Name	Jay Salunke
UID	2022601007
Exp no.	3
Aim	Design Interactive Dashboards and Storytelling using Tableau / Power BI / R (Shiny) / Python (Streamlit/Flask) / D3.js to be performed on the dataset - Disease spread / Healthcare

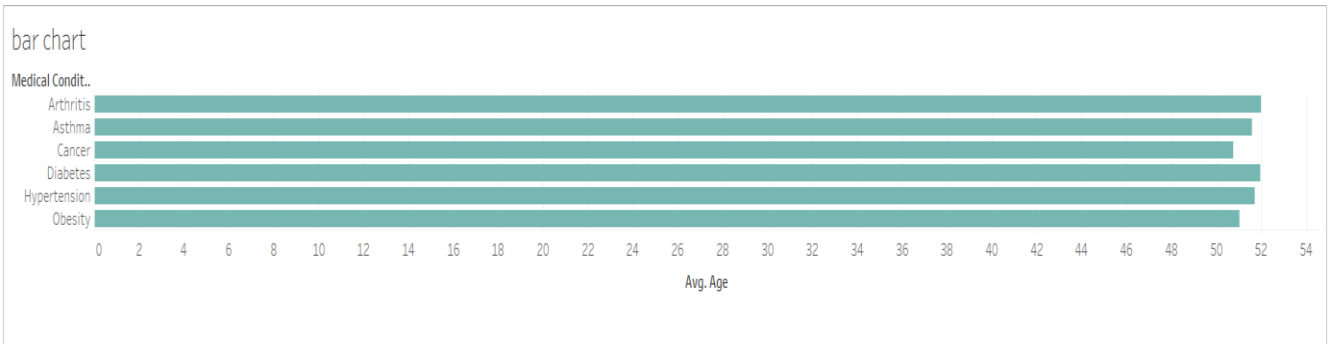
HealthCare Dataset:

Each column provides specific information about the patient, their admission, and the healthcare services provided, making this dataset suitable for various data analysis and modeling tasks in the healthcare domain. Here's a brief explanation of each column in the dataset -

- **Name:** This column represents the name of the patient associated with the healthcare record.
- **Age:** The age of the patient at the time of admission, expressed in years.
- **Gender:** Indicates the gender of the patient, either "Male" or "Female."
- **Blood Type:** The patient's blood type, which can be one of the common blood types (e.g., "A+", "O-", etc.).
- **Medical Condition:** This column specifies the primary medical condition or diagnosis associated with the patient, such as "Diabetes," "Hypertension," "Asthma," and more.
- **Date of Admission:** The date on which the patient was admitted to the healthcare facility.
- **Doctor:** The name of the doctor responsible for the patient's care during their admission.
- **Hospital:** Identifies the healthcare facility or hospital where the patient was admitted.
- **Insurance Provider:** This column indicates the patient's insurance provider, which can be one of several options, including "Aetna," "Blue Cross," "Cigna," "UnitedHealthcare," and "Medicare."
- **Billing Amount:** The amount of money billed for the patient's healthcare services during their admission. This is expressed as a floating-point number.
- **Room Number:** The room number where the patient was accommodated during their admission.
- **Admission Type:** Specifies the type of admission, which can be "Emergency," "Elective," or "Urgent," reflecting the circumstances of the admission.
- **Discharge Date:** The date on which the patient was discharged from the healthcare facility, based on the admission date and a random number of days within a realistic range.
- **Medication:** Identifies a medication prescribed or administered to the patient during their admission. Examples include "Aspirin," "Ibuprofen," "Penicillin," "Paracetamol," and "Lipitor."
- **Test Results:** Describes the results of a medical test conducted during the patient's admission. Possible values include "Normal," "Abnormal," or "Inconclusive," indicating the outcome of the test.

