

Ideation Phase

Brainstorm & Idea Prioritization Template

Date	31 jan 2026
Team ID	LTVIP2026TMIDS61540
Project Name	Heart Disease Analysis
Maximum Marks	4 Marks

Brainstorm & Idea Prioritization Template:

1. Introduction to Brainstorming Process

The ideation phase was conducted to identify a meaningful problem statement and to develop a data-driven solution through collaborative thinking. Brainstorming sessions created an open environment where all team members contributed ideas based on their academic knowledge, domain interest, and awareness of real-world challenges.

2. Step 1 - Team Gathering, Collaboration and Problem Statement Selection

All team members actively participated in structured discussion sessions to identify potential project domains such as healthcare analytics, financial analytics, education analytics, and social media analysis.

Each proposed idea was evaluated using the following criteria:

Real-world relevance

Availability of authentic dataset

Scope for data preprocessing and visualization

Technical feasibility using the available tools

Ability to generate meaningful insights

Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

🕒 5 minutes









PROBLEM

Heart disease remains a leading cause of death worldwide, but identifying key risk factors early is **challenging**. This project uses Tableau to visualize heart disease data in **interactive dashboards**, helping **improve prevention and awareness**.



Key rules of brainstorming

To run a smooth and productive session

- | | |
|---|---|
|  Stay in topic. |  Encourage wild ideas. |
|  Defer judgment. |  Listen to others. |
|  Go for volume. |  If possible, be visual. |
| <hr/> | |
|  Defer judgment. |  If possible, be visual. |

Step-2: Brainstorm, Idea Listing and Grouping

uring this stage, all team members contributed ideas which were listed without criticism to encourage creativity. The ideas were then grouped based on similarity and relevance.

3.1 Initial Idea List

Predicting heart disease based on patient health parameters

Identifying lifestyle factors affecting heart disease

Regional analysis of heart disease cases

Comparing heart disease risk across age groups and gender

Analyzing the impact of diabetes, obesity, and smoking

Building an interactive healthcare dashboard

Creating a web-based interface for visualization access

3 Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

⌚ 20 minutes

TIP
Add color-coded tags to sticky notes to make it easier to find, organize, and categorize important ideas as they arise within your group.

1 Sales Analysis Group
Goal: Focus on understanding toy sales trends. **Tasks:** Collect and clean sales data (Product, Region, Time). Create Tableau dashboards for: Best-selling toys. Regional sales performance.

2 Inventory Insights Group
Goal: Optimize toy stock management. **Tasks:**

- Analyze stock levels and turnover rates.
- Visualize overstocked and understocked items.
 - Suggest inventory improvement strategies.

1. Risk Factor Analysis

Analyze key risk factors for **heart disease**—such as blood pressure, cholesterol levels, **BMI**, **smoking habits**, and diabetes. Identify high-risk groups needing preventive **measures**.

2. Demographic Study

Examine heart disease trends across different demographics—**comparing age groups, gender, and geographic regions**. Identify **vulnerable populations** in rural vs. urban areas.

3. Correlation Analysis

Investigate correlations between heart disease and other health conditions, such as **stroke, diabetes, and obesity**. Determine related risk patterns.

4. Interactive Dashboard Development

Develop interactive dashboards in **Tableau** to visualize heart disease insights and trends. Build a user-friendly web interface using Flask for easy public accessibility.

Step-3: Idea Prioritization

After grouping, the ideas were prioritized based on:

Analytical depth

Visualization potential

Data availability

Implementation complexity

Academic evaluation requirements

The final project scope was defined as:

