Data Insights From Aadhaar A Comprehensive Analysis Using Qlik

Category: Data Analytics
Skill : Business Intelligence

1. **Project Description:**

Aadhaar, managed by the Unique Identification Authority of India (UIDAI), is the world's largest biometric ID system, providing a unique 12-digit identification number to residents of India. This project involves a comprehensive analysis of Aadhaar data using Qlik Sense, aiming to derive actionable insights that inform strategic planning and operational improvements.

2.Define Problem / Problem Understanding

2.1Specify The Business Problem:

Aadhaar Card is a 12-digit unique identification number issued by the Unique Identification Authority of India (UIDAI), a statutory authority established by the Indian government. The Aadhaar initiative aims to provide a universal and robust identity infrastructure for residents of India.

A comprehensive analysis of Aadhaar data is conducted using Qlik Sense, with a focus on deriving actionable insights. The project involves cleaning and modeling the Aadhaar dataset, designing an interactive Qlik Sense dashboard Report , and extracting key visualizations such as demographic overviews, Generation/Rejections and geospatial analyses.

The primary data source is the extensive Aadhaar database, comprising demographic information, authentication records, and geographical details. The objective of the project is to conduct a thorough analysis of Aadhaar data using Qlik Sense, with the aim of extracting valuable insights to enhance decision-making, policy formulation, and operational efficiency within the National Identity Authority

2.2 Business Requirements

The analysis aims to provide valuable insights into user demographics, authentication trends, and compliance metrics for informed decision-making. The primary focus is on creating interactive and visually compelling dashboards to support strategic planning and operational improvements. The insights derived from this analysis will be instrumental in making informed decisions, enhancing service delivery, and ensuring compliance withregulations.

.2.3 Literature Survey:

Skill Tags: Research, Data Analysis, Aadhaar, Literature Review.

The literature survey on Aadhaar analysis reveals a broad spectrum of research focusing on biometric authentication, data privacy, integration with public services, financial inclusion, and legal frameworks. Exploring these areas provides a comprehensive understanding of the successes, challenges, and future prospects of Aadhaar. Future research should continue to address emerging concerns related to privacy, security, and ethical use of biometric data.

2.4 Social Or Business Impact :

Social Impact Analysis:

- Create visualizations to showcase the demographic distribution of Aadhaar users.
- Analyze how Aadhaar has impacted social welfare programs, financial inclusion, and other key areas.
- Explore any correlations between Aadhaar usage and improvements in socioeconomic indicators.

Business Impact Analysis:

- Analyze how Aadhaar has affected businesses, especially in sectors like banking, telecommunications, and e-commerce.
- Evaluate the impact of Aadhaar on fraud prevention, customer onboarding, and operational efficiency.
- Create visualizations to represent the growth in Aadhaar-based services.

3. Data Collection & Extraction From Database

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, evaluate outcomes and generate insights from the data.

3.1 Downloading The Dataset

Please use the link to download the dataset
https://drive.google.com/file/d/1Umb7QTOxgTZUyCXoCIniM3DHmIejKzFV/view?usp=sharing

3.2 Understand The Data

Data contains all the meta information regarding the columns described in the CSV files
Column Description of the Dataset:
1. Registrar: Registrar entities that are responsible for setting up enrollment centers, managing the enrollment process, and collecting necessary data.
2. Enrollment Agency: An Enrolment Agency is responsible for conducting the actual process of enrolling individuals into the Aadhaar system
3. State: Indian State
4. District: A district is an administrative division or unit that is usually part of a larger administrative region, such as
state
5. Sub-District: A sub-district, also known as taluka or tehsil in different regions, is a smaller administrative unit that is part of a district.
6. Pin Code: PIN code of the Aadhar card holder
7 Gender: Gender of the Aadhar card holder
8. Age: Age of the Aadhar card holder

9. Aadhaar generated: No of Aadhar Generated
10. Enrolment Rejected: No of Enrolment Rejected
11. Residents providing email: Whether Email is provided or not
12. Residents providing Mobile: Whether Mobile provided or not

4. Data Preparation: ata preparation is a crucial step in the data analytics process. It involves a series of tasks designed to clean, transform, and organize raw data into a format suitable for analysis. Effective data preparation ensures the quality and reliability of the data, which is essential for generating accurate and meaningful insights.

4.1 Data enrichment or Data transformation :

we are going to do some data transformation by adding some new field in our data set for batter understanding transformation are following.
1.Adding new field to decide the states by region call the field name Region i.e Northen region or souther region
2. Adding Age group new field which dividing the people age on big categories such as kid,tenager, adult, mid age ,senior and old.
3. Adding new file of email status and phone status separate which tell the status of email and phobe no. to the adhar holder.

4.2 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. Since the data is already cleaned we can move to visualization.

