Visualization Tool for Electric Vehicle Charge and Range Analysis

Project Report

1) INTRODUCTION

1.1 Overview

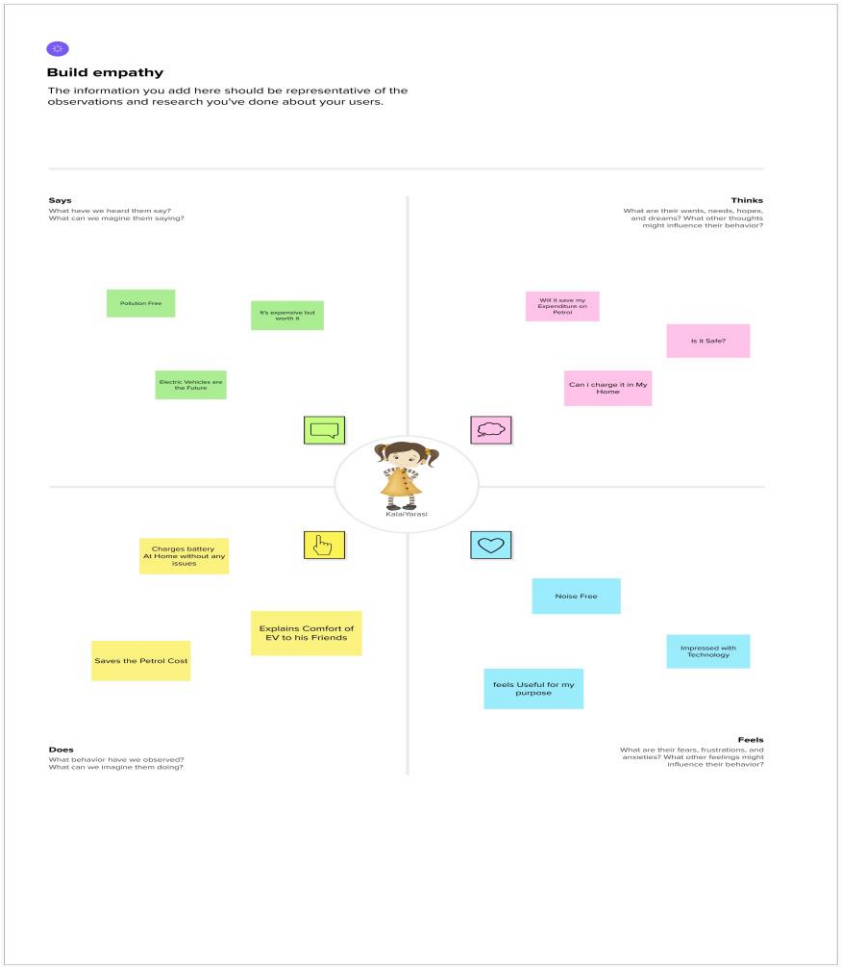
A vehicle that can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source and have an electric motor instead of an internal combustion engine. The Electric Vehicle (EV) is not new, but it has been receiving significantly more attention in recent years. Advances in both EV analytics and battery technologies have led to increased automotive market share. However, this growth is not attributed to hardware alone. The modern mechatronic vehicle marries electrical storage and propulsion systems with electronic sensors, controls, and actuators, integrated closely with software, secure data transfer, and data analysis, to form a comprehensive transportation solution. Advances in all these areas have contributed to the overall rise of EV's, but the common thread that runs through all these elements is data analytics. The new EV's are combined Electrical storage and propulsion systems with electronic sensors, controls, and actuators, integrated closely with software, secure data transfer to form a comprehensive transportation solution.

1.2 Purpose

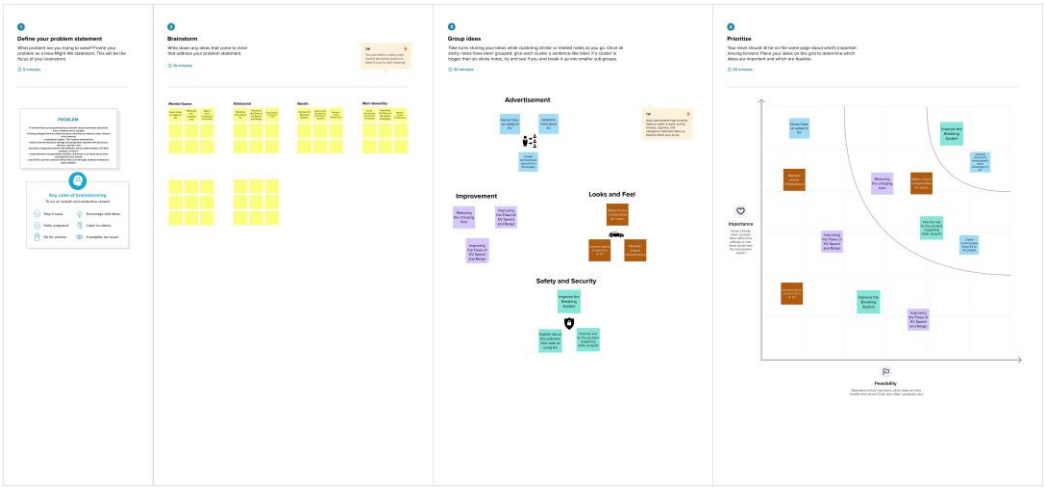
Data Visualization provides a quick and effective way to communicate information in a universal manner using visual information. Data visualization is the graphical representation of information and data in a pictorial or graphical format (Example: charts, graphs, and maps). Data visualization tools provide an accessible way to see and understand trends, patterns in data and outliers. Data visualization tools and technologies are essential to analyse massive amounts of information and make data driven decisions. The concept of using pictures is to understand data has been used since centuries. General types of data visualization are Charts, Tables, Graphs, Maps, Dashboard. Visualization of Electric Vehicles easily helps us to finds the full details on Electric Vehicles in India

