PROJECT DOCUMENTATION

Analysis of Obesity and Physical Activity Trends Across States

1. **Project Overview** - This mini project focuses on analysing obesity and physical activity trends across different states over multiple years using public health data. The objective of the project is to clean and prepare the dataset using Excel and Power Query, and then build an interactive dashboard using Power BI to identify trends, regional differences, and gender-based variations in health indicators. The project aims to transform raw data into meaningful insights that support data-driven understanding of public health patterns.

2. **Tools Used** –

   a) Microsoft Excel
   b) Power BI

3. **Dataset** -
   Nutrition__Physical_Activity__and_Obesity___Behavioral_Risk_Factor_Surveillance_System -
   Data contains (Important ones): YearStart, YearEnd, LocationDesc (Renamed to State), LocationAbbr, Indicator_Category (Renamed to Class), Question, Sex, Data_Value as Value.

4. **Steps Followed –**

   a) Data Cleaning and Preparation (Excel & Power Query)
   - **i)** Imported the raw dataset into Microsoft Excel and converted it into a structured table with headers.
   - **ii)** Used Power Query Editor in Excel to:
     - Rename columns for better clarity (LocationDesc as **State,** Data_Value as **Value)**
     - Set appropriate data types for numeric and text fields
     - Remove rows with missing or null values in the Sex and Value columns
     - Filter the Class to relevant indicator categories such as Obesity and Physical Activity
     - Filter gender values to include only Male and Female
     - Remove duplicate records to ensure data consistency
     - Finalized a clean and analysis-ready dataset for visualization.

   b) Data Visualization and Dashboard Creation (Power BI)
   - Imported the cleaned dataset from Excel into Power BI Desktop for visualization and analysis.
   - Created calculated measures in Power BI to support analysis:
     - Average Value
     - Maximum Value
     - Minimum Value
     - State Count
   - Designed an interactive dashboard using multiple visualizations:
     - KPI cards to display overall metrics such as average value, maximum value, minimum value, and number of states

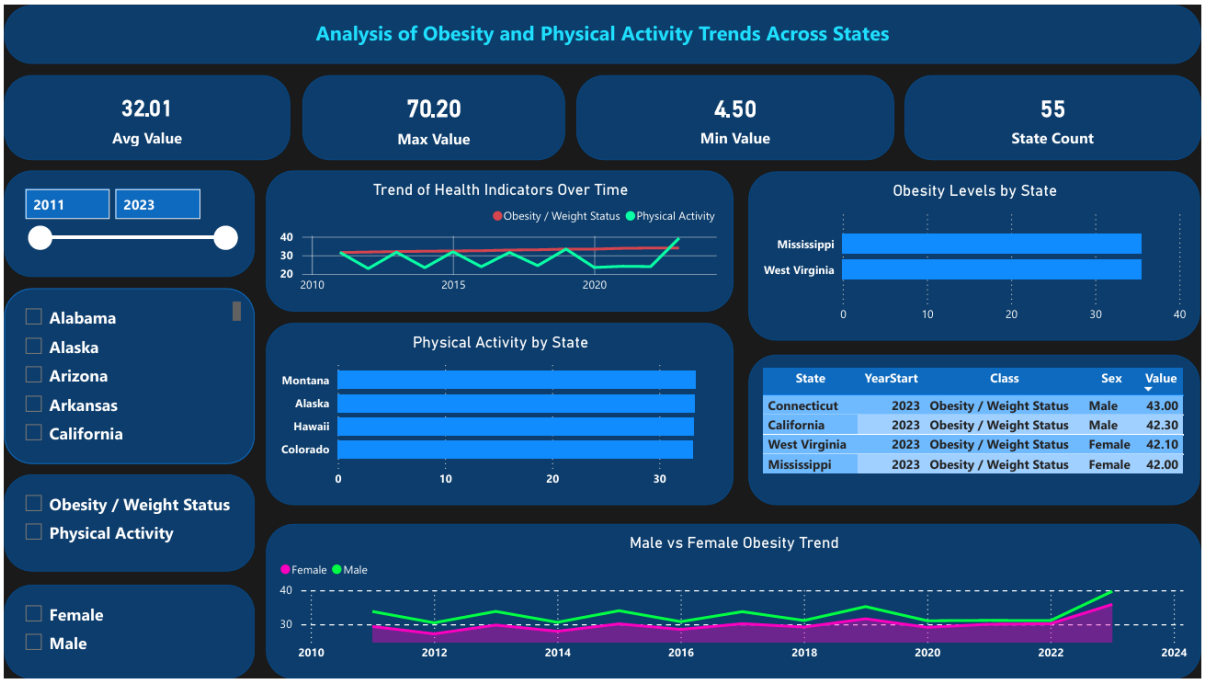
- Line chart to analyze trends in obesity and physical activity over time
- Bar charts to compare obesity and physical activity levels across different states
- Line chart to compare male and female obesity trends over the years
- Table visual to display detailed data for reference and validation

