Final Project Report

Project Name or Identification

Chronic Disease Indicator Dashboard

Prepared by:

Montana Data Consultants

Date:

5/7/2024

Project Summary

The Chronic Disease Indicators (CDI) dashboard project, led by Montana Data Consultants, sought to create an interactive tool for presenting comprehensive chronic disease data in an accessible format. This initiative was driven by Morton Analytics' need to showcase their data capabilities to potential clients, enhancing client engagement during the bidding process. The CDI dashboard was developed with the aim of increasing web traffic and conversion rates, and demonstrating Morton Analytics' expertise in data analysis and visualization. This final report provides insights into the project's objectives, methodologies, outcomes, and recommendations for future enhancements to the CDI dashboard.

Project Description

Montana Data Consultants will develop an exploratory tool that is easy to interact with and provides users with useful information at a glance. Users will understand why the tool exists and develop their own opinion based on the information provided. This tool will make the public data set being used more manageable and will identify trends by mapping indicators of chronic disease. In addition, this tool will be useful for demonstrating to potential contractors what Morton Analytics' can provide as contractors. If possible, Morton Analytics will be able to upload new data into the exploratory tool.

Business Problem

Due to the sensitive nature of their client work, Morton Analytics does not have publicly available bodies of work to demonstrate to potential clients during the bidding process. Building an exploratory tool with a large publicly available dataset will allow Morton Analytics to display said tool and demonstrate the quality and types of data work available for potential clients. This tool will be displayed on their website, and will not run into firewall or information security issues when being accessed, unlike many of their former projects.

Project MOV

The end deliverable will increase web traffic to Morton Analytics' website, particularly return users, then prospect follow-up rate. There should be a 10% follow up rate for project bids (i.e. 1 follow up for every 10 project bids = 10% "at bat"), and a 2% conversion rate (i.e. 1 contract for every 50 prospects = 2% conversion rate).

Planning

For this project, Montana Data Consultants meticulously planned and managed various aspects to ensure successful design and implementation of the CDI (Chronic Disease Indicators) dashboard. The scope management plan defined project objectives, deliverables, and boundaries, ensuring clarity on what would be accomplished. A detailed technology plan guided the selection

of suitable software, tools, and platforms for dashboard development based on research outcomes. Regular reviews, assessments, and testing phases were conducted according to the Gantt chart and schedule, promoting quality assurance and stakeholder engagement throughout the project lifecycle. This experience highlighted the importance of comprehensive planning and proactive management for project success.

Research

Based on the research plan, the project involved developing a data visualization dashboard focusing on chronic diseases and their indicators. The plan outlined three key research categories: content research, design research, and technical research, each with specific objectives:

1. Content Research:
   - Gather information on prevalent chronic disease types, causes, risk factors, prevalence rates, mortality rates, disability-adjusted life years, and other health-related metrics.
   - Identify key chronic disease indicators used in public health monitoring.

2. Design Research:
   - Research UI/UX best practices for effective data visualization and user engagement.
   - Conduct a competitive analysis of existing healthcare data visualization dashboards to identify design trends and weaknesses.

3. Technical Research:
   - Explore suitable software packages, coding languages, hosting platforms, and technology platforms for building the dashboard.
   - Investigate analytics algorithms for analyzing health data and identifying patterns.

The results of the research found that Tableau was the best alternative to create the dashboard using an interactive geographical map of the United States to represent the data.

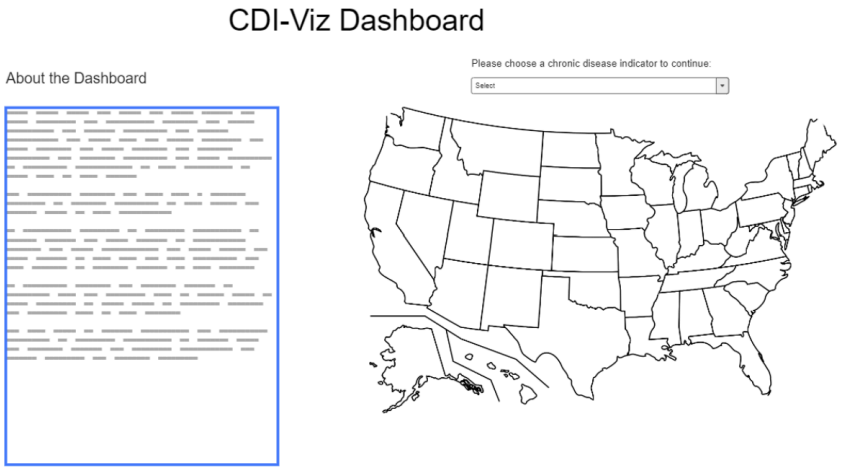
Analysis & Design

The CDI dashboard project involved extensive research and documentation across content, design, and technical aspects. This included defining system requirements and architecture in the Systems Requirements & Design Document, identifying prevalent chronic disease types and indicators through Content Research, and exploring UI/UX best practices and technology options in Design and Technical Research. The culmination of these efforts led to the development of a prototype that incorporated insights from the research phases, showcasing envisioned features and functionalities for stakeholder feedback and validation.

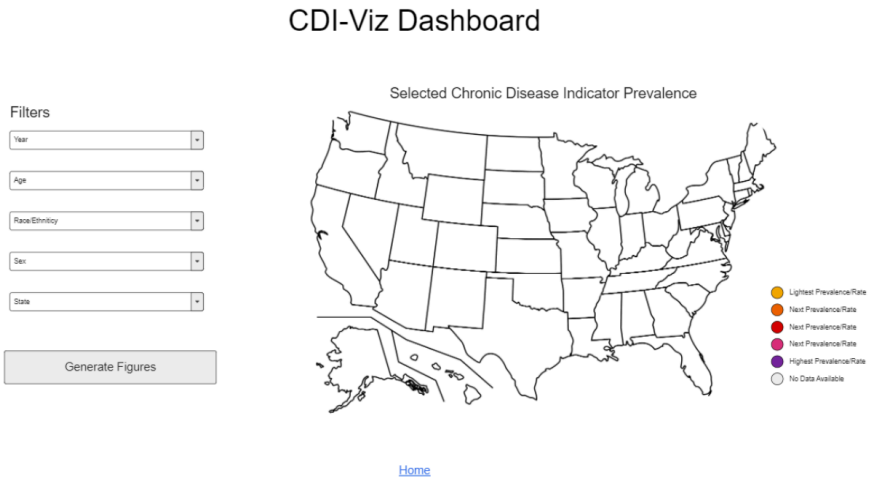
Development & Prototype

The initial concept design for the CDI dashboard included an interactable map of the United States with a dropdown menu above for choosing which chronic disease indicator the user