2) Problem Definition and Design Thinking

2.1 Empathy Map

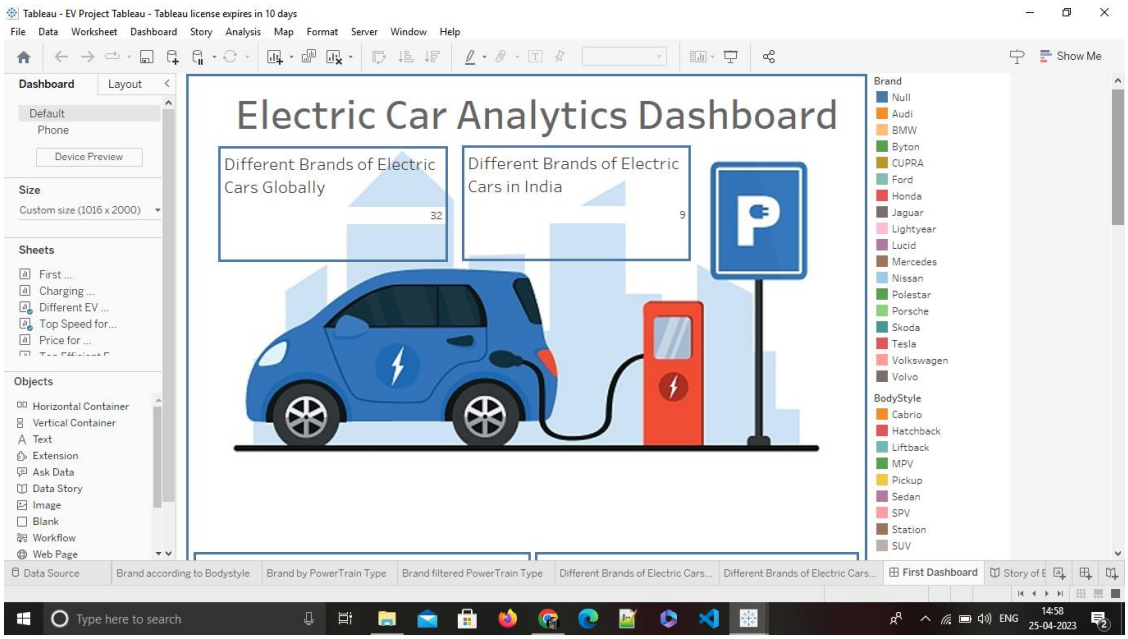


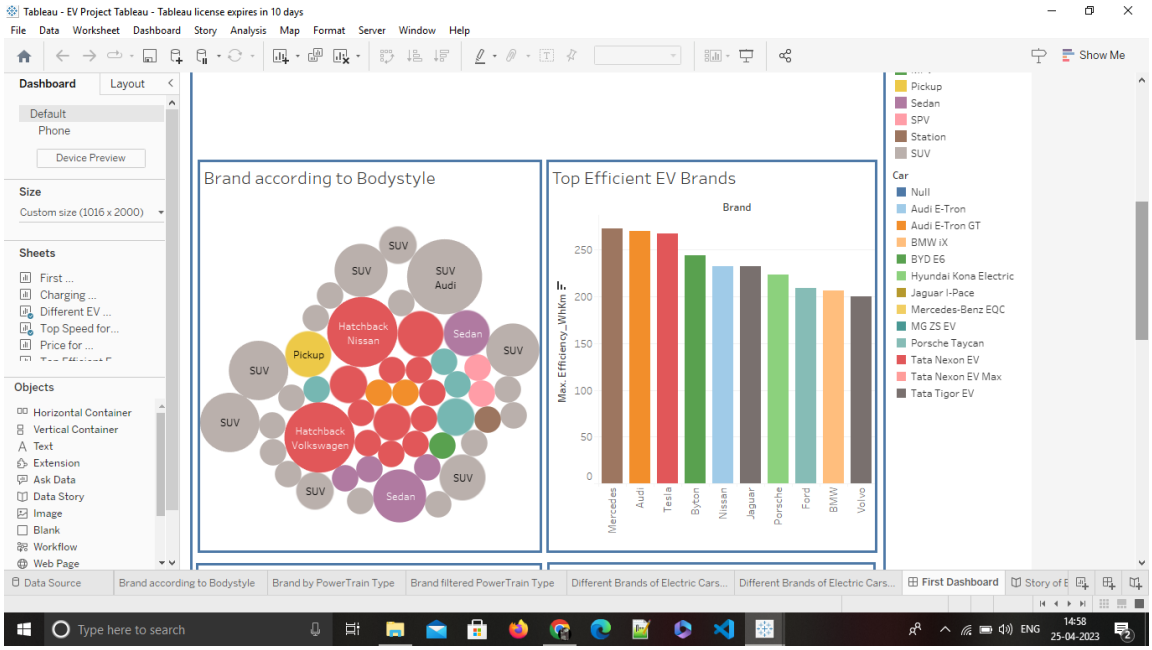
2.2 Ideation & Brainstorming Map

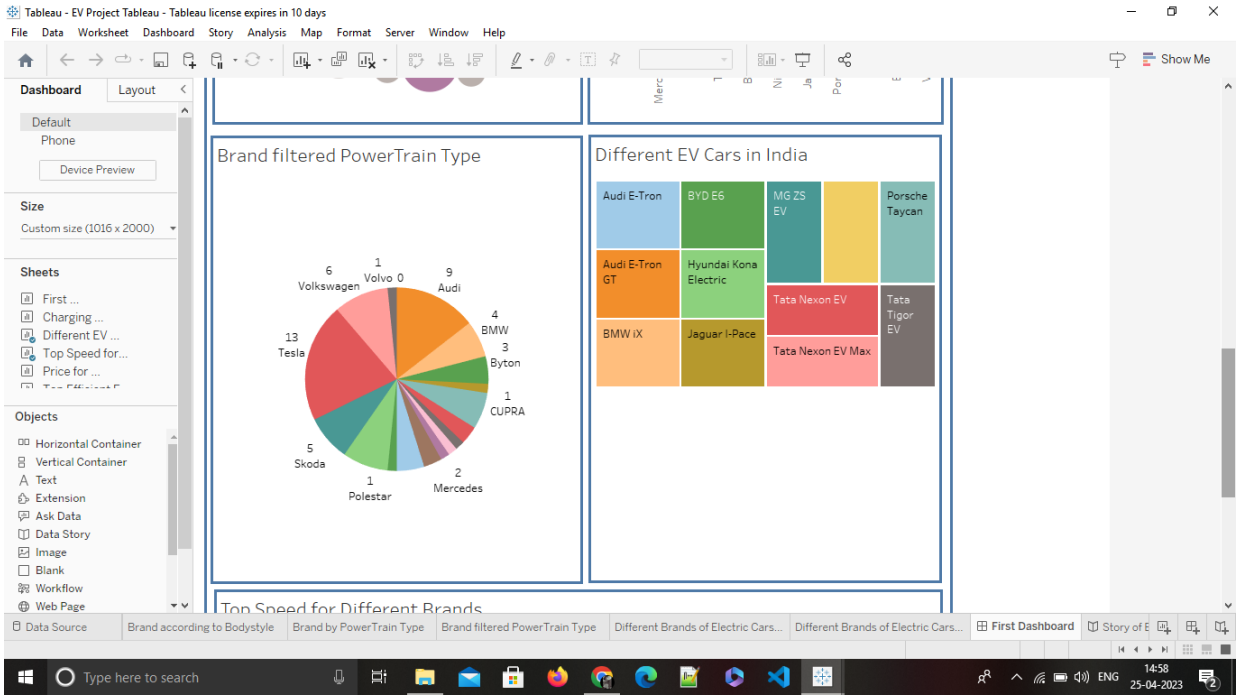


3) RESULT

Dash Board



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Dashboard
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Custom size (1016 x 2000)
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Objects
Horizontal Container
Vertical Container
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Ask Data
Data Story
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Workflow
Web Page
Brand filtered PowerTrain Type
6 Volkswagen
