

Vandhe Bharat Express Project Report

-Pioneering India's High-Speed Rail Journey

Prepared by

Subash Kuncham

Samanvitha Yadla

Abhiram Vallamsetty

Naga Pavan Garikipati

1. INTRODUCTION

1.1 Project Overview:

The Vande Bharat Express Documentation is a comprehensive guide that aims to provide detailed insights into the development, features, and functionalities of the Vande Bharat Express project. This project encompasses the documentation of a significant initiative in India's railway sector, showcasing advancements in technology, passenger experience, and environmental sustainability.

1.2 Purpose:

The purpose of the Vande Bharat Express Documentation is to serve as a comprehensive and cohesive resource that encapsulates the journey, development, and impact of the Vande Bharat Express project. This documentation is crafted with the following key purposes in mind:

1. Knowledge Dissemination:

The primary purpose is to disseminate knowledge about the Vande Bharat Express project. By documenting the project's evolution, methodologies, and outcomes, we aim to provide stakeholders with a robust understanding of the technologies, processes, and innovations employed.

2. Resource for Stakeholders:

This documentation acts as a valuable resource for a diverse range of stakeholders involved in the project, including developers, project managers, decision-makers, and any individuals seeking insights into the project's intricacies. It serves as a reference point for a deep dive into technical details, project management strategies, and overarching project goals.

3. Transparency and Accountability:

Transparency is a core value of this documentation. By laying out the project's journey in a clear and comprehensible manner, we foster transparency in decision-making processes. This documentation holds us accountable for the methodologies employed, challenges faced, and the outcomes achieved throughout the project lifecycle.

4. Project Impact and Significance:

Another crucial purpose is to articulate the impact and significance of the Vande Bharat Express project. By detailing the advantages, features, and functionalities, we aim to underscore how this project contributes to the advancement of technology, passenger experience, and environmental sustainability within the Indian railway sector.

2. LITERATURE SURVEY

2.1 Existing Problem:

Traditionally, our railway systems faced challenges in speed, comfort, and environmental impact. The Vande Bharat Express was conceived to address these issues by introducing a semi-high-speed, energy-efficient, and passenger-friendly train.

2.2 References:

Our journey has been guided by extensive research and a comprehensive understanding of existing rail challenges, drawing inspiration from successful high-speed rail models globally.

2.3 Problem Statement Definition:

The core problem was to create a high-speed, energy-efficient, and comfortable intercity train that aligns with the modern needs of passengers.

3. IDEATION & PROPOSED SOLUTION

3.1 Ideation & Brainstorming

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem-solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Step-1: Team Gathering, Collaboration, and Select the Problem Statement

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

⌚ 10 minutes to prepare
🕒 1 hour to collaborate
👤 2-8 people recommended

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

⌚ 10 minutes

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

Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

Set the goal
Think about the problem you'll be focusing on solving in the brainstorming session.

Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#)

PROBLEM STATEMENTS

1. How might we improve the train's energy efficiency to reduce operational costs and environmental impact?
2. How might we make Vande Bharat Express more accessible and user-friendly for passengers with disabilities?
3. How might we implement eco-friendly waste management solutions to reduce environmental impact?
4. How might we enhance passenger comfort and satisfaction during extended train rides?
5. How might we manage passenger loads efficiently during high-demand periods to ensure a comfortable experience?
6. How might we optimize maintenance schedules and processes to minimize disruptions and delays?

Step-2: Brainstorm, Idea Listing, and Grouping

2

Brainstorm

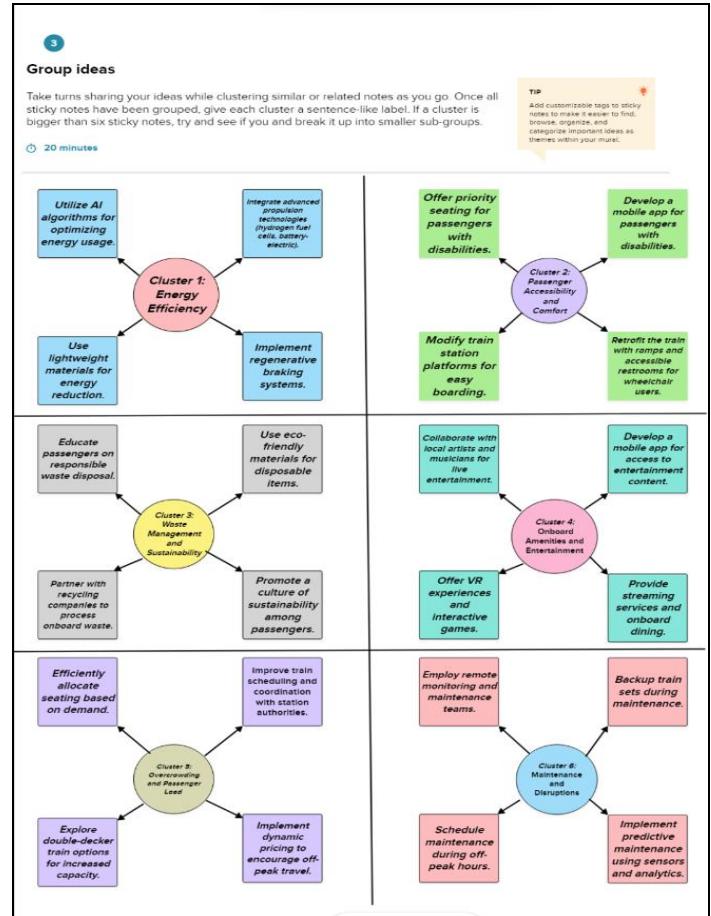
Write down any ideas that come to mind that address your problem statement.

⌚ 10 minutes

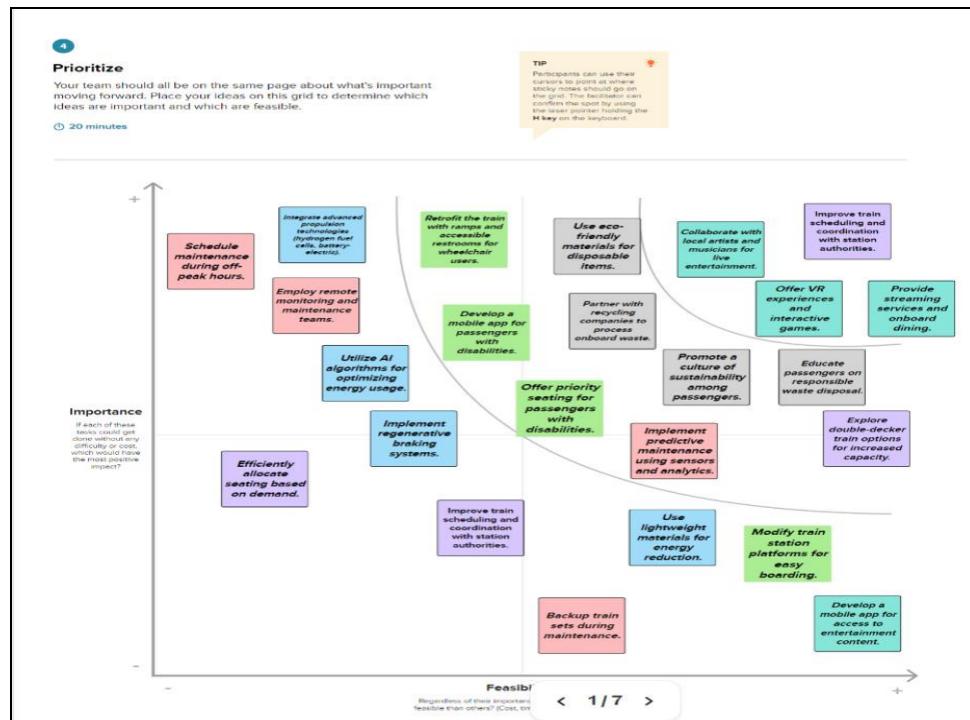
TIP
You can select a sticky note and hit the pencil (pencil to sketch) icon to start drawing!

Incorporate lightweight materials in train construction to reduce energy consumption.	Provide tactile signage and audio announcements for visually impaired passengers.	Implement recycling bins throughout the train to encourage passengers to separate waste.
Introduce premium seating options with more legroom and adjustable features.	Implement dynamic pricing to encourage passengers to travel during off-peak hours.	Implement preventive maintenance using sensors and data analytics to address issues before they lead to disruptions.
Utilize AI algorithms to optimize energy usage throughout the journey based on terrain and passenger load.	Develop a mobile app that assists passengers with disabilities in navigating the train and accessing services.	Partner with recycling companies to process onboard waste into reusable materials.
Design dedicated relaxation zones with reclining seats or sleeping pods for passengers on overnight journeys.	Implement a loyalty program that rewards frequent travelers with priority access during busy periods.	Establish backup train sets to ensure service during maintenance periods, ensuring service continuity.
Integrate advanced propulsion technologies, such as hydrogen fuel cells or battery-electric systems, to reduce energy consumption.	Offer entertainment options tailored to individual preferences, such as VR experiences or interactive games.	Offer flexible seating configurations that can be adjusted to accommodate varying passenger loads.
Train station platforms can be modified to align with the train's doors, facilitating easier boarding for wheelchair users.	Employ remote monitoring and maintenance teams equipped with drones for inspections to reduce downtime.	Explore double-decker train options for increased capacity.
Introduce reservation systems to allocate seats and manage passenger loads efficiently.	Educate passengers on responsible waste disposal through in-train announcements and signage.	Improve train scheduling and coordination with station authorities.
Retrofit the train with ramps and accessible restrooms for wheelchair users.	Use onboard composting systems to reduce organic waste and environmental impact.	Implement dynamic pricing to encourage off-peak travel.
Schedule maintenance during off-peak hours to minimize passenger inconvenience.	Use eco-friendly materials for disposable items.	Explore predictive maintenance using sensors and analytics.

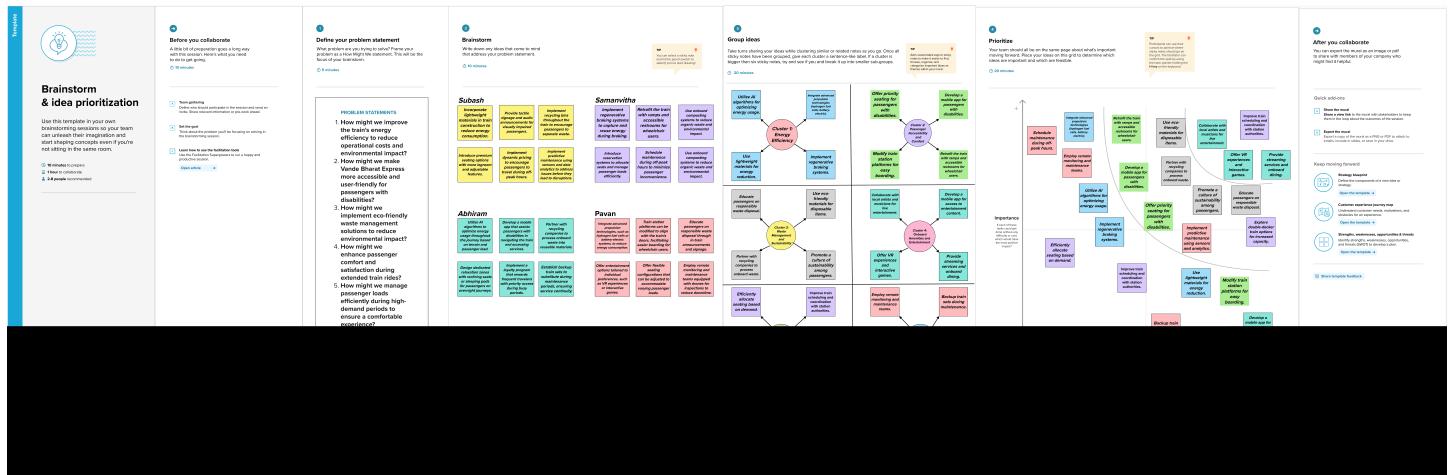
< 1 / 7 >



Step-3: Idea Prioritization



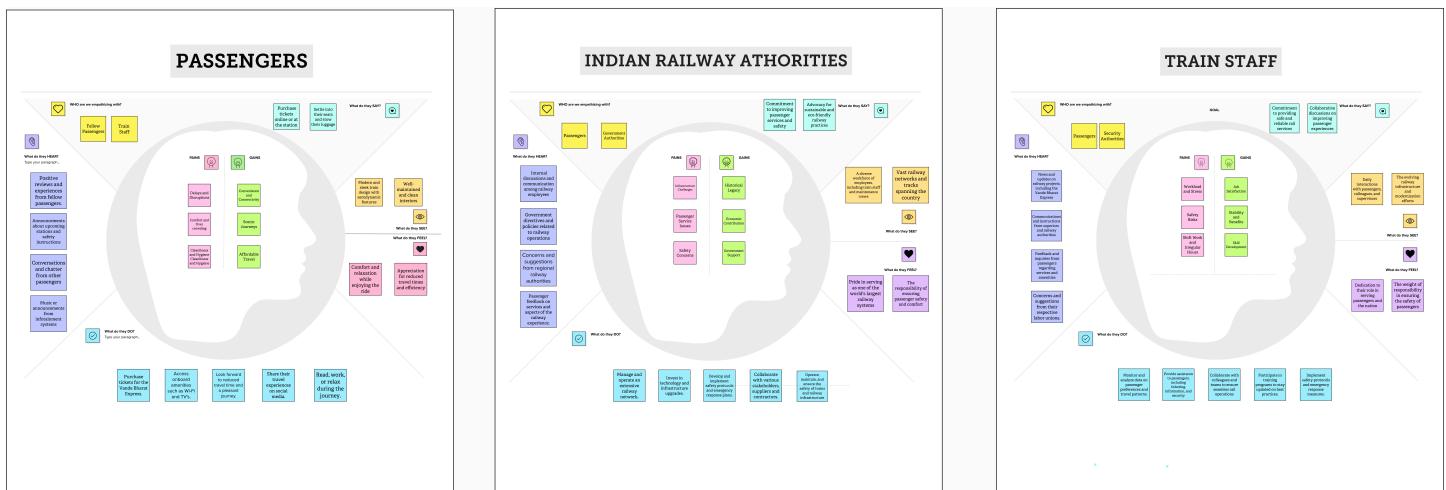
Brainstorming Map:



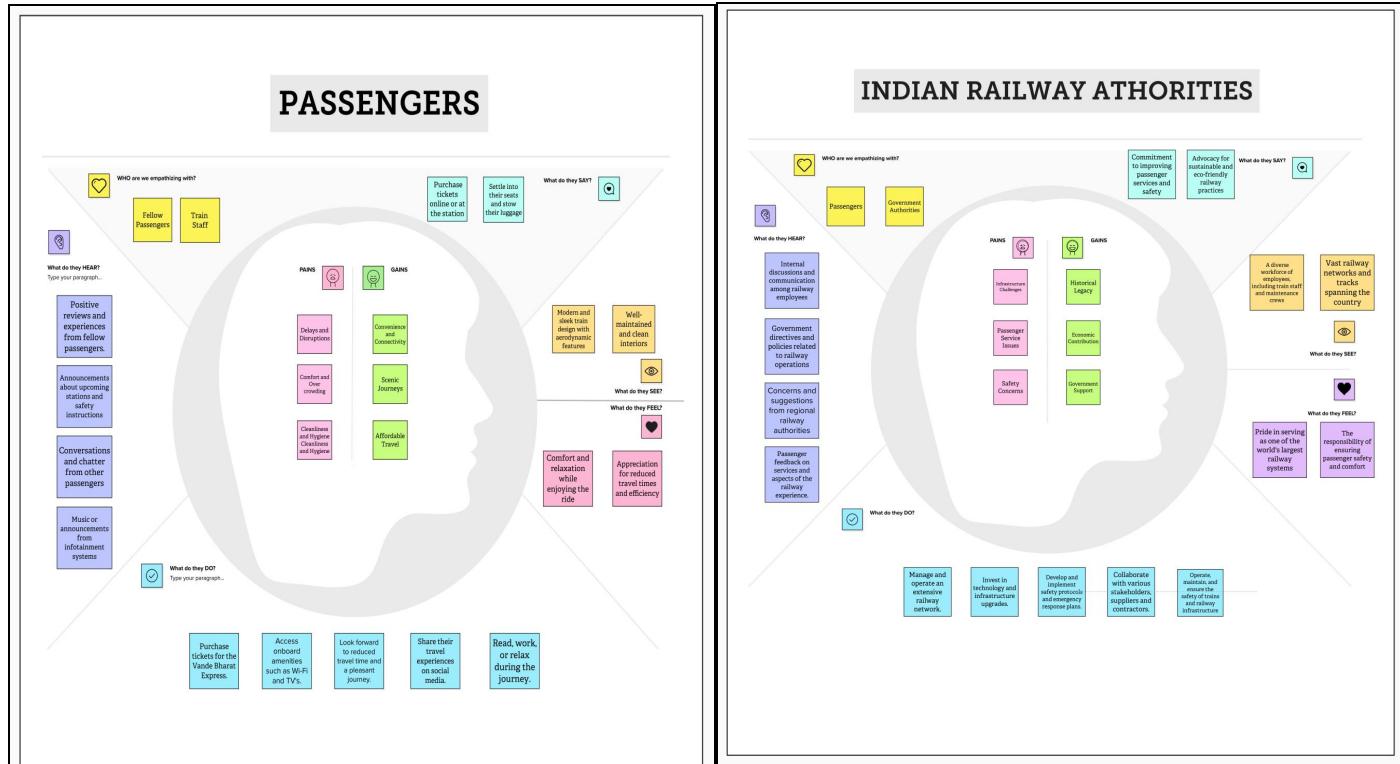
3.2 Empathy Map Canvas:

Empathy mapping is a visual framework for capturing and organizing insights about the user's perspective on user experience design and design thinking. This typically includes categories such as what the user sees, hears, touches, does, thinks/feels, and so on. By collecting and organizing this information, empathy maps help design teams better understand a user's experiences, feelings, and needs. They are a powerful tool for improving the design of products, services, or experiences, enabling teams to create solutions that better meet user expectations and improve overall user satisfaction.