Performing data preparation using SQL

Developing multiple analytical visualizations in Tableau

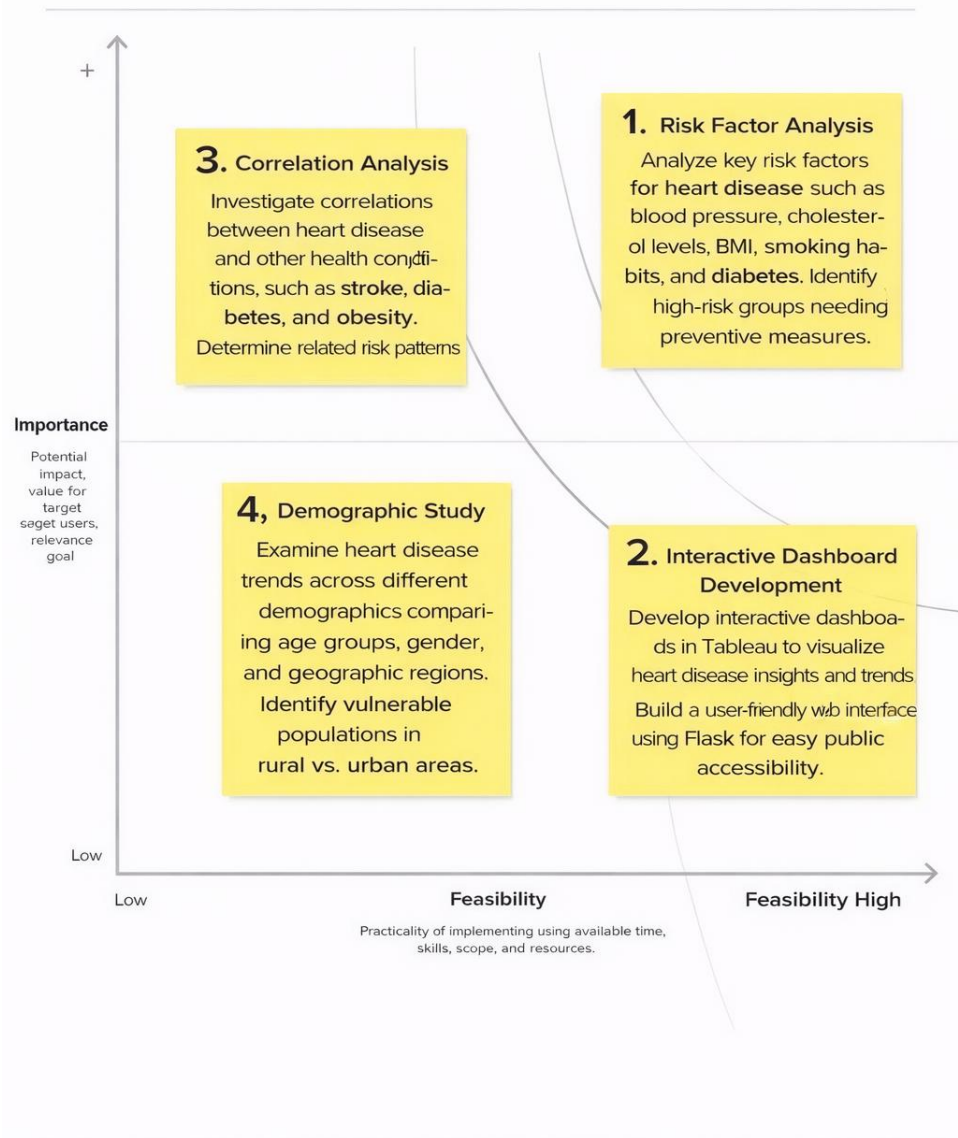
Creating an interactive dashboard to highlight key health insights

Integrating the dashboard with a Flask web application for accessibility

Prioritize

Your team should all be on the same about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

🕒 20 minutes



Ideation Phase
Define the Problem Statements

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Customer Problem Statement Template:

Customer: Cardiologist / Healthcare Analyst

Statement:

Cardiologists and healthcare analysts need a fast and reliable way to analyze patient health data and identify heart disease risk early, because current methods are time-consuming, data is scattered across multiple systems, and manual analysis makes it difficult to detect hidden patterns and make quick clinical decisions

.Cardiologists who handle large volumes of patient records struggle to quickly assess heart disease risk due to fragmented data sources, lack of clear visual insights, and time pressure for clinical decision-making. This leads to delayed diagnosis, reduced efficiency, and difficulty in planning timely treatment.

A centralized, intelligent, and easy-to-use dashboard is required to provide real-time risk prediction, visual analytics, and decision support. Healthcare professionals need a way to quickly predict and visualize heart disease risk because patient data is distributed across multiple sources and manual analysis is slow, which results in delayed diagnosis and difficulty in making timely treatment decisions.

Problem Statement (PS) I am... I' m trying to... But... Because... Which makes me feel...

PS- 1	A cardiologist	Identify high-risk heart disease patients early	The patient data is scattered across multiple reports	There is no unified dashboard with clear visual insights	Frustrated and concerned about delayed diagnosis
PS- 2	A healthcare analyst	Analyze heart disease trends across different demographics	The datasets are large and difficult to interpret manually	Traditional tools don' t provide interactive visualizations	Overwhelmed and inefficient
PS- 3	A hospital administrator	Make data-driven decisions to improve patient care	I cannot quickly see key performance and risk indicators	Reports are static and time-consuming to generate	Uncertain about planning and resource allocation
PS- 4	A general patient (health-conscious user)	Understand my personal heart disease risk	Medical data is complex and hard to interpret	There is no simple, user-friendly interface for insights	Anxious and confused about my health status

I am	Describe customer with 3-4 key characteristics - who are they?	Describe the customer and their attributes here
I'm trying to	List their outcome or "job" the care about - what are they trying to achieve?	List the thing they are trying to achieve here
but	Describe what problems or barriers stand in the way - what bothers them most?	Describe the problems or barriers that get in the way here
because	Enter the "root cause" of why the problem or barrier exists - what needs to be solved?	Describe the reason the problems or barriers exist
which makes me feel	Describe the emotions from the customer's point of view - how does it impact them emotionally?	Describe the emotions the result from experiencing the problems or barriers

Example: A cardiologist in a multi-specialty hospital

2.2 EMpathy map

Empathy Map

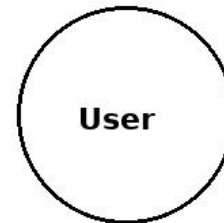
Heart Disease Analysis - Healthcare Stakeholder

THINK & FEEL

- Early detection of high-risk patients
- Accuracy in clinical insights
- Concern about delayed decisions