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9 Audi
4 BMW
3 Byton
1 CUPRA
2 Mercedes
1 Polestar
5 Skoda
13 Tesla
Different EV Cars in India
Audi E-Tron
BYD E6
MG ZS EV
Porsche Taycan
Audi E-Tron GT
Hyundai Kona Electric
Tata Nexon EV
Tata Tigor EV
BMW iX
Jaguar I-Pace
Tata Nexon EV Max
Top Speed for Different Brands
Data Source
Brand according to Bodystyle
Brand by PowerTrain Type
Brand filtered PowerTrain Type
Different Brands of Electric Cars...
Different Brands of Electric Cars...
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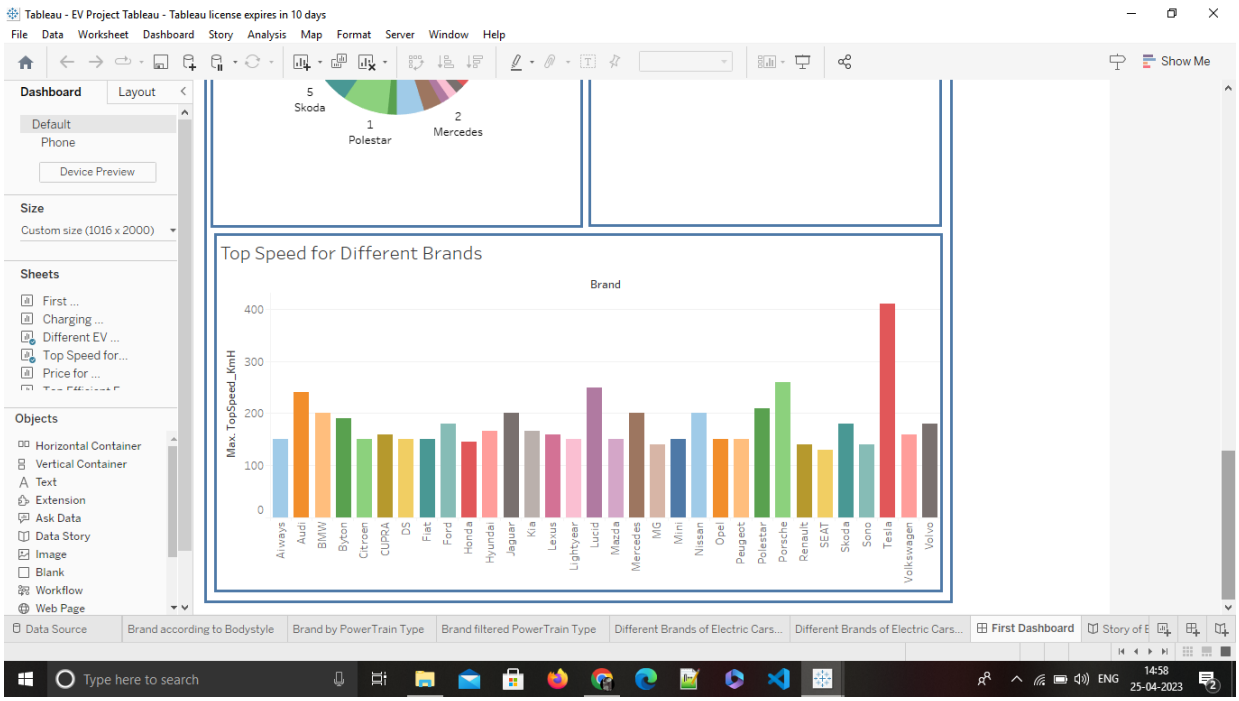
25-04-2023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Web Page
5 Skoda
1 Polestar
2 Mercedes
