Assignment 2: Portfolio of Work with related report 2

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1.1 Purpose of the Visualization

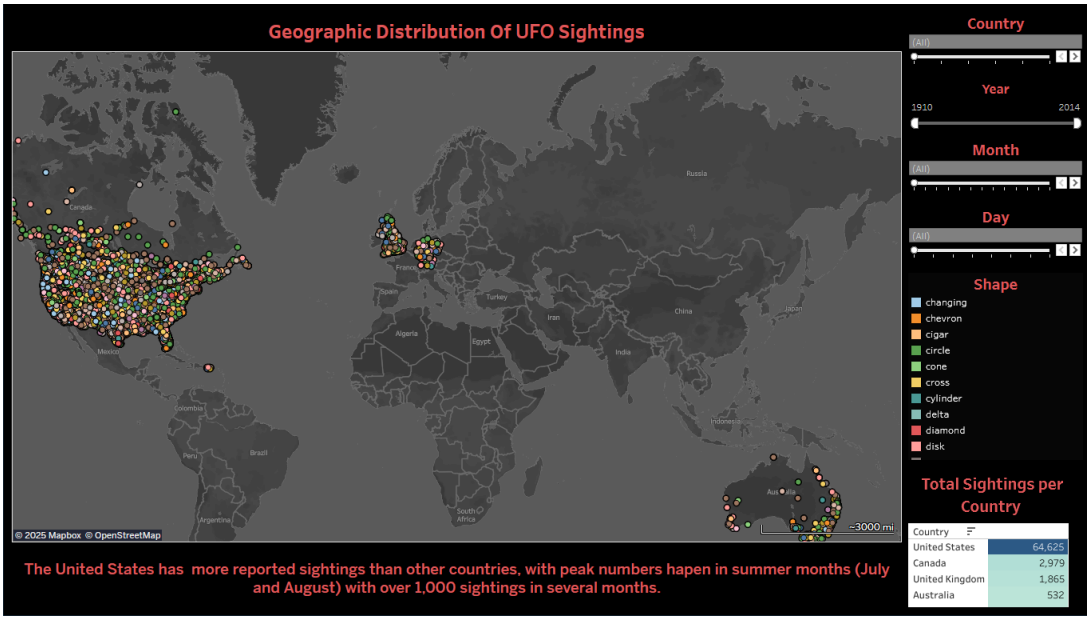

Figure 1: Geographic Distribution of UFO Sightings Visualisation

Designed this interactive map as shown in **Figure 1** to highlight where people have reported sightings around the globe. Looking at the statistics, it's evident that Americans notice a lot more unusual things in the sky than anyone else! The gap between nearly 65,000 reports and 3,000 in Canada is striking. I wanted to create something that would allow everyone to look into these patterns for themselves and even come to their own conclusions about why some regions had so many more reports than others.

1.2 Questions Answered

My visualization helps answer questions people might naturally wonder about:

- Where do most sightings happen?
- When do people tend to spot these objects?
- Has reporting changed over the years from 1910 to 2014?
- Do certain shapes show up more in specific regions?
- Is there something about July and August that brings out more reports?

1.3 Interactivity Features

I've included several ways for users to play with the data:

- A country dropdown so you can focus on just one region
- Time sliders for year, month, and day to track patterns over time
- A shape filter panel so you can look for specific object types
- An interactive map where every colored dot represents a sighting
- Live updating statistics that change as you apply different filters
- A scrollable shape menu showing all the different forms these objects reportedly take

1.4 Linkages Between Visualizations

The visualization implements an integrated filtering system where all elements dynamically respond to user interactions: adjusting the year slider (1910-2014), selecting specific months (highlighting summer peaks), filtering by day, choosing UFO shapes (chevron, cigar, circle) or selecting countries instantly updates both the map display and the statistical summary at the bottom.

1.5 Design Principles & Decisions

When building this visualization, I made several key design choices:

1. I used bright colors for the sighting shapes against a dark map background so they really pop
2. The dark map creates a night sky feeling that fits the subject matter while making the data points easy to spot
3. I organized everything so the map takes center stage with tools neatly arranged on the right
4. I added that text at the bottom to highlight the most interesting finding (the summer spike in US reports)
5. All filters update the map quickly so you can immediately see patterns emerge
6. To visually connect everything without being distracting, I used consistent red headings

I wanted something that feels intuitive but also has depth for those who want to delve deeper and something that will attract both serious researchers and curious beginners. The primary trend in the data is the huge number of reports in the US relative to the rest of the world.