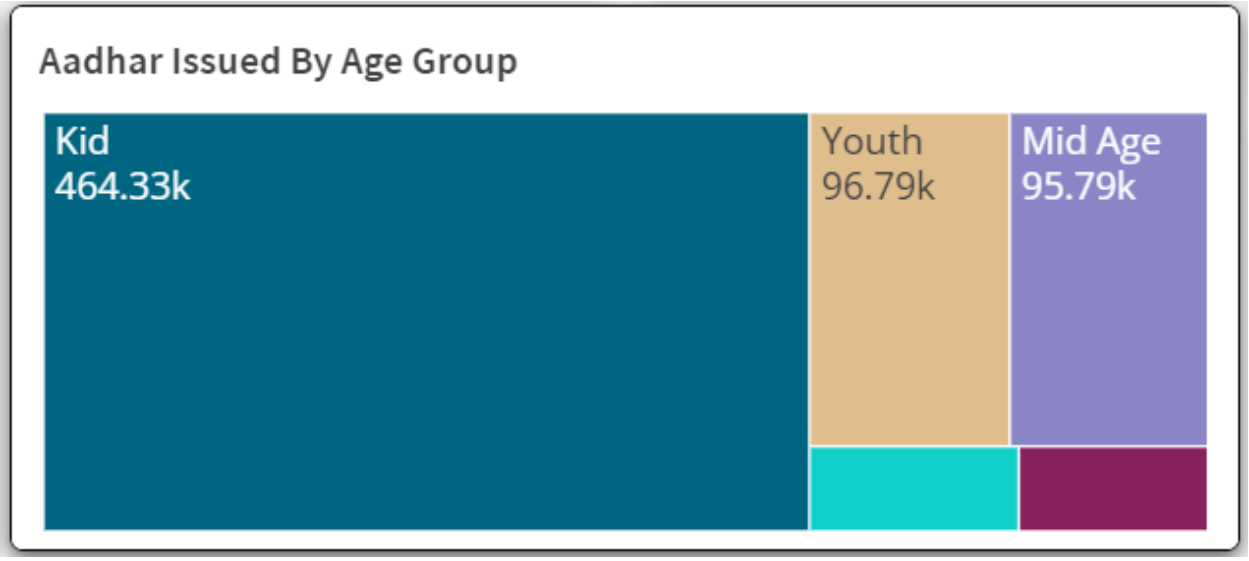
5 .Data Visualization

Data visualization is the process of creating graphical representations of data to help people understand and explore the information. The goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs, and maps, data visualizations can help people quickly identify patterns, trends, and outliers in the data.

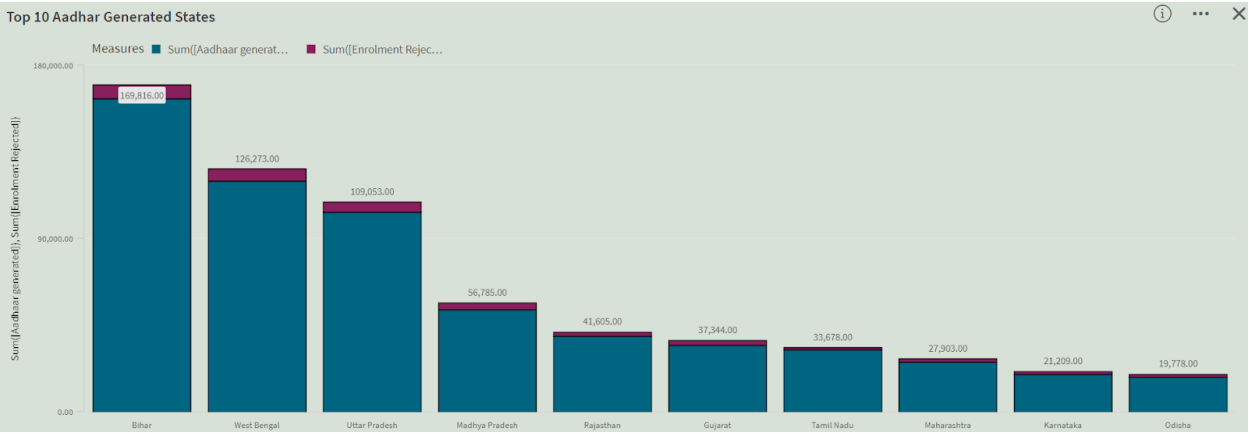
5.1. No Of Unique Visualizations

The number of unique visualizations that can be created with a given dataset. Some common types of visualizations that can be used to analyze the performance and efficiency of banks include bar charts, line charts, heat maps, scatter plots, pie charts, Maps, etc. These visualizations can be used to compare performance, track changes over time, show distribution, and relationships between variables, breakdown of revenue and customer demographics, workload, resource allocation, and location of banks.