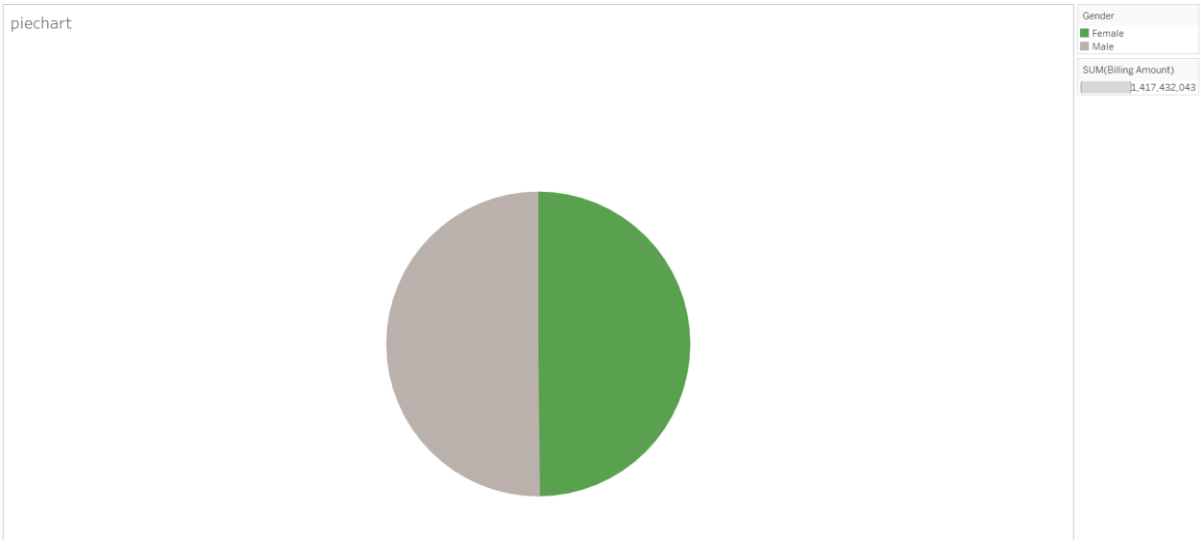
Bar Chart

The chart shows the average onset age for six conditions: Arthritis, Asthma, Cancer, Diabetes, Hypertension, and Obesity. Arthritis, with the highest average onset age, occurs later in life, whereas Obesity, with the lowest average onset age, tends to manifest earlier. This chart effectively highlights the typical ages at which these conditions typically develop, revealing a pattern of earlier or later onset for different conditions.



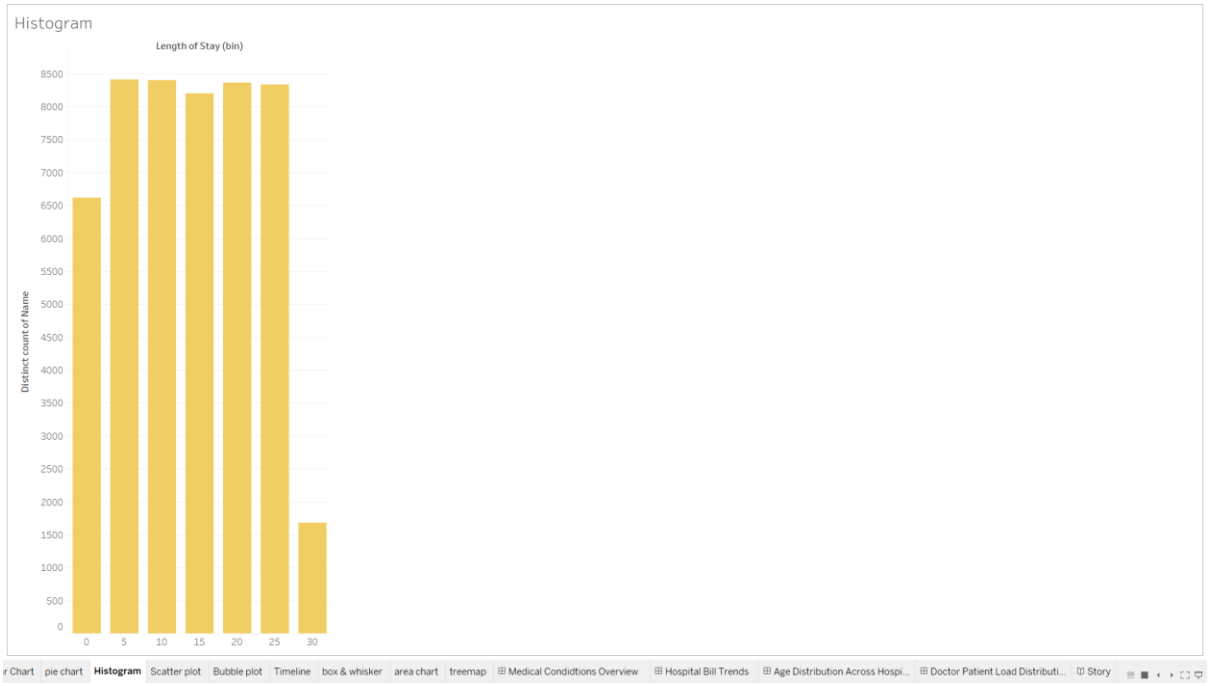
Pie Chart

The chart compares billing amounts between males and females. The green segment represents females, while the gray segment represents males. The chart reveals a notable difference in billing amounts by gender, showing which gender incurs higher or lower average billing. This visualization provides a clear, immediate understanding of gender-related billing disparities in the dataset.



