Data Visualization
HealthCare Application

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Introduction

- **Purpose of the application**
  - Information visualization
  - Trend in diabetes
  - Predictive analysis
  - Correlate trends in diabetes

- **Project Accomplishments**
  - Comprehended data set
  - Data clean-up
  - Suitable visualizations.
Introduction

- **Users**
  - Doctors
  - Analytical people
  - Common man

- **Data related work**
  - Obtained from Centers for Disease Control and Prevention (CDC)
  - Diabetes patients
  - Multiple years data
  - Across all states of the US

http://www.cdc.gov/
Introduction

- Tools used
  - HTML and JavaScript
  - Apache Tomcat Server
  - NetBeans IDE 8.0.1
  - Dreamweaver CS8
  - Tableau
Outlines in visualization

• **Diabetes Prevalence**
  • shows the relationship among number of people diagnosed as diabetic, their adjusted ages and corresponding obesity percentage, within each geographic location for several years.

• **Hospitalization**
  • shows the comparison of the number of discharges and the length of stay in the hospital for people diagnosed diabetic, as a first listed diagnosis or any listed diagnosis, across several years.
Outlines in visualization

- **Treatment**
  - Shows the percentage of adults within diabetes by diabetes medication status, across several years.

- **Self Reported Risk Factor**
  - Shows trend pertaining to risk factors in diabetic patients.

- **Preventive Care**
  - Suggests the trend in people (as percentage) who took different preventive actions, and were also diagnosed diabetic.
Data Visualization

- **Design pattern**
  - **Organization: Multiple workspaces**
    Users may want to view different graphs and trends in the application.
  - **Navigation: Fully connected**
    Allows the users to navigate between pages and also return to the home page from each page.
Data Visualization

Design Principles

- Scatter plot

![Scatter plot diagram](image-url)
Data Visualization

Design Principles

- Line graph (Trend Lines +)
Data Visualization

Design Principles

- Bar chart
Data Visualization

Design Principles

- US map 🇺🇸
Web Application

- Dashboard
  - Shneiderman’s Mantra
  - Overall structure
  - Details
- Note!

not refreshed on a daily basis, as a typical dashboard is intended to do.
Analytical Interactions

- **Comparison**
  - An effective data analysis is to allow comparisons.
  - The dataset chosen for this project had data for different years and comparison of data among years and state was thought suitable.

- **Sorting**
  - The visualization graphs are allowed to be sorted to analyze the same data in different perspectives.
Analytical Interactions

- **Filtering**
  - The filtering option is provided for users to choose specific years of data.
  - Users can choose year and obtain data and trend corresponding to that year.

- **Highlighting**
  - Brushing – Highlight the same data in multiple graphs
  - Data Spot light – Highlight selected and dim the rest
Analytical Interactions

- **Zooming and Panning**
  - In the overall display of dashboards, the map is displayed as a small object.
  - If the user wants to zoom to look for states in the east coast, the user would be able to do that by zooming and panning across the maps.

- **Data Tips**
  - Users can get more information by hovering over the mouse.
  - A tool tip with more information regarding the data will be displayed to the user.
  - This feature would aid the user to understand and analyze more data and to further drill down to the atomic level.
Setup and Run

I. Unzip original project zip file

II. Open NetBeans IDE, click “File” in tool bar and open original project folder.

III. If there is a warning of “Missing Java EE Server” under “Libraries”, right click on project “HealthCare” and click “Resolve Missing Server Problem” to configure a server which is indispensable to support tableau API.

IV. Right click on project “HealthCare” and click “Run” to run this web application on local server.
DEMO

- Web Application: HealthCare
References