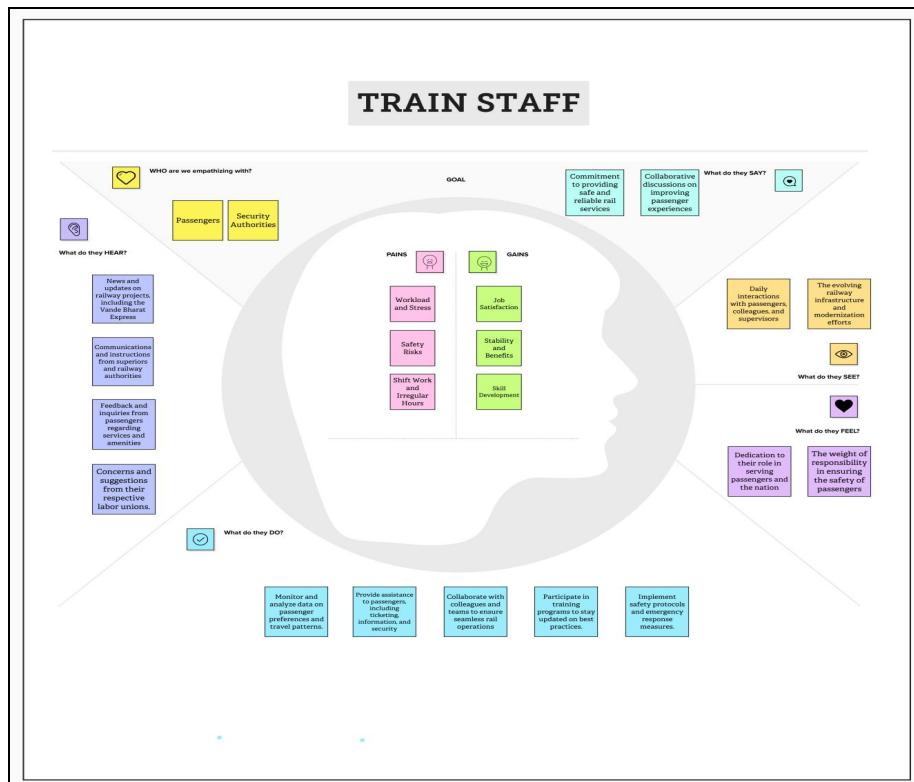
Empathy Map



Empathy map-1



Empathy map-3:



4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Functionality was key, encompassing features such as efficient booking systems, onboard services, and real-time updates.

Booking System:

- User Registration
- Ticket Booking
- Payment Gateway Integration

Onboard Services:

- Wi-Fi Connectivity
- Infotainment Screens
- Bio-Vacuum Toilets

Safety and Security:

- Automatic Door System
- Fire and Smoke Detection
- Crash-Resistant Design

4.2 Non-Functional Requirements:

Non-functional requirements focused on aspects like security, environmental sustainability, and passenger safety.

Performance:

- Speed
- Scalability

Security:

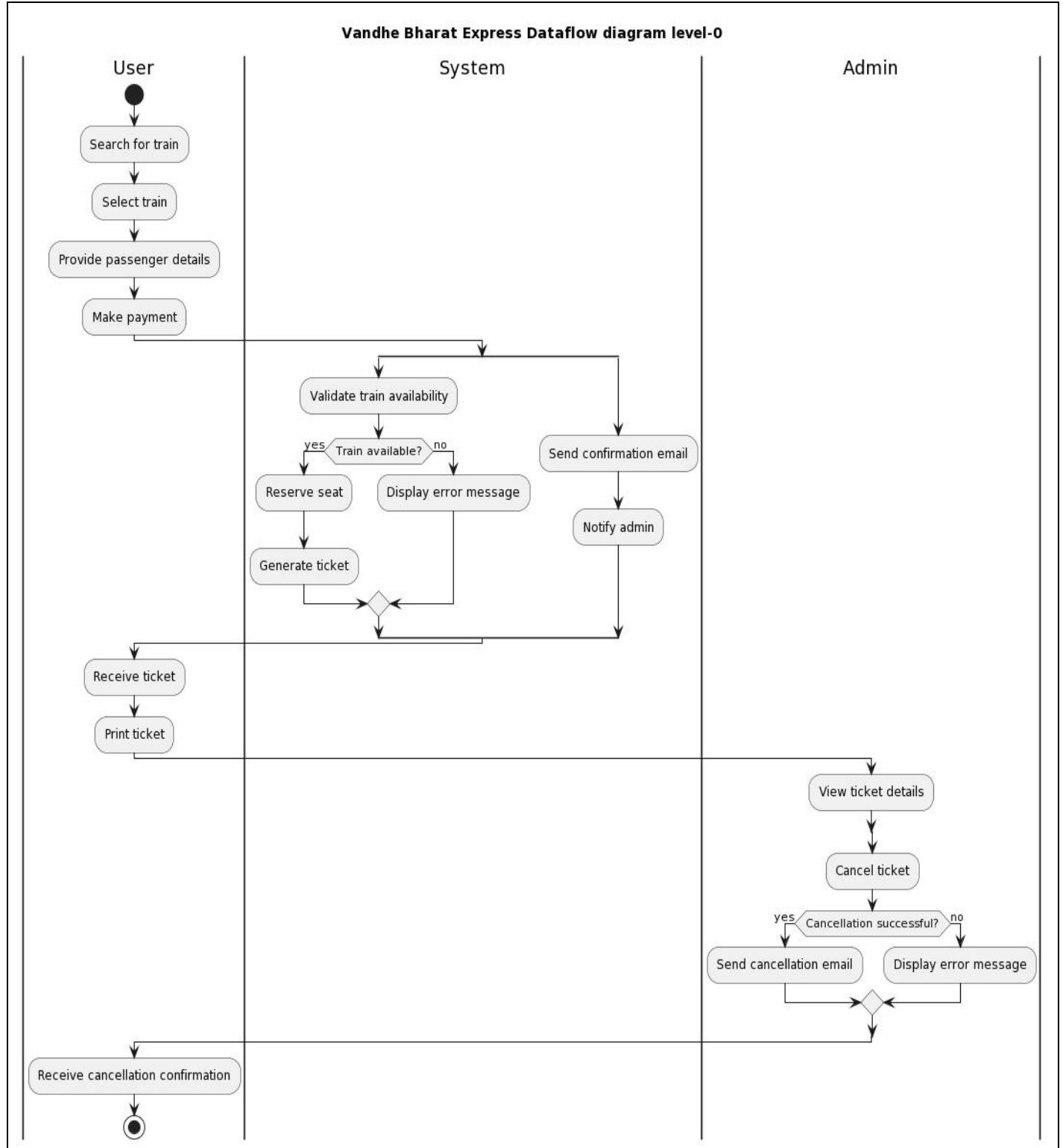
- Data Encryption
- User Authentication

Environmental Sustainability:

- Reduced Emissions
- Energy Consumption

5. Project Design Phase

5.1 Data Flow Diagrams:



5.2 User Stories:

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Passenger	Ticket Booking and Reservation	US-001	As a passenger, I want to be able to book train tickets and make seat reservations for the Vande Bharat Express easily and efficiently.	<ol style="list-style-type: none">1. The system should allow me to select travel dates and destinations.2. I should be able to view available seat options and pricing.3. The system should provide a secure payment gateway for ticket booking.4. I want to receive a confirmation email with e-tickets.	High	Version 2.0
Train Crew	Onboard Services Management	US-002	As a train crew member, I want a digital platform that helps me manage onboard services efficiently, including meal service, passenger requests, and entertainment.	<ol style="list-style-type: none">1. The system should provide a dashboard for managing passenger requests.2. Crew members should be able to view meal orders and dietary preferences.3. Entertainment controls should be accessible from the platform.	Medium	Version 2.0

Maintenance Team	Predictive Maintenance	US-003	As a member of the maintenance team, I need access to a predictive maintenance system that alerts us to potential issues before they cause service disruptions.	<ol style="list-style-type: none"> 1. The system should monitor real-time sensor data for anomalies. 2. It should provide alerts for potential maintenance requirements. 3. Maintenance schedules and notifications should be easily accessible. 	High	Version 3.0
Passenger	Passenger Feedback and Improvement	US-004	As a passenger, I want to be able to provide feedback, make service requests, and receive real-time updates on my service requests.	<ol style="list-style-type: none"> 1. The system should allow me to submit feedback and service requests via a mobile app. 2. I should receive real-time updates on the status of my requests. 3. Feedback should be analyzed and used for continuous service improvement. 	Medium	Version 2.0
Management	Data Analysis and Reporting	US-005	As a member of the management team, I want access to data analysis and reporting tools for decision-making and performance tracking.	<ol style="list-style-type: none"> 1. The system should provide a performance metrics dashboard. 2. Predictive analytics models should help in decision-making. 3. Reports on passenger feedback and service quality should be accessible. 	High	Version 3.0

6. PROJECT PLANNING & SCHEDULING

6.1 Technical Architecture:

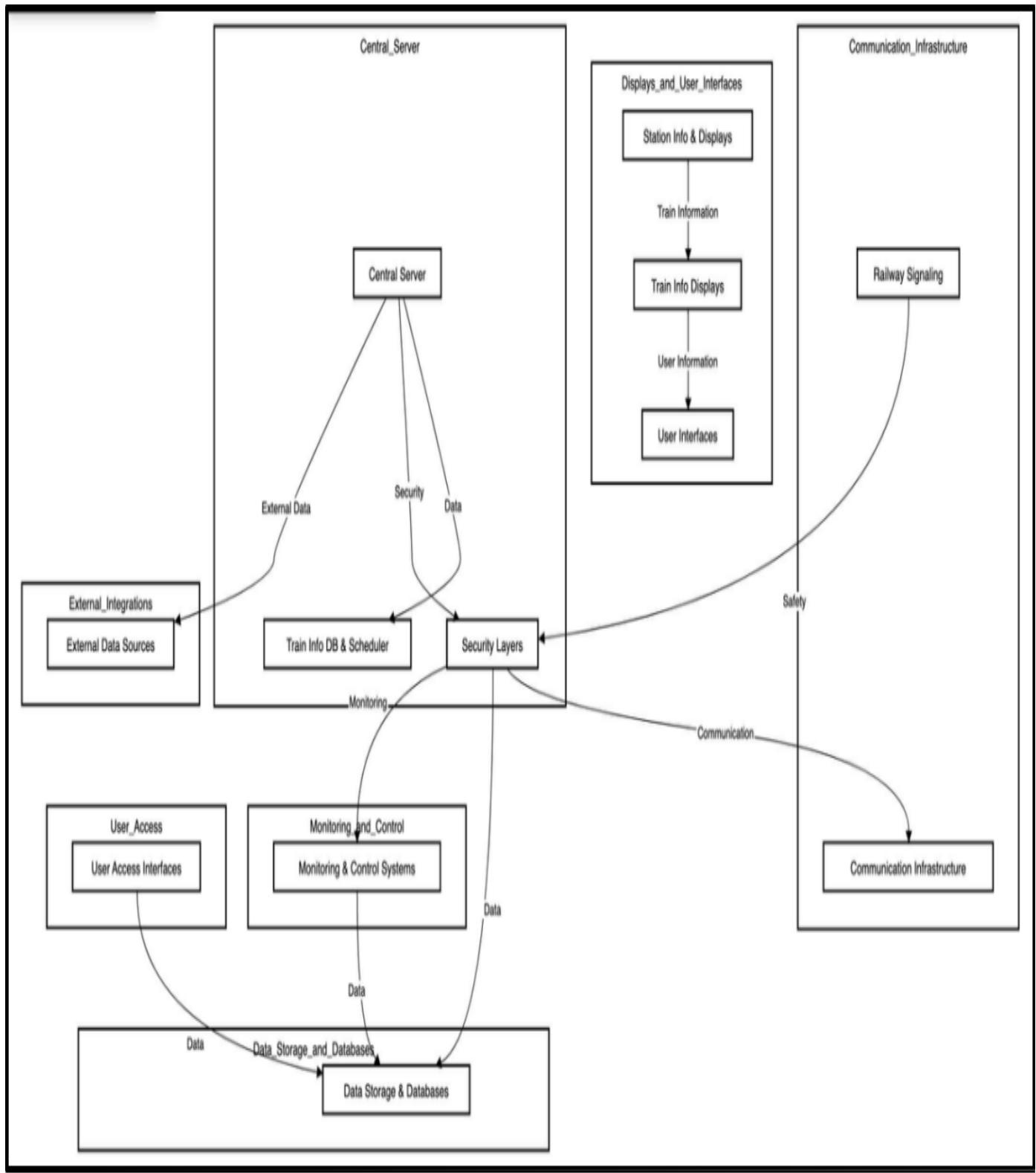


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	How users interact with the application	HTML, CSS, JavaScript / AngularJs / React Js, etc.
2	Application Logic-1	Logic for a process in the application	Java / Python
3	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5	Database	Data type, configurations, etc.	MySQL, NoSQL, etc.
6	Cloud Database	Database service on the cloud	IBM DB2, IBM Cloudant, etc.
7	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8	External API-1	Purpose of External API used	IBM Weather API, etc.
9	External API-2	Purpose of External API used	Aadhar API, etc.
10	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
11	Infrastructure (Server / Cloud)	Application Deployment on Local System /Cloud	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
Open-Source Frameworks	Utilization of open-source frameworks for application development and infrastructure.	e.g., React, Node.js, Express.js, Angular, etc.	Open-Source Frameworks
Security Implementations	Implementation of security measures to safeguard data, passenger information, and system operations.	e.g., SSL/TLS, encryption, authentication, authorization, firewalls, etc.	Security Implementations

Scalable Architecture	Architectural design that allows for scalability to accommodate an increasing number of users and data.	e.g., Cloud platforms, microservices, load balancing, containerization, etc.	Scalable Architecture
Availability	Ensuring that the application and services are consistently available to passengers.	e.g., High availability configurations, redundancy, failover mechanisms, etc.	Availability
Performance	Optimizing the system for fast and efficient operation, providing a seamless user experience.	e.g., Performance monitoring, optimization tools, caching, responsive design, etc.	Performance

6.2 Sprint Planning & Estimation:

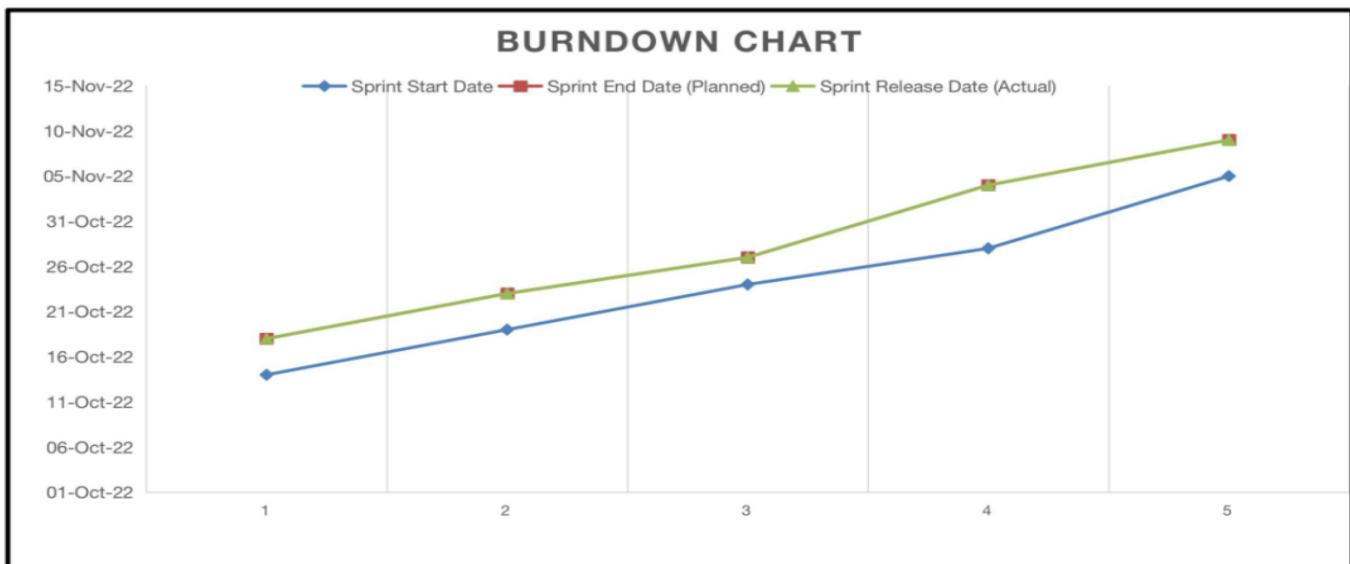
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint- 1	Ticket Booking	VB-US01	As a passenger, I want to book tickets for the train.	5	High	Subash, Sam, Abhiram
Sprint- 1	Passenger Information	VB-US02	As a passenger, I want access to real-time train information.	3	Medium	Subash, Abhiram
Sprint-2	Onboard Services	VB-US03	As a passenger, I want to access onboard services like Wi-Fi, entertainment, and food.	5	High	Sam, Pavan
Sprint- 2	Maintenance Alerts	VB-US04	As a train operator, I want to receive real-time maintenance alerts and updates.	8	High	Pavan, Abhiram
Sprint- 3	App Performance	VB-US05	As a developer, I want to optimize the application for better performance.	5	Medium	Subash, Sam

Sprint- 3	Security Enhancements	VB-US06	As a security expert, I want to implement security enhancements in the app.	8	High	Pavan, Sam
-----------	-----------------------	---------	---	---	------	------------

6.3 Sprint Delivery Schedule:

Sprint	Total Story Points	Duration	Sprint StartDate	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint- 1	15	5 Days	14 Oct 2022	18 Oct 2022	15	18 Oct 2022
Sprint-2	20	5 Days	19 Oct 2022	23 Oct 2022	20	23 Oct 2022
Sprint-3	20	4 Days	24 Oct 2022	27 Oct 2022	20	27 Oct 2022
Sprint-4	15	7 Days	28 Oct 2022	04 Nov 2022	15	04 Nov 2022
Sprint-5	20	5 Days	05 Nov 2022	09 Nov 2022	20	09 Nov 2022

Burndown Chart:



Proposed Solution 1:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	How might we make Vande Bharat Express more accessible and user-friendly for passengers with disabilities?
2.	Idea / Solution description	Our extensive accessibility program includes ramps, tactile paving, elevators, real-time audio announcements, staff training, and adaptable seating in designated coaches.
3.	Novelty / Uniqueness	The novelty lies in a holistic approach, simultaneously addressing infrastructure, staff training, and technology to ensure a seamless journey.
4.	Social Impact / Customer Satisfaction	The initiative promotes inclusivity, empowering passengers with disabilities, and enhancing customer satisfaction by providing equitable access to efficient rail services.
5.	Business Model (Revenue Model)	Revenue sources include government funding, ticket sales, partnerships with disability organizations, and premium features within the mobile app.
6.	Scalability of the Solution	Highly scalable, other trains can replicate this concept for more efficient and user-friendly travel.