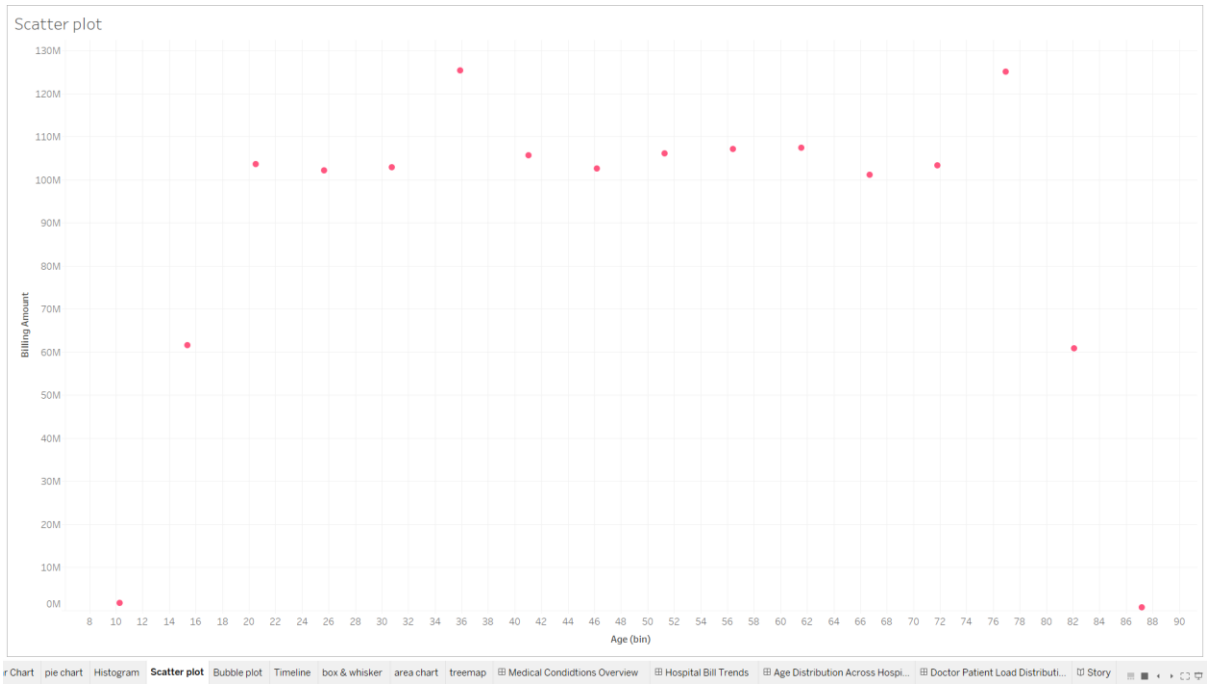
Histogram

The histogram shows that shorter hospital stays are more common with age 5-10, and lesser with age 30.



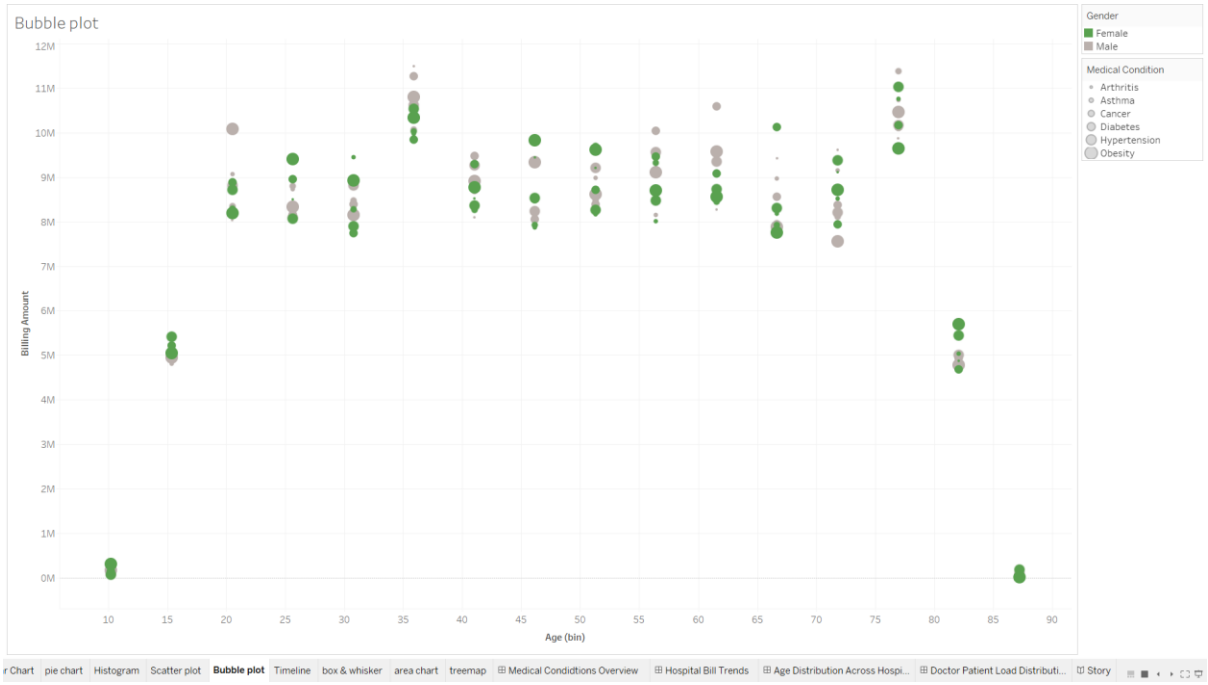
Scatter plot

Scatter plot shows the billing of age interval between 30-35 and 75-80 is more as compared to other age groups.