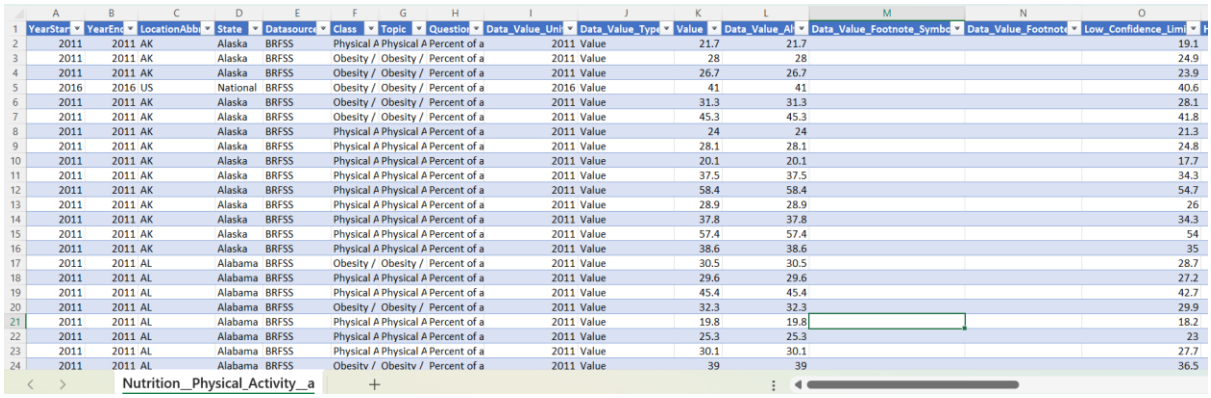
- Added slicers to enable interactive filtering by:
  - Year
  - State
  - Indicator Category (Class)
  - Gender
- Applied formatting and styling to improve readability and visual appeal:
  - Used a consistent color theme
  - Adjusted visual alignment and spacing
  - Added titles and labels for clarity
  - Designed a clean, single-page dashboard layout
- Interpreted trends and patterns from the dashboard to derive meaningful insights related to obesity and physical activity across states.

5. Key Insights

- Obesity levels show a gradual increasing trend across many states over the years.
- Certain states consistently report higher obesity levels compared to others.
- Physical activity levels vary significantly across regions, indicating lifestyle differences.
- Male obesity rates are slightly higher than female rates in most years.
- Recent years show a noticeable rise in obesity levels, highlighting growing public health concerns.