Top Speed for Different Brands
Brand
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Audi
BMW
Byton
Citroen
CUPRA
DS
Fiat
Ford
Honda
Hyundai
Jaguar
Kia
Lexus
Lightyear
Lucid
Mazda
Mercedes
MG
Mini
Nissan
Opel
Peugeot
Polestar
Porsche
Renault
SEAT
Skoda
Sono
Tesla
Volkswagen
Volvo
Data Source
Brand according to Bodystyle
Brand by PowerTrain Type
Brand filtered PowerTrain Type
Different Brands of Electric Cars...
Different Brands of Electric Cars...
First Dashboard
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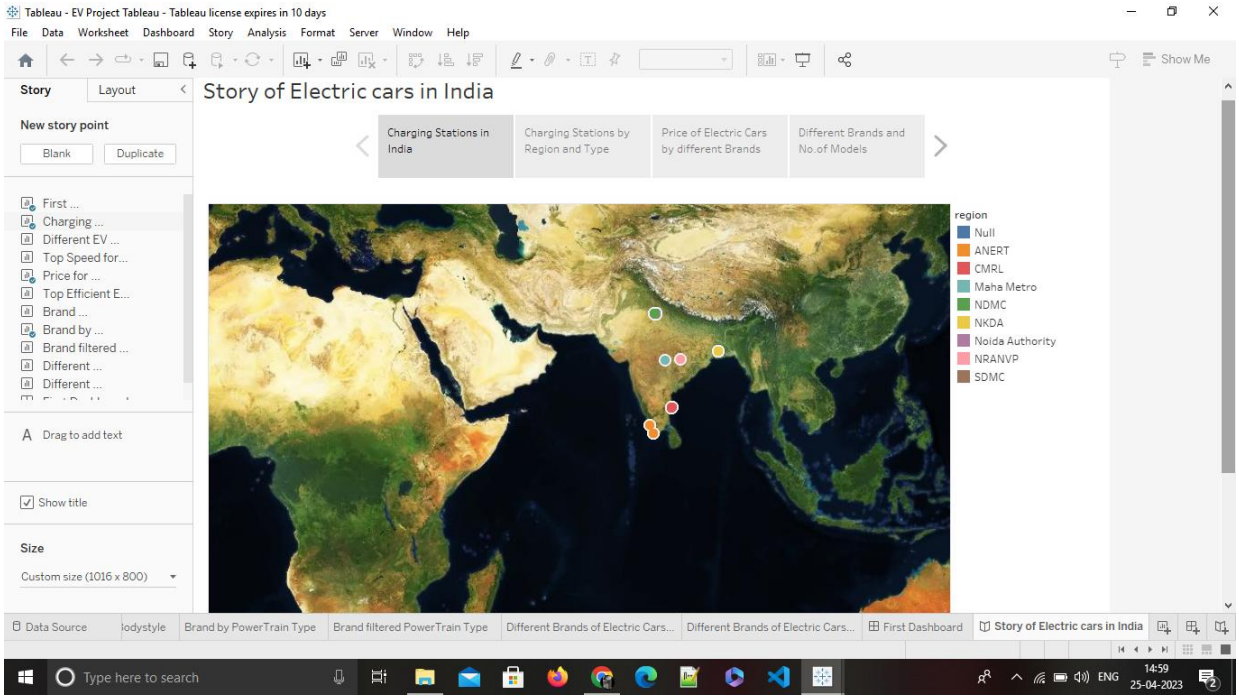
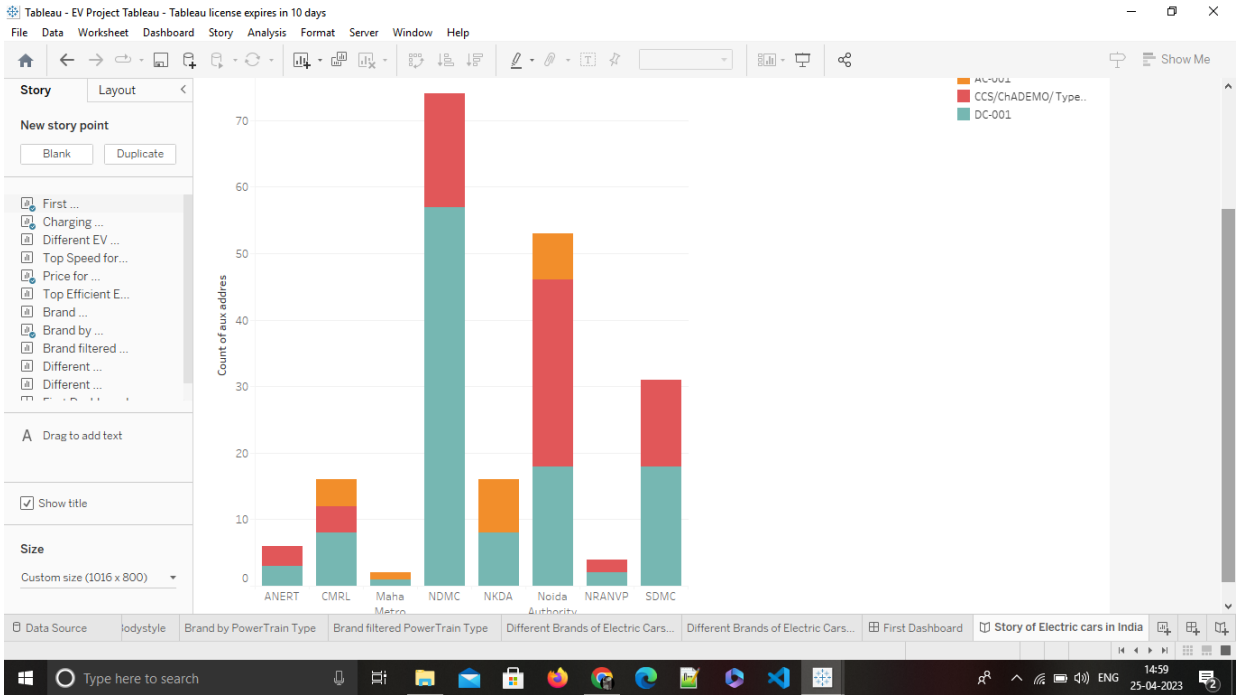
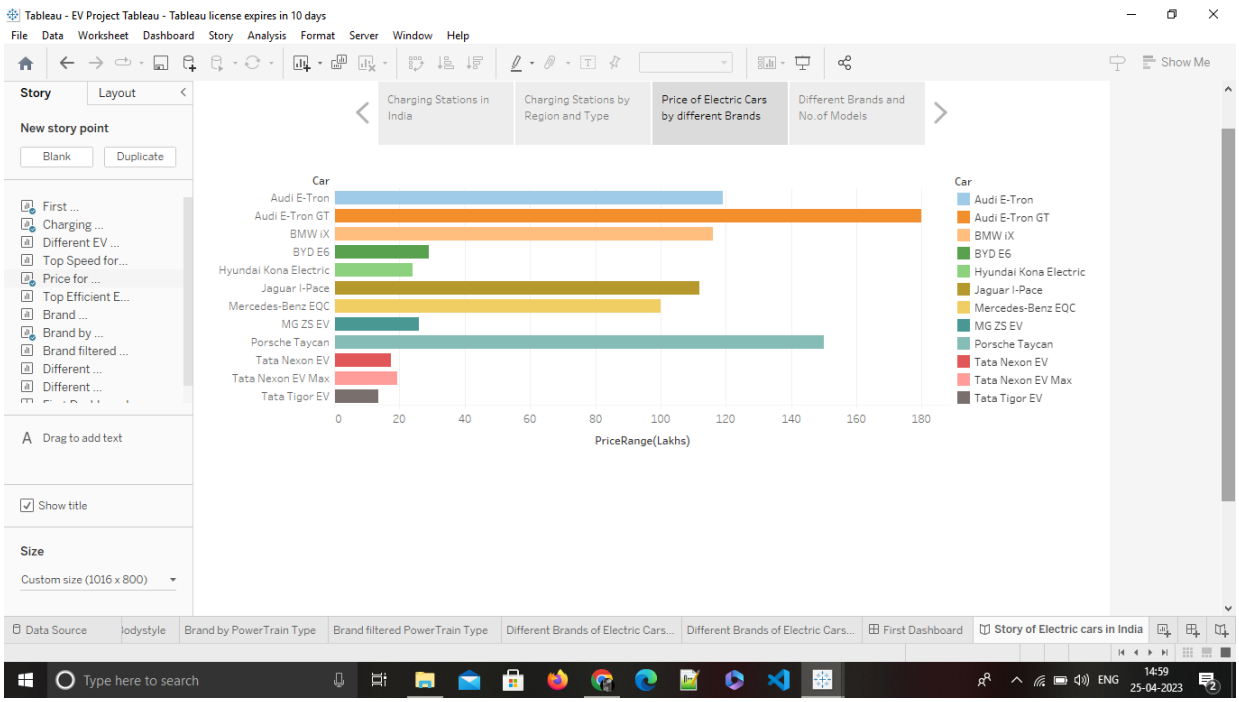
Story Of Electric Vehicles In India