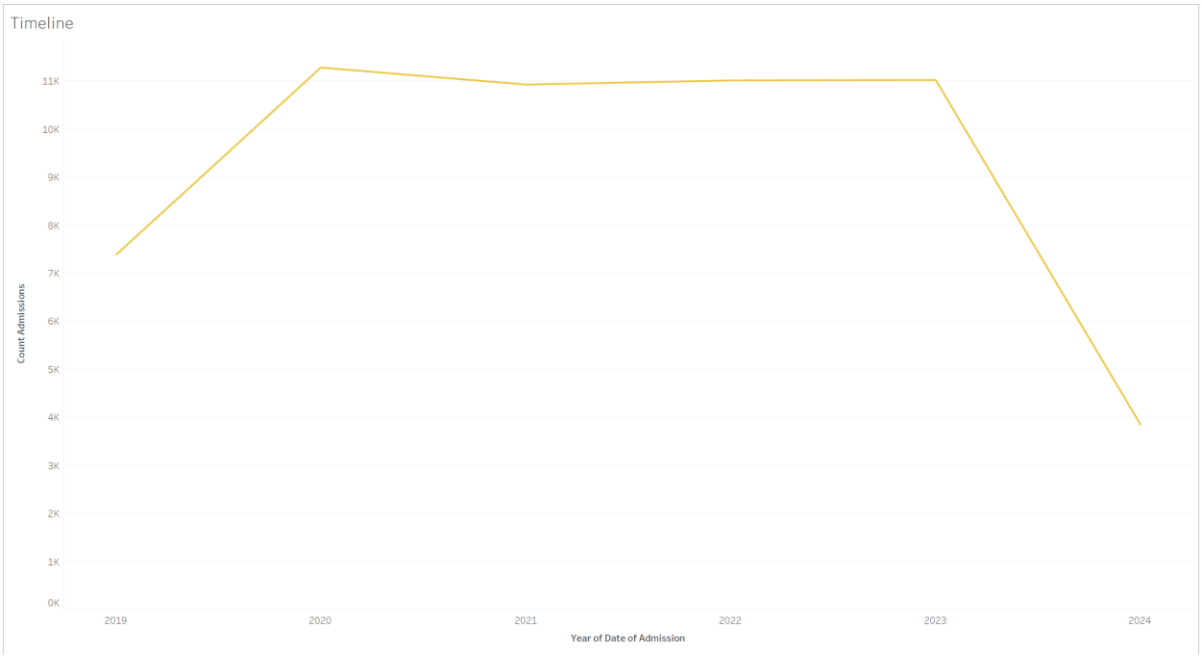
Bubble plot

The bubble plot reveals higher billing amounts in middle-aged groups, with variations by gender and medical condition. Green bubbles represent males, gray bubbles represent females, and bubble size indicates different conditions



TimeLine chart

The timeline chart reveals a sharp increase in admissions from 2019 to 2020 because of covid, a subsequent decline, and stabilization until 2023, with a noticeable drop in 2024.