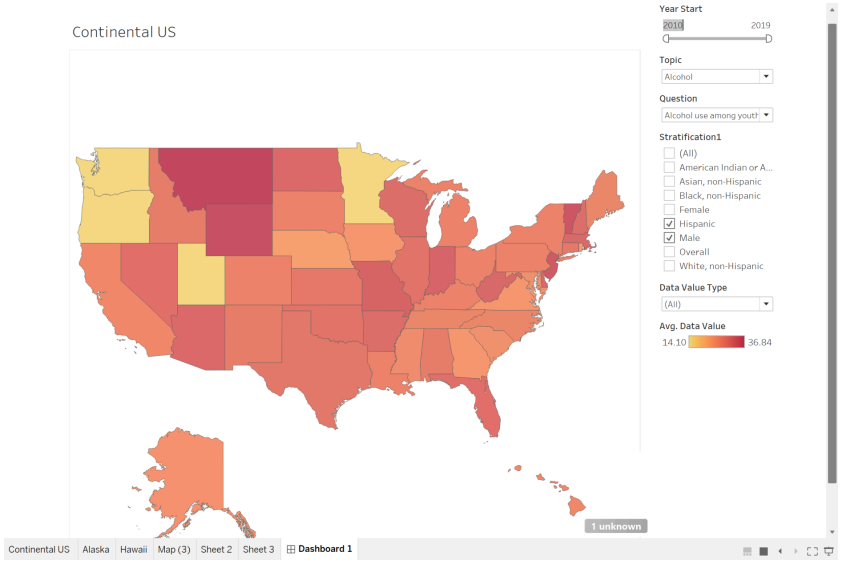
wished to look at. An additional section on the left-hand side of the dashboard provided a brief description of the purpose of the dashboard and a quick user-guide. (Note that this was a still image created to demonstrate Montana Data Consultant's plan for the dashboard. The dashboard had not yet been started when this design was created.)



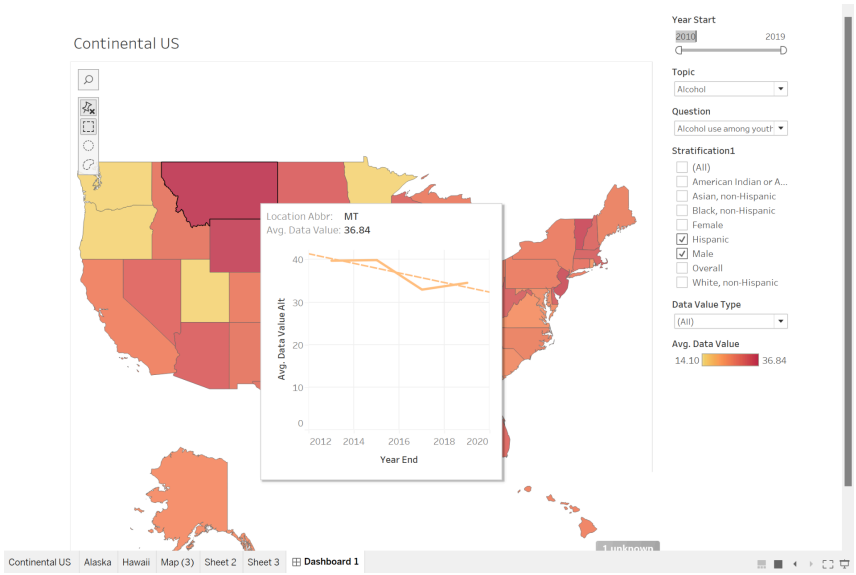
Additional analysis of the data and research into Tableau led to a few changes in the initial concept design. Montana Data Consultants determined a more efficient method for filter organization involving multiple dropdown menus on the left-hand side of the screen, breaking each filter down by 'Year', 'Age', 'Race/Ethnicity', 'Sex', and 'State'. Below the filter options was a button labeled 'Generate Figures' that generated various graphs and charts for the user to compare data for different stratifications. Finally, a colormap was added to the right-hand side of the screen such that the map would be color coded by to provide a visual display of the state-by-state prevalence of an indicator given the selected filters. (Note that this was a still image created to demonstrate Montana Data Consultant's plan for the dashboard. The dashboard had not yet been started when this design was created.)



After consulting with Morton Analytics regarding the second concept design, Montana Data Consultants created the first draft of the Chronic Disease Indicators Dashboard. The filter options relocated to the right hand side of the screen. The filter ‘Stratification1’ combined ‘Race/Ethnicity’ and ‘Sex’ in a single list in which multiple options could be selected. The ‘Age’ option was removed, as age was determined to be factored in only for specific topics and questions.



Hovering over a specific state would display a time series for the selected question and stratifications, including the average data value for each year and a trend line.

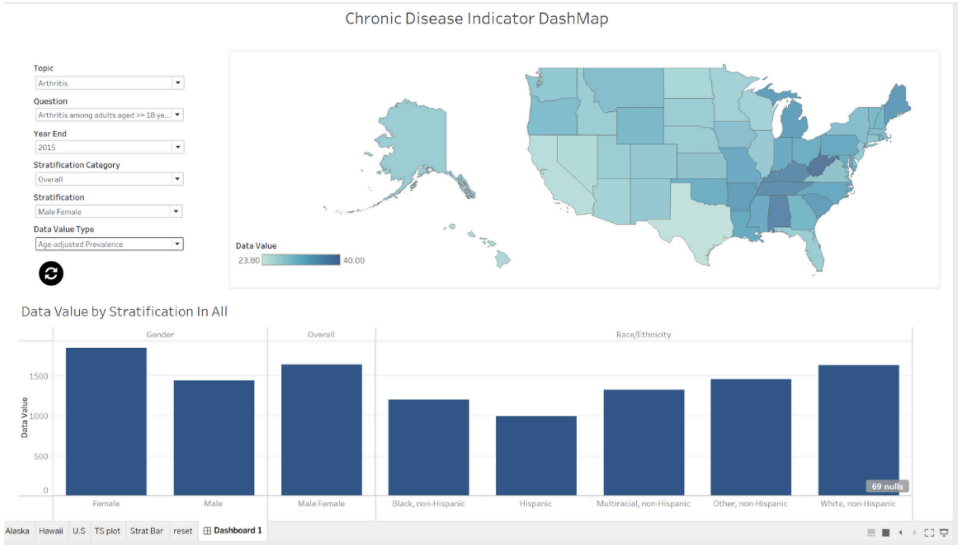


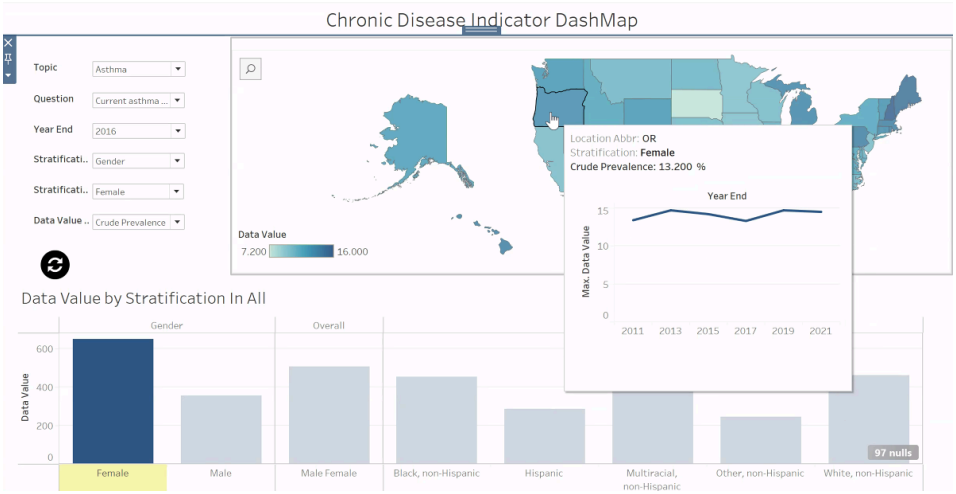
After demonstrating the first draft of the dashboard, Morton Analytics requested a few changes. Multiple iterations of the final dashboard were created, in which only minor changes were made.