2 Task 2: Diabetes Health Indicators Dashboard Report

Power BI Dashboard Link: Power BI Dashboard

2.1 Purpose of the Dashboard

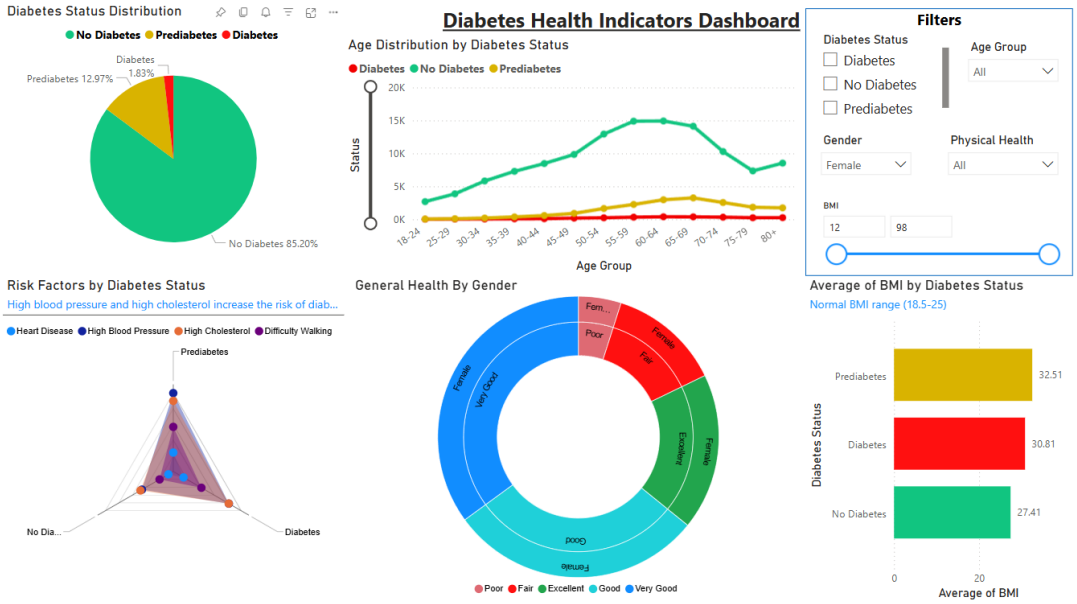

Figure 2: Diabetes Health Indicators Dashboard

The Diabetes Health Indicators Dashboard designed to learn about the prevalence, risk factors, and health indicators of diabetes in the **dataset (diabetes_012_health_indicators_BRFSS2015)** . In order to improve patient

care and health management, its main goal is to shed light on the links between diabetes status, demographic factors, BMI, and other health risk indicators.

Looking at the statistics in **Figur 2** The High blood pressure and high cholesterol significantly increase diabetes risk, as clearly shown in radar chart visualization where these factors are more prevalent in prediabetes and diabetes groups. The age distribution line chart confirms that diabetes risk peaks in the 50-75 age range, with the most pronounced increase occurring in the 60-74 group.

The BMI analysis demonstrates the strong relationship between weight and diabetes status, with average BMI values of 27.74 (No Diabetes), 30.72 (Diabetes), and 31.94 (Prediabetes) all exceeding the healthy range of 18.5-25.

The sunburst chart examining general health perception across genders shows that both males and females show similar patterns in how perceived health status correlates with diabetes risk, with both gender experiencing elevated risk factors when reporting poorer general health.

2.2 Questions Answered by Each Visualization

1. **Diabetes Status Distribution (Pie Chart)**
    - Shows the overall prevalence of diabetes in the population
    - Reveals that 84.24% have no diabetes, 13.93% have prediabetes, and 1.83% have diabetes
    - Helps understand the scale of diabetes as a public health concern
2. **Age Distribution by Diabetes Status (Line Graph)**
    - Shows how diabetes status varies across age groups
    - Shows peak prevalence of prediabetes and diabetes in the 60-69 age range
    - Demonstrates that risk increases with age but slightly decreases in very elderly populations
3. **Average BMI by Diabetes Status (Bar Chart)**
    - Compares BMI levels across diabetes categories
    - Shows elevated BMI in both prediabetes (31.94) and diabetes (30.72) groups
    - Includes reference to normal BMI range (18.5-25) for context
4. **Risk Factors by Diabetes Status (Radar Chart)**
    - How do risk factors (heart disease, high blood pressure, high cholesterol, difficulty walking) vary across diabetes status?
    - Which risk factors are most prevalent in people with diabetes versus prediabetes or no diabetes?
    - How do the risk profiles differ between the three groups?
5. **General Health By Gender (Sunburst Chart)**
    - How does general health status vary by gender?
    - What proportion of each gender reports excellent, good, fair, or poor health?
    - Are there notable gender differences in reported health status?
6. **Filters Panel**
    - How can the data be filtered by diabetes status, age group, gender, and BMI range?
    - What interactive exploration capabilities does the dashboard provide?

2.3 Interactivity Features

The dashboard offers several interactive elements:

- Filter panel for diabetes status selection
- Age group dropdown for demographic filtering
- Gender-based filtering capabilities
- BMI range slider (12-98) for specific BMI analysis
- Cross-filtering between visualizations

2.4 Linkages Between Visualizations

Identical color coding across all charts (green for no diabetes, yellow for prediabetes, and red for diabetes) unifies the dashboard's components, and the filter panel on the right provides a central control that updates all visualizations at once. Each chart changes dynamically when users modify the BMI range slider, age group dropdown, gender filter, or diabetes status checkboxes.

2.5 Design Principles & Decisions

The dashboard employs several key design principles:

- Clear visual hierarchy with prominent dashboard title
- Logical layout flow from overview (pie chart) to detailed analysis
- Consistent color scheme throughout for easy interpretation
- White space and borders for clear visual separation
- Flexible filter placement on the right for easy access
- Readable font sizes and clear labels
- Complementary chart types that work together to tell a complete story