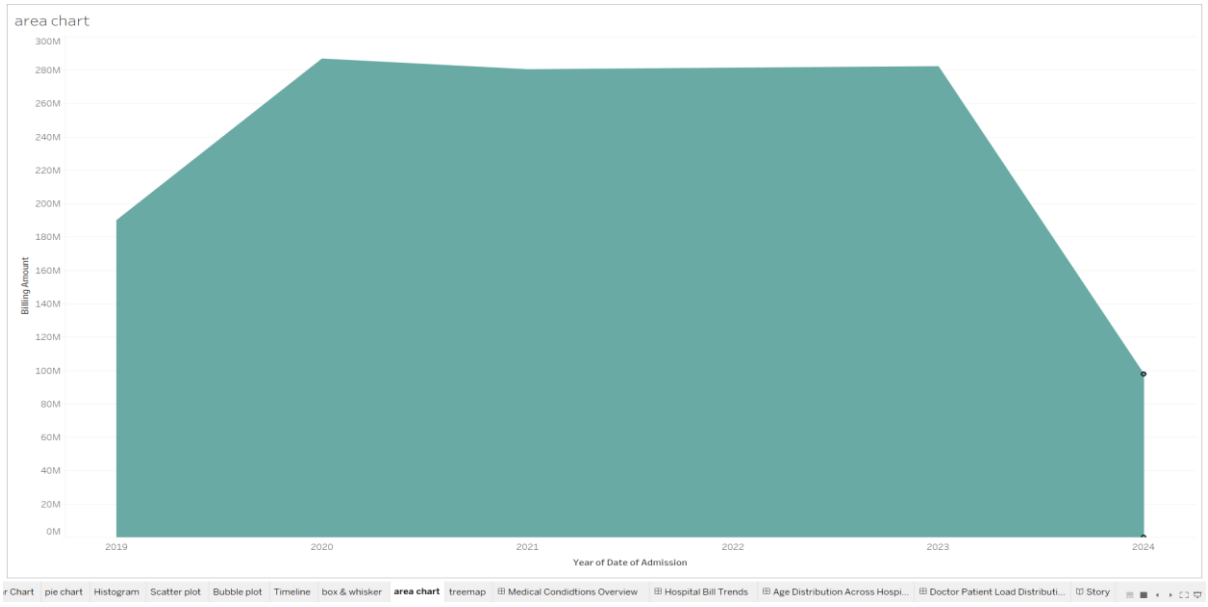


Box & Whisker plot

The box-and-whisker plot shows that most patients are younger, with a few older outliers, and highlights age distribution variations between hospitals.

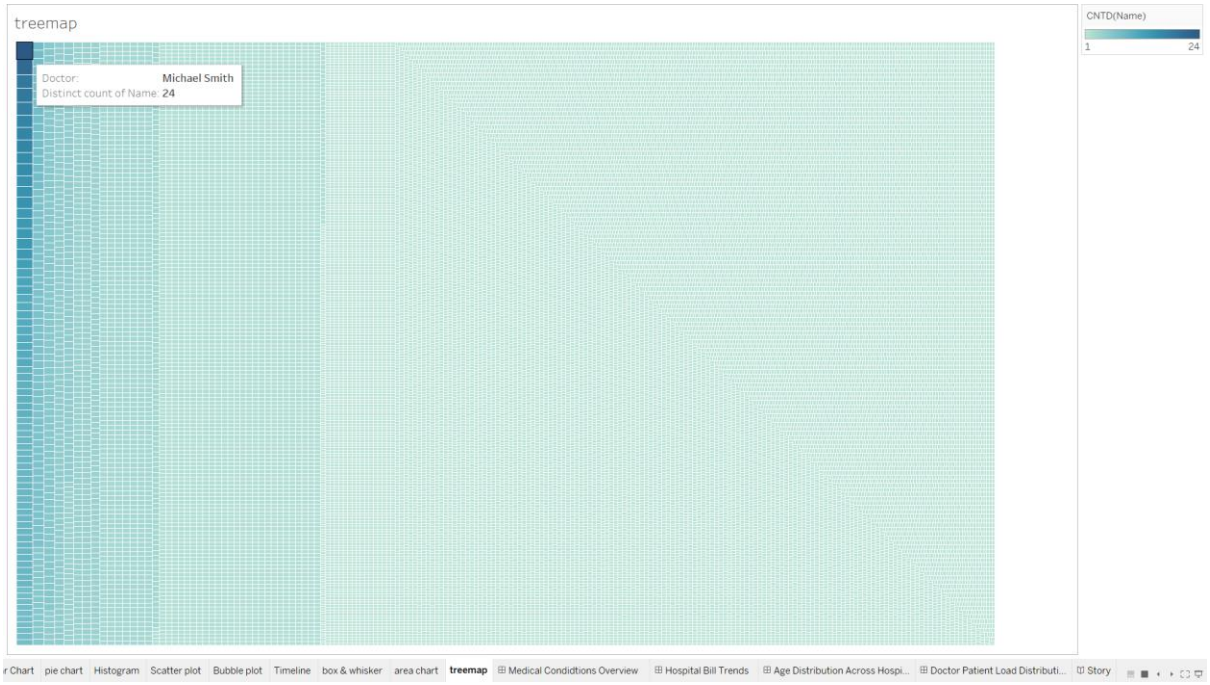
Area Chart

The area chart shows the year of admission and their respective billing amount, from year 2020 till 2023 there is high billing amount