Proposed Solution 2:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	How might we enhance passenger comfort and satisfaction during extended train rides?
2.	Idea / Solution description	Enhance passenger comfort on long-haul train journeys by introducing ergonomic seating, on-board relaxation zones with massage chairs, gourmet dining, a dedicated mobile app, and regular comfort feedback surveys for a premium travel experience.

3.	Novelty / Uniqueness	Our approach integrates predictive maintenance technology for proactive issue resolution and minimized disruptions. A centralized maintenance hub and data analytics streamline processes for maximum efficiency.
4.	Social Impact / Customer Satisfaction	This initiative reduces disruptions and delays, enhancing the overall travel experience and improving customer satisfaction. Passengers benefit from a more reliable and punctual service, increasing their trust in the railway system.
5.	Business Model (Revenue Model)	Revenue sources include reduced operational costs through predictive maintenance, improved resource allocation, and increased customer trust. By offering maintenance services to other railway networks or industries, revenue can be generated from external clients.
6.	Scalability of the Solution	This solution has the potential to scale to many train routes on the Indian Railways network, leading to better maintenance and fewer disruptions across the country. The maintenance hub and predictive technology can be used in other industries and networks, increasing revenue and efficiency.

7. CODING & SOLUTIONING

"Vande Bharat Express: Pioneering India's High-Speed Rail Journey"

The Vande Bharat Express, also known as Train 18, is an Indian semi-high speed intercity electric multiple unit train. It was designed and developed by the Integral Coach Factory (ICF) in Chennai, India. The train is named after the phrase "Vande Mataram," which means "I bow to thee, Mother" in Sanskrit and is a patriotic song often associated with India's struggle for independence.

Key features of the Vande Bharat Express:

High Speed: The train is designed to operate at a maximum speed of around 160 km/h (99 mph) and is one of the fastest trains in India.

Sleek Design: Vande Bharat Express has a modern and aerodynamic design with a smooth exterior. The train's design reduces air resistance and enhances its speed and efficiency.

Energy Efficiency: The train is an electric multiple unit, meaning each coach is powered by electricity. This reduces greenhouse gas emissions and makes it an environmentally friendly mode of transportation.

Amenities: Vande Bharat Express offers a range of passenger amenities, including comfortable seating, onboard Wi-Fi, infotainment screens, bio-vacuum toilets, and catering services.

Safety and Comfort: The train incorporates various safety features such as fire and smoke detection systems, automatic doors with sliding footsteps, and crash-resistant features.

Indigenous Technology: The train is a significant achievement for India's railway sector as it showcases indigenous technological capabilities in terms of design, engineering, and manufacturing.

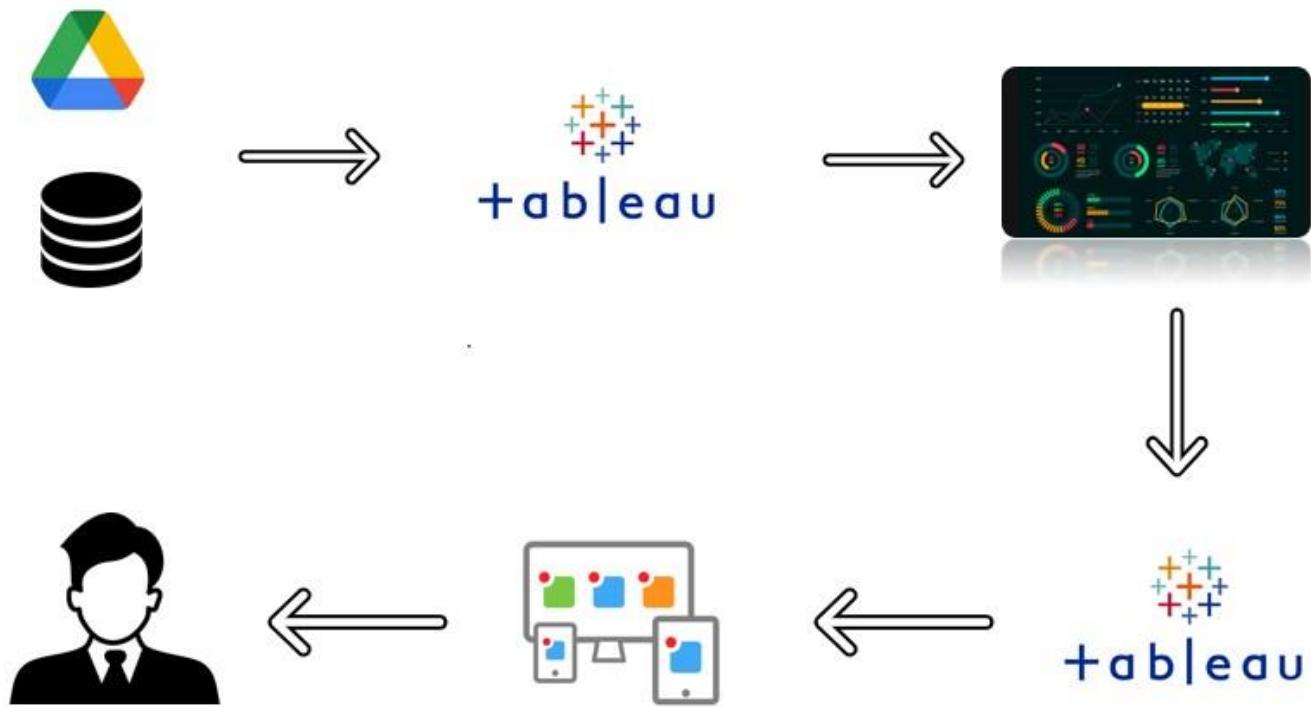
Routes: The Vande Bharat Express initially operated on the New Delhi-Varanasi route. Plans were underway to introduce it on other important routes as well.

Reduced Travel Time: The train's high speed and efficient design contribute to reduced travel times between destinations, making it an attractive option for travelers.

Made in India: The development and manufacturing of the Vande Bharat Express exemplify India's efforts to promote its "Make in India" initiative, encouraging domestic manufacturing and technological innovation.

The Vande Bharat Express represents a leap in India's rail technology and infrastructure, offering passengers a modern and efficient mode of travel. It not only reduces travel times but also symbolizes India's commitment to technological advancement in the transportation sector.

Technical Architecture:



Record explanation Video for project

end to end solution o Project Documentation-Step by step project development procedure

Milestone 1: Define Problem / Problem Understanding

Activity 1: Specify the business problem.

The primary business problem faced by Vande Bharat Express is centered around the accessibility and user-friendliness for passengers with disabilities. Despite being a technological marvel and a symbol of progress in India's railway sector, the current infrastructure and service offerings do not adequately address the diverse needs of individuals with disabilities. This lack of accommodation poses a significant challenge to creating an inclusive and equitable travel experience for all passengers.

Passengers with disabilities encounter various obstacles, from navigating through train compartments to accessing essential services during the journey. The existing infrastructure and service design may not be optimized to cater to the unique requirements of this demographic, resulting in a substantial accessibility gap. This challenge not only impacts the travel experience of passengers with disabilities but also goes against the principles of inclusivity and equal access that modern transportation services strive to achieve.

Addressing this business problem requires a comprehensive understanding of the specific challenges faced by passengers with disabilities in using the Vande Bharat Express. It involves identifying areas where the current infrastructure falls short in providing an inclusive environment and developing strategic solutions to overcome these barriers. By prioritizing accessibility improvements, Vande Bharat Express can transform its services to better serve the needs of all passengers, fostering a travel experience that is not only efficient but also welcoming and accommodating for individuals with disabilities.

Activity 2: Business requirements.

The business requirements are essential to guide the redesign and enhancement of services, ensuring that the modifications align with the goal of creating an inclusive and user-friendly travel experience for all passengers. The key business requirements include:

1. User-Friendly Interfaces:

- Develop and implement user interfaces that are intuitive and compatible with various assistive technologies.
- Ensure that information and services are easily accessible to passengers with visual, auditory, or motor impairments.

2. Dedicated Spaces within the Train:

- Allocate specific areas within the train that are designed to cater to the comfort and mobility needs of passengers with disabilities.
- Ensure these spaces are equipped with features such as ample space for wheelchair users, accessible seating arrangements, and easy entry and exit points.

3. Comprehensive Staff Training:

- Provide specialized training for train staff to handle the diverse needs of passengers with disabilities
- Equip staff with the knowledge and skills to offer personalized assistance, ensuring a supportive and comfortable journey for all passengers.

4. Universal Design Principles:

- Incorporate universal design principles into every aspect of the train service to benefit passengers with disabilities and enhance the overall experience for all travelers.

- Consider features such as clear signage, audio announcements, and well-designed infrastructure that caters to a diverse range of abilities.

5. Accessible Information and Communication:

- Ensure that information regarding train schedules, announcements, and emergency procedures is presented in formats accessible to all passengers.
- Implement communication strategies that consider the varied needs of individuals with different disabilities.

6. Regulatory Compliance:

- Align modifications with existing accessibility standards and regulations to meet legal requirements.
- Stay informed about evolving accessibility standards and continuously adapt services to comply with the latest regulations.

7. Feedback Mechanism:

- Establish a feedback mechanism to collect input from passengers with disabilities regarding the effectiveness of accessibility enhancements.
- Use this feedback to iteratively improve and refine the services to better meet the evolving needs of the diverse passenger base.

Activity 3: Social or Business Impact.

Social Impact:

1. Inclusivity and Equality:

- The initiative contributes to building a more inclusive society by ensuring that individuals with disabilities have equal access to modern transportation facilities.
- It aligns with the broader societal goal of fostering inclusivity, allowing all citizens, regardless of physical abilities, to participate fully in the benefits of public transportation.

2. Enhanced Travel Experience:

- Passengers with disabilities experience a more welcoming and accommodating travel environment, reducing the challenges and barriers they may face during their journeys.
- The initiative promotes a positive social environment, where diversity is celebrated, and individuals with disabilities feel valued and respected as part of the broader community.

3. Positive Perception and Public Image:

- Demonstrating a commitment to accessibility improvements enhances the public image of Vande Bharat Express.
- The train service is viewed as socially responsible, contributing to the well-being and comfort of all passengers, and fostering positive sentiments among the general public.

Business Impact:

1. Broader Customer Base:

- Improved accessibility attracts a broader customer base, including individuals with disabilities, their families, and those who prioritize inclusive travel options.
- Vande Bharat Express becomes a preferred choice for a diverse range of passengers, leading to increased ridership and revenue.

2. Competitive Advantage:

- By aligning with or exceeding accessibility standards, Vande Bharat Express gains a competitive advantage in the transportation sector.
- The train service stands out as a leader in providing inclusive and user-friendly travel experiences, distinguishing itself from competitors.

3. Regulatory Compliance:

- Meeting and exceeding regulatory standards enhances the train service's compliance with accessibility regulations.
- This not only ensures legal adherence but also positions Vande Bharat Express as a proactive entity that goes beyond the minimum requirements to cater to the diverse needs of its passengers.

4. Customer Loyalty and Repeat Business:

- Positive experiences stemming from enhanced accessibility contribute to customer loyalty.
- Passengers who feel well-served and accommodated are more likely to choose Vande Bharat Express for future travel, leading to repeat business and positive word-of-mouth marketing.

Milestone 2: Data Collection & Extraction from Database

Activity 1: Collect the dataset.

The screenshot shows a Jupyter Notebook interface with the following details:

- Title:** Vande Bharat, Indian Railways
- Description:** Dataset contains list of 25 Vande Bharat that are in service as of July 2023
- Data Card:** A link to view the dataset card.
- Code (8):** A link to view the code used to generate the dataset.
- Discussion (0):** A link to view discussions about the dataset.
- Usability:** Score 8.24
- License:** CC0: Public Domain
- Expected update frequency:** Monthly
- Tags:** Transportation, Travel, India, Cities and Urban Areas

Activity 1.1: Understand the dataset

Sr. No.	Train Name	Train Number	Originating City	Originating Station	Terminal City	Terminal Station
1	New Delhi - Varanasi Vande Bharat Express	22435/22436	Delhi	New Delhi	Varanasi	Varanasi Junction
2	New Delhi - Shri Mata Vaishno Devi Katra Express	22439/22440	Delhi	New Delhi	Shri Mata Vaishno Devi Katra	Shri Mata Vaishno Devi Katra
3	Mumbai Central - Gandhinagar Capital Vande Bharat Express	20901/20902	Mumbai	Mumbai Central	Gandhinagar	Gandhinagar Capital
4	New Delhi - Amb Andhra Vande Bharat Express	22447/22448	Delhi	New Delhi	Andhra	Amb Andhra
5	MGR Chennai Central - Mysuru Vande Bharat Express	20607/20608	Chennai	Chennai Central	Mysuru	Mysore Junction
6	Bilaspur - Nagpur Vande Bharat Express	20825/20826	Bilaspur	Bilaspur Junction	Nagpur	Nagpur Junction
7	Hosur - New Jelaiapuri Vande Bharat Express	22301/22302	Kolkata	Howrah Junction	Siliguri	New Jelaiapuri Junction
8	Vishakhapatnam - Secunderabad Vande Bharat Express	20833/20834	Vishakhapatnam	Vishakhapatnam Junction	Hyderabad	Secunderabad Junction
9	Chennai - Secunderabad Vande Bharat Express	22223/22226	Mumbai	Chhatrapati Shivaji Terminus	Secunderabad	Secunderabad Junction
10	Mumbai CSMT - Saharanpur Vande Bharat Express	20171/20172	Mumbai	Chhatrapati Shivaji Terminus	Shahd	Saharanpur Shirdi
11	Rani Kamalapati (Halibaganj) - Hazrat Nizamuddin Vande Bharat Express	20701/20702	Bhopal	Hazrat Nizamuddin (Rani Kamalapati)	Delhi	Hazrat Nizamuddin
12	Rani Kamalapati - Secunderabad - Tirupati Vande Bharat Express	20643/20644	Hyderabad	Secunderabad Junction	Tirupati	Tirupati
13	MGR Chennai Central - Coimbatore Vande Bharat Express	20977/20978	Chennai	Chennai Central	Coimbatore	Coimbatore Junction
14	Delhi Canttment - Ajmer Vande Bharat Express	20633/20634	Delhi	Delhi Canttment	Ajmer	Ajmer Junction
15	Kasargod - Thiruvananthapuram Vande Bharat Express	22349/22350	Kolkata	Kasargod	Thiruvananthapuram	Thiruvananthapuram Central
16	Hosur - Puri Vande Bharat Express	22223/22226	Mumbai	Howrah Junction	Puri	Puri
17	Anantnag - Dehradoon Vande Bharat Express	22447/22458	Delhi	Anantnag Vande Bharat Express	Dehradoon	Dehradoon Terminal
18	New Jelaiapuri - Gواhati Vande Bharat Express	22237/22228	Silguri	New Jelaiapuri Junction	Gواhati	Gواhati
19	Mumbai CSMT - Madgaon Vande Bharat Express	22229/22230	Mumbai	Chhatrapati Shivaji Terminus	Madgaon	Madgaon Junction
20	Mumbai CSMT - Madgaon Vande Bharat Express	22229/22230	Mumbai	Chhatrapati Shivaji Terminus	Madgaon	Madgaon Junction
21	Patna - Ranchi Vande Bharat Express	22349/22350	Patna	Patna Junction	Ranchi	Ranchi Junction
22	KSR Bengaluru - Dharmavaram Vande Bharat Express	20661/20662	Bengaluru	Bangalore City	Hubballi - Dharwad	Dharwad
23	Rani Kamalapati (Halibaganj) - Jabalpur Vande Bharat Express	20173/20174	Bhopal	Habibganj (Rani Kamalapati)	Jabalpur	Jabalpur Junction
24	Indore - Vellore Vande Bharat Express	20911/20912	Indore	Indore Vande Bharat Express	Bhopal	Bhopal Junction
25	Jodhpur - Sohbaran (Almora) Vande Bharat Express	22461/22462	Jodhpur	Jodhpur Junction	Almora	Sohbaran Junction
26	Gorakhpur - Lucknow Charbagh Vande Bharat Express	22349/22350	Gorakhpur	Gorakhpur Junction	Charbagh	Lucknow Charbagh
27	MGR Chennai Central - Vijayawada Vande Bharat Express	20677/20678	Chennai	Chennai Central	Vijayawada	Vijayawada Junction
28	Hosur - Patna Vande Bharat Express	22347/22348	Kolkata	Howrah Junction	Patna	Patna Junction
29	Kacheguda - Yesvantpur Vande Bharat Express	20703/20704	Bengaluru	Yesvantpur Junction	Hyderabad	Kacheguda
30	Chennai Egmore - Tirunelveli Vande Bharat Express	20665/20666	Chennai	Chennai Egmore	Tirunelveli	Tirunelveli Junction
31	Udaipur City - Jaipur Vande Bharat Express	20979/20980	Udaipur	Udaipur City	Jaipur	Jaipur Junction
32	Kasaragod - Thiruvananthapuram Vande Bharat Express (via Alappuzha)	20631/20632	Kasaragod	Kasaragod	Thiruvananthapuram	Thiruvananthapuram Central
33	Hosur - Ranchi Vande Bharat Express	20897/20898	Kolkata	Howrah Junction	Ranchi	Ranchi Junction
34	Ahmedabad - Jamnagar Vande Bharat Express	22925/22926	Ahmedabad	Ahmedabad Junction	Jamnagar	Jamnagar

Activity 2: Connect Dataset to Tableau

The screenshot shows the Tableau desktop application. On the left, the 'Connections' pane lists several CSV files under 'Vande Bharat Sept - 2023'. The main workspace shows a single table named 'Vande Bharat Sept - 2023.csv' with 35 rows and 19 fields. The table has columns for 'Name' and 'Fields'. The 'Fields' section shows four columns: Type, Field Name, Physical Table, and Remarks. The first row is highlighted with a green header. Below the table, there are tabs for 'Data Source' and various sheets. A tooltip 'Drag tables here to relate them. Learn more.' is displayed near the bottom center.

