Exploring Insights from Aadhaar Data with Qlik

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# Abstract

This report presents a comprehensive analysis of Aadhaar data using Qlik Sense, a powerful data visualization and analytics tool. The project involves setting up Qlik Sense, creating a new app, uploading and preparing data, and generating insightful visualizations. The goal is to measure key performance indicators (KPIs) and analyse demographic and geographical trends to derive actionable insights that can enhance decision-making and operational efficiency for the National Identity Authority.

# Introduction

Qlik Sense is a robust data analytics and visualization tool that allows users to create interactive and informative dashboards. This project leverages Qlik Sense to analyse Aadhaar data, focusing on key performance metrics such as the number of Aadhaar cards issued, rejected applications, demographic distribution, and regional analysis. By visualizing this data, we aim to uncover patterns and insights that can inform strategic decision-making and policy formulation.

# Setup and Installation

**a) Creating an Account and Downloading Qlik Sense Desktop/Qlik Cloud**

• Qlik Sense Desktop:

1. Access the Qlik Sense website https://www.qlik.com/ and create a new account.
2. Download the Qlik Sense Desktop unlock file.

• Qlik Cloud:

1. Go to the Qlik Cloud website https://www.qlik.com/ and sign up for a free trial or subscribe to a plan.
2. Follow the instructions to set up your account.

## File Placement

For Qlik Sense Desktop, navigate to the directory: C:\Users\YourUsername\Documents\Qlik\Sense\Apps. Place the downloaded data file in this directory.

## Launching Qlik Sense Desktop/Qlik Cloud

Open the Qlik Sense Desktop application or log in to Qlik Cloud. For Qlik Sense Desktop, double-click the Qlik Sense shortcut on your desktop.

## App Creation and Data Upload

1. **Creating a New App**: Click on the ”Create New App” button to start a new project. Name your app (e.g., ”Aadhaar Analysis”) and click ”Create.” Open the new app by clicking on it.
2. **Uploading the Data File**: In Qlik Sense, click on “Add data.” Select your data source (e.g., a CSV file with Aadhaar data). Follow the prompts to upload your data into the new app. Ensure the dataset is embedded correctly to use the first row as headers if it is not done automatically.

# Data Preparation

## Removing Duplicates and Null Values

**Data Load Editor**:

1. Go to the ’Prepare’ tab and open the Data Load Editor.
2. Modify the default Qlik script to handle duplicates and null values as per the requirements. **Sample Code**: Use the following Qlik Script to pre-process the Aadhaar dataset:

% Load data from the source

LOAD

Registrar,

[Enrollment Agency],

State,

District,

[Sub-District],

[Pin Code],

Gender,

Age,

[Aadhaar generated],

[Enrolment Rejected],

[Residents providing email],

[Residents providing Mobile]

FROM [lib://YourDataFolder/AadhaarData.csv]

(txt, codepage is 1252, embedded labels, delimiter is ’,’, msq);

% Remove duplicates

NoConcatenate

LOAD Distinct \*

Resident AadhaarData;

% Handle null values by replacing them with appropriate values

LOAD

Registrar,

[Enrollment Agency],

If(Len(Trim(State))=0, ’Unknown’, State) as State,

If(Len(Trim(District))=0, ’Unknown’, District) as District,

If(Len(Trim([Sub-District]))=0, ’Unknown’, [Sub-District]) as [Sub-District],

If(IsNull([Pin Code]), 0, [Pin Code]) as [Pin Code],

If(IsNull(Gender), ’Unknown’, Gender) as Gender,

If(IsNull(Age), 0, Age) as Age,

If(IsNull([Aadhaar generated]), 0, [Aadhaar generated]) as [Aadhaar generated],

If(IsNull([Enrolment Rejected]), 0, [Enrolment Rejected]) as [Enrolment Rejected],

If(IsNull([Residents providing email]), ’No’, [Residents providing email]) as [Residents providin

If(IsNull([Residents providing Mobile]), ’No’, [Residents providing Mobile]), MonthName([Date]) AS MonthYear Resident AadhaarData;

% Drop the temporary table

Drop Table AadhaarData;

**Transform the Data:**

A**ge Group**:

Copy code

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')))))

# Visualization Creation

## Key Performance Indicators

* Total Aadhaar Generated: Measure - Sum([Aadhaar generated])
* Total Enrolment Rejected: Measure - Sum([Enrolment Rejected])
* Percentage of Residents Providing Email: Measure - Count({¡ [Residents providing email]=’Yes’ ¿} [Aadhaar generated]) / Count([Aadhaar generated])
* Percentage of Residents Providing Mobile: Measure - Count({¡ [Residents providing Mobile]=’Yes’ ¿} [Aadhaar generated]) / Count([Aadhaar generated])

## Aadhaar Issuance and Rejection Analysis

* Aadhaar Issued by Age Group: Bar chart - Dimension: Age Group, Measure: Sum([Aadhaar generated])
* Top 10 Aadhaar Generated States: Horizontal bar chart - Dimension: State, Measure: Sum([Aadhaar generated]), Filter: Top 10
* Aadhaar Issued by Region: Heat map - Dimensions: Region, State, Measure: Sum([Aadhaar generated])

## Demographic Analysis

• Aadhaar Generated by Gender: Pie chart - Dimension: Gender, Measure: Sum([Aadhaar generated]) • Aadhaar Issued by Mobile Provision: Scatter plot - Dimension: Residents providing Mobile, Measure: Sum([Aadhaar generated]) • Top 10 Highest Aadhaar Generated Registrars: Vertical bar chart - Dimension: Registrar, Measure:

Sum([Aadhaar generated]), Filter: Top 10

# Dashboard and Storytelling

## Dashboard Creation

• Design dashboards:

* Arrange your visualizations in a user-friendly manner.
* Add filters and selectors for interactive analysis.
* Ensure the dashboard is responsive and looks good on different devices.

## Storytelling

• Create a story:

* Use the storytelling feature in Qlik Sense to create a presentation.
* Include snapshots of your visualizations.
* Write a narrative to explain the context, analysis, and conclusions.

# Project Analysis and Scope

## Analysis

The analysis involves several steps to ensure data quality and derive meaningful insights. Initially, the raw data is pre-processed to handle duplicates and null values. The data is then structured to create key performance indicators (KPIs) to monitor Aadhaar issuance and rejection rates. Visualizations help in understanding the distribution of Aadhaar generation across different demographics and regions. These visualizations facilitate an in-depth analysis of operational performance and policy impacts.

## Scope

The scope of this project encompasses the following areas:

* Data Quality Improvement: Ensuring the accuracy and completeness of data by handling duplicates and null values.
* Performance Measurement: Developing KPIs to monitor Aadhaar issuance and rejection rates.
* Demographic Analysis: Using visualizations to analyse Aadhaar issuance across different age groups, genders, and regions.
* Business Insights: Deriving actionable insights to improve operational efficiency and strategic decision making.
* Dashboard Creation: Creating interactive dashboards that provide a comprehensive view of Aadhaar data.
* Storytelling and Presentation: Using Qlik Sense’s storytelling feature to create presentations that effectively communicate the insights derived from the data.

# Conclusion

This report outlines the process of setting up Qlik Sense, preparing the data, creating visualizations, and analysing Aadhaar data. By leveraging Qlik Sense’s capabilities, we can gain valuable insights into Aadhaar issuance trends and demographics. These insights can inform strategic decision-making and policy formulation, ultimately contributing to improved operational efficiency and service delivery for the National Identity Authority.