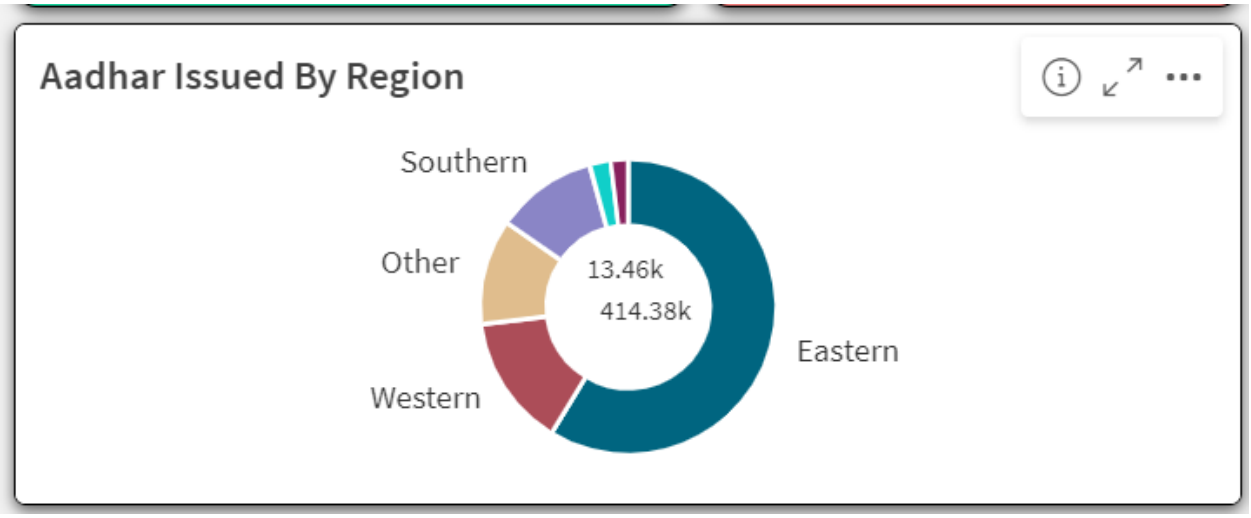
Aadhar Issued By Age Group



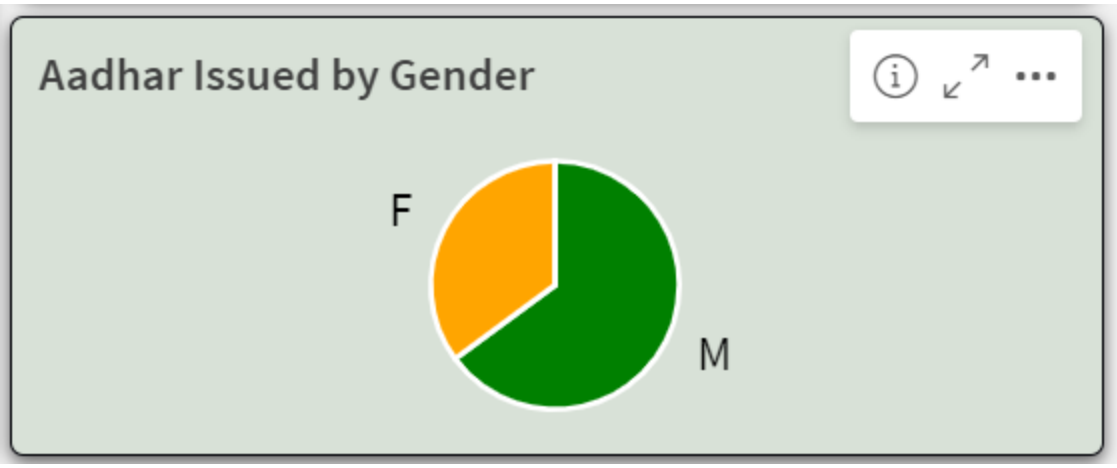
Top 10 Aadhar-Generated State



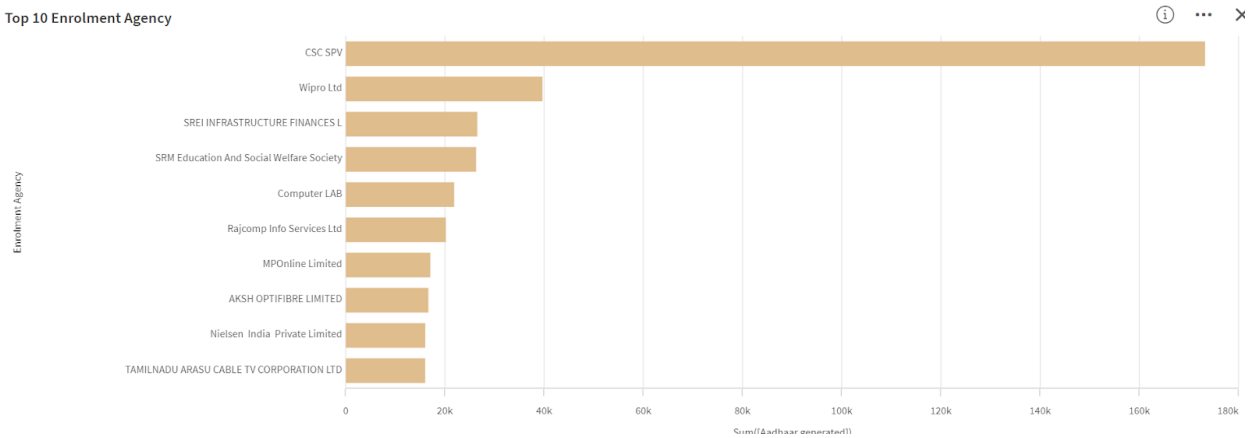