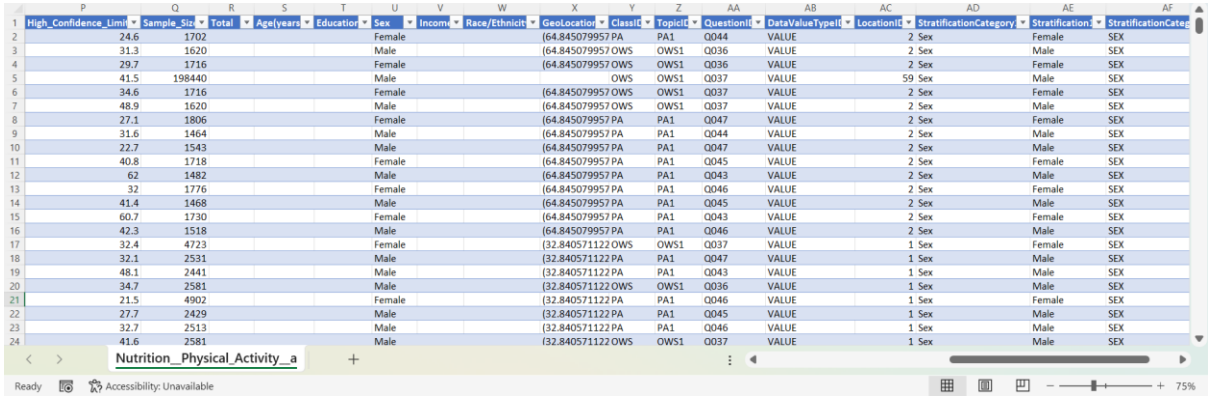
6. Screenshots





YearStart	YearEnd	LocationAbbr	State	Datasource	Class	Topic	Question	Data_Value_Unit	Data_Value_Type	Value	Data_Value_Alt	Data_Value_Footnote_Symbol	Data_Value_Footnote	Low_Confidence_Limit
2011	2011	AK	Alaska	BRFSS	Physical A	Physical A	Percent of a	2011	Value	21.7	21.7			19.1
2011	2011	AK	Alaska	BRFSS	Obesity /	Obesity /	Percent of a	2011	Value	28	28			24.9
2011	2011	AK	Alaska	BRFSS	Obesity /	Obesity /	Percent of a	2011	Value	26.7	26.7			23.9
2016	2016	US	National	BRFSS	Obesity /	Obesity /	Percent of a	2016	Value	41	41			40.6
2011	2011	AK	Alaska	BRFSS	Obesity /	Obesity /	Percent of a	2011	Value	31.3	31.3			28.1
2011	2011	AK	Alaska	BRFSS	Obesity /	Obesity /	Percent of a	2011	Value	45.3	45.3			41.8
2011	2011	AK	Alaska	BRFSS	Physical A	Physical A	Percent of a	2011	Value	24	24			21.3
2011	2011	AK	Alaska	BRFSS	Physical A	Physical A	Percent of a	2011	Value	28.1	28.1			24.8
2011	2011	AK	Alaska	BRFSS	Physical A	Physical A	Percent of a	2011	Value	20.1	20.1			17.7
2011	2011	AK	Alaska	BRFSS	Physical A	Physical A	Percent of a	2011	Value	37.5	37.5			34.3
2011	2011	AK	Alaska	BRFSS	Physical A	Physical A	Percent of a	2011	Value	58.4	58.4			54.7
2011	2011	AK	Alaska	BRFSS	Physical A	Physical A	Percent of a	2011	Value	28.9	28.9			26
2011	2011	AK	Alaska	BRFSS	Physical A	Physical A	Percent of a	2011	Value	37.8	37.8			34.3
2011	2011	AK	Alaska	BRFSS	Physical A	Physical A	Percent of a	2011	Value	57.4	57.4			54
2011	2011	AK	Alaska	BRFSS	Physical A	Physical A	Percent of a	2011	Value	38.6	38.6			35
2011	2011	AL	Alabama	BRFSS	Obesity /	Obesity /	Percent of a	2011	Value	30.5	30.5			28.7
2011	2011	AL	Alabama	BRFSS	Physical A	Physical A	Percent of a	2011	Value	29.6	29.6			27.2
2011	2011	AL	Alabama	BRFSS	Physical A	Physical A	Percent of a	2011	Value	45.4	45.4			42.7
2011	2011	AL	Alabama	BRFSS	Obesity /	Obesity /	Percent of a	2011	Value	32.3	32.3			29.9
2011	2011	AL	Alabama	BRFSS	Physical A	Physical A	Percent of a	2011	Value	19.8	19.8			18.2
2011	2011	AL	Alabama	BRFSS	Physical A	Physical A	Percent of a	2011	Value	25.3	25.3			23
2011	2011	AL	Alabama	BRFSS	Physical A	Physical A	Percent of a	2011	Value	30.1	30.1			27.7
2011	2011	AL	Alabama	BRFSS	Obesity /	Obesity /	Percent of a	2011	Value	39	39			36.5