For the purposes of this report, the final product will be shown and compared to the previous draft.

The data displayed changed from the average of the year to the maximum, due to the nature of the data itself. In addition and also due to the nature of the data, a new filter was added labeled ‘Stratification Category’, in order to separate ‘Sex’ and ‘Race/Ethnicity’, as the data is separated such that they cannot be viewed in conjunction with one another.

The filter menu returned to the left hand side of the screen, and the colormap was changed for the user’s ease of understanding. Additional bar charts were added at the bottom of the dashboard so users could compare data for different stratifications while also viewing the time series for specific stratifications when hovering over a state. The trend line on the time series was removed, as it created clutter and provided arbitrary value to the dashboard.





Problem Solving

Montana Data Consultants encountered three main problems over the duration of creating the Chronic Disease Indicator DashMap.

The first problem Montana Data Consultants faced was understanding the data itself. First was recognizing that the data is separated such that 'Sex' and 'Race/Ethnicity' are listed in two different entries, in order to protect the privacy of the individuals included in the data sets. The second was understanding the various types of data values that are specific to certain questions. Third was understanding which columns would be useful for the dashboard, as the data set started with 34 columns, many of which contained a majority of null values, and was filtered down to 8 relevant columns. These problems were solved by analyzing the data in Python and R

Finally, in regards to understanding the data, the team needed to understand what, exactly, each column name and variable ('Topic' and 'Question, specifically), meant. There was a lack of documented meta-data for the columns and variables, and such Montana Data Consultants researched each unknown variable in order to gain an understanding of each.

The next main problem Montana Data Consultants faced was how to use the data to tell a meaningful story. While learning what the data meant, and how to use Tableau in and of itself, Montana Data Consultants reached out to Morton Analytics and other mentors in the UM School of Business in order to ensure a meaningful and easy to understand conclusion was reached with the data.

The final problem Montana Data Consultants faced was collaborating while building the Dashboard, as Tableau does not allow for users to work in the same workspace at the same time. To handle this problem, regular meetings were scheduled. At each meeting, each team member working on the dashboard was assigned a specific task to work on and would keep a change log of changes that were made. At the next meeting, the changes would be consolidated into one workspace and given a version number, and each team member took on a new assignment.

Technical Knowledge

Montana Data Consultants gained valuable knowledge regarding data organization and visualization within Tableau. Team members who worked on the dashboard learned the basics of handling the software as well as more specialized operations regarding building a dashboard and creating data visualizations.

Team members who did not work on the dashboard learned Microsoft Project in order to create the team workbook and keep track of project progress.

Comparison of Planned Versus Actual

Original Scope and History of Any Approved Changes

The original scope of the project was to develop an exploratory tool that provides users with easy-to-use and functional information at a glance, using the U.S. Chronic Disease Indicators Data Set from the CDC. The tool aimed to make the public dataset more manageable by mapping chronic disease indicators to identify trends. Additionally, the tool was intended to demonstrate Morton Analytics' capabilities to potential contractors by showcasing data analysis, engineering, and visualization skills.

The scope remained consistent throughout the project, and no changes were made to the defined objectives and functionalities. Testing included gathering feedback from a group (originally at least 25 people, but due to time constraints only 12 were interviewed) of diverse backgrounds to ensure usability, and the final product was presented to stakeholders in a clear, concise manner highlighting its performance and usability.

Original Schedule Deadline versus Actual Completion Date

The original schedule for the CDI Dashboard project was structured with defined phases and milestones over 71 days, from February 1st, 2024, to May 10th, 2024. Throughout the project, the development team opted for an agile approach, prioritizing continuous review sessions and client feedback cycles over strict adherence to deadlines. Notably, adjustments primarily occurred during the design and testing phases, allowing for iterative improvements and flexibility in addressing software issues and user feedback promptly. Despite the adaptable schedule, the project maintained consistency in its scope and objectives, achieving key milestones within the planned time frame and concluding successfully on May 10th, 2024.

Original Budget versus Actual Cost of Completing the Project

The original budget for the CDI Dashboard project was planned based on 60 hours per team member (5 members) at a rate of $20 per hour, totaling $5,080. However, as of now, each team member has worked an average of 30 hours, resulting in a lower actual expenditure. The project is currently under budget due to tasks being completed more efficiently than anticipated, and adjustments to the final budget will be made upon project completion. Despite the initial budget planning, the team's effective time management and productivity contributed to cost savings, highlighting the efficiency of project execution within financial constraints.

Test Plans and Test Results

Montana Data Consultants drafted a detailed Testing Plan found in the Quality Plan, creating a schedule for each project review, and meticulously documented when each review actually occurred in order to note when the schedule did not go to plan.

Planned Testing Plan

Test	Who	When
Data Pipeline Review	Internal	3/27
Data Pipeline Review	Morton Analytics	3/29
First Dashboard Review	Internal	4/11
Second Dashboard Review	Classmates	4/20
Third Dashboard Review	Morton Analytics	4/22
Asses Entire System	Morton Analytics	4/27
In-Depth Code Review	Morton Analytics	4/29
Dashboard Testing	Classmates	5/5

Actual Testing Plan

Test	Who	When
Data Pipeline Review	Internal	3/27
Data Pipeline Review	Morton Analytics	3/29
First Dashboard Review	Internal	4/11
Second Dashboard Review	Classmates	4/20
Third Dashboard Review	Morton Analytics	4/22
Asses Entire System	Morton Analytics	4/27
In-Depth Code Review	Morton Analytics	4/29
Dashboard Testing	Classmates	5/5

Outstanding Issues

Itemized List and Expected Completion

Montana Data Analytics has a few tasks to complete before handing off the dashboard to Morton Analytics:

- Finish user testing and document recommended changes, making minor changes should time allow.
- Test dashboard's ability to handle new data.

Any Ongoing Support Required and Duration

Not applicable.

Project Documentation List

Systems Documentation

The system that will be built will tell a "story" about U.S chronic disease indicators from 2001 - 2021 that viewers can "read" at a glance to clearly understand . The system will allow viewers to select the "Disease" and "Indicator" they wish to view. The system will then display a map that is color coded based on prevalence of that disease and indicator within each state. Viewers will be able to quickly comprehend which states have a greater prevalence than others, but will also be able to navigate to individual states and click on it to see more information.

There will be an additional Python program to run new data through a pipeline to clean the data so it is ready to be uploaded into the dashboard.