Aadhar Issued By Region



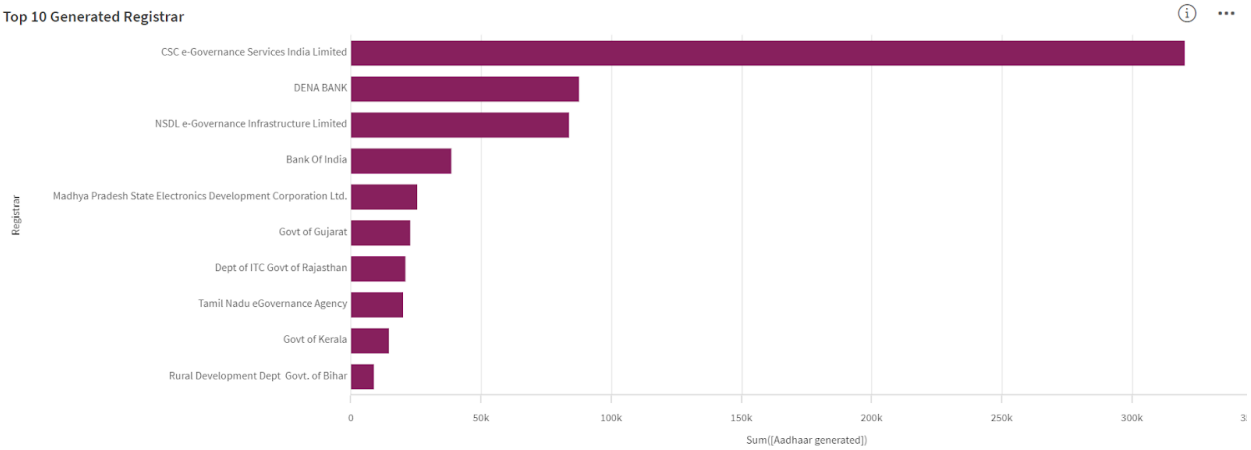
Issue By Gender



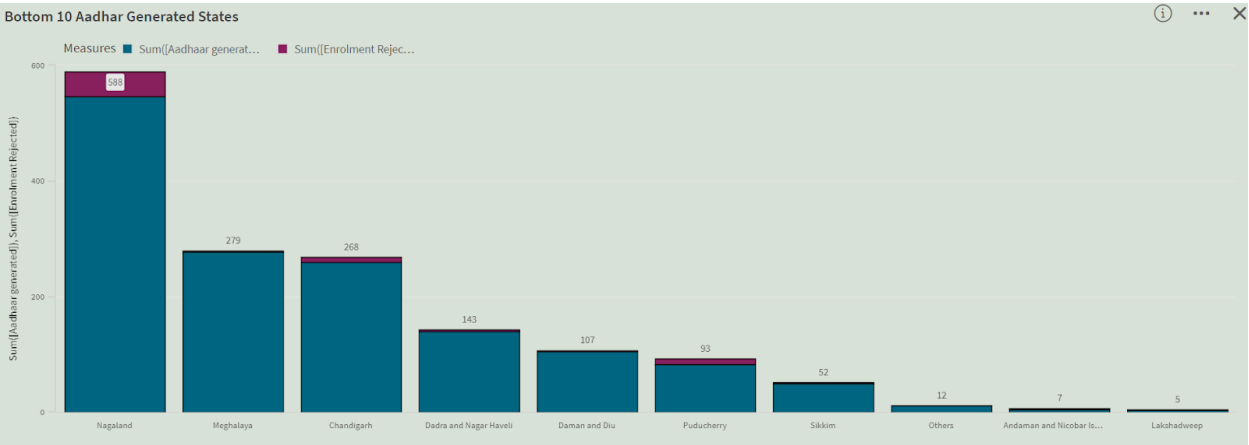
Top 10 Highest Generated Enrollment Agency