HEAR

- Feedback from patients
- Hospital management goals
- Medical research updates



SEE

- Multiple clinical reports
- Complex raw datasets
- Lack of visual dashboards

SAY & DO

- Analyze patient history
- Compare risk factors
- Use reports for decision making

PAIN

- Fragmented data sources
- Time-consuming analysis
- No unified visualization

GAIN

- Interactive dashboards
- Quick risk identification
- Better clinical decisions

Project Design Phase
Problem – Solution Fit Template

Date	8 FEB 2026
Team ID	LTVIP2026TMIDS41952
Project Name	ToyCraft Tales: Tableau's vision into toy manufacturer data
Maximum Marks	2 Marks

Problem – Solution Fit Template:

1. Overview

Problem–Solution Fit refers to the alignment between the challenges faced by the target users and the effectiveness of the proposed system in addressing those challenges. In the context of the Heart Disease Analysis project, this phase ensures that the developed analytical and visualization platform directly responds to real-world healthcare data interpretation problems and supports informed clinical and administrative decision-making.

. Proposed Solution

The developed system provides:

An interactive dashboard for heart disease analysis using data visualization tools.

A unified view of patient and clinical data for quick interpretation.

Enhances communication of clinical insights through clear visual representations.

Increases operational efficiency by reducing manual analytical effort.

Supports preventive healthcare by enabling early detection of heart disease risk patterns.

Helps healthcare organizations understand the current situation and plan data-driven improvements.

Heart Disease Analytics Problem Solution Canvas



Project Design Phase

Proposed Solution Template

Date	31 Jan 2026
Team ID	LTVIP2025TMIDS61540
Project Name	Heart Disease Analysis
Maximum Marks	2 Marks

Proposed Solution Template

Project team shall fill the following information in the proposed solution template.

S. No.	Parameter	Description
1	Problem Statement (Problem to be solved)	Toy manufacturers often lack actionable insights from sales, inventory, and customer engagement data, leading to inefficiencies in production and design.
2	Idea / Solution Description	A Tableau-powered interactive dashboard system that visualizes key toy industry metrics - including demand trends, age-group preferences, and stock levels - for real-time decision-making.
3	Novelty / Uniqueness	Combines storytelling with data through “Toy Craft Tales” - a narrative-based approach that helps non-technical users interpret complex datasets intuitively.
4	Social Impact / Customer Satisfaction	Increases efficiency in toy production, reduces waste, and aligns products with children’s interests - ultimately leading to higher satisfaction for both customers and manufacturers.
5	Business Model (Revenue Model)	Subscription-based model for manufacturers and retailers; freemium version with limited dashboards, with additional premium analytics and customization for enterprise clients.
6	Scalability of the Solution	The solution can scale across global markets and be adapted for various toy segments, from educational toys to collectibles, with multilingual

		with limited dashboards, with additional premium analytics and customization for enterprise clients.
6	Scalability of the Solution	The solution can scale across global markets and be adapted for various toy segments, from educational toys to collectibles, with multilingual and regional data support.

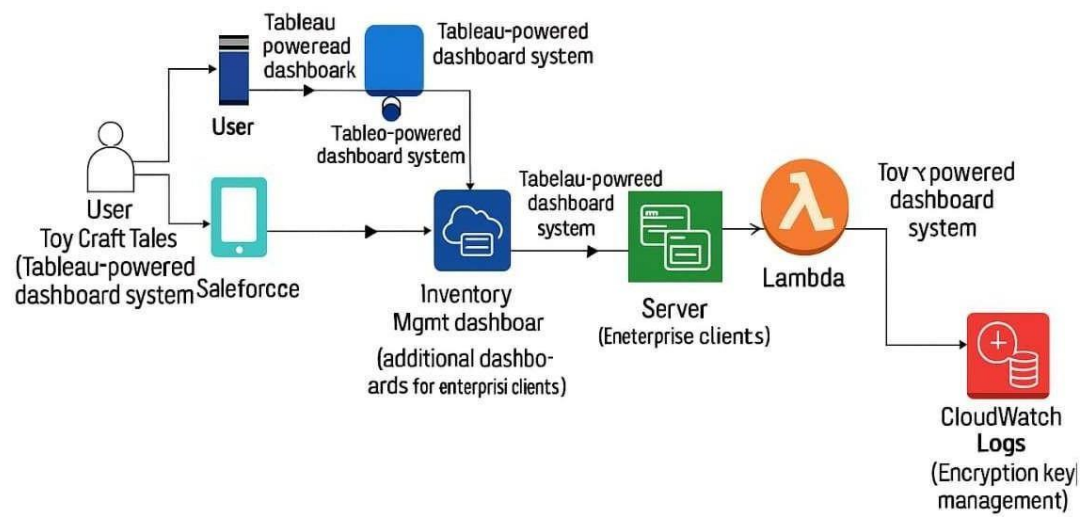
Project Design Phase
Solution Architecture

Date	9 FEB 2026
Team ID	LTVIP2026TMIDS41952
Project Name	ToyCraft Tales: Tableau's vision into toy manufacturer data
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture is a structured and comprehensive process that connects business needs with appropriate technological solutions. It involves multiple sub-processes that work together to design a system capable of solving real-world problems efficiently. The main objective of solution architecture is to identify the most suitable technology that can address existing business challenges while ensuring scalability, performance, and reliability. It also provides a clear representation of the system to all stakeholders by describing the software's structure, its key characteristics, how it behaves, and how different components interact with each other. This helps both technical and non-technical stakeholders understand the proposed solution and align their expectations.