System Requirements

System Requirement	Description	Priority
Quick Understanding at a glance	Viewers should be able to get an understanding of the data from a quick view	NEED
Differentiate the prevalence by state/year	Viewers should be able to differentiate the prevalence by state/year	NEED
Differentiate the prevalence by other stratifications such as sex and race	Viewers should be able to differentiate the prevalence by sex/race	NEED

User Stories

As a/an (Who)	I want to (What/goal)	So that (Why/Reason)	Notes
Morton Analytics	Display prevalence of disease indicator by state and other Stratifications	Provide example of a potential product that could be created for clients	

Potential Morton Analytics Clients	Display prevalence of disease indicator by state and other Stratifications	Understand what kind of products are available	
General Public	Display prevalence of disease indicator by state and other Stratifications	Gain a better understanding of indicators of chronic disease in the US	

Research Results

Focus groups will consist of Jackson and Ryan from Morton Analytics, Shawn Clouse, and Jason Triche. Each focus group will be asked questions from a predetermined script to gain feedback on the overall UI/UX of the CDI Dashboard.

Research on Tableau will be done throughout the building of the dashboard by the Visualization Specialist in order to gain knowledge and experience within this software.

New information or unforeseen challenges might necessitate revisiting criteria, weighting, or even reopening the evaluation for alternative options; Montana Data Consultants will remain adaptable throughout the evaluation process.

Overview of Systems Used:

System	**Strengths**	**Weaknesses**	**Reason for Use**
Python	most commonly used language in data science large community and online resources open source	steep learning curve less statistically oriented than other languages	preferred language among team members preferred language of Morton Analytics

Tableau	most comprehensive data visualization tool Excellent visuals free student version	not very straightforward	good integration with a variety of platforms Sponsors familiar with platform

Logical Design

The CDI Data Visualization Tool will be designed so users can view the prevalence of certain chronic disease indicators (asthma, cancer, diabetes, etc.) throughout the United States based on the indicator question, year, data type, location, race, sex, and age. The main visual will be a map of the United States, with each state a different color (using a sunset-themed color scheme) corresponding to the prevalence of the selected indicator and other filters in that state.

Usability

In the context of this project, usability refers to the ease with which users can interact with and derive insights from the data visualization interface. The interface will be intuitive and easy to navigate, allowing users to quickly understand how to interact with the map and access relevant information. The visualization will be responsive and load quickly. The information presented will be clear and easy to interpret. Overall, a high level of usability will ensure users can explore and gain a better understanding of the presence of chronic diseases in the United States.

Navigational Structure and Site Map

The primary interface will be a map of the United States where users can interactively explore the prevalence of various chronic diseases. The interface will allow users to hover over different states to gain more detailed information about the prevalence of the selected disease. Each state in the map will be color coded to represent the prevalence of a specific chronic disease. The prevalence data will be represented using a gradient color scale where darker shades indicate higher prevalence and lighter shades indicate lower. Users will be able to filter data based on: the indicator, year, location, race, sex, and age.

Once the user has picked an indicator, there will be multiple drop down menus on the left side of the screen so the user can filter the data based on the characteristics listed above. The user can look at a specific state, or the user can click on the state on the map itself. Doing so will provide state-level information on the prevalence or rate (depending on the indicator) of the specific indicator the user is looking at. The user will have to specify an indicator to receive any information.

The map itself will be color coded into five classes of prevalence of the chronic disease indicator. The five classes will be color coded in a sunset-based theme. The colors will be yellow, orange, red, pink, and purple, starting at yellow for the lightest prevalence/rate and ending with a dark purple for the highest prevalence/rate. If the data for a specific state is unavailable, it will be coded in gray.

Another drop down menu on the left side of the screen will allow the user to select which year of data they are looking at. The user will also be able to choose to filter by specific age ranges (18-44, 45-64, >=65), sex (male or female), and race/ethnicity (white non-hispanic, black non-hispanic, Hispanic, asian non-hispanic, Hawaiian or Pacific Islander non-Hispanic, American Indian or Alaska Native non-Hispanic, and Multiracial non-Hispanic).

There will be another drop down menu title “Generate figure” and the user can choose to generate a table or graph based on their chosen filters.

Proposed Home Page and/or User Interface (UI) layout for the Information System

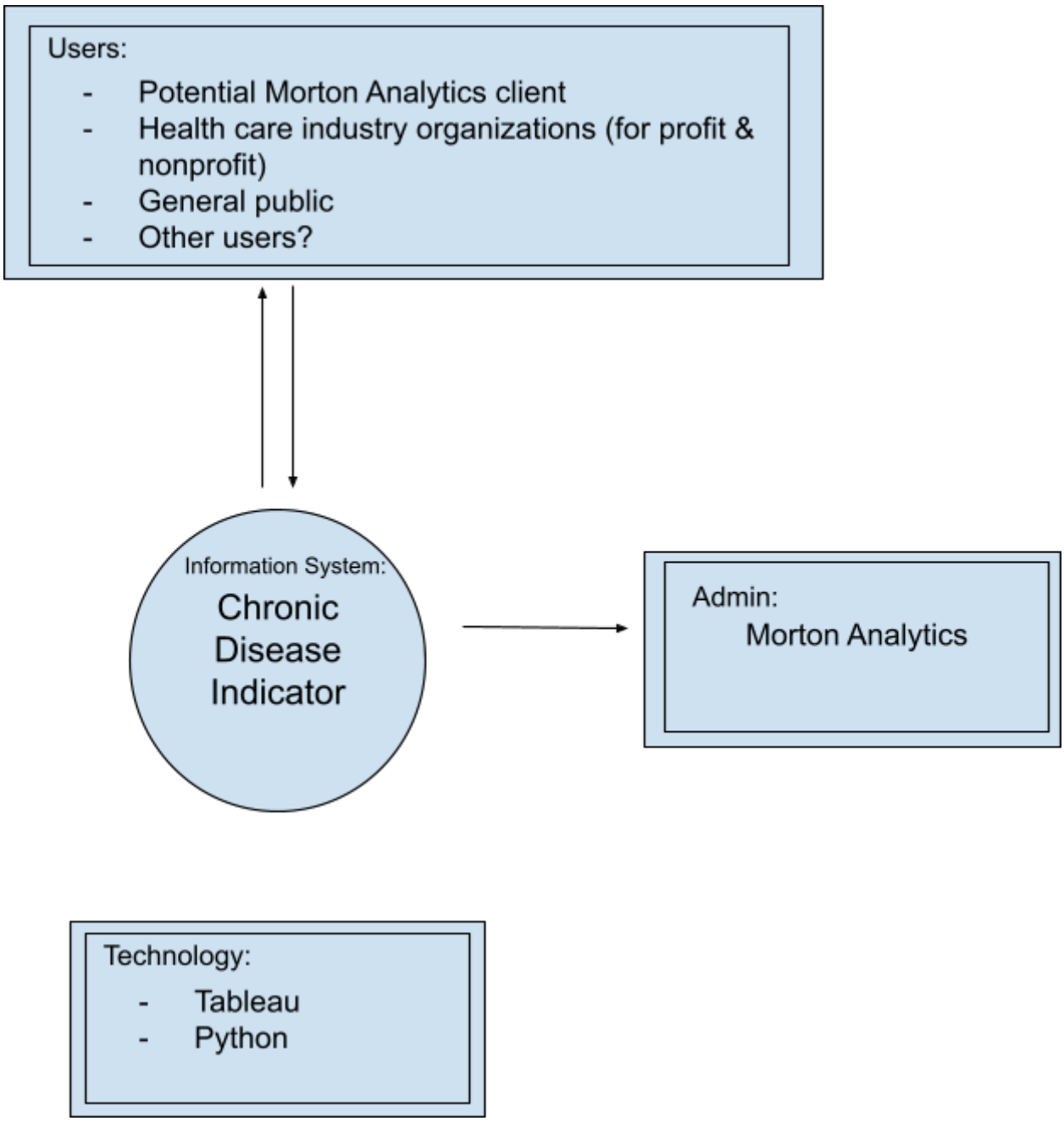
The proposed home page will feature a blank map of the United States with a drop down menu above the map, titled “Please choose a chronic disease indicator to view”. The first drop down menu will allow the user to pick which chronic disease indicator the user would like to filter by.