Top 10 Highest-Generated Registra

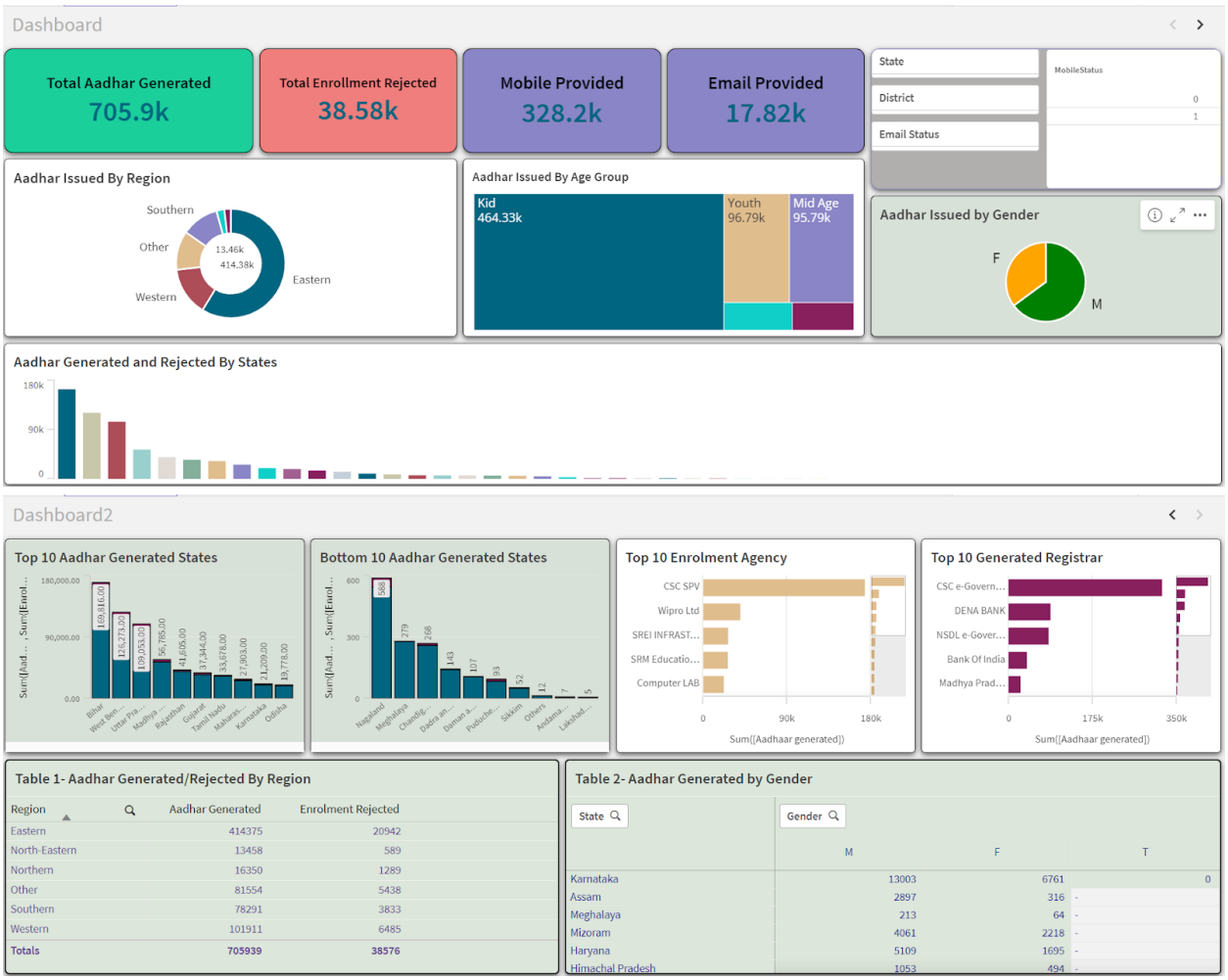


Bottom 10 Aadhar-Generated State



6. Dashboard

A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring and analysis of data and are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables.



7. Story

A data story is a way of presenting data and analysis in a narrative format, with the goal of making the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis in a logical and systematic way, and a conclusion that summarizes the key findings and highlights their implications. Data stories can be told using a variety of mediums, such as reports, presentations, interactive visualizations, and videos.
here is the screenshort of story:

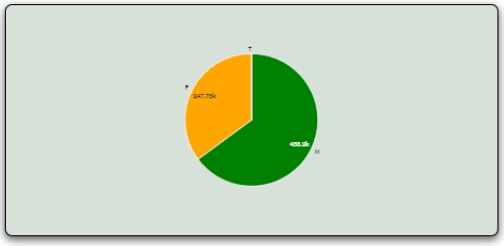
Total Aadhar Analysis

Total Aadhar Generated	Total Enrollment Rejected	Mobile Provided	Email Provided
705.9k	38.58k	328.2k	17.82k

Aadhar Generated with Mobile	Total Aadhar Generated 144.4k	Aadhar Generated without Mobile	Total Aadhar Generated 561.5k
Aadhar Generated with Email	Total Aadhar Generated 42.3k	Aadhar Generated without Email	Total Aadhar Generated 663.6k
Aadhar Generated with Mobile and Email	Total Aadhar Generated 41.27k	Aadhar Generated without Mobile and Email	Total Aadhar Generated 143.4k

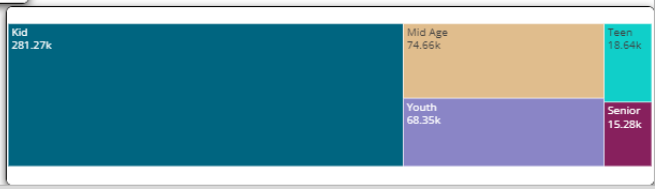
Aadhar Generated by Gender

Total Aadhar issue for Male: **458.2K**
Total Aadhar issued for Female: **243.73K**