9. RESULTS

Milestone 3: Data Preparation

Activity 1: Prepare the Data for Visualization

Preparing the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualized, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets of data, preparing the data for visualization software, and ensuring the data is accurate and complete. This process helps to make the data easily understandable and ready for creating visualizations to gain insights into the performance and efficiency.

Milestone 4: Data Visualization

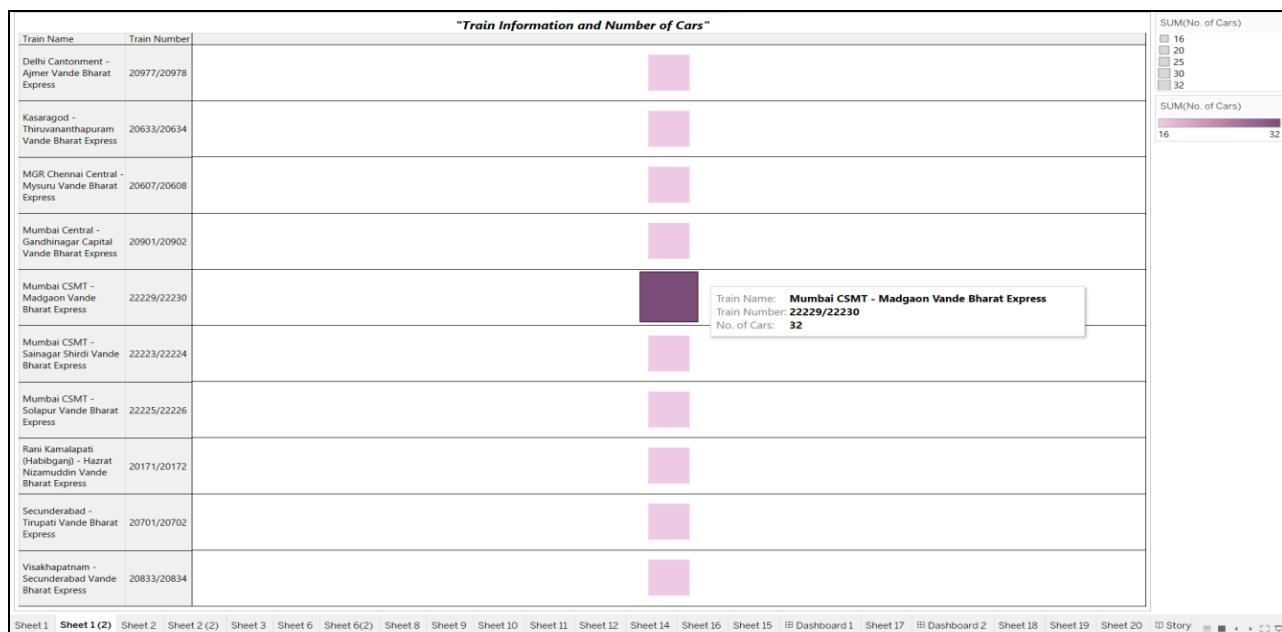
Data visualization involves generating visual depictions of data to aid individuals in comprehending and examining the information. The objective of data visualization is to enhance the accessibility, intuitiveness, and

interpretability of intricate data sets. Utilizing visual components like charts, graphs, and maps, data visualizations enable swift recognition of patterns, trends, and anomalies within the data.

Activity 1: No of Unique Visualizations

The variety of distinct visual representations possible with a specific dataset. Several typical visualization methods for analyzing rice production encompass bar charts, line charts, heatmaps, scatter plots, pie charts, maps, etc. These visualizations are valuable for comparing performance, monitoring changes over time, illustrating distribution, and highlighting relationships between variables.

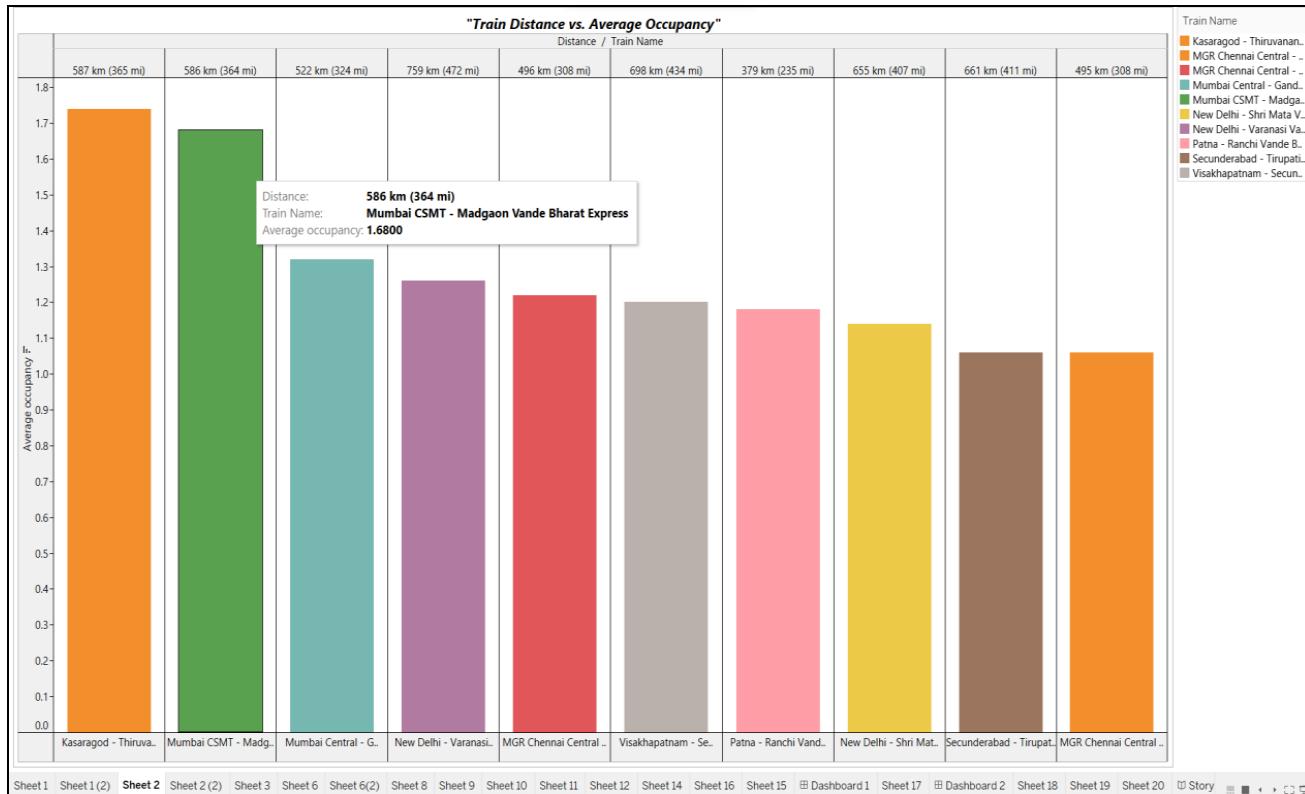
Activity 1.1: Find the Train Name and Train Number and also how many no. of car's are available:



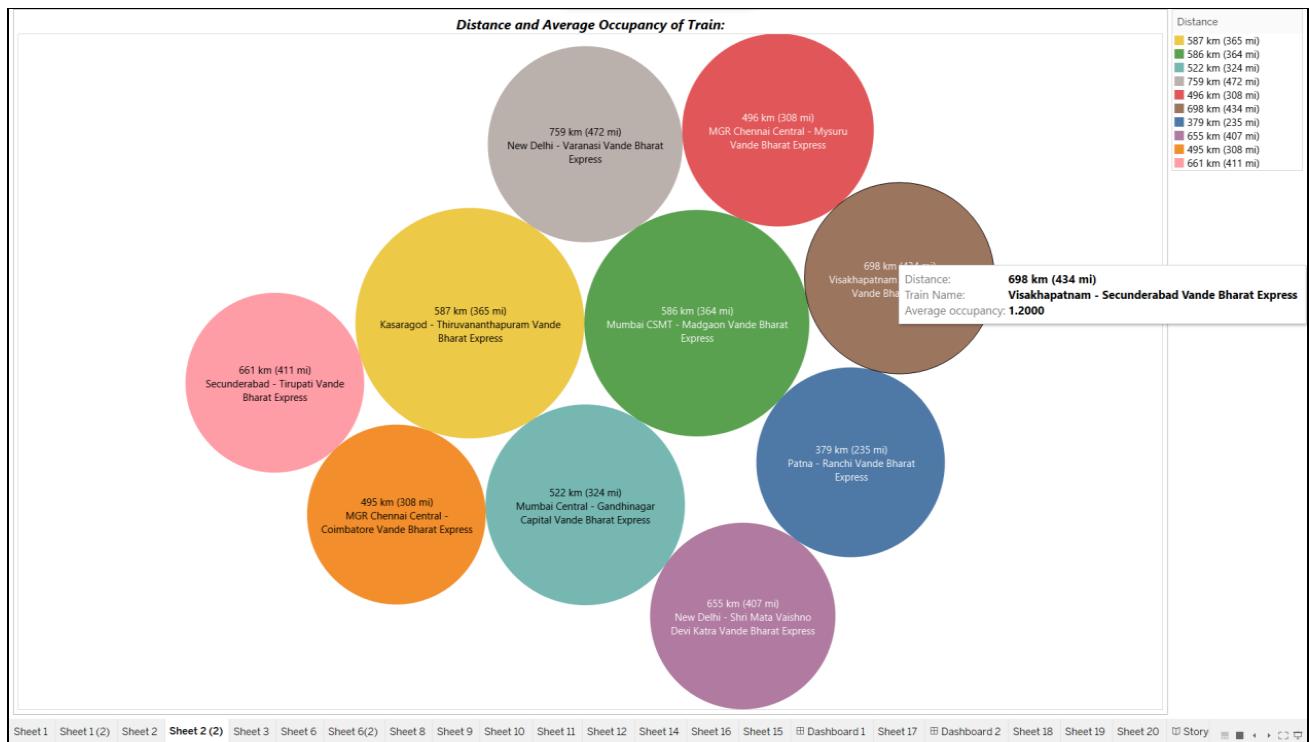
Train Information and Number of Cars				SUM(No. of Cars)
Mumbai CSMT - Madgaon Vande Bharat Express 22229/22230	MGR Chennai Central - Mysuru Vande Bharat Express 20607/20608	Mumbai Central - Gandhinagar Capital Vande Bharat Express 20901/20902	Rani Kamalapati (Habibganj) - Hazrat Nizamuddin Vande Bharat Express 20171/20172	16 32
Train Name: Mumbai CSMT - Madgaon Vande Bharat Express Train Number: 22229/22230 No. of Cars: 32	Mumbai CSMT - Sainagar Shirdi Vande Bharat Express 22223/22224	Secunderabad - Tirupati Vande Bharat Express 20701/20702		
Delhi Cantonment - Ajmer Vande Bharat Express 20977/20978	Mumbai CSMT - Solapur Vande Bharat Express 22225/22226	Visakhapatnam - Secunderabad Vande Bharat Express 20833/20834		
Kasaragod - Thiruvananthapuram Vande Bharat Express 20633/20634				

Sheet1 Sheet1(2) Sheet2 Sheet2(2) Sheet3 Sheet6 Sheet6(2) Sheet8 Sheet9 Sheet10 Sheet11 Sheet12 Sheet14 Sheet16 Sheet15 Dashboard1 Sheet17 Dashboard2 Sheet18 Sheet19 Sheet20 Story

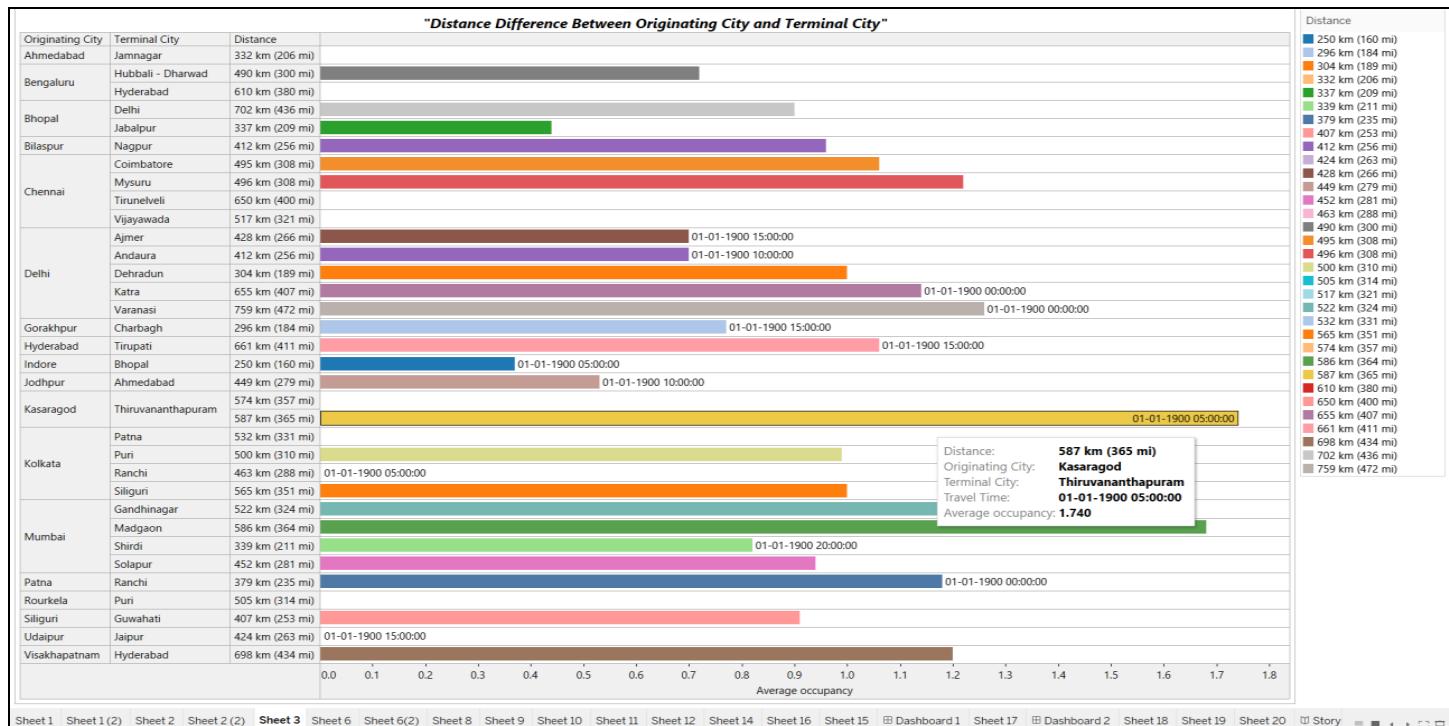
Activity 1.2: Find the distance and average occupancy of Train:



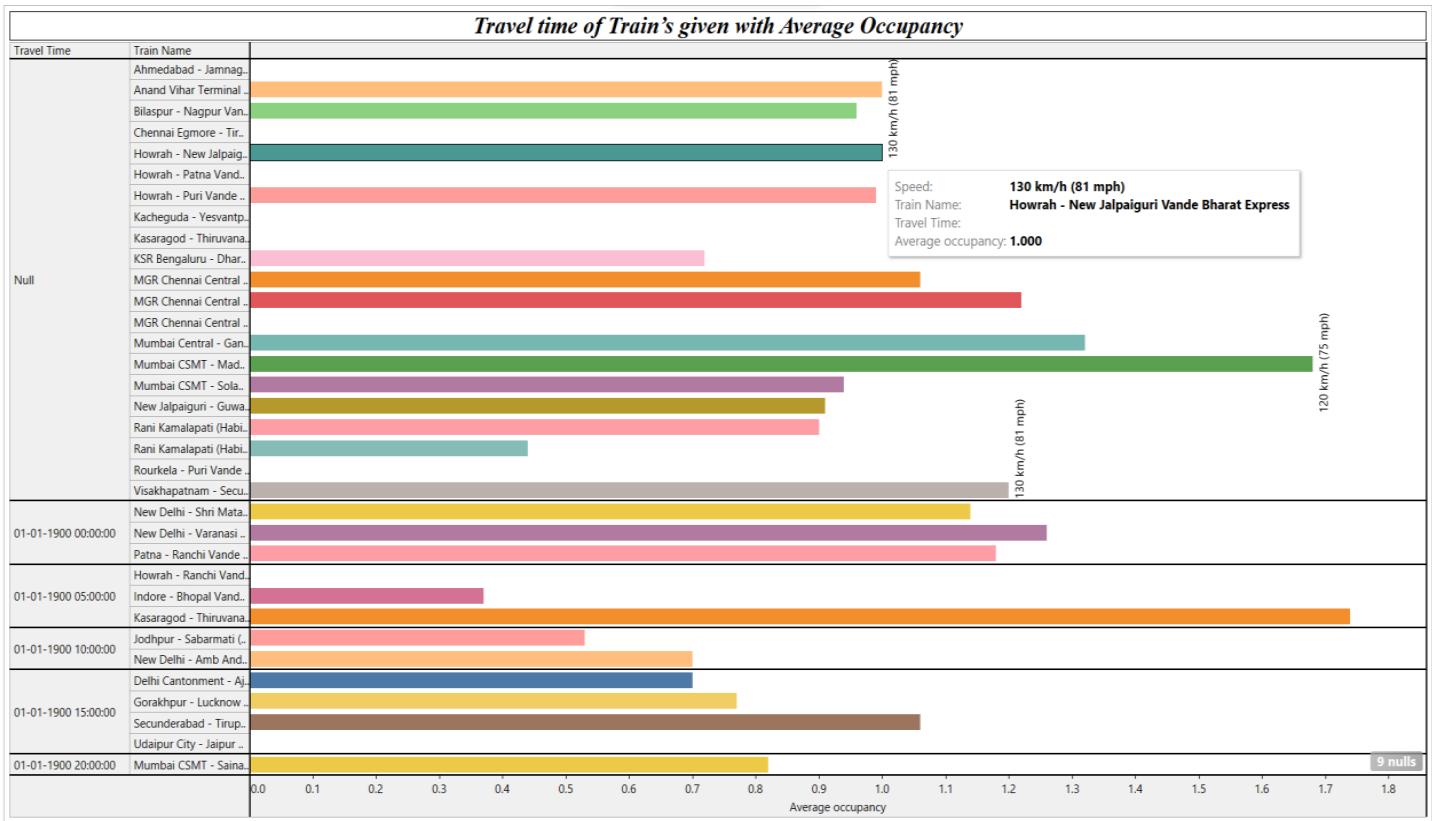
Sheet1 Sheet1(2) **Sheet2** Sheet2(2) Sheet3 Sheet6 Sheet6(2) Sheet8 Sheet9 Sheet10 Sheet11 Sheet12 Sheet14 Sheet16 Sheet15 Dashboard1 Sheet17 Dashboard2 Sheet18 Sheet19 Sheet20 Story