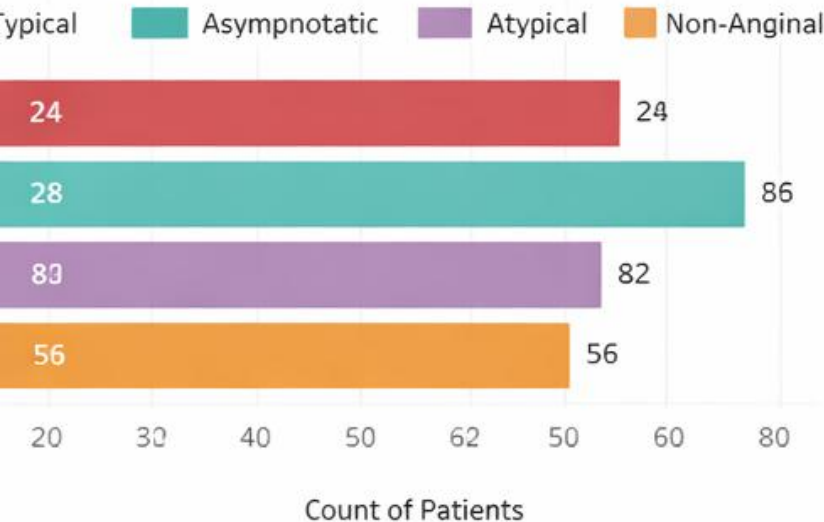
Example - Solution Architecture Diagram:



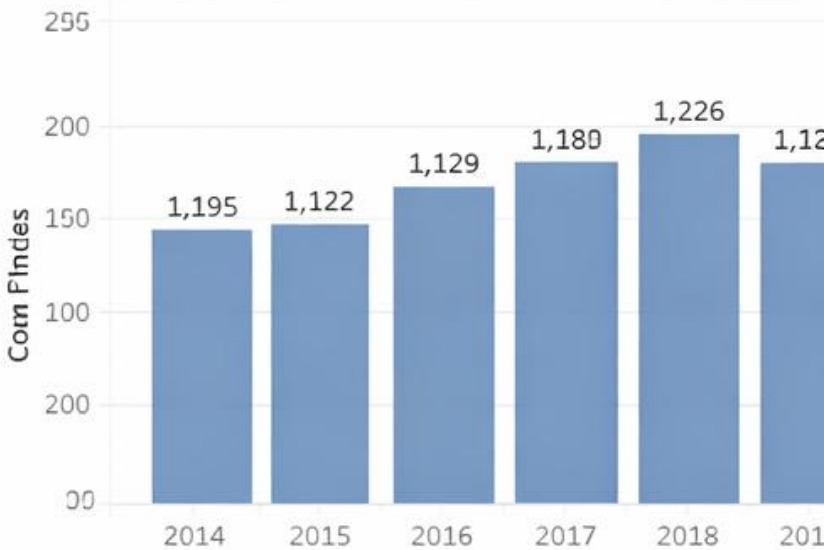
Heart Disease Analysis

Heart Disease Analysis

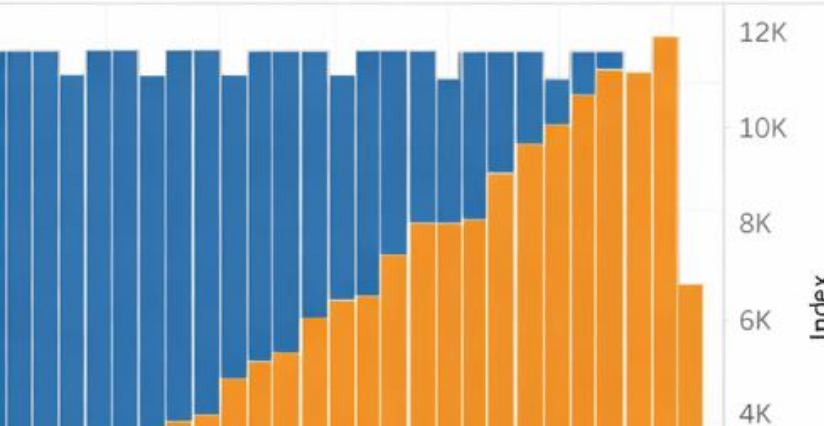
Chest Pain Type Distribution



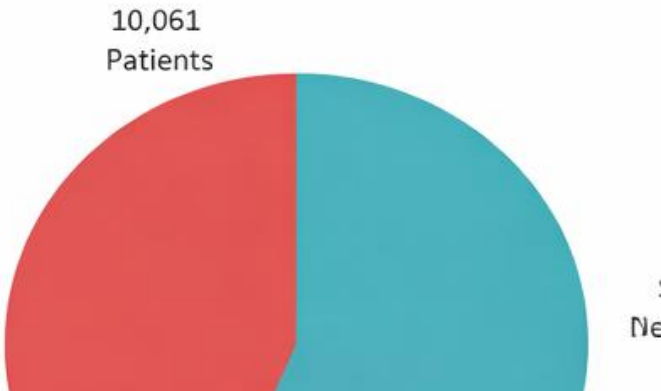
Cholesterol Levels



Age vs Risk Index



Prediction Result



State	Year	Heart Disease Cases
United States	2005	811
Alabama	2005	3
Arizona	2005	14
California	2005	133
Florida	2005	32
Illinois	2005	43
New York	2005	54
Texas	2005	34
California	2008	117