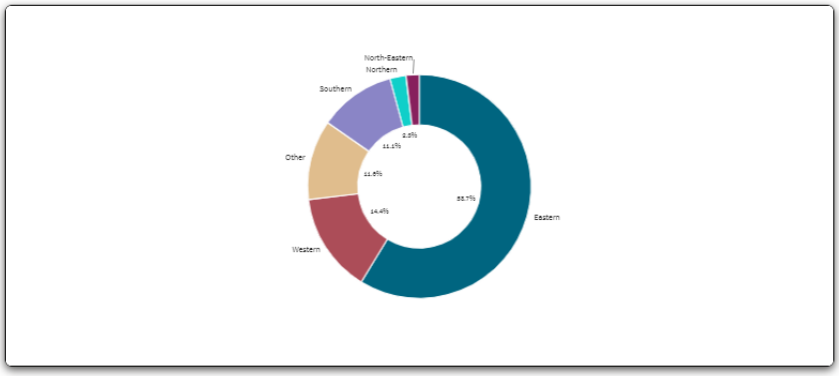


Total Aadhar Generated for Different Age Group for only Females

Total Aadhar Generated for Different Age Group for only Males



Aadhar Generated and Rejected by Regions

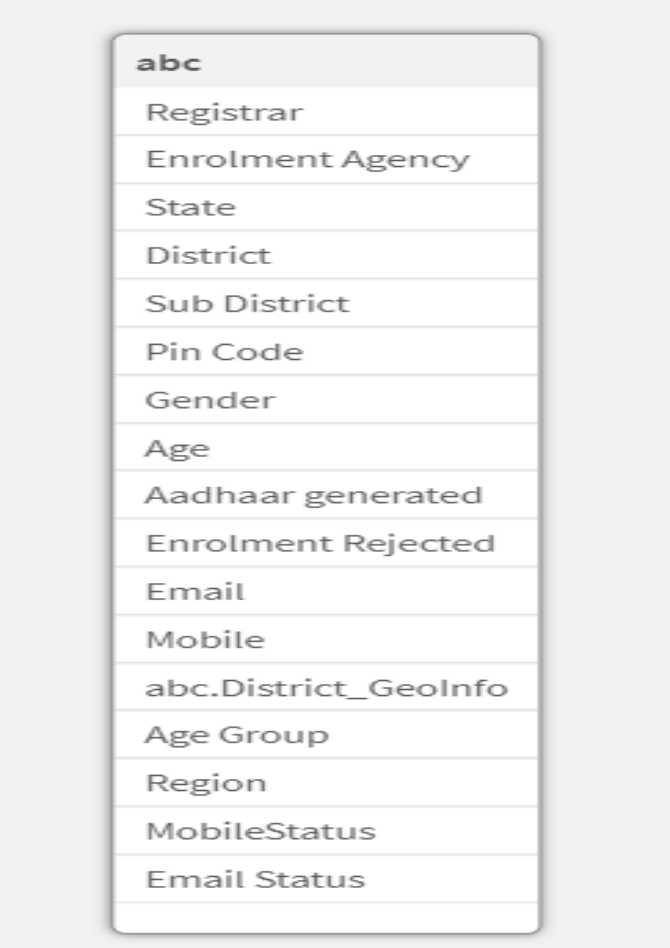


- Eastern: **414.4K** Generated and **20.94K** Rejected
- Northern:**16.35K** Generated and **1.2K** Rejected
- Western: **101.9K** Generated and **6.49K** Rejected
- North-Eastern: **13.46K** Generated and **589** Rejectec
- Southern: **78.29K** Generated and **3.83K** Rejected
- Other: **81.55K** Generated and **5.44K** Rejected

8 Performance Testing

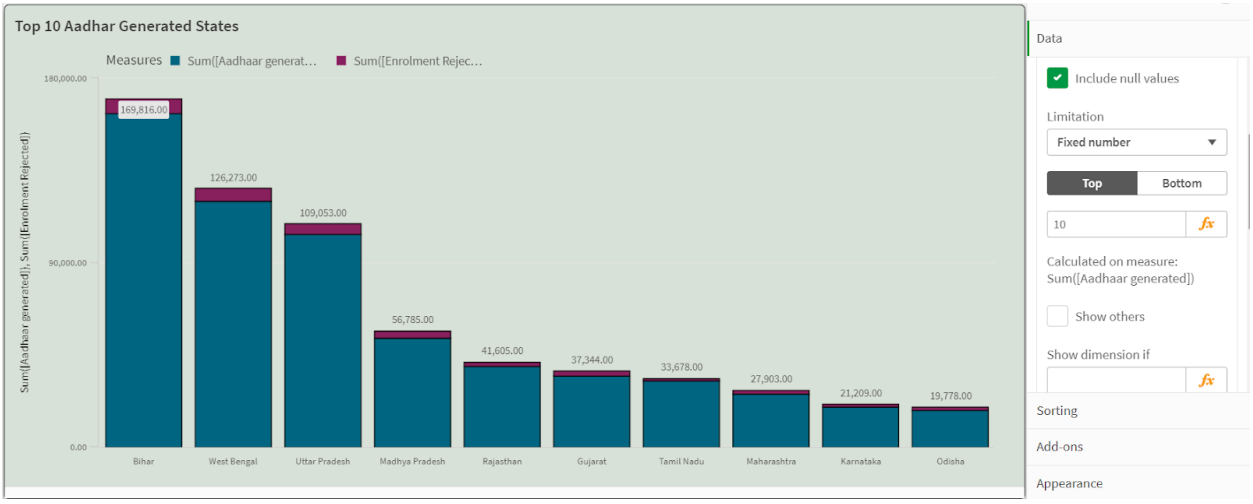
8.1 Amount Of Data Loaded

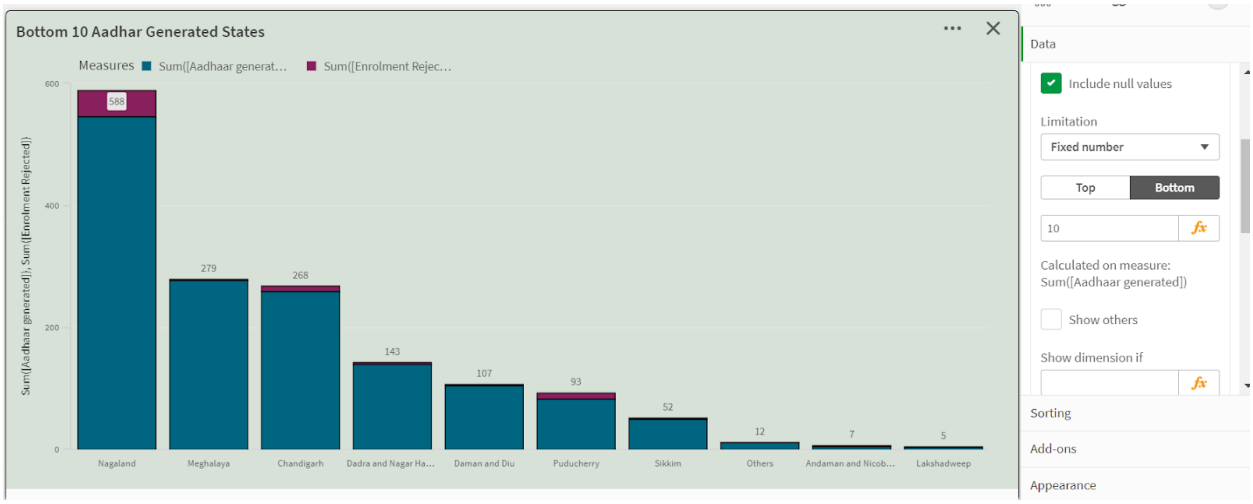
"Amount of Data Loaded" refers to the quantity or volume of data that has been imported, retrieved, or loaded into a system, software application, database, or any other data storage or processing environment. It's a measure of how much data has been successfully processed and made available for analysis, manipulation, or use within the system