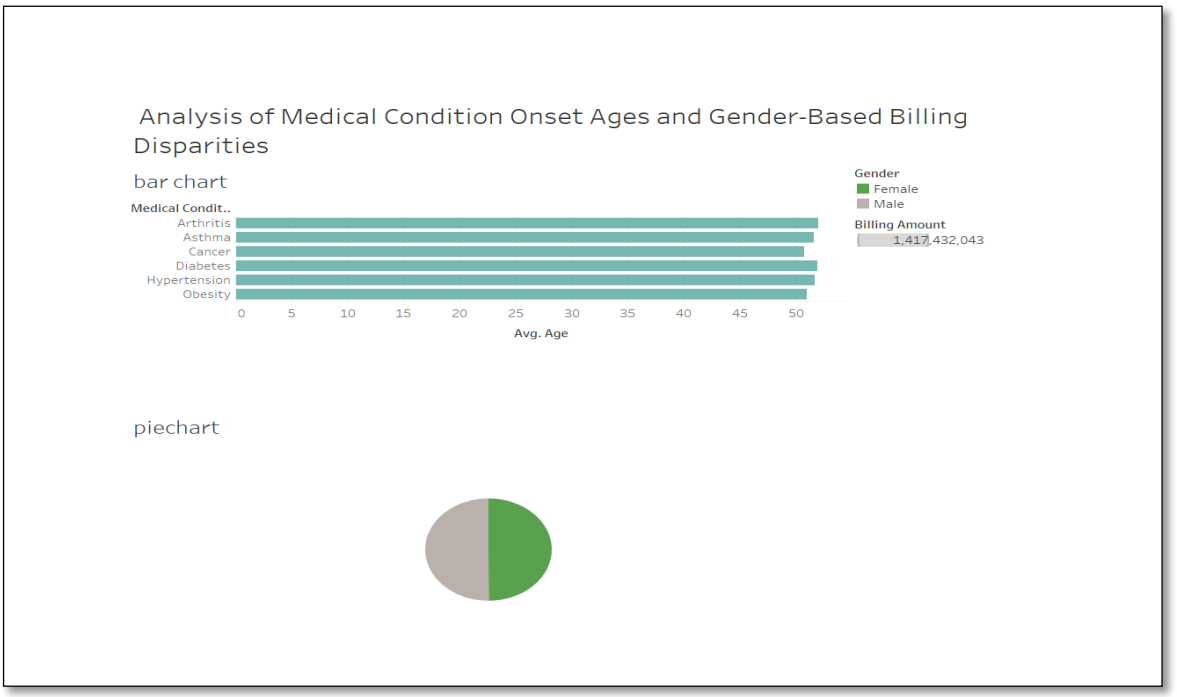


Treemap

The treemap shows doctors as blocks sized by their patient counts. Larger blocks indicate doctors with more patients, highlighting their higher workloads compared to those with smaller blocks. This visualization helps quickly identify doctors with the highest and lowest patient volumes.