Activity 1.3: Find the distance difference between originating city and Terminal City:

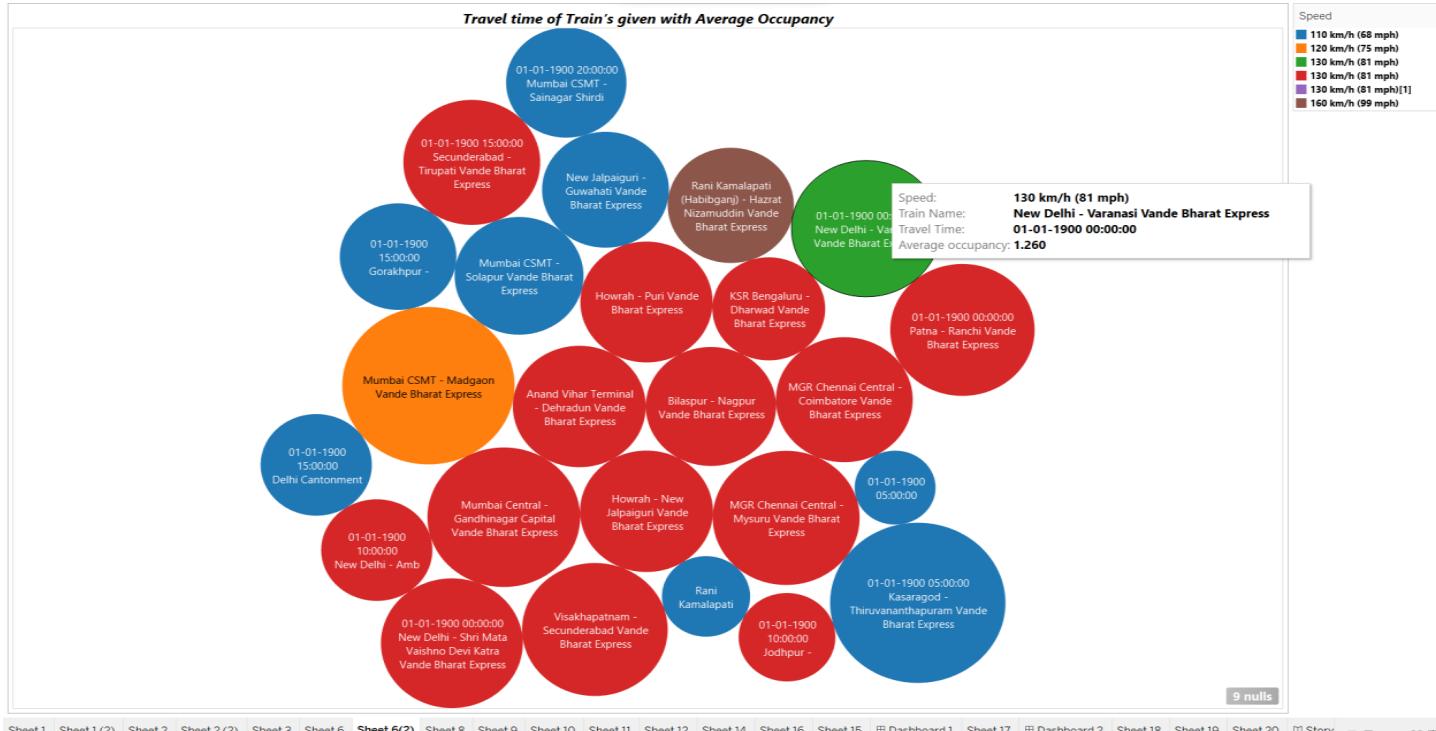


Activity 1.4(1): Find the Travel time of Train's given:



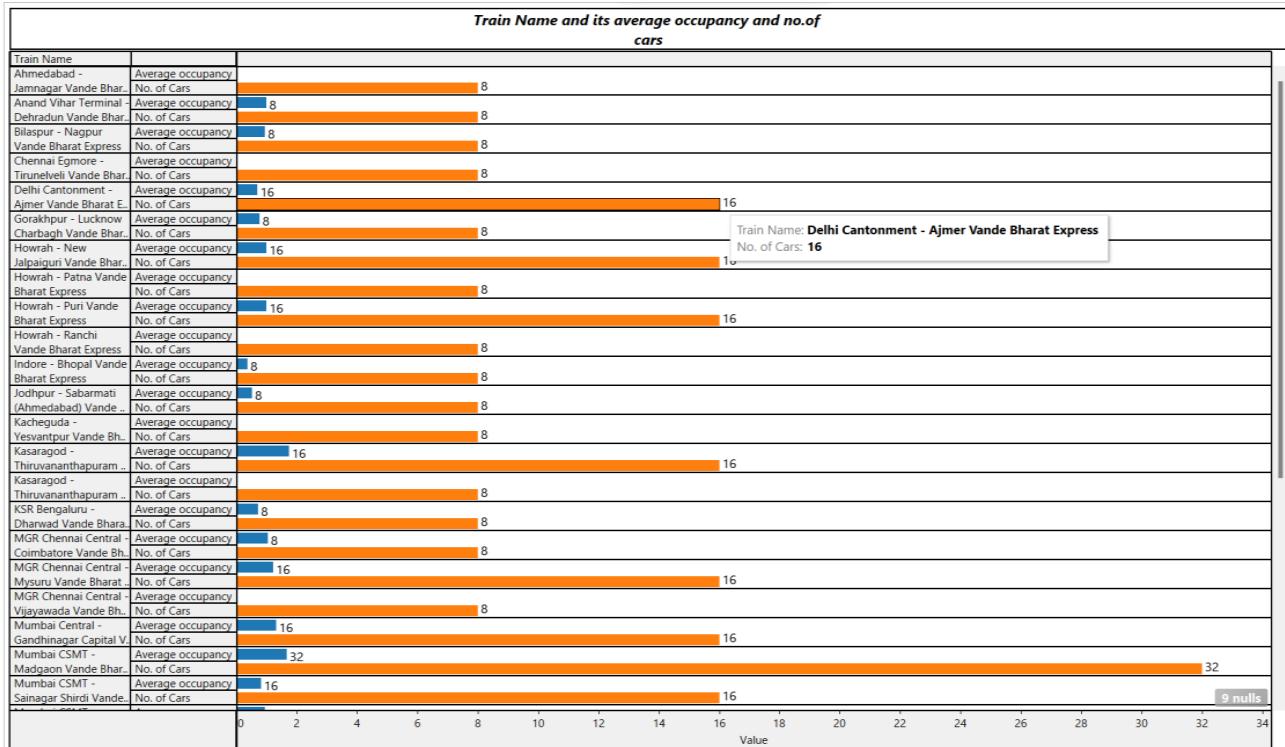
Sheet1 Sheet1(2) Sheet2 Sheet2(2) Sheet3 Sheet6 Sheet6(2) Sheet8 Sheet9 Sheet10 Sheet11 Sheet12 Sheet14 Sheet16 Sheet15 Dashboard1 Sheet17 Dashboard2 Sheet18 Sheet19 Sheet20 Story

1.4(2):



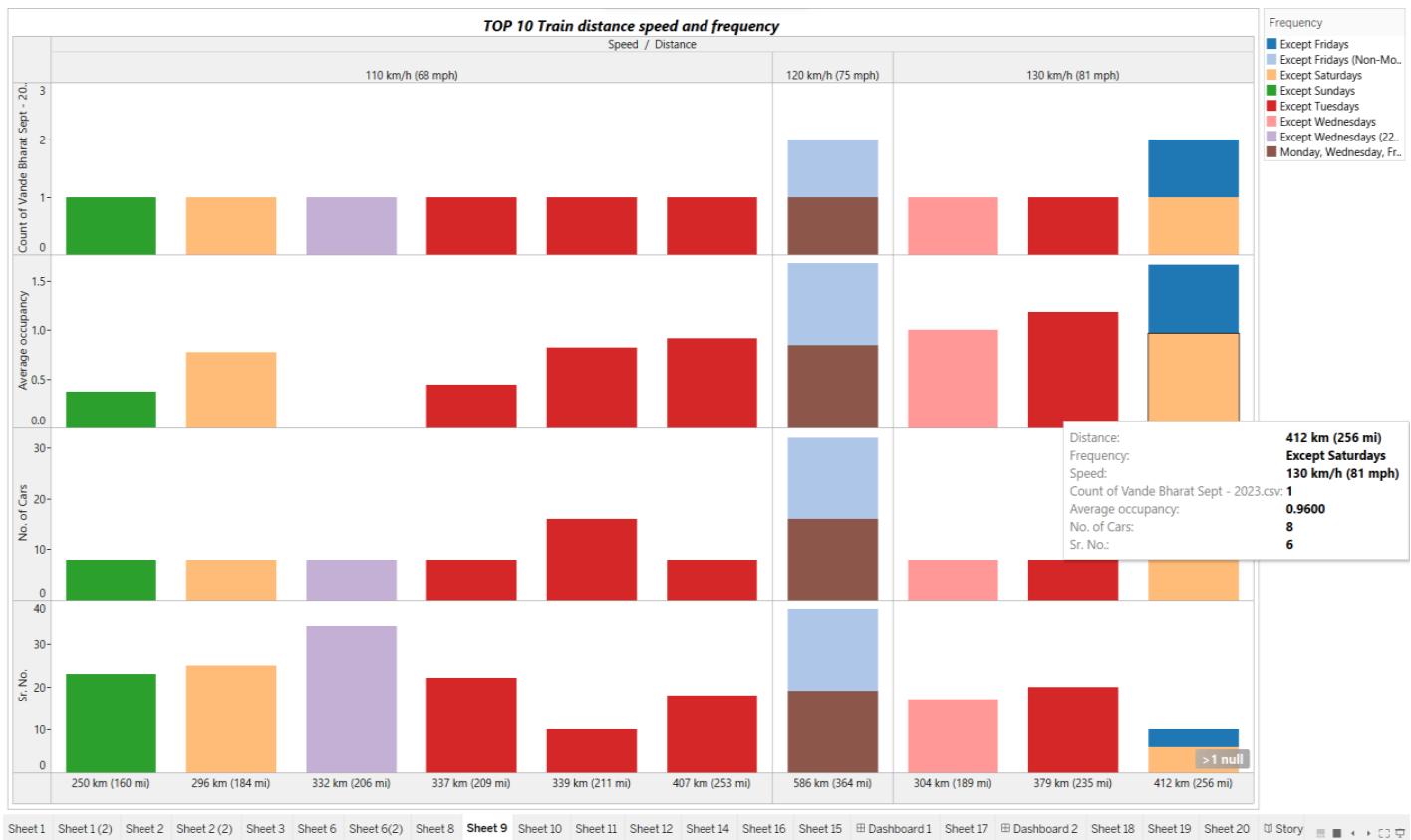
Sheet1 Sheet1(2) Sheet2 Sheet2(2) Sheet3 Sheet6 Sheet6(2) Sheet8 Sheet9 Sheet10 Sheet11 Sheet12 Sheet14 Sheet16 Sheet15 Dashboard1 Sheet17 Dashboard2 Sheet18 Sheet19 Sheet20 Story

Activity 1.5: Find the Train Name and its average occupancy and no.of cars:



Sheet1 Sheet1(2) Sheet2 Sheet2(2) Sheet3 Sheet6 Sheet6(2) **Sheet 8** Sheet9 Sheet10 Sheet11 Sheet12 Sheet14 Sheet16 Sheet15 Dashboard1 Dashboard2 Sheet17 Sheet18 Sheet19 Sheet20 Story

Activity 1.6: Find the (Top-10)Train distance speed and frequency:



Sheet1 Sheet1(2) Sheet 2 Sheet 2(2) Sheet 3 Sheet 6 Sheet 6(2) Sheet 8 Sheet 9 Sheet 10 Sheet 11 Sheet 12 Sheet 14 Sheet 16 Sheet 15 Dashboard 1 Sheet 17 Dashboard 2 Sheet 20 Sheet 18 Sheet 19 Sheet 20 Story

Milestone 5: Dashboard

A dashboard is a visual interface that presents information and data in a structured, easily understandable layout. Dashboards are frequently employed for real-time data monitoring and analysis, typically tailored to specific purposes or scenarios. They find application across various sectors, including business, finance, manufacturing, healthcare, and others. Dashboards facilitate the tracking of key performance indicators (KPIs), monitoring performance metrics, and exhibiting data through charts, graphs, and tables.

Activity :1- Responsive and Design of Dashboard

It seems like you're asking about the responsiveness of the Vande Bharat Express. If you're referring to how the train or its components respond to various conditions or inputs, I'll provide some insights based on its design and general expectations for modern high-speed trains.

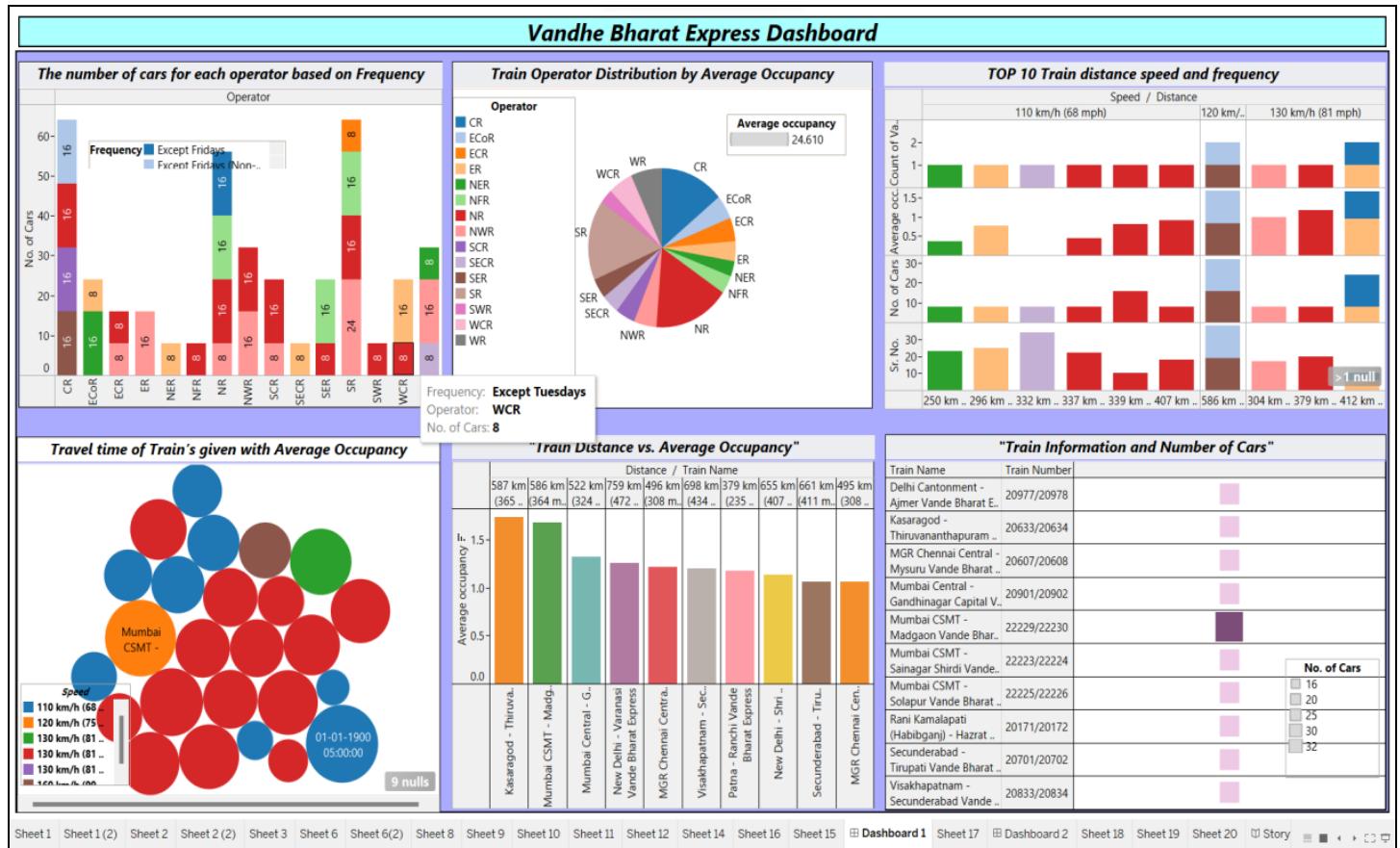
1. Speed and Acceleration: High-speed trains like the Vande Bharat Express are designed to be responsive in terms of speed and acceleration. Their electric propulsion systems and advanced motors allow them to accelerate quickly and maintain high speeds, providing efficient travel between destinations.