8.2 Utilization Of Data Filters

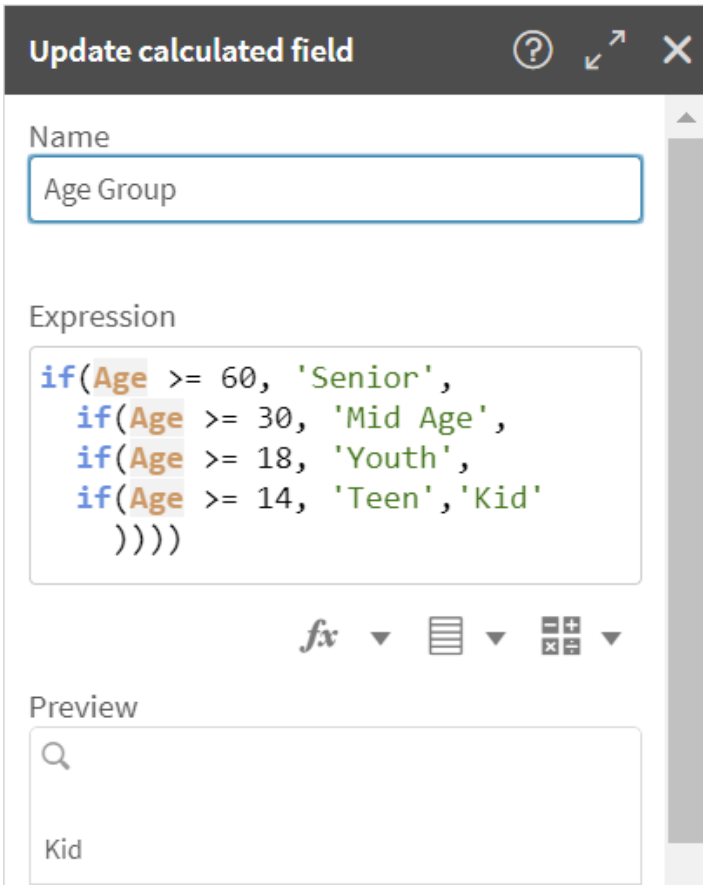
Utilization of data filters refers to the process of applying specific criteria or conditions to a dataset in order to selectively include or exclude certain data points. This filtering process is crucial in data analysis as it allows to focus on relevant subsets of data, eliminating noise and irrelevant information.





8.3 No Of Calculation Fields

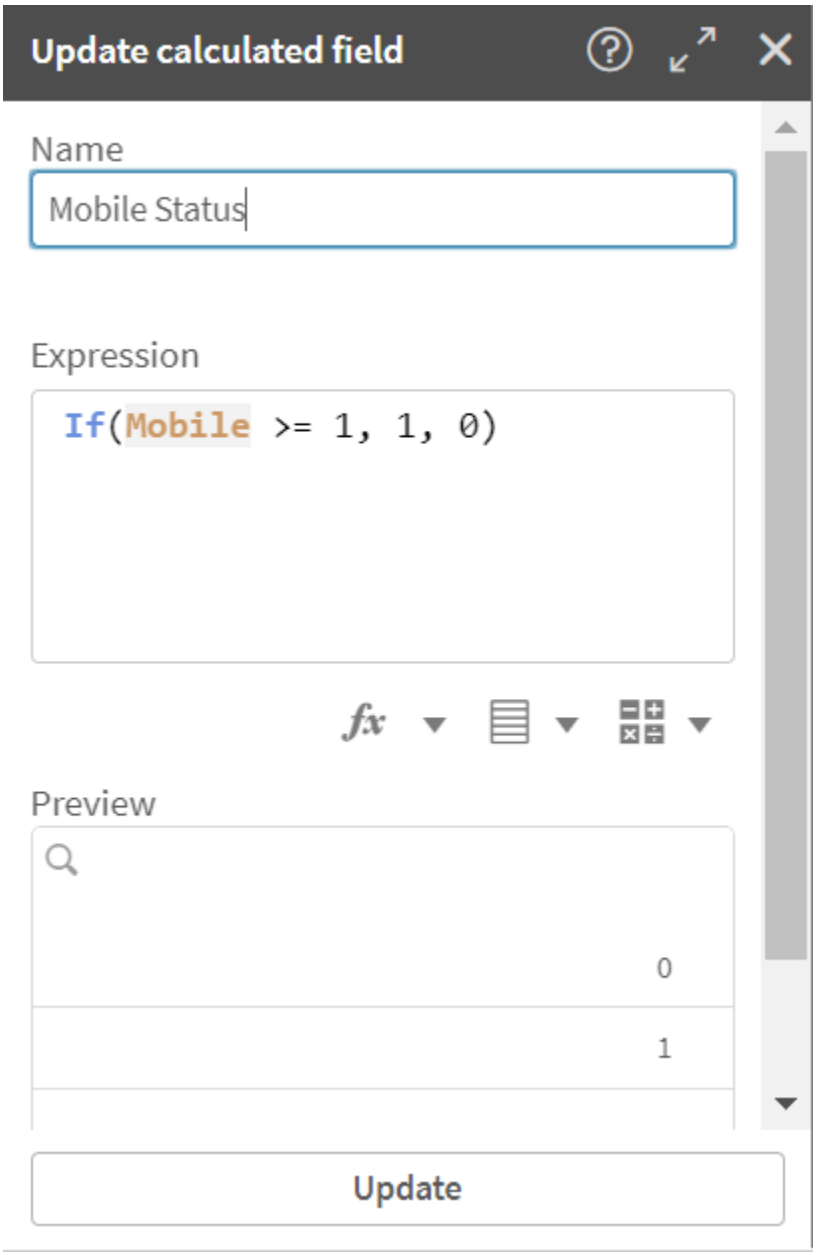
The term "calculation fields" typically refers to the variables in a dataset that have been generated through calculations rather than being directly obtained from the source data. These fields are derived by applying mathematical operations, functions, or formulas to existing data within the dataset.

