

Perform the data visualization operations using Tableau to get answers to various questions on the census bureau dataset(Adult data sets).

- a. Find and Plot Income class of People whose education is master's and doctorate.
- b. Find and Plot Income class of people who have private jobs.
- c. Find and Plot yearly sales comparison
- d. Find and Plot country wise statistics on Geospatial graph
- e. Plot age-wise- education vs salary statistics.
- f. Plot Countrywise male female ratio. g. Plot Income class based on workclass(Government and other)

To answer the business questions using Tableau with the Adult Census dataset (which includes fields like age, workclass, education, marital-status, occupation, relationship, race, gender, capital-gain, capital-loss, hours-per-week, native-country, income), here's a detailed step-by-step guide for each of your questions.

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- Prerequisite: Getting Started with Tableau
 - Install Tableau:
 - If you haven't already, download and install Tableau Public (or Tableau Desktop if you have a license).
 - Load Your Dataset:
 - Open Tableau.
 - Click on the "File" option at the top, then select "Open".
 - Choose your dataset (e.g., the Adult Census dataset). This could be a CSV, Excel, or a database.
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 - Step-by-Step Guide for Each Question
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1. a. Income Class of People Whose Education is Master's and Doctorate

- **Steps:**
- **Open Tableau and load the dataset.**
- **Filter Education for Master's and Doctorate:**
- **On the Data Pane (on the left side), find the field named education.**
- **Drag education to the Filters shelf (on the top).**
- **In the Filter dialog box that appears, select the values “Master’s” and “Doctorate” from the list and click OK.**
- **Drag income to Columns:**
- **Drag the field income from the Data Pane to the Columns shelf.**
- **This will display a list of income classes: <=50K and >50K.**
- **Drag education to Rows:**
- **Drag the field education to the Rows shelf.**
- **You will now have a row for each selected education type: Master’s and Doctorate.**
- **Color Income Classes:**
- **Drag income to Color in the Marks card (this will color the bars to distinguish between the income classes).**
- **Change Chart Type (optional):**
- **Go to the “Show Me” panel on the right side and choose the Bar Chart or Pie Chart depending on the visualization type you prefer.**
- **Rename the Sheet:**
- **Right-click on the tab at the bottom and rename it to “Income Class of People with Master's and Doctorate Education”.**
- **Save Your Work:**
- **Save your workbook as a .twbx file by going to File → Save As.**
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- **1. b. Income Class of People with Private Jobs**
- **Steps:**

- **Filter for Private Jobs:**
- Drag workclass to the Filters shelf.
- In the Filter dialog box, select Private and click OK.
- **Plot Income Class:**
- Drag income to Columns.
- Drag workclass to Rows.
- **Create a Bar Chart:**
- Go to the Show Me panel and select Bar Chart if it isn't selected automatically.
- **Color Income:**
- Drag income to Color in the Marks card to differentiate the bars based on income classes ($\leq 50K$, $> 50K$).
- **Rename the Sheet:**
- Rename this sheet to "Income Class of People with Private Jobs".
- **Save Your Work:**
- Go to File → Save As and save your workbook.

• 1. c. Yearly Sales Comparison (If Temporal Data Available)

- Since the Adult Census dataset doesn't include sales data, we would focus on a time-related attribute, such as hours-per-week. However, if you had data with years, you could follow these steps:
- **Steps:**
- **Create Year Data (if it existed in your dataset):**
- If your dataset had a year column, you would drag it to the Columns shelf.
- Right-click on year → select Discrete.
- **Plot Yearly Data:**
- Drag income or hours-per-week to the Rows shelf.
- This will show income or hours per week for each year.

- **Sort by Year:**
- **Right-click on the year axis and sort it in ascending or descending order as needed.**
- **Choose a Line or Bar Chart:**
- **From the Show Me panel, choose a Line Chart for trend analysis, or a Bar Chart for year-wise comparison.**
- **Save Your Work:**
- **Save your workbook.**

- **1. d. Country-wise Statistics on Geospatial Graph**

- **Steps:**
- **Plot Country Data on Map:**
- **Drag native-country to the Rows shelf.**
- **Tableau will automatically recognize native-country as a geographical field.**
- **Drag income (or another field like capital-gain, hours-per-week) to Color in the Marks card.**
- **Change Marks Type to Map:**
- **From the Marks card, change the Mark Type from Automatic to Map.**
- **Adjust Size and Color:**
- **Adjust the Size of map points if necessary to make countries more visible.**
- **Use Color to differentiate based on income or other metrics.**
- **Add Titles:**
- **Right-click on the sheet tab and rename it to “Country-wise Statistics on Geospatial Graph”.**
- **Save Your Work:**
- **Save your workbook.**

- **1. e. Age-wise Education vs Salary Statistics**

- **Steps:**
- **Create Age Groups:**
- Drag age to Columns.
- Right-click on age → Create → Bins.
- Set the bin size to 5 or 10, depending on the granularity you want (e.g., 20-30, 30-40, etc.).
- **Plot Education vs Salary:**
- Drag education to Rows.
- Drag income to Color in the Marks card to differentiate salary classes.
- Choose a Bar or Stacked Bar Chart:
- Select Bar Chart or Stacked Bar from the Show Me panel for clear visualization.
- Rename the Sheet:
- Rename the sheet to “Age-wise Education vs Salary Statistics”.
- Save Your Work:
- Save your workbook.

- **1. f. Country-wise Male/Female Ratio**

- **Steps:**
- **Plot Gender by Country:**
- Drag native-country to Rows.
- Drag gender to Columns.
- **Count Male/Female in Each Country:**
- Right-click on gender → Measure → Count.
- **Plot the Gender Ratio:**
- Drag gender to Color in the Marks card.
- Use a Bar Chart to visualize male/female counts by country.

- **Rename the Sheet:**
 - **Rename the sheet to “Country-wise Male/Female Ratio”.**
 - **Save Your Work:**
 - **Save your workbook.**
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- **1. g. Income Class Based on Workclass (Government and Other)**
 - **Steps:**
 - **Filter Workclass Types:**
 - **Drag workclass to Filters.**
 - **In the Filter dialog box, choose Government and Other.**
 - **Plot Income Class by Workclass:**
 - **Drag income to Columns.**
 - **Drag workclass to Rows.**
 - **Choose a Bar Chart:**
 - **From the Show Me panel, choose a Bar Chart.**
 - **Color by Income:**
 - **Drag income to Color in the Marks card to distinguish income classes.**
 - **Rename the Sheet:**
 - **Rename the sheet to “Income Class by Workclass (Government and Other)”.**
 - **Save Your Work:**
 - **Save your workbook.**
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- **Final Steps: Create a Dashboard**
 - **Create a New Dashboard:**
 - **After creating all your individual sheets, click on the New Dashboard button at the bottom.**

- **Drag and drop each sheet into the dashboard.**
- **Resize and Format:**
- **Resize and align each chart for better readability.**
- **Add Filters:**
- **You can add interactive filters (e.g., for gender, workclass, or education) to allow users to explore the data.**
- **Save and Publish:**
- **Save your workbook as a .twbx file.**
- **You can also publish it to Tableau Public for sharing.**
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