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File Data Worksheet Dashboard Story Analysis Format Server Window Help
Story Layout
New story point
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Charging Stations in India
Charging Stations by Region and Type
Price of Electric Cars by different Brands
Different Brands and No.of Models
Car
Audi E-Tron
Audi E-Tron GT
BMW iX
BYD E6
Hyundai Kona Electric
Jaguar I-Pace
Mercedes-Benz EQC
MG ZS EV
Porsche Taycan
Tata Nexon EV
Tata Nexon EV Max
Tata Tigor EV
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PriceRange(Lakhs)
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Size
Custom size (1016 x 800)
Data Source
Brand by PowerTrain Type
Brand filtered PowerTrain Type
Different Brands of Electric Cars...
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First Dashboard
Story of Electric cars in India
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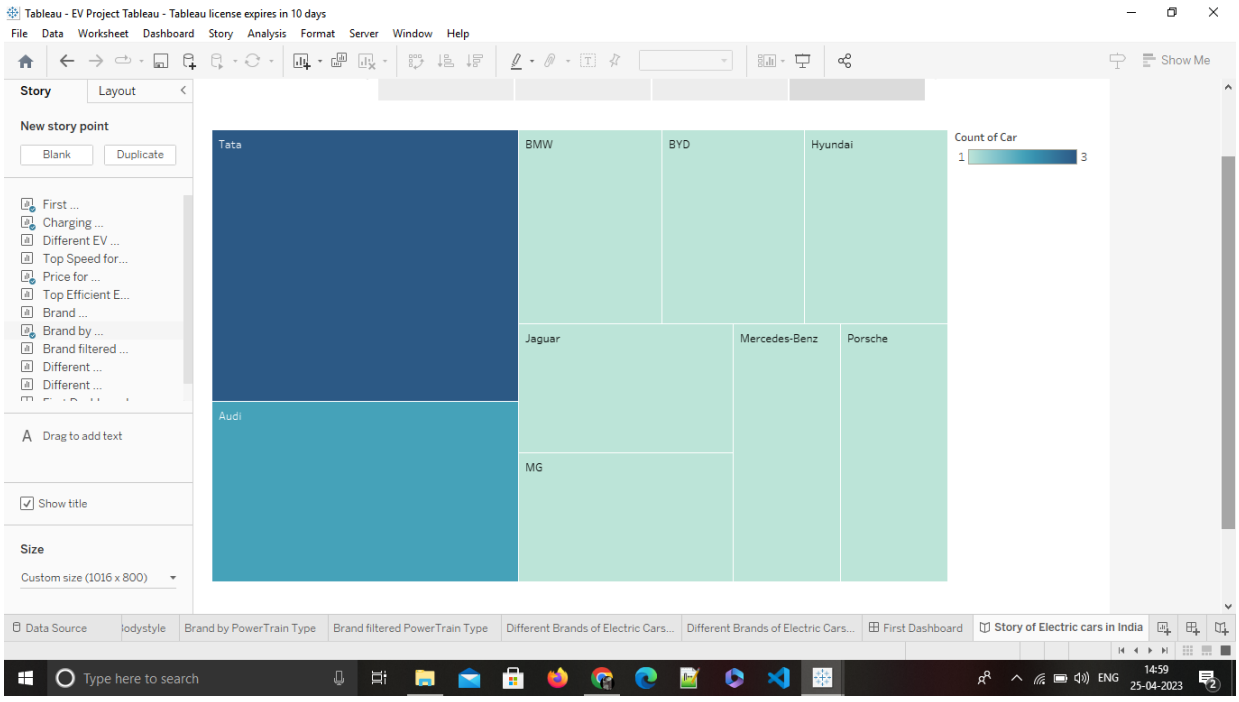
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Story Layout
New story point
Blank Duplicate
Tata
BMW
BYD
Hyundai
Jaguar
Mercedes-Benz
Porsche
Audi
MG
Count of Car
1 3
Drag to add text
Show title
Size
Custom size (1016 x 800)
Data Source
Brand by PowerTrain Type
Brand filtered PowerTrain Type
Different Brands of Electric Cars...
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First Dashboard
Story of Electric cars in India
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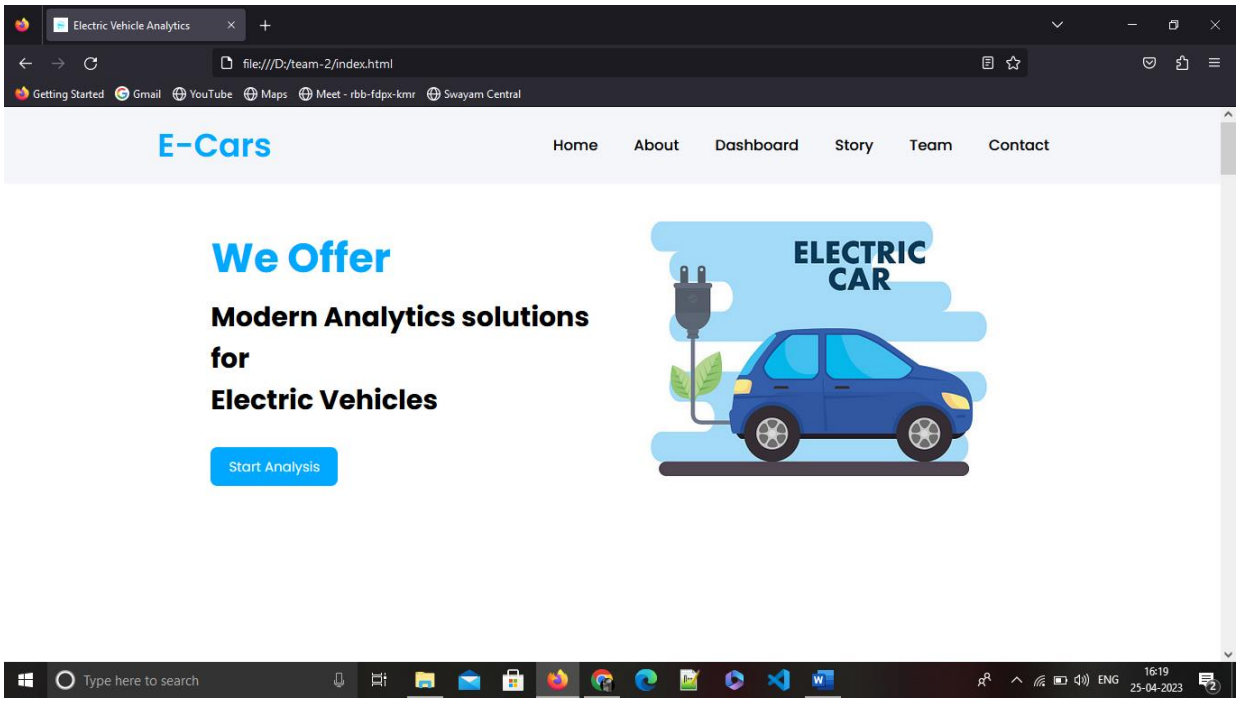
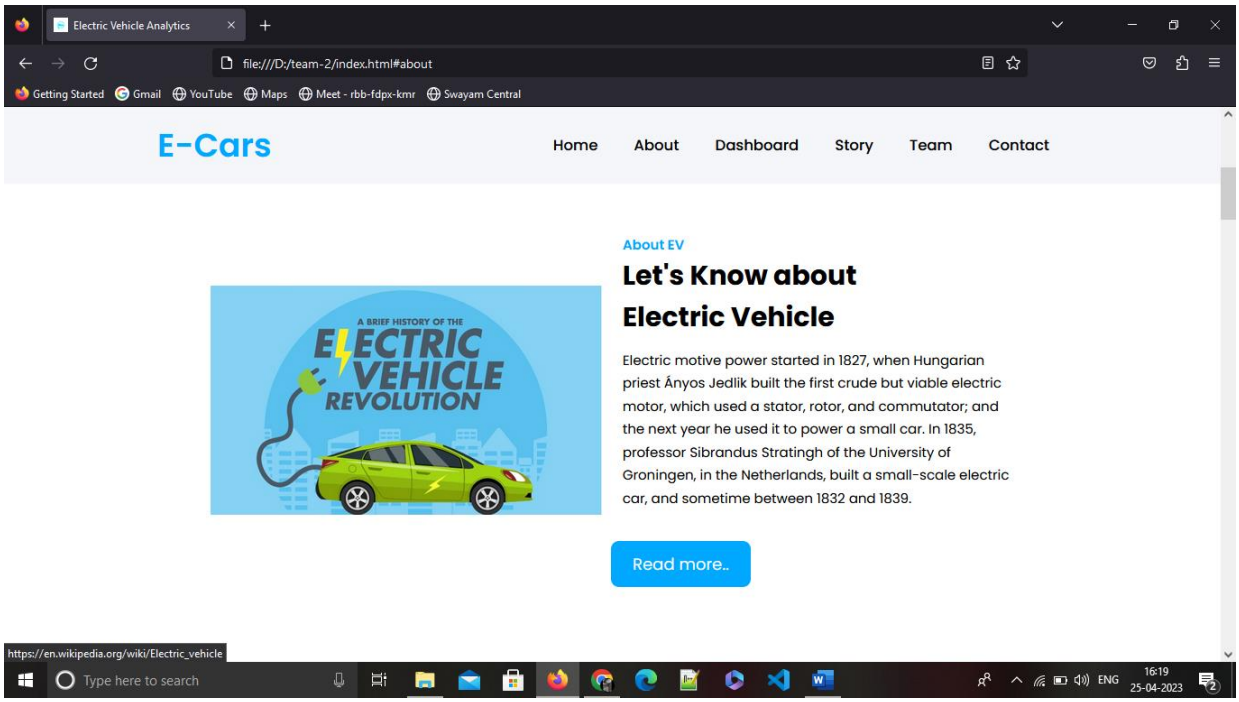
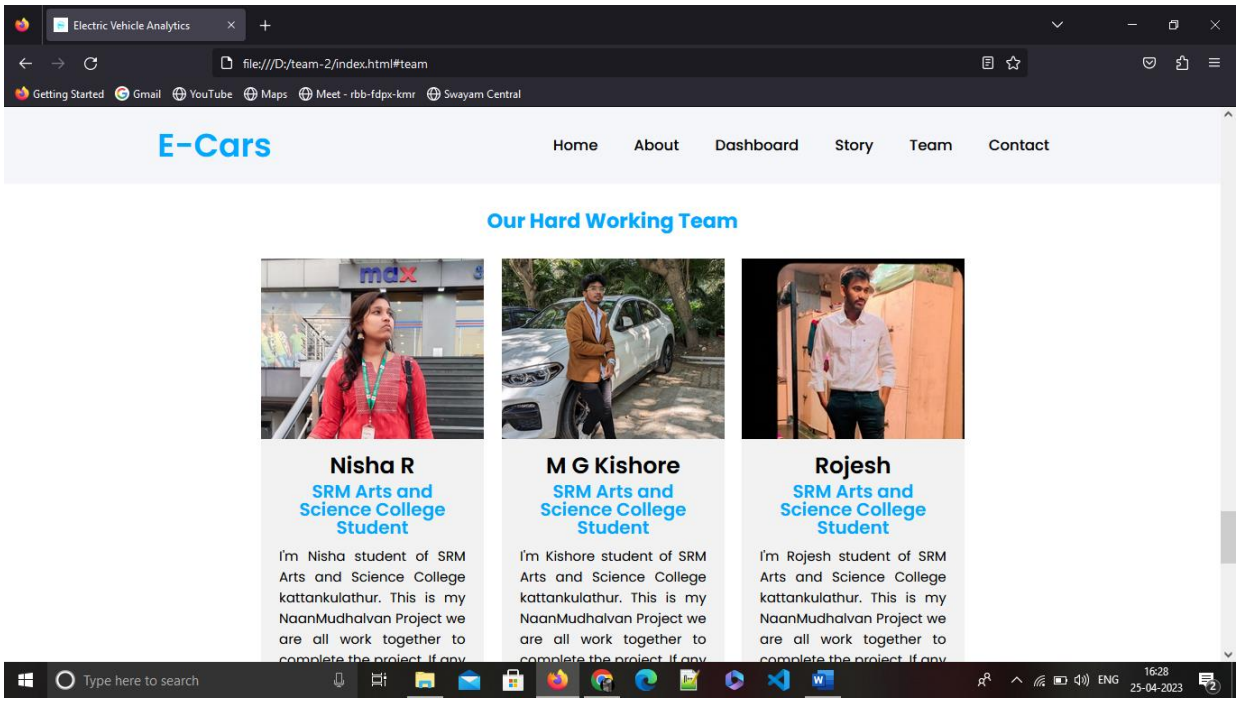
Web Application