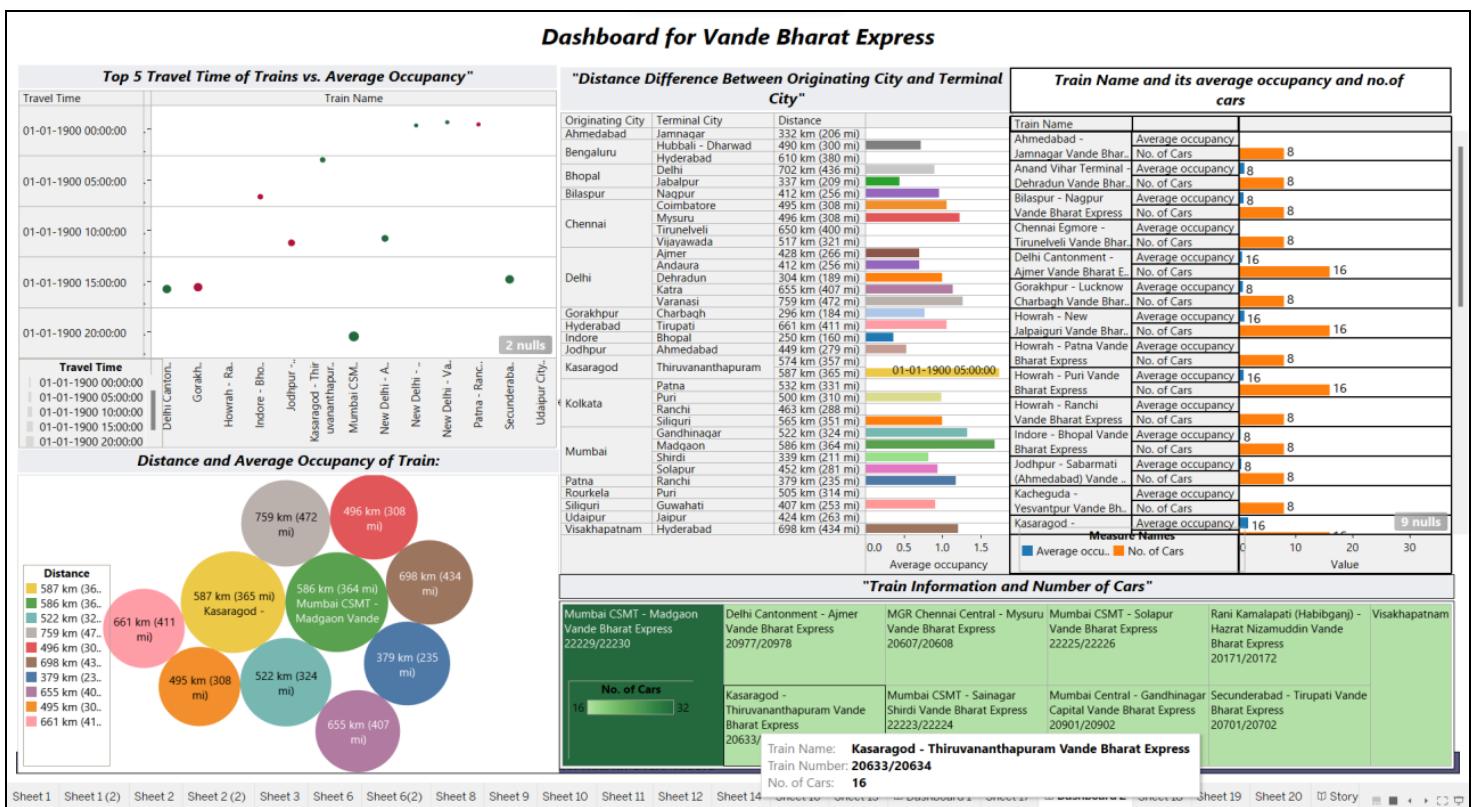
2. Braking and Deceleration: The train's braking systems are designed to be responsive and efficient. This is essential for maintaining safety, especially when operating at high speeds. The train's braking system should be able to bring the train to a stop within a reasonable distance.

3. Control Systems: High-speed trains are equipped with advanced control systems that respond to various inputs, ensuring smooth operation. These systems manage speed, acceleration, braking, and other critical functions.

Safety Systems: Modern trains are equipped with sophisticated safety systems that respond to emergency situations. These systems can automatically initiate braking or other protective measures to ensure passenger safety.

4. Safety Systems: Modern trains are equipped with sophisticated safety systems that respond to emergency situations. These systems can automatically initiate braking or other protective measures to ensure passenger safety.

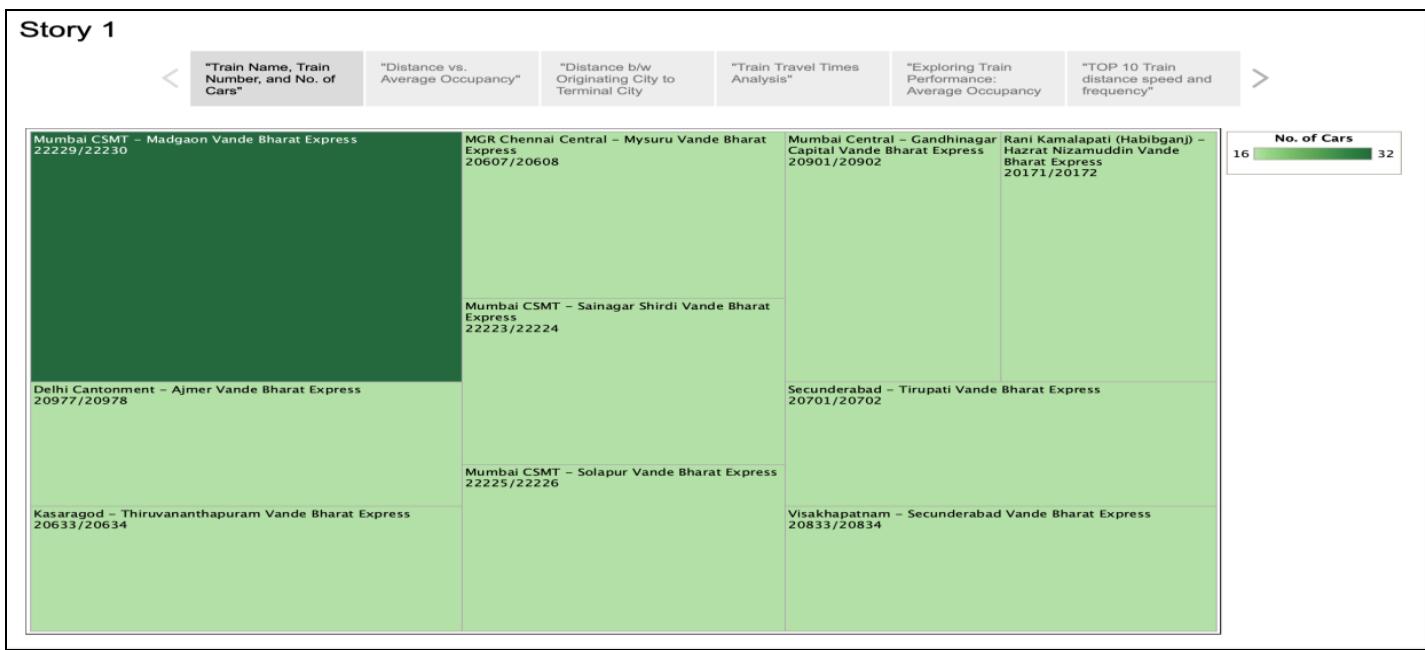




Milestone 6: Story of Vande Bharat Express

1. Story of Train Name and Train Number and also how many no.of Car's are available:

Train Name, Train Number and sum of No. of cars. Color shows details about Train Name. Size shows sum of No. of Cars. The marks are labeled by Train Name, Train Number and sum of Number of Cars. The view is filtered on Train Name, which keeps twenty five out of twenty five which keeps twenty five out of twenty five members..



2. Story of Distance and Average Occupancy of Train:

Sum of Average occupancy for each Distance broken down by Train Name. Color shows details about Train Name. The view is filtered on Train Name, which keeps 25 of 25 members

Story 1

< "Train Name, Train Number, and No. of Cars" "Distance vs. Average Occupancy" "Distance b/w Originating City to Terminal City" "Train Travel Times Analysis" "Exploring Train Performance: Average Occupancy" "TOP 10 Train distance speed and frequency" >

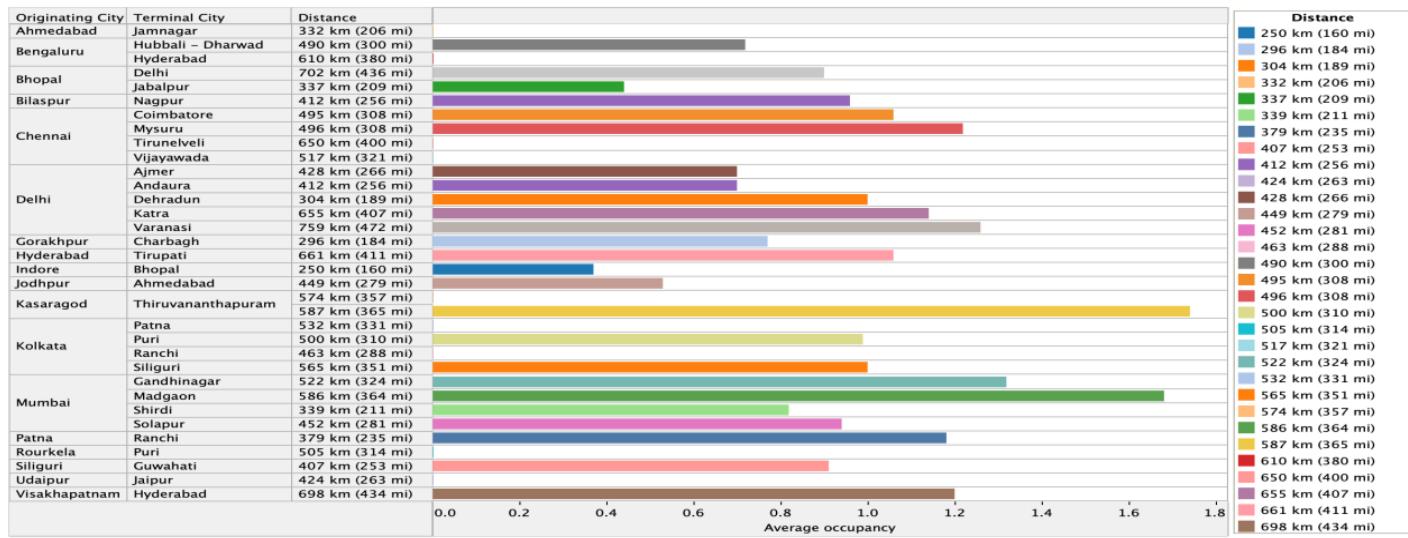


3. Story of Distance Difference Between Originating City and Terminal City:

Originating City, Distance and Terminal City. Color shows details about Distance. Size shows sum of No. of Cars. The marks are labeled by Originating City, Distance and Terminal City. The data is filtered on TrainName, which keeps 25 of 25 members. The view is filtered on Originating City and Terminal City. The Originating City filter excludes Gorakhpur, Indore, Jodhpur, Patna and Siliguri. The Terminal City filter keeps 10 of 25 members.

Story 1

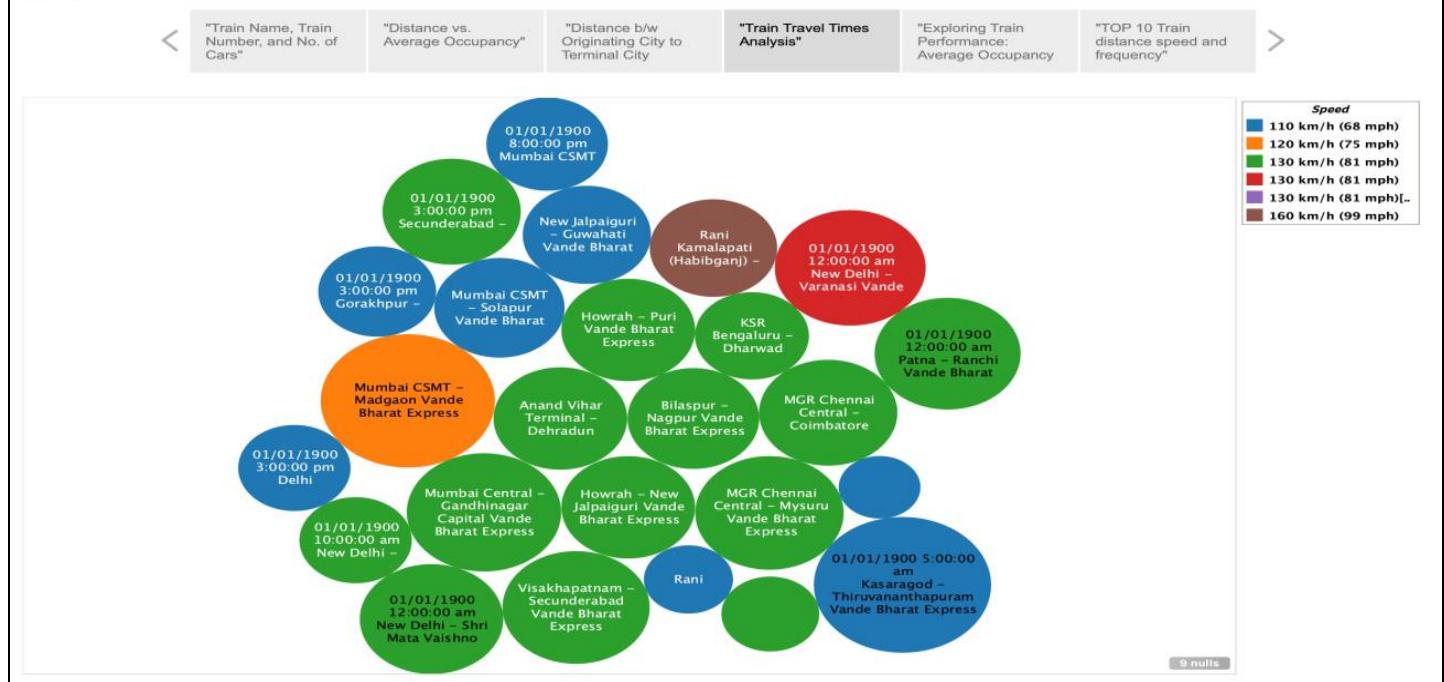
< "Train Name, Train Number, and No. of Cars" "Distance vs. Average Occupancy" "Distance b/w Originating City to Terminal City" "Train Travel Times Analysis" "Exploring Train Performance: Average Occupancy" "TOP 10 Train distance speed and frequency" >



4. Story of Travel Time of Trains Given:

Sum of Average occupancy for each Travel Time broken down by Frequency. Color shows details about Travel Time. The marks are labeled by Frequency. The data is filtered on Train Name, which keeps 25 of 25 members.

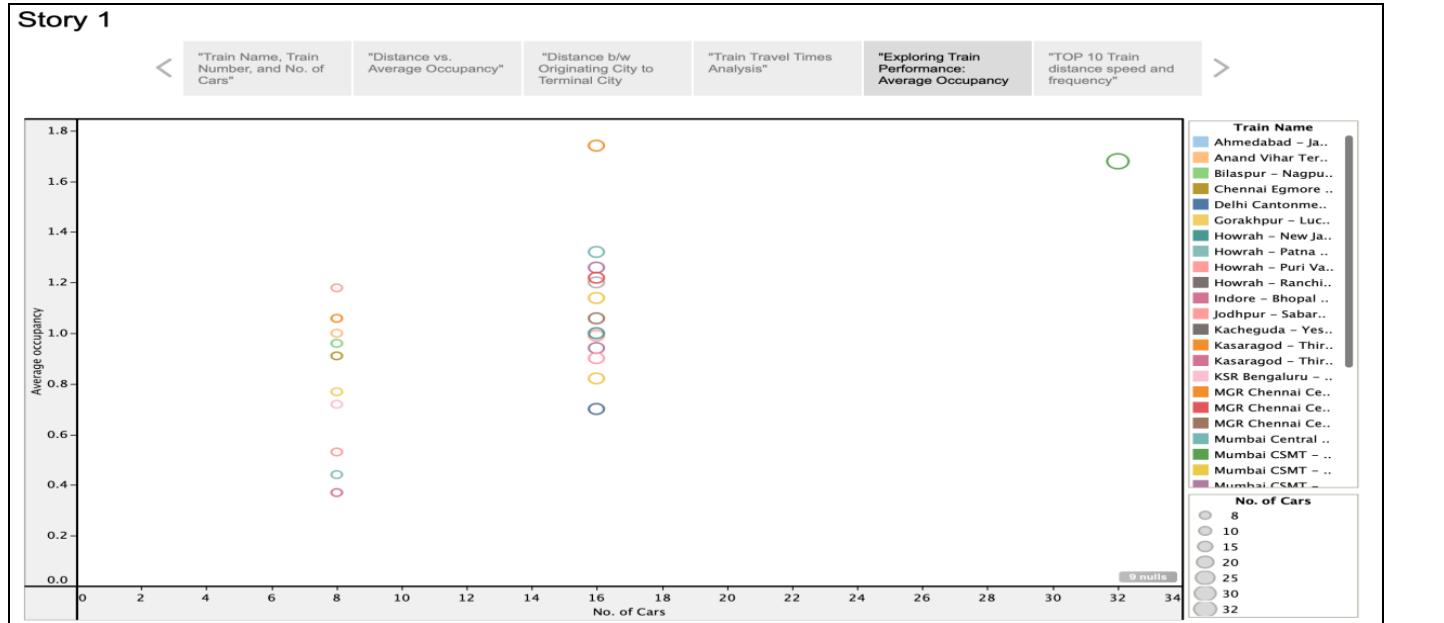
Story 1



5. Story of Train Name and its Average Occupancy and No. of Car's:

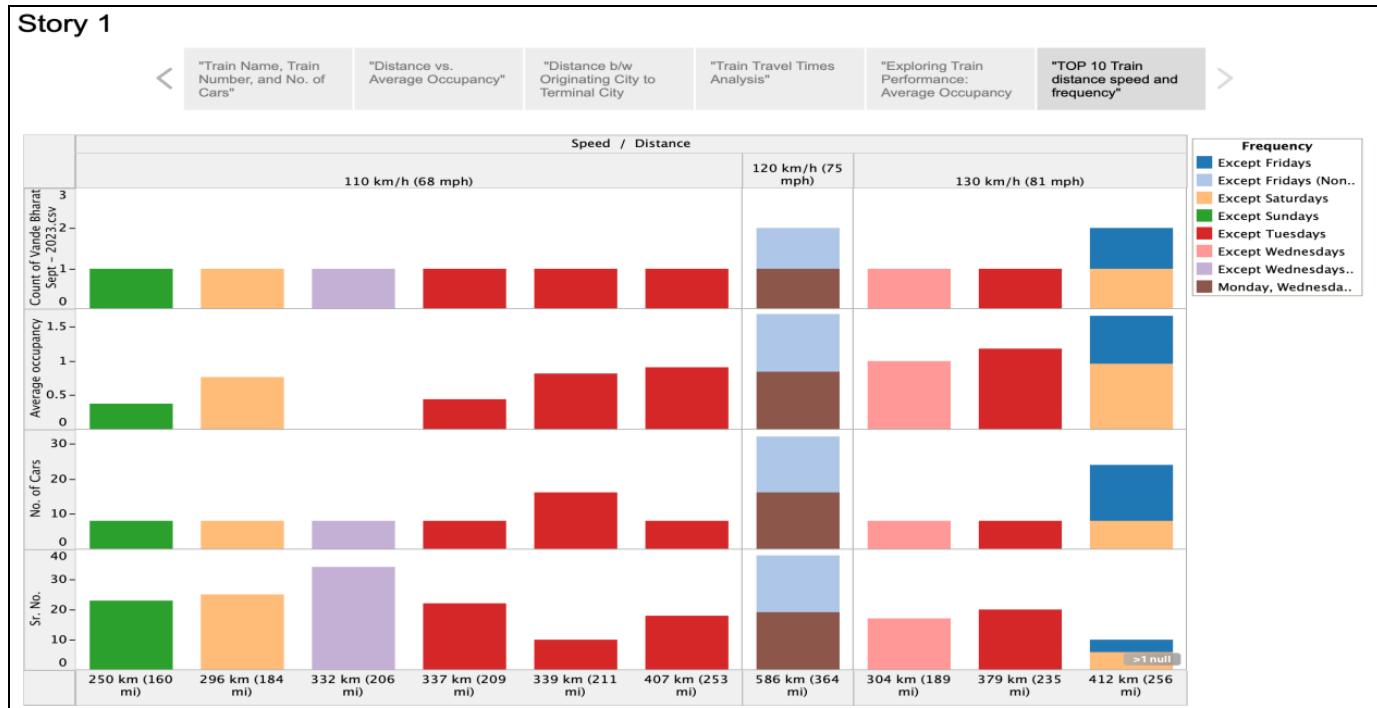
Sum of No. of Cars, SUM (0) and sum of Average occupancy for each Train Name. For pane Sum of No. of Cars: Colour shows sum of Average occupancy. For pane Sum of Average occupancy: Colour shows details about Train Name. The view is filtered on Train Name, which keeps 25 of 25 members.