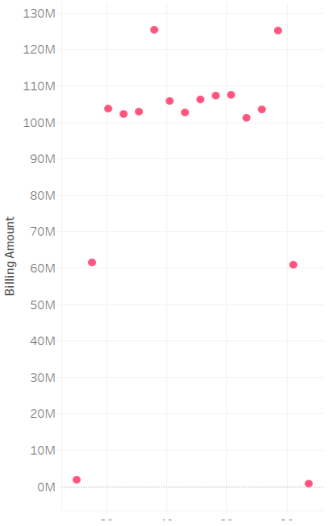


DashBoards

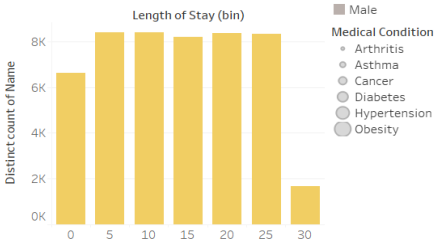


Hospital Bill Trends

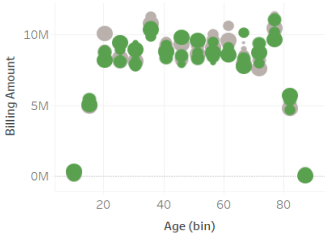
Scatter plot



Histogram

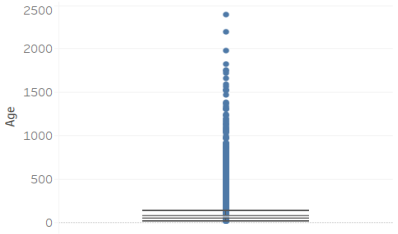


Bubble plot

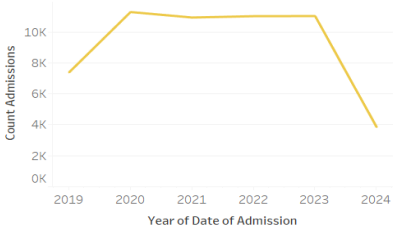


Age Distribution Across Hospitals and Trends in Hospital Admissions

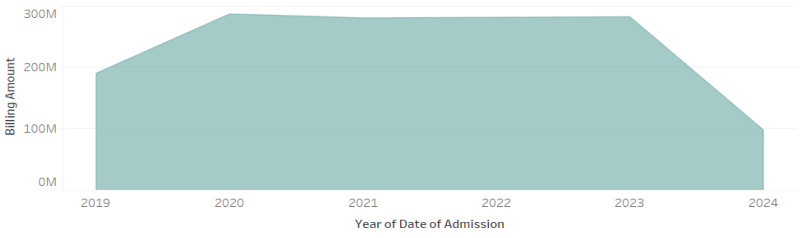
box & whisker

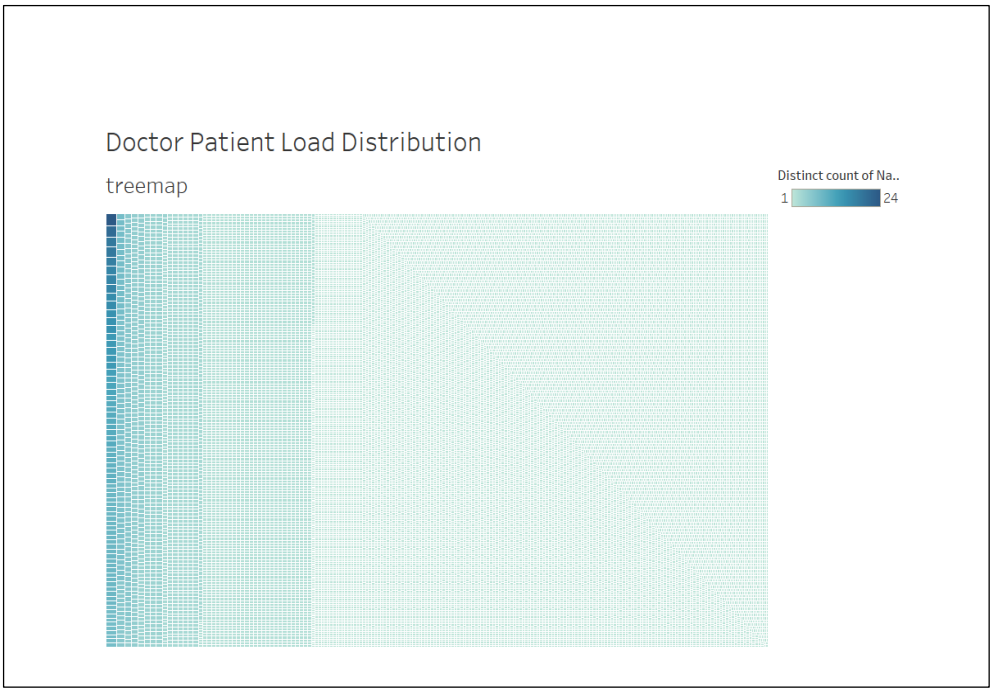


Timeline



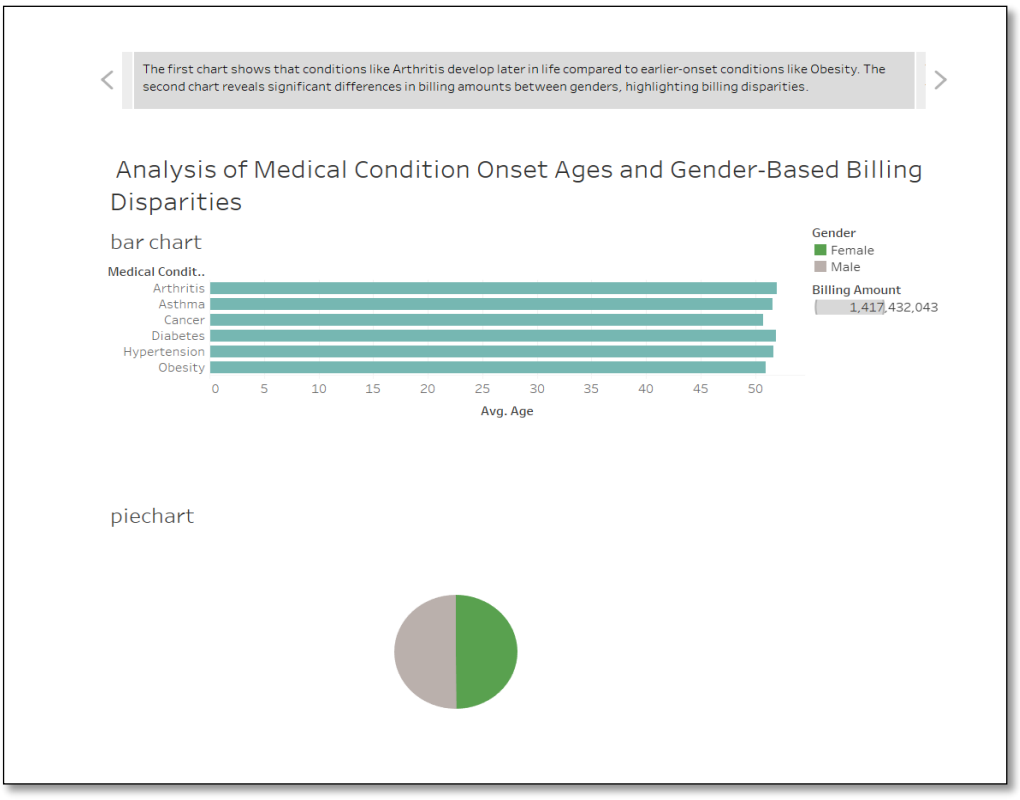
area chart





Storytelling

The first chart shows that conditions like Arthritis develop later in life compared to earlier-onset conditions like Obesity. The second chart reveals significant differences in billing amounts between genders, highlighting billing disparities.