Electric Vehicle Analytics
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Getting Started
Gmail
YouTube
Maps
Meet - rbb-fdpx-kmr
Swayam Central
E-Cars
Home
About
Dashboard
Story
Team
Contact
Our Hard Working Team
Nisha R
SRM Arts and Science College Student
I'm Nisha student of SRM Arts and Science College kattankulathur. This is my NaanMudhalvan Project we are all work together to
M G Kishore
SRM Arts and Science College Student
I'm Kishore student of SRM Arts and Science College kattankulathur. This is my NaanMudhalvan Project we are all work together to
Rojesh
SRM Arts and Science College Student
I'm Rojesh student of SRM Arts and Science College kattankulathur. This is my NaanMudhalvan Project we are all work together to
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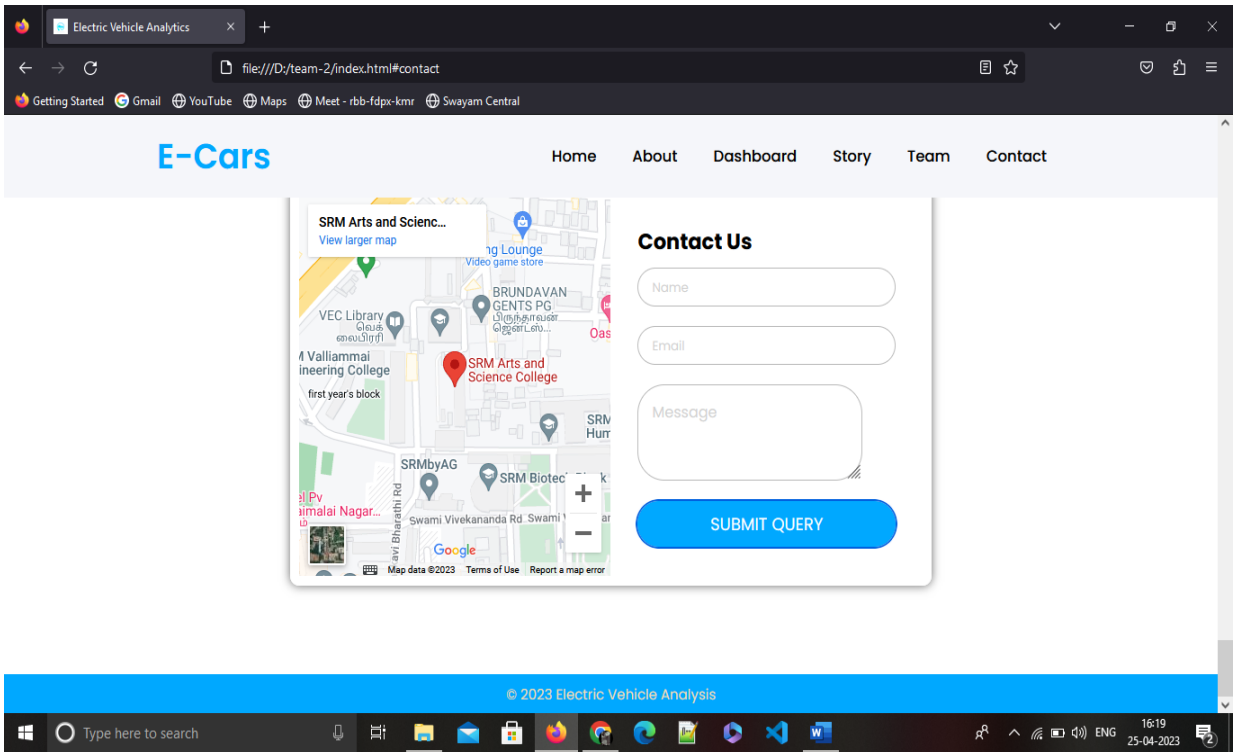
Electric Vehicle Analytics
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Maps
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4) Advantages & Disadvantages of EV