(Please note that the wireframe mock-up is a basic plan, details will be added upon creation of the dashboard).

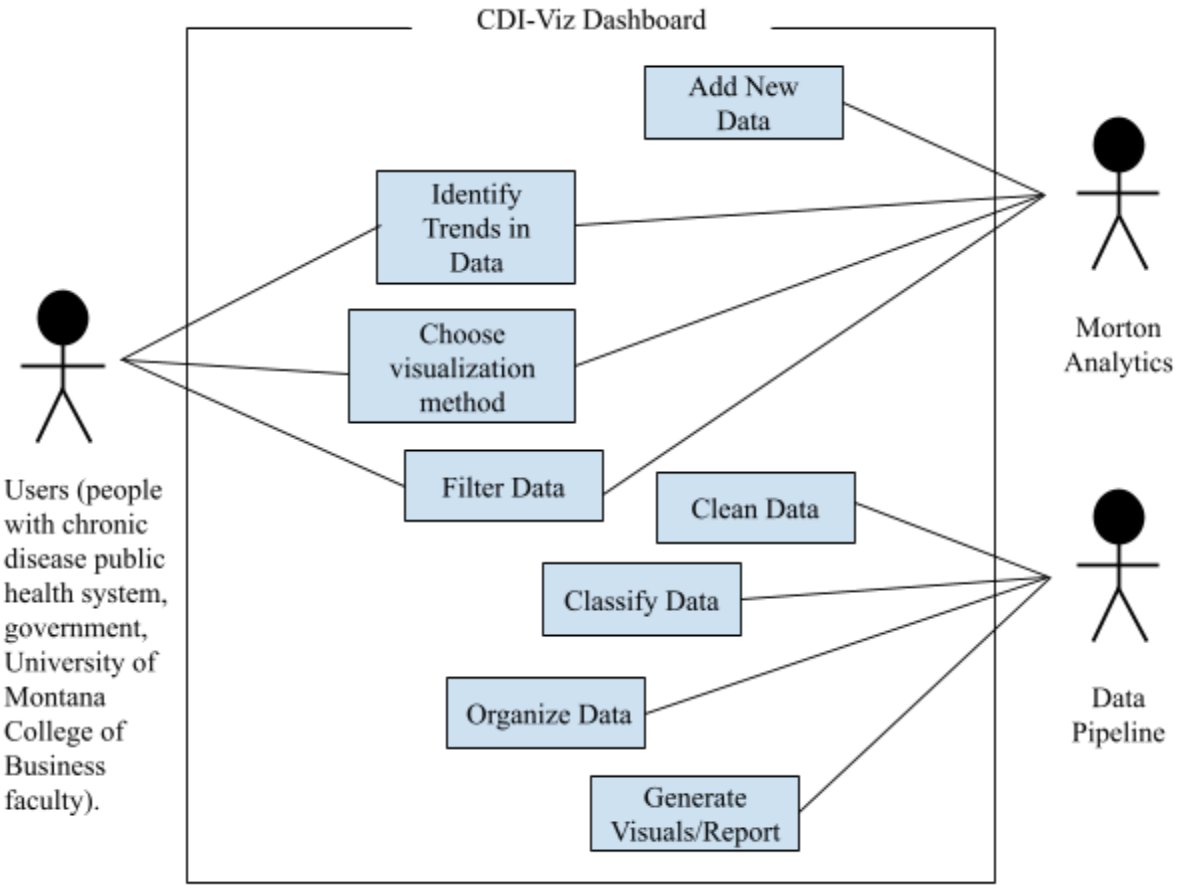
Design Diagrams

Once the user selects what disease indicator they wish to look at, they will then be able to select additional filters. There will also be an option to go “Home” so they may return to the beginning.

Context Level Data Flow Diagram



Use Case Diagram



Physical Design/Data Architecture

The data architecture of this project aims to provide a robust foundation for visualizing the prevalence of chronic diseases across the United States, incorporating demographic factors such as race, sex, and age. This section of the systems document outlines the design, components, and considerations involved in structuring and managing the data required for the visualization.

Server Used

The servers used in creating this visualization are Python and Tableau. These servers were chosen based on the team's experience with these servers and the system requirements provided

by Morton Analytics. Python will be used to create the data pipeline, and clean data. Tableau will be used to create the visual dashboard utilizing the cleaned data set.

Database

The database for this visualization is a single public dataset available at U.S. Chronic Disease Indicators | Data | Centers for Disease Control and Prevention (cdc.gov). The data comes as a csv file containing 1185676 rows and 34 columns.

Column Name	**Description**	**Type**
YearStart	Starting Year	Number
YearEnd	Ending Year	Number
LocationAbbr	Location abbreviation	Text
LocationDesc	Location description	Text
DataSource	Data source abbreviation	Text
Topic	Chronic disease Topic	Text
Question	Question full-length text	Text
Response	Response	Text
DataValueUnit	The unit, such as $, %, years, etc.	Text

DataValueType	Data type such as prevalence or mean	Text
DataValue	Data value such as 12.4, or Category 1	Number/Text
DataValueAlt	Equal to Data Value but formatting is numeric	Number
DataValueFootnoteSymbol	Footnote symbol	Text
LowConfidenceLimit	Low confidence limit	Number
HighConfidenceLimit	High confidence limit	Number
StratificationCategory1	The category of the stratification, such as Gender	Text
Stratification1	The stratification within the category such as Male or Female	Text
StratificationCategory2	The category of the stratification, such as Gender	Text
Stratification2	The stratification within the category such as Male or Female	Text
StratificationCategory3	The category of the stratification, such as Gender	Text

Stratification3	The stratification within the category such as Male or Female	Text
Geolocation	Geolocation code for mapping	Point
LocationID	Location identifier	Text
TopicID	Topic identifier	Text
QuestionID	Question identifier	Text
ResponseID	Identifier for the response	Text
DataValueTypeID	Identifier for the data value type	Text
StratificationCategoryID1	Identifier for stratification category 1	Text
StratificationID1	Identifier for stratification 1	Text
StratificationCategoryID2	Identifier for stratification category 2	Text
StratificationID2	Identifier for stratification 2	Text
StratificationCate3goryID	Identifier for stratification category 3	Text
StratificationID3	Identifier for stratification 3	Text

User Manual

About the Dashboard

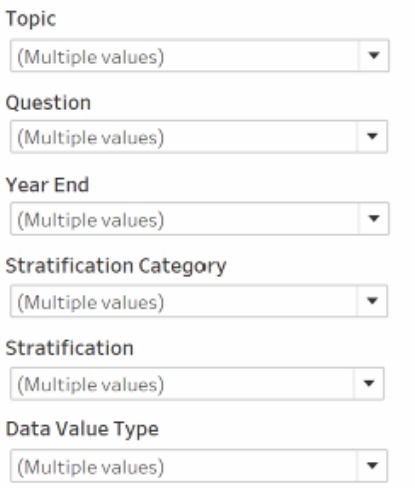
The Chronic Disease Indicators (CDI) Dashmap uses data collected from multiple resources and compiled by the CDC in one publicly available dataset. The data consists of 113 chronic disease indicators, each carefully evaluated and chosen for its relevance to chronic disease prevention and control at the state level. These 113 indicators are categorized into 21 different topics. See **Appendix A** for a list of indicator topics and their associated questions.