Story 1



6. Story of Train Distance Speed and Frequency:

Average occupancy, No. of Cars, Sr. No., and count of Vande Bharat.csv for each Frequency broken down by Speed, Distance and Train Name. Colour shows details about Average occupancy, No. of Cars, Sr.No., and count of Vande Bharat.csv. The view is filtered on Train Name, which keeps 25 of 25 members.



Milestone 8 : completed Visualization names

Activity 1: No of Visualizations/ Graphs

- Find the Train Name and Train Number and also how many No.of car's are available.
- Find the Distance and Average Occurancy of Train.
- Find the Distance Difference between Originating City and Terminal City.
- Find the Travel Train and Train given.
- Find the Train Name and its Average Occurancy and No. of Cars.
- Find the Train Distance Speed and Frequency.

10. ADVANTAGES & DISADVANTAGES

Advantages of the Vande Bharat Express

1. Efficient Booking Process:

The website streamlines the ticket booking process, allowing passengers to easily check schedules, seat availability, and make reservations online.

2. User-Friendly Interface:

The website features a user-friendly interface, making it accessible to a wide range of users. Clear navigation and intuitive design enhance the overall user experience.

3. Real-Time Updates:

Passengers can receive real-time updates on train schedules, delays, and other important information, providing them with timely and accurate information.

4. Online Services and Amenities

The website offers a platform for passengers to access and avail various onboard services and amenities, such as catering options, entertainment features, and other travel-related services.

5. Information Resource:

It serves as a valuable information resource, offering details about the train, routes, and guidelines for a smooth travel experience.

6. Mobile Accessibility:

The website is likely optimized for mobile devices, allowing users to access information and make bookings conveniently from their smartphones.

Disadvantages of the Vande Bharat Express:

1. Technical Glitches:

Like any online platform, the website may experience technical glitches, affecting the booking process and user experience.

2. Limited Features for Accessibility:

While efforts are made for accessibility, there might be limitations in features catering to passengers with special needs, such as those requiring assistive technologies.

3. Potential Security Concerns:

Online platforms are susceptible to cybersecurity threats. The website must prioritize robust security measures to protect passenger data and transactions.

4. Dependency on Internet Connectivity:

Passengers relying on the website are dependent on stable internet connectivity. Any disruptions could impact their ability to access information or make bookings.

5. Limited Personal Assistance:

Some passengers may prefer personal assistance for complex bookings or queries, which the website might not fully address.

6. Language Barriers:

The website might primarily cater to a specific language, potentially causing inconvenience for users who are more comfortable with a different language.

It's essential to continually evolve, addressing any existing disadvantages and leveraging its advantages to provide an optimal user experience for all passengers.

11. CONCLUSION

The Vande Bharat Express represents India's commitment to innovation and technological advancement in rail transportation, setting a new standard for intercity travel with its sleek design, high-speed capabilities, and focus on passenger comfort and safety. Under the "Make in India" initiative, the indigenous development of the train showcases the nation's capacity for conceiving, designing, and manufacturing cutting-edge railway technology. Its introduction on the New Delhi-Varanasi route marks a significant milestone, and plans for expansion onto other crucial routes signal a promising future for this semi-high-speed marvel.

The Vande Bharat Express holds tremendous potential for technological upgrades, environmental sustainability measures, and strategic collaborations to further elevate its impact. Integrated digital solutions, cultural elements, and a focus on accessibility will contribute to a more enriching travel experience for passengers. Stakeholders must remain attuned to customer feedback, embrace continuous innovation, and align with evolving industry trends to navigate the journey towards the future successfully.

12. Future Scope:

1. Expansion of Routes:

Introduce the Vande Bharat Express on additional high-demand routes, connecting major cities and enhancing connectivity across the country.

2. Technological Upgrades:

Invest in advanced technologies to further enhance the train's efficiency, safety features, and passenger experience. This could include the incorporation of artificial intelligence, predictive maintenance, and IoT devices.

3. Environmental Sustainability:

Focus on making the train more environmentally sustainable by exploring alternative energy sources, reducing carbon emissions, and implementing eco-friendly practices.

4. Digital Integration:

Develop and implement innovative digital solutions, such as a dedicated mobile app for seamless ticketing, real-time updates, and enhanced onboard services.

5. Smart Infrastructure:

Upgrade railway infrastructure to support the high-speed capabilities of Vande Bharat Express. This may involve the development of dedicated high-speed rail corridors and modernization of existing tracks.

6. International Connectivity:

Explore the possibility of extending routes to neighboring countries, fostering international connectivity and promoting cross-border tourism and trade.

7. Accessibility Features:

Implement additional features and services to make the train more accessible for passengers with disabilities, ensuring an inclusive travel experience.

8. Collaboration with Tourism:

Collaborate with tourism boards to promote Vande Bharat Express as a preferred mode of travel for tourists. Offer curated travel packages that include the train journey as part of the overall experience.

9. Cultural Integration:

Incorporate cultural elements into the onboard experience, such as regional cuisine, music, and art, to showcase the diversity of India and enhance the overall travel experience.

13. APPENDIX

Source Code:

```
1  <!DOCTYPE html>
2  <html lang="en">
3
4  <head>
5  <meta charset="utf-8">
6  <meta content="width=device-width, initial-scale=1.0" name="viewport">
7
8  <title>iPortfolio Bootstrap Template - Index</title>
9  <meta content="" name="description">
10 <meta content="" name="keywords">
11
12 <!-- Favicons -->
13 <link href="assets/img/favicon.png" rel="icon">
14 <link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">
15
16 <!-- Google Fonts -->
17                                     <link
18 href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Raleway:300,3
19 00i,400,400i,500,500i,600,600i,700,700i|Poppins:300,300i,400,400i,500,500i,600,600i,700,700i"
20 rel="stylesheet">
21
22 <!-- Vendor CSS Files -->
23 <link href="assets/vendor/aos/aos.css" rel="stylesheet">
24 <link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
25 <link href="assets/vendor/bootstrap-icons/bootstrap-icons.css" rel="stylesheet">
26 <link href="assets/vendor/boxicons/css/boxicons.min.css" rel="stylesheet">
27 <link href="assets/vendor/glightbox/css/glightbox.min.css" rel="stylesheet">
28 <link href="assets/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">
29
30 <!-- Template Main CSS File -->
31 <link href="assets/css/style.css" rel="stylesheet">
```

```
29
30 <!-- =====
31 * Template Name: iPortfolio
32 * Updated: Sep 18 2023 with Bootstrap v5.3.2
33 * Template URL: https://bootstrapmade.com/iportfolio-bootstrap-portfolio-websites-template/
34 * Author: BootstrapMade.com
35 * License: https://bootstrapmade.com/license/
36 ===== -->
37 </head>
38
39 <body>
40
41 <!-- ===== Mobile nav toggle button ===== -->
42 <i class="bi bi-list mobile-nav-toggle d-xl-none"></i>
43
44 <!-- ===== Header ===== -->
45 <header id="header">
46 <div class="d-flex flex-column">
47
48 <div class="profile">
49     
50     <h1 class="text-light"><a href="index.html">Vande Bharat Express</a></h1>
51     <div class="social-links mt-3 text-center">
52         <a href="#" class="twitter"><i class="bx bxl-twitter"></i></a>
53         <a href="#" class="facebook"><i class="bx bxl-facebook"></i></a>
54         <a href="#" class="instagram"><i class="bx bxl-instagram"></i></a>
55         <a href="#" class="linkedin"><i class="bx bxl-linkedin"></i></a>
56     </div>
57 </div>
58
59 <nav id="navbar" class="nav-menu navbar">
60     <ul>
61         <li><a href="#hero" class="nav-link scrollto active"><i class="bx bx-home"></i>
```

```

<span>Home</span></a></li>

62 <li><a href="#about" class="nav-link scrollto"><i class="bx bx-user"></i>
<span>About</span></a></li>

63 <li><a href="#facts" class="nav-link scrollto"><i class="bi bi-list"></i> <span>Facts</span></a></li>
64 <li><a href="#resume" class="nav-link scrollto"><i class="bx bx-file-blank"></i>
<span>Services</span></a></li>

65 <li><a href="#Dashboard" class="nav-link scrollto"><i class="bx bx-book-content"></i>
<span>Dashboard</span></a></li>

66 <li><a href="#services" class="nav-link scrollto"><i class="bx bx-server"></i>
<span>Story</span></a></li>

67 <li><a href="#contact" class="nav-link scrollto"><i class="bx bx-envelope"></i>
<span>Contact</span></a></li>

68 </ul>
69 </nav><!-- .nav-menu -->
70 </div>
71 </header><!-- End Header -->
72 <!-- ===== Hero Section ===== -->
73 <section id="hero" class="d-flex flex-column justify-content-center align-items-center">
74 <div class="hero-container" data-aos="fade-in">
75 <h1>Vande Bharat Express</h1>
76 <p> <span class="typed" data-typed-items="High Speed, Spacious Seating, Sleek Design, Safety and
    Comfort, Energy Efficiency"></span></p>
77 </div>
78 </section><!-- End Hero -->
79 <main id="main">
80 <!-- ===== About Section ===== -->
81 <section id="about" class="about">
82 <div class="container">
83 <style>
84 div.a {
85   text-indent: 25px;
86 }
87 </style>
88 <div class="section-title">
89 <h2>About</h2>

```

90 <p>**The Vande Bharat Express Accessibility Enhancement Project** is a pioneering initiative aimed at transforming India's flagship high-speed train service into a model of inclusivity and user-friendliness. The project is driven by the fundamental belief that modern transportation should be accessible to all, regardless of physical abilities. It seeks to address the unique challenges faced by passengers with disabilities and create an environment where every individual can travel comfortably and confidently.

91 <div class="a">

92 **The vision of the Vande Bharat Express Accessibility Enhancement Project is to set new standards in the railway sector by offering a travel experience that is truly inclusive. The project envisions a future where passengers with disabilities can navigate the train with ease, access essential services without hindrance, and enjoy the journey just like any other traveler. The vision extends to creating a society where diversity is celebrated, and individuals with disabilities are fully integrated into the world of modern transportation.**

93 </div>

94 </p>

95 </div>

96 <div class="row">

97 <div class="col-lg-4" data-aos="fade-right">

98

99 </div>

100 <div class="col-lg-8 pt-4 pt-lg-0 content" data-aos="fade-left">

101 </div>

102 </div>

103 </div>

104 </section><!-- End About Section -->

105

106 <!-- ===== Facts Section ===== -->

107 <section id="facts" class="facts">

108 <div class="container">

109 <div class="section-title">

110 <h2>Facts</h2>

111 <p>**Discover** the remarkable features and achievements of **Vande Bharat Express, India's very own high-speed intercity train**. We take pride in showcasing some intriguing facts about this engineering marvel.</p>

112 </div>

113 <div class="row no-gutters">

114

```
115      <div class="col-lg-3 col-md-6 d-md-flex align-items-md-stretch" data-aos="fade-up">
116          <div class="count-box">
117              <i class="bi bi-emoji-smile"></i>
118              <span data-purecounter-start="0" data-purecounter-end="100000" data-purecounter-duration="1"
119                  class="purecounter"></span>
120              <p><strong>Happy Clients</strong> </p>
121          </div>
122      <div class="col-lg-3 col-md-6 d-md-flex align-items-md-stretch" data-aos="fade-up" data-aos-
123          delay="100">
124          <div class="count-box">
125              <i class="bi bi-train-front"></i>
126              <span data-purecounter-start="0" data-purecounter-end="34" data-purecounter-duration="1"
127                  class="purecounter"></span>
128              <p><strong>Trains</strong> </p>
129          </div>
130      <div class="col-lg-3 col-md-6 d-md-flex align-items-md-stretch" data-aos="fade-up" data-aos-
131          delay="200">
132          <div class="count-box">
133              <i class="bi bi-headset"></i>
134              <span data-purecounter-start="0" data-purecounter-end="365" data-purecounter-duration="1"
135                  class="purecounter"></span>
136              <p><strong>Days Of Support</strong> </p>
137          </div>
138      </div>
139      <div class="col-lg-3 col-md-6 d-md-flex align-items-md-stretch" data-aos="fade-up" data-aos-
140          delay="300">
141          <div class="count-box">
142              <i class="bi bi-people"></i>
```

```
143    </div>
144    </div>
145    </section><!-- End Facts Section -->
146    <!-- ===== Services Section ===== -->
147    <html lang="en" dir="ltr">
148        <head>
149            <meta charset="utf-8">
150            <title></title>
151            <link rel="stylesheet" href="style.css">
152            <link rel="stylesheet" href="https://use.fontawesome.com/releases/v5.3.1/css/all.css">
153            <meta name="viewport" content="width=device-width, initial-scale=1.0">
154        </head>
155        <body>
156            <div class="services">
157                <h1>Our Services</h1>
158                <div class="cen">
159                    <div class="service">
160                        <i class="fas fa-wifi"></i>
161                        <h2>Onboard Wi-Fi</h2>
162                        <p>Stay connected with high-speed onboard Wi-Fi during your journey.</p>
163                    </div>
164                    <div class="service">
165                        <i class="fas fa-couch"></i>
166                        <h2>Comfortable Seating</h2>
167                        <p>Enjoy ergonomic and spacious seating arrangements for a relaxing journey.</p>
168                    </div>
169                    <div class="service">
170                        <i class="fas fa-user-shield"></i>
171                        <h2>Safety Features</h2>
172                        <p>Lorem Ipsum is simply dummy text of the printing and typesetting industry.</p>
173                    </div>
174                    <div class="service">
175                        <i class="fas fa-utensils"></i>
```

```

176      <h2>Exquisite Dining Experience</h2>
177      <p>Indulge in an exquisite dining experience with a menu designed to satisfy discerning tastes.</p>
178      </div>
179      <div class="service">
180          <i class="fas fa-tv"></i>
181          <h2>Music and Movies</h2>
182          <p>Enjoy a variety of music and movie options during your journey.</p>
183      </div>
184      <div class="service">
185          <i class="fas fa-broom"></i>
186          <h2>Enhanced Cleaning</h2>
187          <p>Enjoy a variety of music and movie options during your journey.</p>
188      </div>
189      </div>
190      </div>
191      </body>
192  </html>
193<!-- End Resume Section -->
194  <!-- ===== Dashboard Section ===== -->
195  <section id="Dashboard" class="Dashboard section-bg">
196      <div class="container">
197          <div class="section-title">
198              <h2>Dashboard</h2>
199                  <p>A dashboard is a visual representation of critical data, information, and key performance indicators (KPIs) that provide an at-a-glance view of the current status and performance of a project, system, or business. It serves as a centralized platform for monitoring, analyzing, and presenting data in a user-friendly and easily understandable format. A dashboard can play a crucial role in providing stakeholders with real-time insights into the progress and impact of the project. </p>
200      </div>
201      <div class="row" data-aos="fade-up">
202          <div class='tableauPlaceholder' id='viz1699710968587' style='position: relative'><noscript><a href='#'><img alt='Vandhe Bharat Express Dashboard' src='https://public.tableau.com/static/images/Va/VandeBharat1_16996245584240/Dashboard1&1_rss.png' style='border: none' /></a></noscript><object class='tableauViz' style='display:none;'><param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' />
```

```

<param name='embed_code_version' value='3' /> <param name='site_root' value="" /><param name='name' value='VandeBharat1_16996245584240' /><param name='tabs' value='no' /><param name='toolbar' value='yes' /><param name='static_image' value='https://public.tableau.com/static/images/Va/VandeBharat1_16996245584240/1.png' /> <param name='animate_transition' value='yes' /><param name='display_static_image' value='yes' /><param name='display_spinner' value='yes' /><param name='display_overlay' value='yes' /><param name='display_count' value='yes' /><param name='language' value='en-GB' /><param name='filter' value='publish=yes' /></object></div> <script type='text/javascript'>
var divElement = document.getElementById('viz1699710968587');
var vizElement = divElement.getElementsByTagName('object')[0];
if ( divElement.offsetWidth > 800 ) { vizElement.style.width='100%';vizElement.style.height=(divElement.offsetWidth*0.75)+'px';} else if ( divElement.offsetWidth > 500 ) {
vizElement.style.width='100%';vizElement.style.height=(divElement.offsetWidth*0.75)+'px';} else {
vizElement.style.width='100%';vizElement.style.height='1977px';
var scriptElement = document.createElement('script');
scriptElement.src =
'https://public.tableau.com/javascripts/api/viz_v1.js';
vizElement.parentNode.insertBefore(scriptElement, vizElement); </script>

203 </div>
204 <div class="row portfolio-container" data-aos="fade-up" data-aos-delay="100">
205 </div>
206 </div>
207 </div>
208 </div>
209 </section><!-- End Portfolio Section -->
210 <!-- ===== Story Section ===== -->
211 <section id="services" class="services">
212 <div class="container">
213 <div class="section-title">
214 <h2>Story</h2>
215 <p> A story in Tableau is a powerful feature that allows you to weave a narrative using data visualizations and insights. It enables you to create a structured sequence of interactive dashboards and charts that guide your audience through a data-driven story. By combining visualizations, text annotations, and transitions, you can convey a compelling narrative, share insights, and provide context, making data more accessible and engaging for your audience. </p>
216 </div>
217 <div class='tableauPlaceholder' id='viz1699689688469' style='position: relative'><noscript><a href='#'><img alt='Story' src='https://public.tableau.com/static/images/8K/8KSRDHRY6/1_rss.png' style='border: none' /></a></noscript><object class='tableauViz' style='display:none;'><param