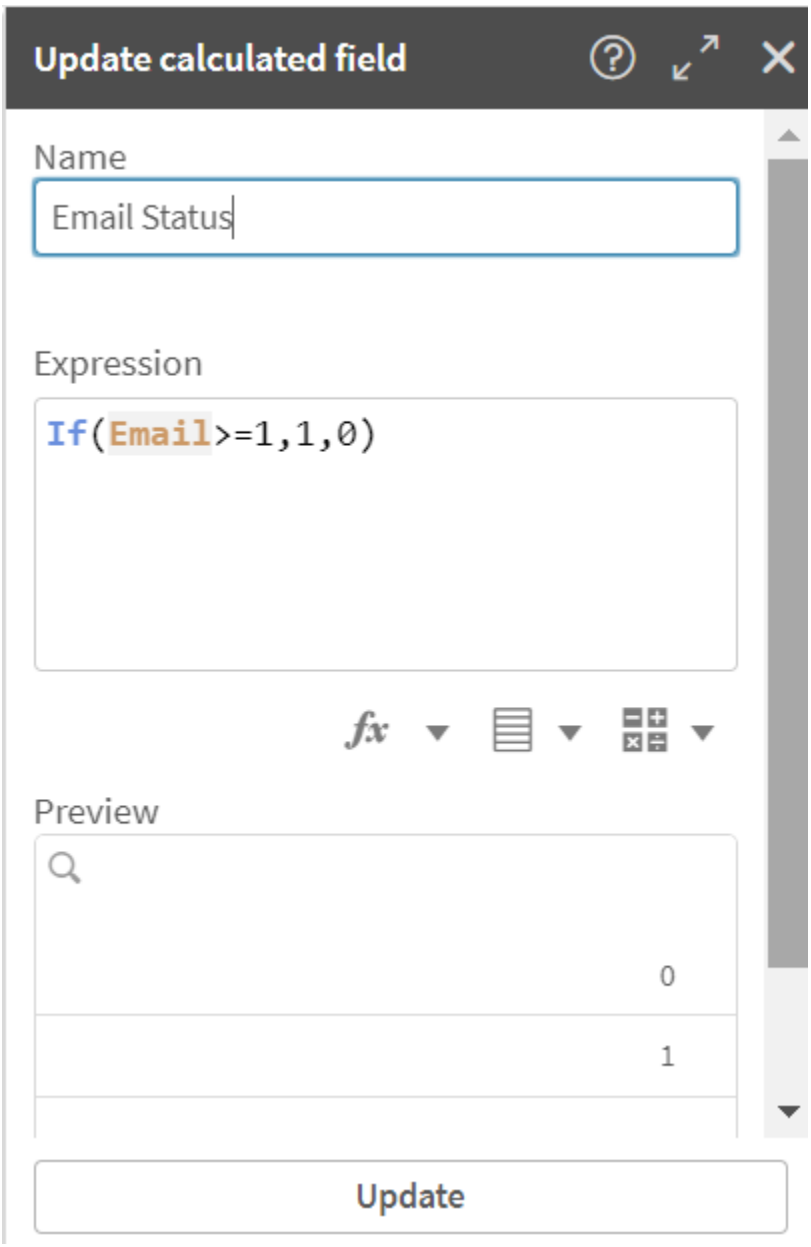


Age Group:

```
if(Age >= 60, 'Senior',
  if(Age >= 30, 'Mid Age',
  if(Age >= 18, 'Youth',
  if(Age >= 14, 'Teen','Kid'
   ))))
```

Region:
if(Match(State, 'Maharashtra', 'Gujarat', 'Rajasthan', 'Goa', 'Daman and Diu', 'Dadra and Nagar Haveli'), 'Western',
if(Match(State, 'Uttar Pradesh', 'Bihar', 'Jharkhand', 'Odisha', 'West Bengal', 'Sikkim'), 'Eastern',
if(Match(State, 'Karnataka', 'Andhra Pradesh', 'Telangana', 'Tamil Nadu', 'Kerala', 'Puducherry'), 'Southern',
if(Match(State, 'Punjab', 'Haryana', 'Himachal Pradesh', 'Jammu and Kashmir', 'Chandigarh'), 'Northern',
if(Match(State, 'Assam', 'Arunachal Pradesh', 'Nagaland', 'Manipur', 'Mizoram', 'Tripura', 'Meghalaya', 'Sikkim'), 'North-Eastern', 'Other')))))


Update calculated field
Name
Mobile Status
Expression
If(Mobile >= 1, 1, 0)
Preview
0
1
Update



8.3 No Of Visualizations/ Graphs

1. Aadhar Issued By Age Group
2. Top 10 Aadhar generated States
3. Aadhar Generated By region
4. Aadhar Generated By gender
5. Aadhar issued By Mobile
6. Top 10 Highest Aadhar Generated Registrar
7. Bottom10 Aadhar generated States