Chronic disease, for the purpose of this dashboard, is defined as a commonly recognized disease or health issue that contributes a long-term burden on the health care system, for example conditions which result in multiple ER visits or that require multiple follow up appointments.

The data is collected such that public health professionals, policy makers, and researchers can track chronic diseases and their risk factors at a national and state level. The goal of the data is to improve the United States healthcare system's capacity and efficiency in managing chronic illness.

User Controls

The entire application is controlled via the series of seven drop down menus on the left side of the screen. This menu is known as "user controls." The user must select a value from each user control in order from top to bottom. As soon as the last user control is selected, the map will populate with the data for the user's query. (Note: The user **must** select an option for **all** values **before** a meaningful map and chart is produced.)



Reset Button

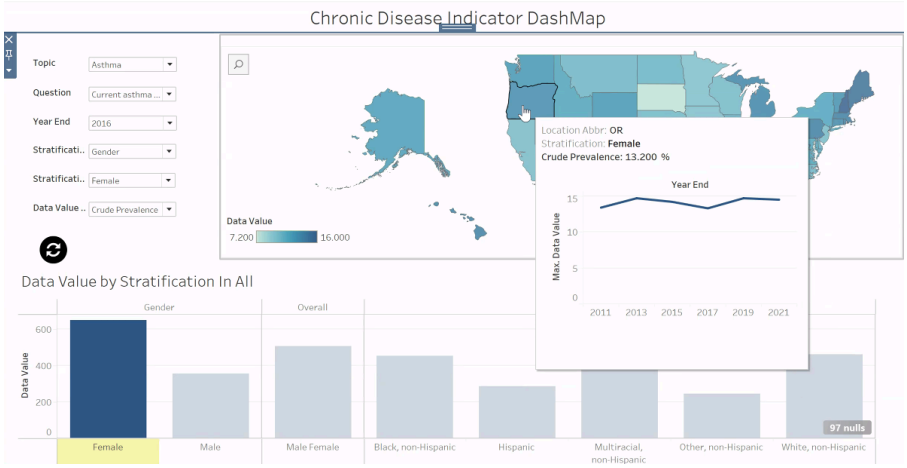
The reset button removes all values from the user controls and resets the map. If the user wishes to change any filters, the reset button must be hit and all values reselected for a successful query.

Map

The map shows all 48 contiguous US states, as well as not-to-scale maps of Alaska and Hawaii to the left of the main map. The map is in different shades of blue, with darker shades indicating larger magnitude data values for the chosen filters.

When the mouse is hovered over a given state, a pop up chart appears containing a time series for the state and the selected filters. This pop up chart contains the state abbreviation and stratification data, as well as a chart showing the data values over time (Note: Values are listed by year end, there is one value per year). The chart scales automatically, and has time in years on the X-axis and the data value in the Y-axis.

Selecting a given state on the map will highlight the chosen stratification values in the bar graph section at the button of the screen. Only one state can be selected at a time.



Bar Graph

The bar graph located below the US map breaks down each question by the different stratifications. When hovering over a specific state, the bar graph allows the user to compare

values for each stratification, while the pop up chart details the time series for the user selected stratification.

Gradient Bar

In the lower left hand corner of the map area, the user will find a gradient bar. This gradient adjusts automatically to show the minimum and maximum data values, with larger values represented by darker colors on the right of the gradient bar.

Appendix A - Topics and Questions

Topic	Question
Alcohol	Chronic liver disease mortality
Alcohol	Binge drinking frequency among adults aged >= 18 years who binge drink
Alcohol	Binge drinking intensity among adults aged >= 18 years who binge drink
Alcohol	Binge drinking prevalence among adults aged >= 18 years
Alcohol	Heavy drinking among adults aged >= 18 years
Alcohol	Binge drinking prevalence among women aged 18-44 years
Alcohol	Heavy drinking among women aged 18-44 years
Alcohol	Alcohol use before pregnancy
Alcohol	Alcohol use among youth
Alcohol	Binge drinking prevalence among youth
Alcohol	Per capita alcohol consumption among persons aged >= 14 years
Alcohol	Amount of alcohol excise tax by beverage type (beer)
Alcohol	Amount of alcohol excise tax by beverage type (distilled spirits)
Alcohol	Amount of alcohol excise tax by beverage type (wine)
Alcohol	Local authority to regulate alcohol outlet density
Alcohol	Commercial host (dram shop) liability laws
Arthritis	Arthritis among adults aged >= 18 years
Arthritis	Arthritis among adults aged >= 18 years who are obese
Arthritis	Arthritis among adults aged >= 18 years who have diabetes

Arthritis	Arthritis among adults aged >= 18 years who have heart disease
Arthritis	Fair or poor health among adults aged >= 18 years with arthritis
Arthritis	Physical inactivity among adults aged >= 18 years with arthritis
Arthritis	Activity limitation due to arthritis among adults aged >= 18 years who have doctor-diagnosed arthritis
Arthritis	Adults aged >= 18 years with arthritis who have taken a class to learn how to manage arthritis symptoms
Arthritis	Severe joint pain due to arthritis among adults aged >= 18 years who have doctor-diagnosed arthritis
Arthritis	Work limitation due to arthritis among adults aged 18-64 years who have doctor-diagnosed arthritis
Asthma	Asthma mortality rate
Asthma	Current asthma prevalence among adults aged >= 18 years
Asthma	Influenza vaccination among noninstitutionalized adults aged 18-64 years with asthma
Asthma	Influenza vaccination among noninstitutionalized adults aged >= 65 years with asthma
Asthma	Pneumococcal vaccination among noninstitutionalized adults aged 18-64 years with asthma
Asthma	Pneumococcal vaccination among noninstitutionalized adults aged >= 65 years with asthma
Asthma	Hospitalizations for asthma
Asthma	Emergency department visit rate for asthma
Asthma	Asthma prevalence among women aged 18-44 years
Cancer	Cancer of the colon and rectum (colorectal), incidence
Cancer	Cancer of the colon and rectum (colorectal), mortality
Cancer	Cancer of the female breast, mortality
Cancer	Cancer of the female cervix, mortality
Cancer	Cancer of the lung and bronchus, incidence
Cancer	Cancer of the lung and bronchus, mortality
Cancer	Cancer of the oral cavity and pharynx, mortality
Cancer	Cancer of the prostate, mortality
Cancer	Invasive cancer (all sites combined), incidence
Cancer	Invasive cancer (all sites combined), mortality
Cancer	Invasive cancer of the cervix, incidence
Cancer	Invasive cancer of the female breast, incidence
Cancer	Invasive cancer of the oral cavity or pharynx, incidence

