

DIABETES

Analysis Cases

in United States



Our Team



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Project Background

- Diabetes: A chronic health condition caused by body's failure to regulate blood glucose level
- Remains a significant public health concern in US
- The project is based on health dataset of patient records in the US



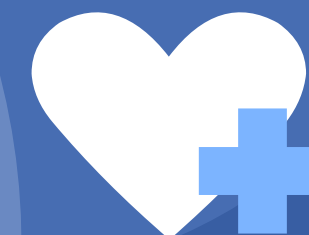


Problem Statement

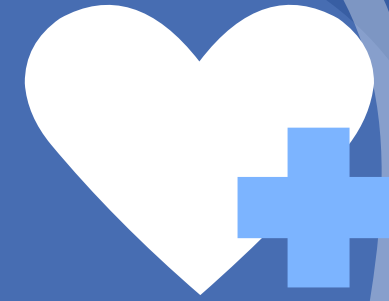
- Variability of the data (mixed data types)
- Large amount of data
- Difficult to manually interpret relationships between predictors & diabetes outcomes

Data Context

- Diabetes Clinical Dataset from Kaggle
- 100k records of patient data
- Combining demographic information with important physiological parameters (17 attributes)
- 8-year period from 2015 to 2022 from 55 different distinct states in the US



Target Audience



- **Public healthcare analysts**

discover causes, relationships, and evidence

- **Healthcare practitioners**

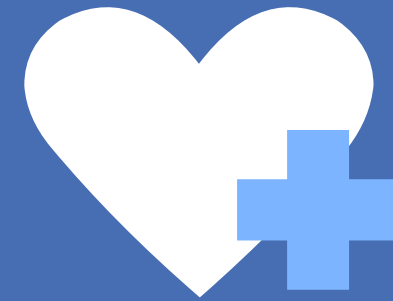
analyzing healthcare data to support operational

- **Medical researchers**

disease patterns, distribution, and causes



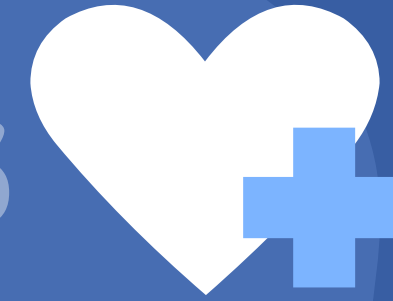
Project Aims



- Perform thorough analysis of a large-scale diabetes clinical dataset
- Improve knowledge how different health indicators contribute to diabetes
- Convert complex clinical dataset into valuable insights



Research Objectives



- 1) To identify demographic and health distribution patterns among patients**
- 2) To compare health risk indicators between diabetic and non-diabetic patients**
- 3) To examine the distribution and trends of diabetes prevalence**

Research Questions (Objective 1)

- 1) What is the distribution and trend of diabetes status from 2015 to 2022?**
- 2) How are diabetic and non-diabetic patients distributed by gender, age group and race?**
- 3) Does diabetes status differ by gender?**
- 4) How are diabetes cases geographically distributed across US states?**
- 5) What is the proportion of patients with hypertension or heart disease among age groups?**

Research Questions (Objective 2)

- 1) How does average BMI differ between diabetic and non-diabetic patients across BMI categories?**
- 2) How does HbA1c level and blood glucose level differ between diabetic and non-diabetic patients?**
- 3) How does the prevalence of hypertension differ between diabetic and non-diabetic patients?**
- 4) How does the prevalence of heart disease differ between diabetic and non-diabetic patients?**
- 5) How does smoking history differ between diabetic and non-diabetic patients?**

Research Questions (Objective 3)

- 1) How does diabetes prevalence vary by age groups across genders?**
- 2) How has the distribution of diabetes cases across BMI categories changed from 2015 to 2022?**
- 3) How has the number of diabetes cases changed from 2015 to 2022 across gender categories?**

Derivates Attributes

Age Group

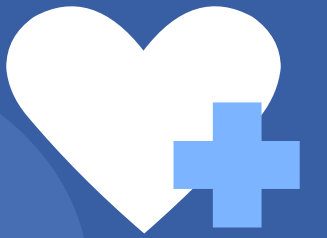
Senior, Adult, Teenager, Young Adult, Child

BMI Category

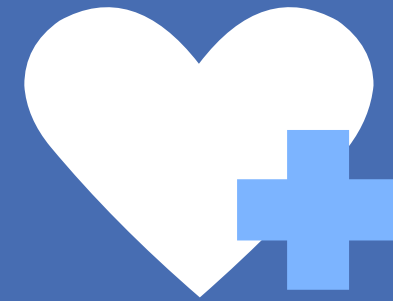
Underweight, Normal, Overweight, Obese

Race

African American, Asian, Hispanic, Caucasian, Other



Conclusion



- Hypertension and heart disease are more common in people with diabetes
- Diabetic patients exhibit higher BMI, particularly in overweight and obese categories
- HbA1c and blood glucose levels are significantly higher among diabetics
- Smoking history, especially former and current smokers, shows higher diabetes prevalence



THANK
YOU ♥ +



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