**Design Flow Document**

**1. Introduction**

**1. Purpose**

The purpose of this document is to provide a detailed design flow for the data visualization and analytics platform. This includes the data model, API endpoints, and flowchart diagram to facilitate the development and implementation of the system.

**2. Problem Statements and Solutions**

**2.1 Customer vs Product**

* **Problem:** Understanding the distribution of customers across different products.
* **Solution:** Display total customers for each product using bar or pie charts.

**2.2 State vs Customer vs Product**

* **Problem:** Visualizing customer distribution and product preferences across different states.
* **Solution:** Use an interactive US map with popups showing total customers, yearly trends, and product divisions.

**2.3 Gender Representation**

* **Problem:** Analyzing gender distribution among customers.
* **Solution:** Display the number of customers by gender using a pie chart.

**2.4 Age Representation**

* **Problem:** Understanding the age distribution of customers.
* **Solution:** Show customer counts for different age groups using a bar chart.

**2.5 Product Analytics**

* **Problem:** Detailed analysis of customer distribution by region and product.
* **Solution:** Use various charts and maps to filter and display customer data by region and product type.

**2.6 Customer Navigation**

* **Problem:** Facilitating navigation and filtering of customer data by various attributes.
* **Solution:** Provide charts, lists, and search options to filter and display customer information.

**3. Data Model and Tables**

**5. Detailed Flowchart and API Interactions**

**5.1 Home Page**

**Charts**

* **Customer vs Product**
  + **API Call:** /api/customers/products
* **Gender Representation**
  + **API Call:** /api/customers/gender
* **Age Representation**
  + **API Call:** /api/customers/age

**5.2 State vs Customer vs Product**

* **Interactive Map:**
  + **API Call:** /api/customers/states

**5.3 Product Analytics**

* **User Inputs:**
  + Product Type, Category, Region
* **API Call:** /api/analytics/products
* **Charts:**
  + Total Customers, Region Distribution, Yearly Trend, Age Group Distribution, Top Regions

**5.4 Customer Navigation**

* **User Inputs:**
  + Source of Wealth, Region, Occupation
* **API Call:** /api/customers/navigation
* **Details Display:**
  + Total Customers, Product Split, Top Occupations, Top Regions

**5.5 Customer Details by ID**

* **User Input:** Customer ID
* **API Call:** /api/customers/{customer\_id}
* **Details Display:** Customer details

**5.6 Visual Flowchart Diagram**

To visually represent the flow of data and API interactions, create a flowchart using tools like Lucidchart or Draw.io. Here is a textual guide:

1. **Home Page**
   * **Display Charts:**
     + **Customer vs Product:** /api/customers/products
     + **Gender Representation:** /api/customers/gender
     + **Age Representation:** /api/customers/age
2. **State vs Customer vs Product**
   * **Interactive Map:** /api/customers/states
3. **Product Analytics**
   * **User Inputs:** Product Type, Category, Region
   * **API Call:** /api/analytics/products
   * **Display Charts:**
     + Total Customers
     + Region Distribution
     + Yearly Trend
     + Age Group Distribution
     + Top Regions
4. **Customer Navigation**
   * **User Inputs:** Source of Wealth, Region, Occupation
   * **API Call:** /api/customers/navigation
   * **Display Details:**
     + Total Customers
     + Product Split
     + Top Occupations
     + Top Regions
5. **Customer Details by ID**
   * **User Input:** Customer ID
   * **API Call:** /api/customers/{customer\_id}
   * **Display Details:** Customer details