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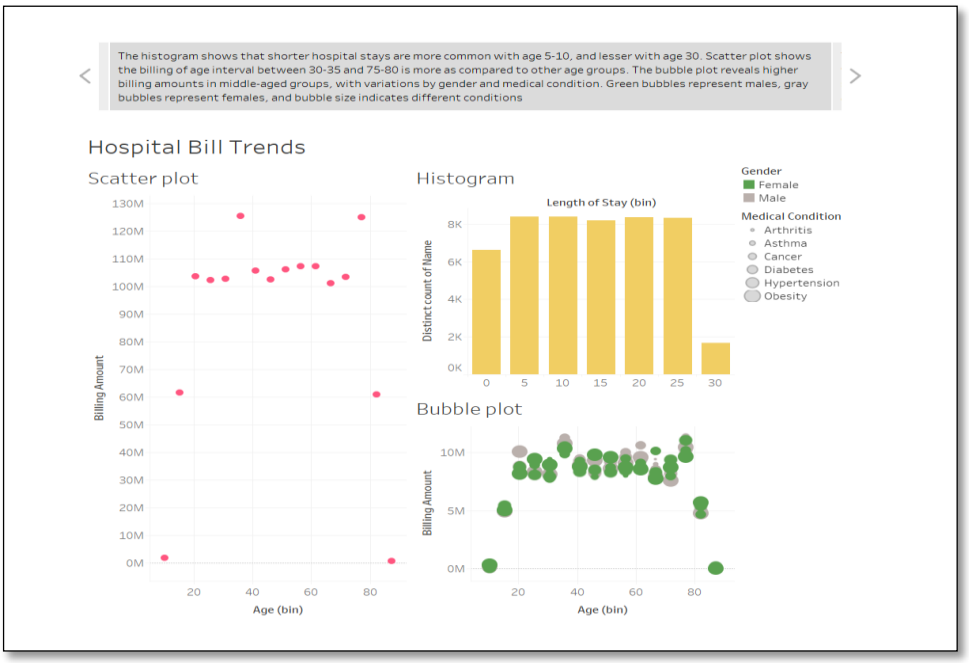

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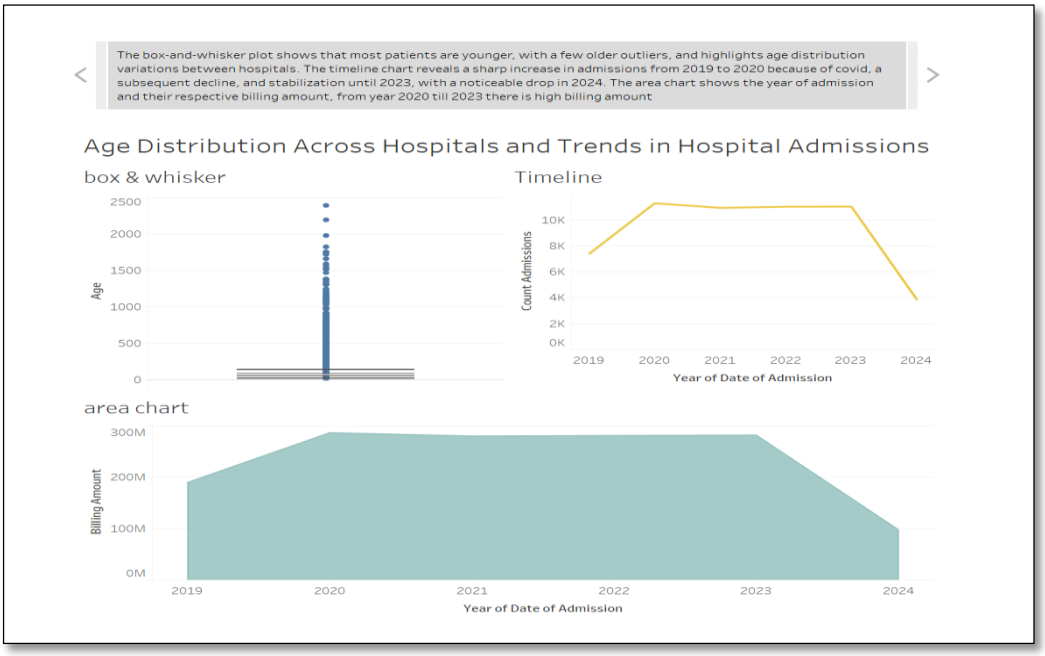

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