Cancer	Invasive cancer of the prostate, incidence
Cancer	Invasive melanoma, incidence
Cancer	Melanoma, mortality
Cancer	Fecal occult blood test, sigmoidoscopy, or colonoscopy among adults aged 50-75 years
Cancer	Mammography use among women aged 50-74 years
Cancer	Papanicolaou smear use among adult women aged 21-65 years
Cancer	Recent Papanicolaou smear use among women aged 21-44 years
Cardiovascular Disease	Hospitalization for heart failure among Medicare-eligible persons aged >= 65 years
Cardiovascular Disease	Mortality from cerebrovascular disease (stroke)
Cardiovascular Disease	Mortality from coronary heart disease
Cardiovascular Disease	Mortality from diseases of the heart
Cardiovascular Disease	Mortality from total cardiovascular diseases
Cardiovascular Disease	Mortality from heart failure
Cardiovascular Disease	Influenza vaccination among noninstitutionalized adults aged 18-64 years with a history of coronary heart disease or stroke
Cardiovascular Disease	Influenza vaccination among noninstitutionalized adults aged >= 65 years with a history of coronary heart disease or stroke
Cardiovascular Disease	Pneumococcal vaccination among noninstitutionalized adults aged 18-64 years with a history of coronary heart disease
Cardiovascular Disease	Pneumococcal vaccination among noninstitutionalized adults aged >= 65 years with a history of coronary heart disease
Cardiovascular Disease	Hospitalization for acute myocardial infarction
Cardiovascular Disease	Hospitalization for stroke
Cardiovascular Disease	Awareness of high blood pressure among adults aged >= 18 years
Cardiovascular Disease	Cholesterol screening among adults aged >= 18 years
Cardiovascular Disease	High cholesterol prevalence among adults aged >= 18 years
Cardiovascular Disease	Taking medicine for high blood pressure control among adults aged >= 18 years with high blood pressure
Cardiovascular Disease	Awareness of high blood pressure among women aged 18-44 years
Cardiovascular Disease	Pre-pregnancy hypertension
Chronic Kidney Disease	Mortality with end-stage renal disease

Chronic Kidney Disease	Prevalence of chronic kidney disease among adults aged >= 18 years
Chronic Kidney Disease	Incidence of treated end-stage renal disease
Chronic Kidney Disease	Incidence of treated end-stage renal disease attributed to diabetes
Chronic Obstructive Pulmonary Disease	Hospitalization for chronic obstructive pulmonary disease as any diagnosis among Medicare-eligible persons aged >= 65 years
Chronic Obstructive Pulmonary Disease	Hospitalization for chronic obstructive pulmonary disease as first-listed diagnosis among Medicare-eligible persons aged >= 65 years
Chronic Obstructive Pulmonary Disease	Mortality with chronic obstructive pulmonary disease as underlying cause among adults aged >= 45 years
Chronic Obstructive Pulmonary Disease	Mortality with chronic obstructive pulmonary disease as underlying or contributing cause among adults aged >= 45 years
Chronic Obstructive Pulmonary Disease	Influenza vaccination among noninstitutionalized adults aged >= 45 years with chronic obstructive pulmonary disease
Chronic Obstructive Pulmonary Disease	Pneumococcal vaccination among noninstitutionalized adults aged >= 45 years with chronic obstructive pulmonary disease
Chronic Obstructive Pulmonary Disease	Prevalence of chronic obstructive pulmonary disease among adults >= 18
Chronic Obstructive Pulmonary Disease	Prevalence of chronic obstructive pulmonary disease among adults >= 45 years
Chronic Obstructive Pulmonary Disease	Prevalence of current smoking among adults >= 18 with diagnosed chronic obstructive pulmonary disease
Chronic Obstructive Pulmonary Disease	Prevalence of current smoking among adults >= 45 years with diagnosed chronic obstructive pulmonary disease
Chronic Obstructive Pulmonary Disease	Hospitalization for chronic obstructive pulmonary disease as first-listed diagnosis
Chronic Obstructive Pulmonary Disease	Hospitalization for chronic obstructive pulmonary disease as any diagnosis
Chronic Obstructive Pulmonary Disease	Emergency department visit rate for chronic obstructive pulmonary disease as any diagnosis
Chronic Obstructive Pulmonary Disease	Emergency department visit rate for chronic obstructive pulmonary disease as first-listed diagnosis
Chronic Obstructive Pulmonary Disease	Prevalence of activity limitation among adults >= 18 with diagnosed chronic obstructive pulmonary disease

Chronic Obstructive Pulmonary Disease	Prevalence of activity limitation among adults >= 45 years with diagnosed chronic obstructive pulmonary disease
Diabetes	Mortality due to diabetes reported as any listed cause of death
Diabetes	Mortality with diabetic ketoacidosis reported as any listed cause of death
Diabetes	Adults with diagnosed diabetes aged >= 18 years who have taken a diabetes self-management course
Diabetes	Dilated eye examination among adults aged >= 18 years with diagnosed diabetes
Diabetes	Foot examination among adults aged >= 18 years with diagnosed diabetes
Diabetes	Glycosylated hemoglobin measurement among adults aged >= 18 years with diagnosed diabetes
Diabetes	Influenza vaccination among noninstitutionalized adults aged 18-64 years with diagnosed diabetes
Diabetes	Influenza vaccination among noninstitutionalized adults aged >= 65 years with diagnosed diabetes
Diabetes	Pneumococcal vaccination among noninstitutionalized adults aged 18-64 years with diagnosed diabetes
Diabetes	Pneumococcal vaccination among noninstitutionalized adults aged >= 65 years with diagnosed diabetes
Diabetes	Prevalence of depressive disorders among adults aged >= 18 years with diagnosed diabetes
Diabetes	Prevalence of diagnosed diabetes among adults aged >= 18 years
Diabetes	Amputation of a lower extremity attributable to diabetes
Diabetes	Hospitalization with diabetes as a listed diagnosis
Diabetes	Prevalence of high blood pressure among adults aged >= 18 years with diagnosed diabetes
Diabetes	Prevalence of high cholesterol among adults aged >= 18 years with diagnosed diabetes
Diabetes	Visits to dentist or dental clinic among adults aged >= 18 years with diagnosed diabetes
Diabetes	Diabetes prevalence among women aged 18-44 years
Diabetes	Prevalence of pre-pregnancy diabetes
Diabetes	Prevalence of gestational diabetes
Disability	Disability among adults aged >= 65 years
Immunization	Influenza vaccination among noninstitutionalized adults aged >= 18 years
Mental Health	Recent mentally unhealthy days among adults aged >= 18 years
Mental Health	At least 14 recent mentally unhealthy days among women aged 18-44 years
Mental Health	Postpartum depressive symptoms

