bank. The marketing executives of the bank contact these customers in order to make them aware of the different banking products that are offered by the bank and to enable them to make purchases of such products either through online mode or offline mode. As the potential customers are selected randomly, the success rate of the campaign varies a lot from each other run of the campaign. The bank’s marketing team has taken note of this variance and decided to figure out the contributing factor for this change in success rate. They have concluded that instead of selecting the customers randomly, a proper process needs to be in place so that right potential customers are identified and further on those only should be contacted with the product offerings.

For this purpose, they have assigned you a task of data analysis of earlier run campaigns data in order to figure out what are the contributing factors that help in successful conversion of phone conversation into purchase of the product. Then these contributing attributes will be accommodated in the process of potential customer finding and targeting.

Datasets:





You can make use of Tableau Desktop tools for Exploratory Data Analysis in order to figure out the most significant attributes that help in product purchase. If required, feel free to make proper assumptions about the data and the analysis process to be followed. Don’t forget to mention the assumptions at the right places

With the EDA carried out, you should prepare a dashboard for the **Marketing department leaders**, which will enable them to augment the customer finding process with the right set of attributes.

**VISUALISATION CONTEXT:**

## WHO? KNOW YOUR AUDIENCE (First question is answered for you)

1. List the primary groups or individuals to whom you’ll be communicating.

## -Marketing Department Leaders.

1. If you had to narrow that to a single person, who would that be?

**-**Typically, the Chief Marketing Officer or Head of Campaign Strategy**.**

1. What does your audience care about?

**-**Identifying demographic segments and personal finance backgrounds that correlate with higher conversion rates.

1. What action does your audience need to take?

-Implement targeted marketing strategies informed by data-driven insights.

1. What is at stake? What is the benefit if the audience acts in the way you want them to? What are the risks if they don’t?

-The benefit is a more efficient allocation of marketing resources and improved conversion rates; the risk is continuing to use a non-optimized approach that yields lower returns on investment.

## WHAT?

* What are you trying to communicate? What questions are you trying to answer/display in your visualizations? Write these as specific questions. You need to come up with 3 questions at least, each of which will be answered using one Viz.

Questions:

-What is the relationship between clients' education levels and job categories, financial stability, age and the success of marketing campaigns?

-How the contact method, strategy and the timing of approaching the customer influences the campaign success rate?

-What impact of personal financial circumstances and marital status on campaign outcomes?

* **Data preparation needed to answer the specific queries must be done.**

-Data has been cleaned and structured to enable demographic segmentation.

-Outliers and missing values in economic indicators have been addressed.

-Aggregation has been used where necessary to highlight trends and patterns.

1. **Present the BIG IDEA**.

* It should: (1) articulate your point of view, (2) convey what’s at stake, and (3) be a complete (and single!) sentence.

**"Optimizing marketing campaign strategies based on detailed demographic and personal finance data analysis significantly increases conversion rates, fostering more effective resource allocation and market competitiveness."**

## HOW?

* 1. Chart 1: What type of viz did you create? Why did you select the viz that you did?

**Visualization charts group 1: Demographic Distribution**

**Visualization Type:** Stacked Bar Charts for Literacy (Education level) and Job Demographics, and Line Chart for Age Demographics.

* 1. Chart 2: What type of viz did you create? Why did you select the viz that you did?

**Visualization charts group 2:** Contact Strategy Effectiveness

**Visualization Type:** Horizontal Bar Charts for Contact Method Effectiveness by month and Bar Charts for Contact Timing Effectiveness by day of the week.

* 1. Chart 3: What type of viz did you *create*? Why did you select the viz that you did?

**Visualization charts group 3:** Basic Personal Finance and Marital Status which has a impact on financial decision making,

**Visualization Type:** Bar Charts for Basic Personal Finance (Housing and Loan) and Marital Status with average employment variation rate.

* 1. For each of the Visualisation, identify at least **3 Gestalt principles employed**.

1. **Visualization charts group 1: Demographic Distribution**

**Gestalt Principles:**

**Proximity:** Data related to education and job types are grouped, aiding in the comparison of categories.

**Similarity:** Consistent color usage for successful and unsuccessful conversions helps in quick recognition of patterns.

**Enclosure:** Each demographic category is clearly demarcated, enclosing the related data visually.

1. **Visualization charts group 2:** Contact Strategy Effectiveness

**Visualization Type:** Horizontal Bar Charts for Contact Method Effectiveness by month and Bar Charts for Contact Timing Effectiveness by day of the week.

**Gestalt Principles:**

**Continuity:** The flow of bars in the horizontal bar chart leads the viewer's eye in a natural progression through the months.

**Closure:** The viewer's perception completes the trend across the months, even where data points are minimal or absent.

**Symmetry:** The bilateral symmetry in the timing chart helps in comparing data points across the days of the week.

1. **Visualization charts group 3:** Basic Personal Finance and Marital Status which has a impact on financial decision making,

**Gestalt Principles:**

**Common Fate:** Bars in the same direction share a common fate, indicating the average employment variation rate for different groups.

**Good Continuation:** The viewer's eye is led along the continuous lines of bars, which indicates the flow of data.

**Figure-Ground:** The viewer easily distinguishes the bars (figure) from the background, aiding in focus on the data.

* 1. For each of the Visualisation, mention how you strategically used **pre-attentive attributes** to draw the audience's attention.

1. **Visualization charts group 1: Demographic Distribution**

**Pre-Attentive Attributes:**

**Color:** Green for successful conversions and blue for failed ones allow instant differentiation.

**Length:** The length of the bars conveys the number of records, making it easy to gauge volume.

**Lines:** The line chart for age shows a trend over the age spectrum, capturing the viewer's attention along the path.

1. **Visualization charts group 2:** Contact Strategy Effectiveness

**Pre-Attentive Attributes:**

**Alignment:** Horizontal bars aligned on the left provide a common baseline for comparison.

**Contrast:** The color contrast between green and blue bars emphasizes the difference in conversion success.

**Scale:** The size variation of bars across different months and days indicates the number of customers interacted with.

1. **Visualization charts group 3:** Basic Personal Finance and Marital Status which has a impact on financial decision making,

**Pre-Attentive Attributes:**

**Color:** The use of color to differentiate between successful and failed conversions.

**Size:** The width of the bars corresponds to the number of records, making it easy to spot larger categories.

**Position:** The average employment variation rate is placed on a common scale, allowing for direct comparison between categories.