Project Planning Phase

Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

Date	31 Jan 2026
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Project Name	Heart Disease Analysis
Maximum Marks	5 Marks

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Upload	USN-1	As a Data Analyst, I can upload sales and inventory data in CSV format	3	High	Team A
Sprint-1	Dashboard View	USN-2	As a Data Analyst, I can view interactive dashboards in Tableau	2	High	Team A
Sprint-2	Trend Analysis	USN-3	As a Manager, I can analyze seasonal sales trends	3	Medium	Team B
Sprint-2	Inventory Monitoring	USN-4	As a Warehouse Staff, I receive alerts for low inventory levels	2	High	Team B

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date	Story Points Completed
Sprint-1	5	5 Days	11 June 2025	15 June 2025	5
Sprint-2	5	5 Days	16 June 2025	21 June 2025	5
Sprint-3	1	3 Days	22 June 2025	24 June 2025	1

Heart Disease Analysis

Healthcare Manager / Cardiologist



Empathy:

- Need accurate and early detection of heart disease risk.
- Concerned about delayed diagnosis and patient safety.
- Want simple and clear visual reports for quick clinical decisions.
- Need to reduce manual data analysis effort.



Hear

- From hospital management: "Improve patient outcomes and reduce readmission rates."
- From patients: "We want faster and more accurate reports"
- From data team: Large datasets are difficult to interpret manually."



See

- Multiple patient records in different formats.
- Increasing number of heart disease cases.
- Time-consuming traditional reporting systems.
- Lack of integrated real-time dashboards.



Say

- "We need a system that shows the risk levels instantly!"
- Visual dashboards will help in faster diagnosis.
- We must track key health indicators efficiently.
- Data-driven decisions improve treatment planning.



Do

- Analyze patient data (age, cholesterol, BP, ECG, etc.).
- Compare historical and current health trends.
- Monitor high-risk patients.
- Generate reports for clinical review.



Gains

- Real-time heart disease risk prediction dashboard.
- Faster and more accurate clinical decisions.
- Improved patient monitoring and " treatment planning.
- Reduced workload with automated insights.



Pain Points

- Manual and slow data processing.
- Difficulty in identifying high-risk patients quickly.
- Scattered and unstructured.

- Difficulty to identify high-risk patients quickly.
- Scattered and unstructured healthcare data.

- Scattered and unstructured healthcare data.
- Limited technical expertise among medical staff.

- Analyze patient data (age, cholesterol, BP, ECG, etc.).
- Compare historical and current health trends.

- Real-time heart disease risk prediction dashboard.
- Faster and more accurate clinical decisions.

Project Design Phase-II

Data Flow Diagram & User Stories

Date	31 Jan 2026
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Project Name	Heart Disease Analysis
Maximum Marks	4 Marks

Data Flow Diagrams:

A **Data Flow Diagram (DFD)** is a graphical representation that illustrates how data moves through a system. It provides a clear and structured view of system requirements by showing:

how data **enters** the system

how data is **processed or transformed**

how data is **stored**

how data **leaves** the system

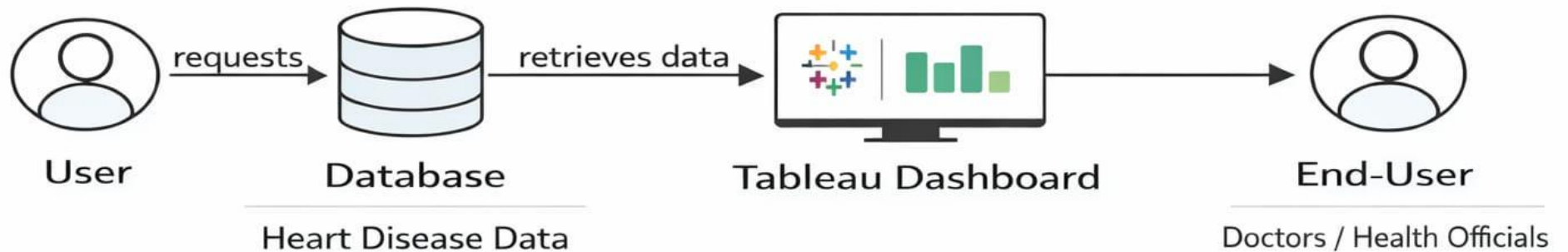
Example:

User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority / Release
Data Analyst	Data Upload	USN-1	As a Data Analyst, I can upload Sales and Inventory data to the system	Data successfully uploaded & validated	High / Sprint-1
Data Analyst	Dashboard View	USN-2	As a Data Analyst, I can view the Sales & Inventory dashboards in Tableau	Visualizations render correctly in Tableau	High / Sprint-1

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority / Release
Business Manager (End-User)	Report Generation	USN-3	As a Business Manager, I can generate monthly Sales reports	Report generated accurately & downloadable	Medium / Sprint-2

Data Flow Diagram (DFD) – Level 0



Analyzing Heart Disease Data Using Tableau

Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	31 Jan 2026
Team ID	LTVIP2026TMIDS61540
Project Name	Heart Disease Analysis
Maximum Marks	4 Marks

Table-1: Components & Technologies

S.No	Component	Description	Technology
1	User Interface	Interactive heart disease dashboards and stories viewed by doctors, policymakers, and patients	Tableau Desktop, Tableau Public
2	Application Logic-1	Data preparation, cleaning, filtering, and transformation before visualization	Tableau Prep, SQL, Python (if applicable)
3	Application Logic-2	Health risk analysis logic (Age, BMI, Smoking, Diabetes, Stroke correlations) using calculated fields and expressions	Tableau Calculations, Parameters, LOD Expressions
4	Database	Store heart disease dataset including demographics, medical history, and lifestyle factors	MySQL, CSV, Excel
5	Cloud Database (Optional)	Cloud-based storage for scalability and remote access	AWS RDS (MySQL), Google Cloud SQL

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Open & Public Visualization Platform	Use of Tableau Public for publishing interactive heart disease dashboards and stories. Optional use of Python for preprocessing and data handling.	Tableau Public, Python
2	Security Implementations	Ensure sensitive health data is anonymized before publishing. Secure database authentication and restricted access for internal dashboards.	MySQL Authentication, Tableau Server Security (if applicable), Cloud Security
3	Scalable Architecture	Ability to scale database and dashboard performance when handling larger healthcare datasets.	AWS RDS (MySQL), Google Cloud SQL (Optional)
4	Performance Optimization	Efficient SQL queries, optimized filters, and minimized dashboard load time for smooth interaction.	SQL Optimization, Tableau Extracts
5	Responsive Design	Dashboards adapt to different devices (desktop, tablet, mobile) for improved accessibility.	Tableau Device Designer
6	Web Integration Capability	Embedded dashboards within a Flask-based web application for browser access.	Flask, HTML, Tableau Embed API

Project Development Phase
Model Performance Test

Date	31 Jan 2026
Team ID	LTVIP2026TMIDS61540
Project Name	Heart Disease Analysis
Maximum Marks	

Model Performance Testing:

S.No	Parameter	Screenshot / Values
.	r	

1. **Data
Rendered**

Data Rendered

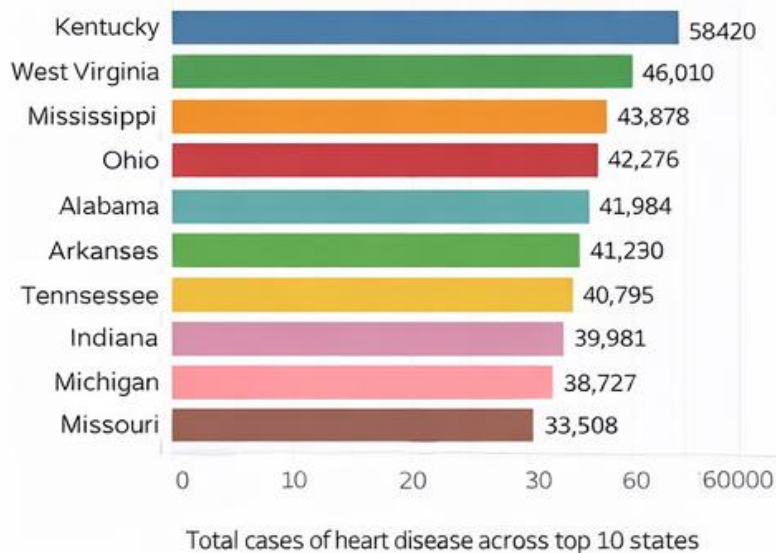
Heart disease dataset has been successfully imported
and rendered in MySQL Workbench.

The screenshot displays the MySQL Workbench interface. On the left, the 'SCHEMAS' pane shows a tree view of databases. The 'heart_disease_db' database is selected, and its 'Tables' folder is expanded, showing a list of tables: Columns, Indexes, Bmi, Cholesterol, Blood_pressure, Smoking, Views, Stored Procedures, and Functions. The main workspace is divided into two panes. The top pane, titled 'Query 1', shows the 'Columns' tab for the 'heart_disease_d:b - heart_disease_data' table. The bottom pane, also titled 'Columns', shows the 'Columns' tab for the 'heart_disease_data' table. Both panes display a list of columns and their data types.