Nutrition__Physical_Activity__a



High_Confidence_Limit	Sample_Size	Total	Age(years)	Education	Sex	Income	Race/Ethnicity	GeoLocation	ClassID	TopicID	QuestionID	DataValueTypeID	LocationID	StratificationCategory	Stratification	StratificationCat
24.6	1702				Female			(64.845079957	PA	PA1	Q044	VALUE	2	Sex	Female	SEX
31.3	1620				Male			(64.845079957	OWS	OWS1	Q036	VALUE	2	Sex	Male	SEX
29.7	1716				Female			(64.845079957	OWS	OWS1	Q036	VALUE	2	Sex	Female	SEX
41.5	198440				Male				OWS	OWS1	Q037	VALUE	59	Sex	Male	SEX
34.6	1716				Female			(64.845079957	OWS	OWS1	Q037	VALUE	2	Sex	Female	SEX
48.9	1620				Male			(64.845079957	OWS	OWS1	Q037	VALUE	2	Sex	Male	SEX
27.1	1806				Female			(64.845079957	PA	PA1	Q047	VALUE	2	Sex	Female	SEX
31.6	1464				Male			(64.845079957	PA	PA1	Q044	VALUE	2	Sex	Male	SEX
22.7	1543				Male			(64.845079957	PA	PA1	Q047	VALUE	2	Sex	Male	SEX
40.8	1718				Female			(64.845079957	PA	PA1	Q045	VALUE	2	Sex	Female	SEX
62	1482				Male			(64.845079957	PA	PA1	Q043	VALUE	2	Sex	Male	SEX
32	1776				Female			(64.845079957	PA	PA1	Q046	VALUE	2	Sex	Female	SEX
41.4	1468				Male			(64.845079957	PA	PA1	Q045	VALUE	2	Sex	Male	SEX
60.7	1730				Female			(64.845079957	PA	PA1	Q043	VALUE	2	Sex	Female	SEX
42.3	1518				Male			(64.845079957	PA	PA1	Q046	VALUE	2	Sex	Male	SEX
32.4	4723				Female			(32.840571122	OWS	OWS1	Q037	VALUE	1	Sex	Female	SEX
32.1	2531				Male			(32.840571122	PA	PA1	Q047	VALUE	1	Sex	Male	SEX
48.1	2441				Male			(32.840571122	PA	PA1	Q043	VALUE	1	Sex	Male	SEX
34.7	2581				Male			(32.840571122	OWS	OWS1	Q036	VALUE	1	Sex	Male	SEX
21.5	4902				Female			(32.840571122	PA	PA1	Q046	VALUE	1	Sex	Female	SEX
27.7	2429				Male			(32.840571122	PA	PA1	Q045	VALUE	1	Sex	Male	SEX
32.7	2513				Male			(32.840571122	PA	PA1	Q046	VALUE	1	Sex	Male	SEX
41.6	2581				Male			(32.840571122	OWS	OWS1	Q037	VALUE	1	Sex	Male	SEX

Nutrition__Physical_Activity__a

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7. Files Included

- Nutrition__Physical_Activity__and_Obesity_-_Behavioral_Risk_Factor_Surveillance_System.csv – Cleaned data
- Power BI Mini Project.pbix – Power BI dashboard
- 'README.md' – Project description

8. How to Use

- Open 'Nutrition__Physical_Activity__and_Obesity___Behavioral_Risk_Factor_Surveillance_System ` to view the cleaned data.
- Open `Power BI Mini Project.pbix` in Power BI Desktop to explore the visuals.