```

```
name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param  
name='embed_code_version' value='3' /> <param name='path' value='shared&#47;8KSRDHRY6' />  
<param name='toolbar' value='yes' /><param name='static_image'  
value='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;8K&#47;8KSRDHRY6&#47;1.p  
ng' /> <param name='animate_transition' value='yes' /><param name='display_static_image' value='yes'  
><param name='display_spinner' value='yes' /><param name='display_overlay' value='yes' /><param  
name='display_count' value='yes' /><param name='language' value='en-GB' /><param name='filter'  
value='publish=yes' /></object></div> <script type='text/javascript'>  
var divElement =  
document.getElementById('viz1699689688469');  
var vizElement =  
divElement.getElementsByTagName('object')[0];  
vizElement.style.width='100%';vizElement.style.height=(divElement.offsetWidth*0.75)+'px';  
var  
scriptElement = document.createElement('script');  
scriptElement.src =  
'https://public.tableau.com/javascripts/api/viz_v1.js';  
vizElement.parentNode.insertBefore(scriptElement, vizElement); </script>
```

218

219 </div>

220 </section><!-- End Services Section -->

221

222 <!-- ===== Testimonials Section ===== -->

223 <section id="testimonials" class="testimonials section-bg">

224 <div class="container">

225

226 <div class="section-title">

227 <h2>Testimonials</h2>

228 <p>At Vande Bharat Express, we are committed to providing an exceptional travel experience to our passengers. We are proud to share the firsthand experiences of travelers who have journeyed with us. Here's what some of our passengers have to say about their experiences on board our high-speed train.</p>

229 </div>

230

231 <div class="testimonials-slider swiper" data-aos="fade-up" data-aos-delay="100">

232 <div class="swiper-wrapper">

233

234 <div class="swiper-slide">

235 <div class="testimonial-item" data-aos="fade-up">

236 <p>

237 <i class="bx bxs-quote-alt-left quote-icon-left"></i>

238 Vande Bharat Express not only offers speed but also a touch of luxury. The catering services, comfortable seating, and infotainment options make the journey a delightful experience.

```
239      <i class="bx bxs-quote-alt-right quote-icon-right"></i>
240      </p>
241      
242      <h3>Sheik Noor Ahmed</h3>
243      <h4>Barber</h4>
244      </div>
245      </div><!-- End testimonial item -->
246
247      <div class="swiper-slide">
248          <div class="testimonial-item" data-aos="fade-up" data-aos-delay="100">
249              <p>
250                  <i class="bx bxs-quote-alt-left quote-icon-left"></i>
251                  The indigenous technology and modern design of Vande Bharat Express make it a symbol of
252                  India's progress. It's a pride for the nation and a leap in our railway services.
253              <i class="bx bxs-quote-alt-right quote-icon-right"></i>
254              </p>
255              
256              <h3>Gajendra Paul</h3>
257              <h4>Farmer</h4>
258              </div>
259              </div><!-- End testimonial item -->
260
261      <div class="swiper-slide">
262          <div class="testimonial-item" data-aos="fade-up" data-aos-delay="200">
263              <p>
264                  <i class="bx bxs-quote-alt-left quote-icon-left"></i>
265                  As a passenger with a disability, I appreciate the efforts made by Vande Bharat Express to enhance
266                  accessibility. It's a game-changer, and it's heartening to see such inclusivity in our railway system.
267              <i class="bx bxs-quote-alt-right quote-icon-right"></i>
268              </p>
269              
270              <h3>Lakshmi</h3>
271              <h4>Store Owner</h4>
272              </div>
```

```
271      </div><!-- End testimonial item -->
272
273      <div class="swiper-slide">
274          <div class="testimonial-item" data-aos="fade-up" data-aos-delay="300">
275              <p>
276                  <i class="bx bxs-quote-alt-left quote-icon-left"></i>
277                  I've taken Vande Bharat Express multiple times, and it never disappoints. The onboard services,
278                  clean coaches, and efficient travel times make it my preferred choice for intercity travel
279                      <i class="bx bxs-quote-alt-right quote-icon-right"></i>
280
281              </p>
282              
283              <h3>Teja</h3>
284              <h4>Chef</h4>
285
286          </div>
287      </div><!-- End testimonial item -->
288
289
290      <div class="swiper-slide">
291          <div class="testimonial-item" data-aos="fade-up" data-aos-delay="400">
292              <p>
293                  <i class="bx bxs-quote-alt-left quote-icon-left"></i>
294                  Traveling on Vande Bharat Express was an incredible experience. The speed, comfort, and
295                  amenities exceeded my expectations. It's a true representation of India's technological advancements.
296
297          </div><!-- End testimonial item -->
298
299      </div>
300      <div class="swiper-pagination"></div>
301
302
```

```
303     </div>
304 </section><!-- End Testimonials Section -->
305
306 <!-- ===== Contact Section ===== -->
307 <section id="contact" class="contact">
308     <div class="container">
309
310     <div class="section-title">
311         <h2>Contact</h2>
312         <p>Our team is here to assist you. Whether you have questions, require support, or want to discuss potential partnerships, we look forward to hearing from you. Feel free to reach out to us anytime. We value your communication and are committed to being responsive and attentive to your needs.</p>
313     </div>
314
315     <div class="row" data-aos="fade-in">
316
317         <div class="col-lg-5 d-flex align-items-stretch">
318             <div class="info">
319                 <div class="address">
320                     <i class="bi bi-geo-alt"></i>
321                     <h4>Location:</h4>
322                     <p>123 Main Street, Jaipur, Rajasthan, India</p>
323             </div>
324
325             <div class="email">
326                 <i class="bi bi-envelope"></i>
327                 <h4>Email:</h4>
328                 <p>VandeBharatSupport@gmail.com</p>
329             </div>
330
331             <div class="phone">
332                 <i class="bi bi-phone"></i>
333                 <h4>Call:</h4>
334                 <p>+91 87123 34328</p>
```

```
335      </div>
336
337      <iframe src="https://www.google.com/maps/embed?pb=!1m14!1m8!1m3!1d12097.433213460943!2d-
74.0062269!3d40.7101282!3m2!1i1024!2i768!4f13.1!3m3!1m2!1s0x0%3A0xb89d1fe6bc499443!2sDowntown+
Conference+Center!5e0!3m2!1smk!2sbg!4v1539943755621"    frameborder="0"    style="border:0;    width:
100%; height: 290px;" allowfullscreen></iframe>
338      </div>
339
340      </div>
341
342      <div class="col-lg-7 mt-5 mt-lg-0 d-flex align-items-stretch">
343          <form action="forms/contact.php" method="post" role="form" class="php-email-form">
344              <div class="row">
345                  <div class="form-group col-md-6">
346                      <label for="name">Your Name</label>
347                      <input type="text" name="name" class="form-control" id="name" required>
348                  </div>
349                  <div class="form-group col-md-6">
350                      <label for="email">Your Email</label>
351                      <input type="email" class="form-control" name="email" id="email" required>
352                  </div>
353              </div>
354              <div class="form-group">
355                  <label for="subject">Subject</label>
356                  <input type="text" class="form-control" name="subject" id="subject" required>
357              </div>
358              <div class="form-group">
359                  <label for="message">Message</label>
360                  <textarea class="form-control" name="message" rows="10" required></textarea>
361              </div>
362              <div class="my-3">
363                  <div class="loading">Loading</div>
364                  <div class="error-message"></div>
365                  <div class="sent-message">Your message has been sent. Thank you!</div>
```

```
366      </div>
367      <div class="text-center"><button type="submit">Send Message</button></div>
368      </form>
369      </div>
370
371      </div>
372
373      </div>
374  </section><!-- End Contact Section -->
375
376 </main><!-- End #main -->
377
378 <!-- ===== Footer ===== -->
379 <footer id="footer">
380   <div class="container">
381     <div class="copyright">
382       &copy; Copyright <strong><span>Indian Railways</span></strong>
383     </div>
384     <div class="credits">
385       <!-- All the links in the footer should remain intact. -->
386       <!-- You can delete the links only if you purchased the pro version. -->
387       <!-- Licensing information: https://bootstrapmade.com/license/ -->
388       <!-- Purchase the pro version with working PHP/AJAX contact form:
389           https://bootstrapmade.com/iportfolio-bootstrap-portfolio-websites-template/ -->
390     Designed by <a href="https://bootstrapmade.com/">Samanyitha Yadla</a>
391   </div>
392 </footer><!-- End Footer -->
393
394 <a href="#" class="back-to-top d-flex align-items-center justify-content-center"><i class="bi bi-arrow-up-short"></i></a>
395
396 <!-- Vendor JS Files -->
397 <script src="assets/vendor/purecounter/purecounter_vanilla.js"></script>
```

```

398 <script src="assets/vendor/aos/aos.js"></script>
399 <script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
400 <script src="assets/vendor/glightbox/js/glightbox.min.js"></script>
401 <script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>
402 <script src="assets/vendor/swiper/swiper-bundle.min.js"></script>
403 <script src="assets/vendor/typed.js/typed.umd.js"></script>
404 <script src="assets/vendor/waypoints/noframework.waypoints.js"></script>
405 <script src="assets/vendor/php-email-form/validate.js"></script>
406
407 <!-- Template Main JS File -->
408 <script src="assets/js/main.js"></script>
409
410</body>
411
412 </html>

```

Output view of **Vandhe Bharat** website:

The screenshot displays the homepage of the Vandhe Bharat Express website. The layout includes a dark sidebar on the left with a circular logo at the top, followed by a list of menu items: Home, About, Facts, Services, Dashboard, Story, and Contact. Below these are social media links for Twitter, Facebook, Instagram, and LinkedIn. The main content area features a large, high-resolution photograph of a modern Vande Bharat Express train in motion. Overlaid on the image is the text "Vande Bharat Express" in a large, bold, white font, and "Sleek Design" in a smaller, underlined white font. In the top right corner of the image, there is a small watermark or logo for "G20 BIHAR 2023 INDIA". At the bottom left of the main content area, there is a copyright notice: "© Copyright Indian Railways" and "Designed by Samanvitha Yadla".



Vande Bharat Express

[Twitter](#) [Facebook](#) [Instagram](#) [LinkedIn](#)

- [Home](#)
- [About](#)
- [Facts](#)
- [Services](#)
- [Dashboard](#)
- [Story](#)
- [Contact](#)

© Copyright Indian Railways
Designed by Samanvitha Yadla

About

The Vande Bharat Express Accessibility Enhancement Project is a pioneering initiative aimed at transforming India's flagship high-speed train service into a model of inclusivity and user-friendliness. The project is driven by the fundamental belief that modern transportation should be accessible to all, regardless of physical abilities. It seeks to address the unique challenges faced by passengers with disabilities and create an environment where every individual can travel comfortably and confidently.

The vision of the Vande Bharat Express Accessibility Enhancement Project is to set new standards in the railway sector by offering a travel experience that is truly inclusive. The project envisions a future where passengers with disabilities can navigate the train with ease, access essential services without hindrance, and enjoy the journey just like any other traveler. The vision extends to creating a society where diversity is celebrated, and individuals with disabilities are fully integrated into the world of modern transportation.



Facts

Discover the remarkable features and achievements of Vande Bharat Express, India's very own high-speed intercity train. We take pride in showcasing some intriguing facts about this engineering marvel.





Vande Bharat Express

[Twitter](#) [Facebook](#) [Instagram](#) [LinkedIn](#)

- [Home](#)
- [About](#)
- [Facts](#)
- [Services](#)
- [Dashboard](#)
- [Story](#)
- [Contact](#)

© Copyright Indian Railways
Designed by Samanvitha Yadla

Facts

Discover the remarkable features and achievements of Vande Bharat Express, India's very own high-speed intercity train. We take pride in showcasing some intriguing facts about this engineering marvel.



100000

Happy Clients



34

Trains



365

Days Of Support



1000

Hard Workers

OUR SERVICES



ONBOARD WI-FI

Stay connected with high-speed onboard Wi-Fi during your journey.



COMFORTABLE SEATING

Enjoy ergonomic and spacious seating arrangements for a relaxing journey.



SAFETY FEATURES

Lore Ipsum is simply dummy text of the printing and typesetting industry.



EXQUISITE DINING EXPERIENCE

Indulge in an exquisite dining experience with a menu designed to satisfy discerning tastes.



MUSIC AND MOVIES

Enjoy a variety of music and movie options during your journey.



ENHANCED CLEANING

Enjoy a variety of music and movie options during your journey.





Vande Bharat Express

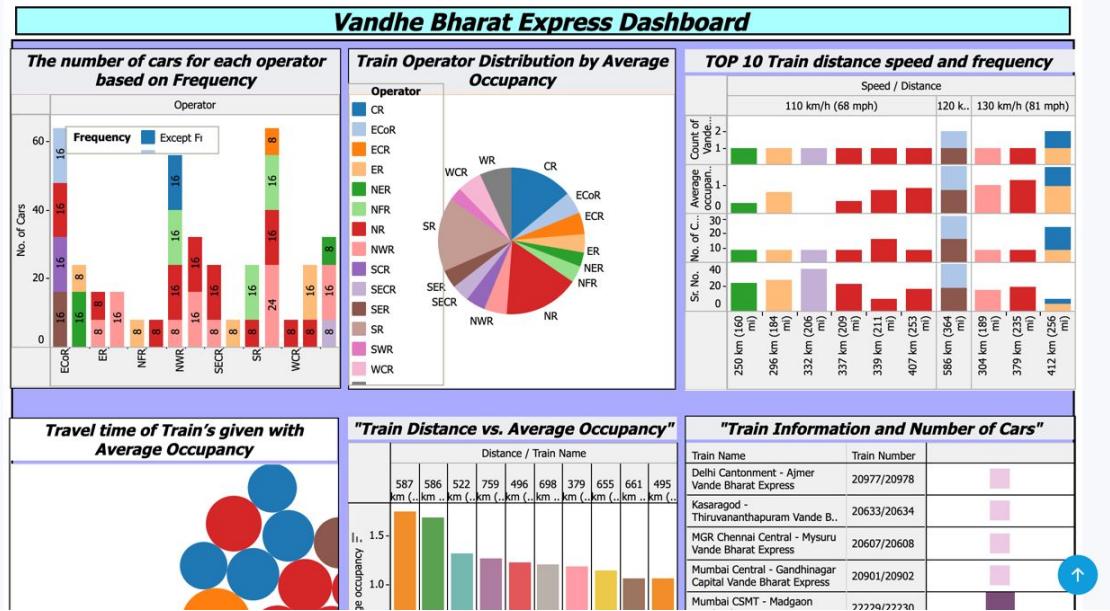
[Home](#) [About](#) [Facts](#) [Services](#) [Dashboard](#) [Story](#) [Contact](#)

[Twitter](#) [Facebook](#) [Instagram](#) [LinkedIn](#)

© Copyright Indian Railways
Designed by Samanvitha Yadla

Dashboard

A dashboard is a visual representation of critical data, information, and key performance indicators (KPIs) that provide an at-a-glance view of the current status and performance of a project, system, or business. It serves as a centralized platform for monitoring, analyzing, and presenting data in a user-friendly and easily understandable format. A dashboard can play a crucial role in providing stakeholders with real-time insights into the progress and impact of the project.




Vande Bharat Express

[Home](#) [About](#) [Facts](#) [Services](#) [Dashboard](#) [Story](#) [Contact](#)

[Twitter](#) [Facebook](#) [Instagram](#) [LinkedIn](#)

© Copyright Indian Railways
Designed by Samanvitha Yadla

Testimonials

At Vande Bharat Express, we are committed to providing an exceptional travel experience to our passengers. We are proud to share the firsthand experiences of travelers who have journeyed with us. Here's what some of our passengers have to say about their experiences on board our high-speed train.

“ Vande Bharat Express not only offers speed but also a touch of luxury. The catering services, comfortable seating, and infotainment options make the journey a delightful experience. ”



Sheik Noor Ahmed
Barber

“ The indigenous technology and modern design of Vande Bharat Express make it a symbol of India's progress. It's a pride for the nation and a leap in our railway services. ”



Gajendra Paul
Farmer

“ As a passenger with a disability, I appreciate the efforts made by Vande Bharat Express to enhance accessibility. It's a game-changer, and it's heartening to see such inclusivity in our railway system. ”



Lakshmi
Store Owner

Contact

GitHub & Project Demo Link:

1. GitHub Link :

<https://github.com/smartzinternz02/SI-GuidedProject-587381-1697304304>

2. Project Demo Link:

<https://www.loom.com/share/ac5214c9033f4e0abb623bb5e9c555b4?sid=afabda40-30c9-4966-ae0b-b8dc2764d2cc>