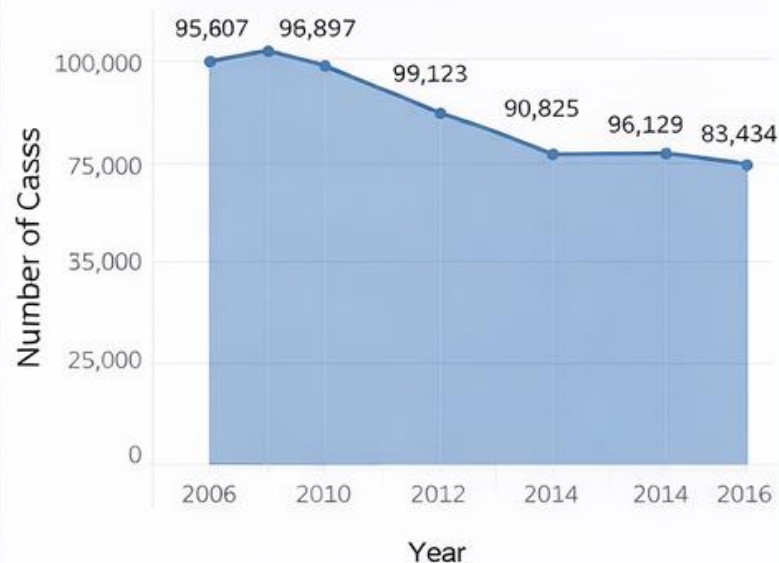
Column Name	Data Type
id	int
gender	varchar(255)
age	int(11)
bmi	float
cholesterol	int(11)
blood_pressure	int(11)

Heart Disease Insights: A Tableau Visualization

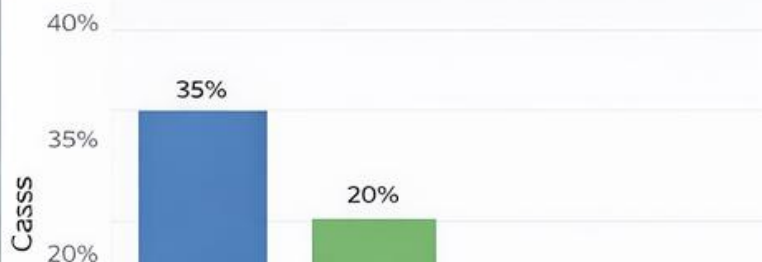
Top 10 States with Highest Heart Disease



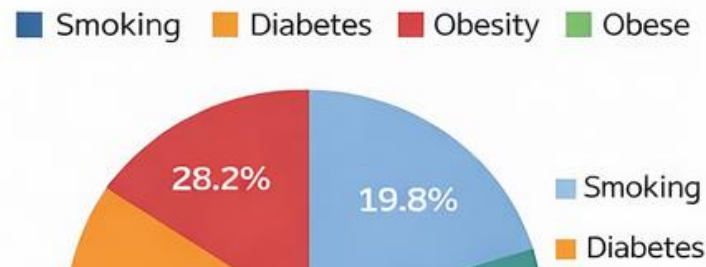
Heart Disease Cases by Year



Heart Disease by Age Group



Heart Disease by Risk Factor



Data

Analytics



heart_disease_data



Tables



id int

int



gender varchar

varchar



age int



bmi float



cholesterol int



blood_pressure int



smoking varchar

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Story 1

"Consistent Presence of US Toy Manufact...

"Decline And Stabilization of US To...

"Growth Pattern in US Toy Manufacturers...

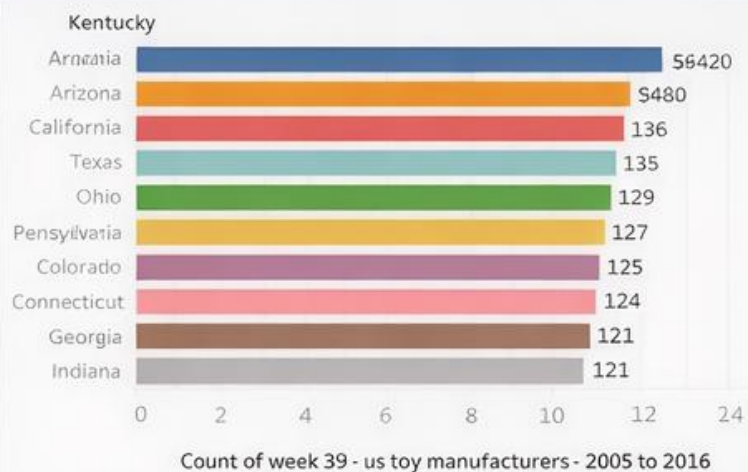
"Analyzing Toy Manufacturer Data

"Distribution Of Toy Manufacturers Across...