Nutrition, Physical Activity, and Weight Status	Healthy weight among adults aged >= 18 years
Nutrition, Physical Activity, and Weight Status	No leisure-time physical activity among adults aged >= 18 years
Nutrition, Physical Activity, and Weight Status	Obesity among adults aged >= 18 years
Nutrition, Physical Activity, and Weight Status	Overweight or obesity among adults aged >= 18 years
Nutrition, Physical Activity, and Weight Status	Overweight or obesity among women aged 18-44 years
Nutrition, Physical Activity, and Weight Status	Meeting aerobic physical activity guidelines for additional and more extensive health benefits among adults aged >= 18 years
Nutrition, Physical Activity, and Weight Status	Meeting aerobic physical activity guidelines for substantial health benefits among adults aged >= 18 years
Nutrition, Physical Activity, and Weight Status	Meeting aerobic physical activity guidelines for substantial health benefits and for muscle-strengthening activity among adults aged >= 18 years
Nutrition, Physical Activity, and Weight Status	Median daily frequency of fruit consumption among adults aged >= 18 years
Nutrition, Physical Activity, and Weight Status	Median daily frequency of vegetable consumption among adults aged >= 18 years
Nutrition, Physical Activity, and Weight Status	Computer use among high school students
Nutrition, Physical Activity, and Weight Status	Obesity among high school students
Nutrition, Physical Activity, and Weight Status	Soda consumption among high school students
Nutrition, Physical Activity, and Weight Status	Television viewing among high school students

Nutrition, Physical Activity, and Weight Status	Participation in daily school physical education classes among high school students
Nutrition, Physical Activity, and Weight Status	Meeting aerobic physical activity guidelines among high school students
Nutrition, Physical Activity, and Weight Status	Median daily frequency of fruit consumption among high school students
Nutrition, Physical Activity, and Weight Status	Median daily frequency of vegetable consumption among high school students
Nutrition, Physical Activity, and Weight Status	Healthy weight among high school students
Nutrition, Physical Activity, and Weight Status	Overweight or obesity among high school students
Nutrition, Physical Activity, and Weight Status	Live births occurring at Baby Friendly Facilities
Nutrition, Physical Activity, and Weight Status	Infants breastfed at 6 months
Nutrition, Physical Activity, and Weight Status	Receiving formula supplementation within the first 2 days of life among breastfed infants
Nutrition, Physical Activity, and Weight Status	Mean maternity practices in infant nutrition care (mPINC) score
Nutrition, Physical Activity, and Weight Status	Farmers markets that accept Women and Infant Children (WIC) farmers market nutrition program coupons
Nutrition, Physical Activity, and Weight Status	Number of farmers markets per 100,000 residents
Nutrition, Physical Activity, and Weight Status	Secondary schools that allow community-sponsored use of physical activity facilities by youth outside of normal school hours
Nutrition, Physical Activity, and Weight Status	Secondary schools that allow students to purchase soda or fruit drinks

Nutrition, Physical Activity, and Weight Status	Secondary schools that allow students to purchase sports drinks
Nutrition, Physical Activity, and Weight Status	Secondary schools that offer less healthy foods as competitive foods
Nutrition, Physical Activity, and Weight Status	Farmers markets that accept Supplemental Nutrition Assistance Program (SNAP) benefits
Nutrition, Physical Activity, and Weight Status	Presence of regulations pertaining to serving fruit in early care and education settings
Nutrition, Physical Activity, and Weight Status	Presence of regulations pertaining to serving vegetables in early care and education settings
Nutrition, Physical Activity, and Weight Status	Census tracts with healthier food retailers within ½ mile of boundary
Nutrition, Physical Activity, and Weight Status	Presence of regulations pertaining to screen time in early care and education settings
Nutrition, Physical Activity, and Weight Status	State child care regulation supports onsite breastfeeding
Nutrition, Physical Activity, and Weight Status	Presence of regulations pertaining to avoiding sugar in early care and education settings
Older Adults	Hospitalization for hip fracture among Medicare-eligible persons aged >= 65 years
Older Adults	Proportion of older adults aged 50-64 years who are up to date on a core set of clinical preventive services
Older Adults	Proportion of older adults aged >= 65 years who are up to date on a core set of clinical preventive services
Older Adults	Prevalence of 2 or more chronic conditions among Medicare-enrolled persons aged >= 65 years
Oral Health	All teeth lost among adults aged >= 65 years
Oral Health	No tooth loss among adults aged 18-64 years
Oral Health	Six or more teeth lost among adults aged >= 65 years
Oral Health	Visits to dentist or dental clinic among adults aged >= 18 years
Oral Health	Preventive dental care before pregnancy
Oral Health	Dental visits among children and adolescents aged 1-17 years

Oral Health	Preventive dental visits among children and adolescents aged 1-17 years
Oral Health	Oral health services at Federally Qualified Health Centers
Oral Health	Population served by community water systems that receive fluoridated drinking water
Overarching Conditions	Premature mortality among adults aged 45-64 years
Overarching Conditions	Current lack of health insurance among adults aged 18-64 years
Overarching Conditions	Fair or poor self-rated health status among adults aged >= 18 years
Overarching Conditions	Recent activity limitation among adults aged >= 18 years
Overarching Conditions	Recent physically unhealthy days among adults aged >= 18 years
Overarching Conditions	Prevalence of sufficient sleep among adults aged >= 18 years
Overarching Conditions	Poverty
Overarching Conditions	Current health care coverage among women aged 18-44 years
Overarching Conditions	Self-rated health status among women aged 18-44 years
Overarching Conditions	High school completion among adults aged 18-24 years
Overarching Conditions	Life expectancy at birth
Overarching Conditions	Gini Index of income inequality
Overarching Conditions	High school completion among women aged 18-44 years
Overarching Conditions	Poverty among women aged 18-44 years
Overarching Conditions	Life expectancy at age 65 years
Overarching Conditions	Health insurance coverage before pregnancy
Reproductive Health	Timeliness of routine health care checkup among women aged 18-44 years
Reproductive Health	Folic acid supplementation
Reproductive Health	Postpartum checkup
Tobacco	Current smokeless tobacco use among adults aged >= 18 years
Tobacco	Current smoking among adults aged >= 18 years
Tobacco	Pneumococcal vaccination among noninstitutionalized adults aged 18-64 years who smoke
Tobacco	Pneumococcal vaccination among noninstitutionalized adults aged >= 65 years who smoke
Tobacco	Quit attempts in the past year among current smokers
Tobacco	Current cigarette smoking among women aged 18-44 years
Tobacco	Cigarette smoking before pregnancy
Tobacco	Current cigarette smoking among youth
Tobacco	Current smokeless tobacco use among youth
Tobacco	Amount of tobacco product excise tax

Tobacco	States with strong polices that require retail licenses to sell tobacco products
Tobacco	States that allow stronger local tobacco control and prevention laws
Tobacco	Proportion of the population protected by a comprehensive smoke-free policy prohibiting smoking in all indoor areas of workplaces and public places, including restaurants and bars
Tobacco	Sale of cigarette packs
Tobacco	Secondary schools that have a comprehensive tobacco-free school policy in place
Tobacco	Percent tobacco revenue to fund at CDC recommended level

Maintenance Documentation

This dashboard requires little to no maintenance because it has no live connection to the data. If desired, the data can be updated by uploading new data into the Tableau from a .csv file.