Advantages:

Eco-friendly: Because electric vehicles do not utilize fuel for combustion, there are no emissions or gas exhaust. Vehicles that run on fossil fuels contribute significantly to hazardous gas accumulation in the environment, thus driving an electric car can help contribute to a cleaner environment.

Less noise and smoother motion: Driving an electric car is significantly smoother. Because they lack fast-moving elements, they are quieter and produce less noise.

Cost-effective: Electricity is far less expensive than fuels such as gasoline and diesel, which are subject to regular price increases. When solar electricity is utilized at home, battery recharging is cost-effective.

Low maintenance: Because electric cars have fewer moving components, wear and tear is reduced when compared to traditional auto parts. Repairs are also simpler and less expensive than combustion engines.

Government support: Governments throughout the world have granted tax breaks to encourage people to drive electric vehicles as part of a green program.

Disadvantages:

High initial cost: Electric vehicles continue to be quite expensive, and many buyers believe they are not as inexpensive as traditional automobiles.

Recharging takes time: Unlike conventional automobiles, which require only a few minutes to replenish their gas tanks, charging an electric vehicle takes many hours.

Limited options: Currently, there aren't many electric car models to pick from in terms of appearance, style, or customized variations.

Less driving range: When compared to conventional automobiles, electric vehicles have a shorter driving range. Electric cars can be convenient for short-distance travel but are inconvenient for long-distance travel.

5) APPLICATIONS

- It can be used in industry to analyse the data on Electric Vehicles.
- It helps the government to understand growth of EV in India.

- It gives full idea for the EV companies to develop their flaws and increase the infrastructures and build more EV stations around India.

6) CONCLUSION

As is demonstrated in our timeline, we hope that over the course of the next decade technological advancements and policy changes will help ease the transition from traditional fuel-powered vehicles. Additionally, the realization and success of this industry relies heavily on the global population, and it is our hope that through mass marketing and environmental education programs people will feel incentivized and empowered to drive an electric-powered vehicle.

7) FUTURE SCOPE

Because of its Pollution free state and great features EV will place a major role in our Future and this data visualization will help us to reach that state. So this data has a great scope for the Future Of EV