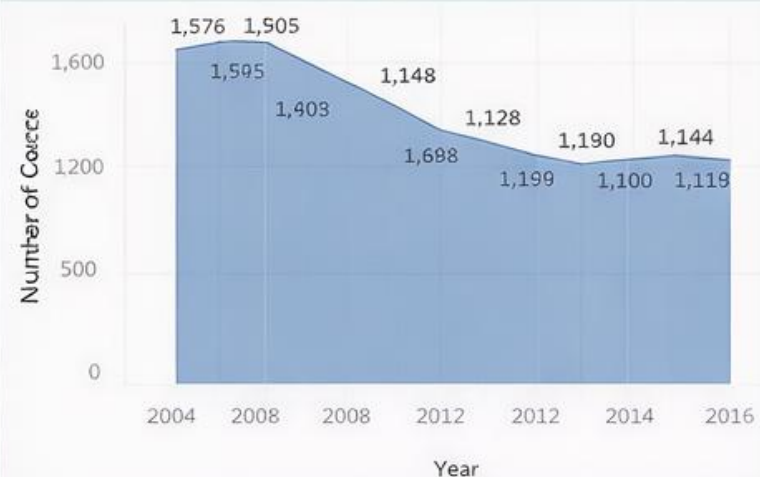
"ToyCraft Tales: A Data Driven Exploration Of...

ToyCraft Tales Tableau's Vision Into Toy Manufacturer Data

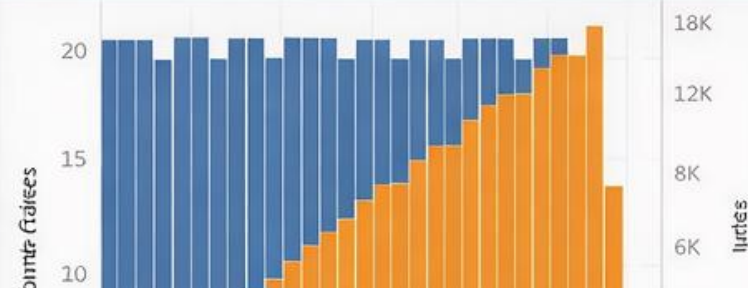
Top 10 state Toy Manufacturers in US States



Analysis on number of Manufacturers by year



Analysis on Toy Manufacturers by index



Analysis On Toy Manufacturers



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Story 1

"Consistent Presence
of US Toy Manufact...

"Decline And
Stabilization of US To..

"Growth Pattern in US
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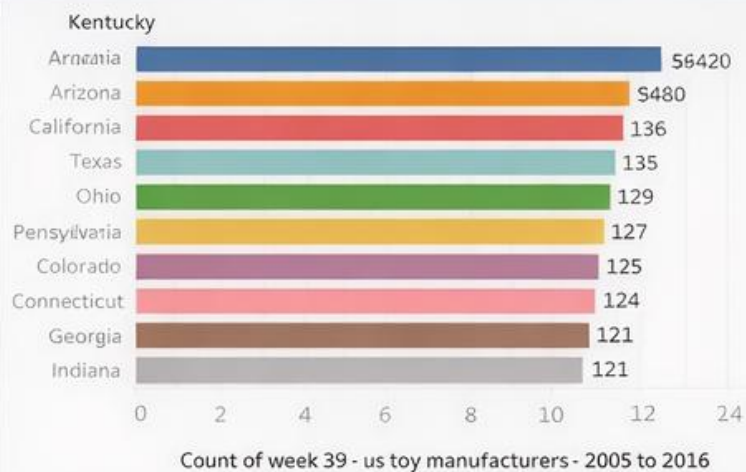
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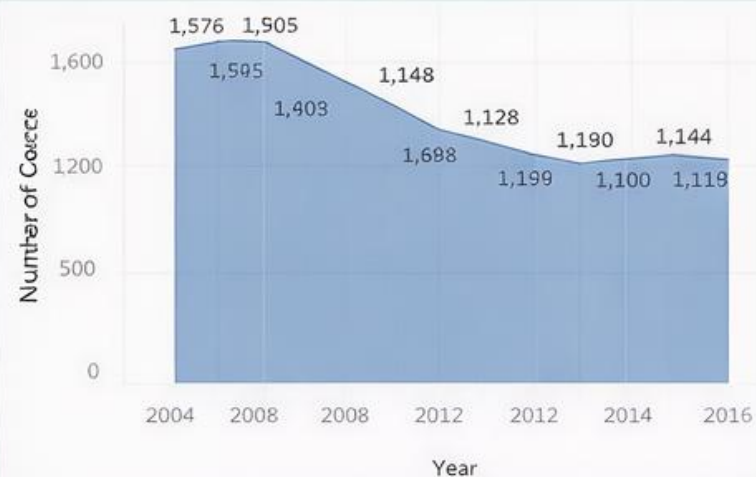
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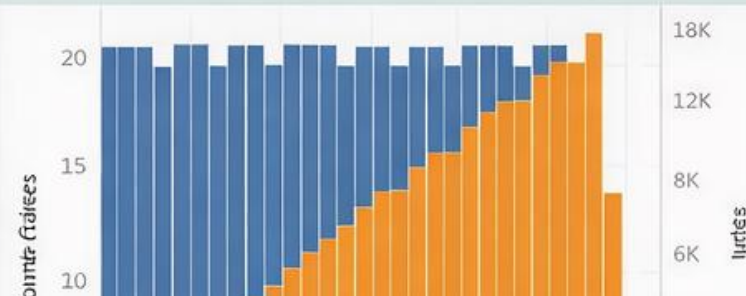
Top 10 state Toy Manufacturers in US States



Analysis on number of Manufacturers by year



Analysis on Toy Manufacturers by index



Analysis On Toy Manufacturers

