

# Project Development Phase

## Dataset Link:-

[https://drive.google.com/file/d/1JxIkHNwXxjFztKq7ad0\\_KtkukCqTckNy/view?usp=sharing](https://drive.google.com/file/d/1JxIkHNwXxjFztKq7ad0_KtkukCqTckNy/view?usp=sharing)

## Data Preprocessing Steps:-

### 1. Data Loading and Initial Inspection

Step 1.1: Import Dataset

- Loaded Consumption.csv into Tableau (or Python/Excel initially).

Step 1.2: Structural Validation

- Checked number of rows and columns.
- Verified all required fields exist:

- States
- Regions
- Latitude
- Longitude
- Dates
- Usage

Step 1.3: Data Type Verification

Ensured correct data types:

Column	Expected Type
States	String
Regions	String
Latitude	Decimal
Longitude	Decimal
Dates	Date
Usage	Numeric

Converted incorrect types where necessary

### 2. Handling Missing Values

### Step 2.1: Identify Null Values

- Checked for NULL or blank entries in all columns.

### Step 2.2: Handling Missing Usage Values

If Usage was missing:

- Replaced with weekly average of that state

OR

- Removed row if data was unreliable

### Step 2.3: Missing Geographic Coordinates

- Cross-verified latitude and longitude values
- Corrected inconsistent coordinate values using official state data

### Step 2.4: Missing Dates

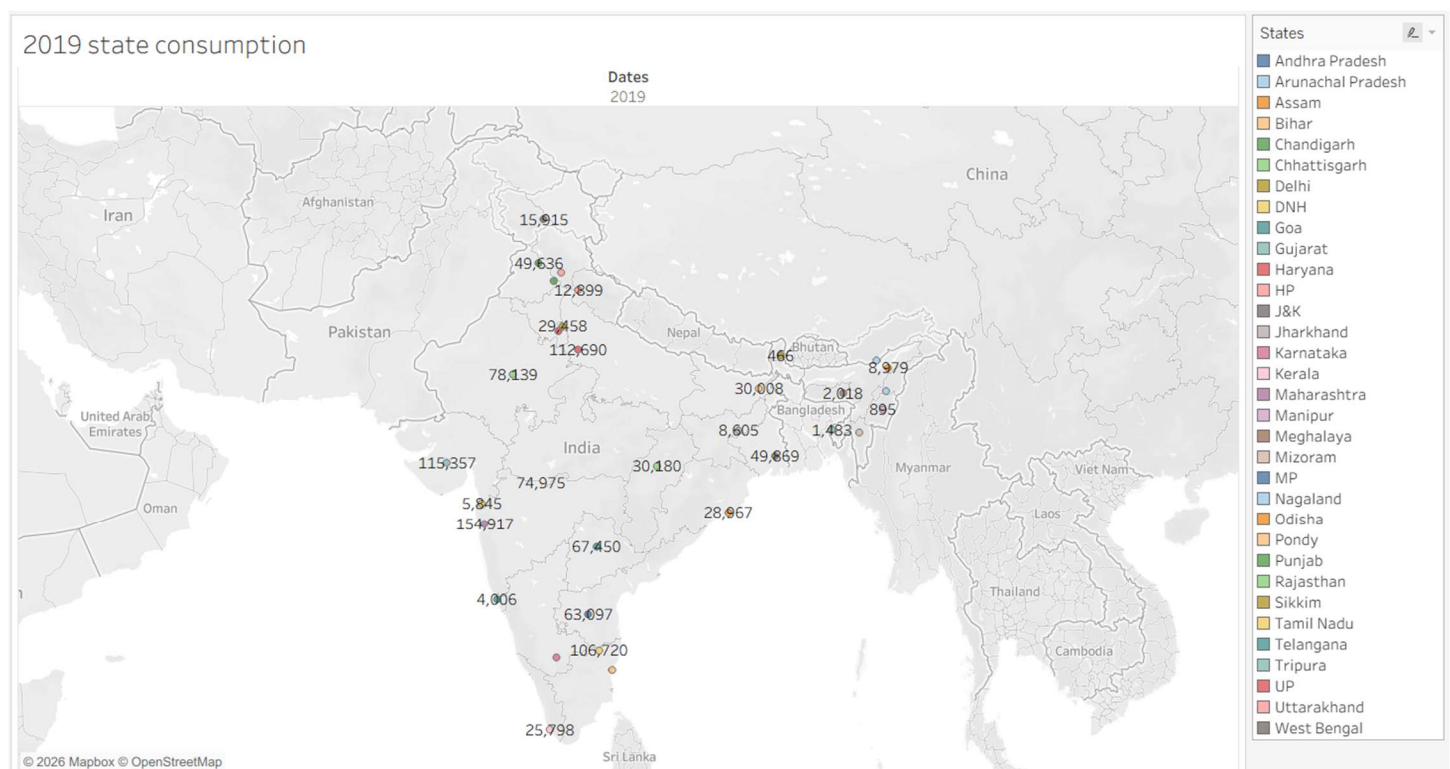
- Verified continuity of weekly records
- Checked if any week was missing in 24-month timeline

## 3. Date Preprocessing (Time Series Preparation)

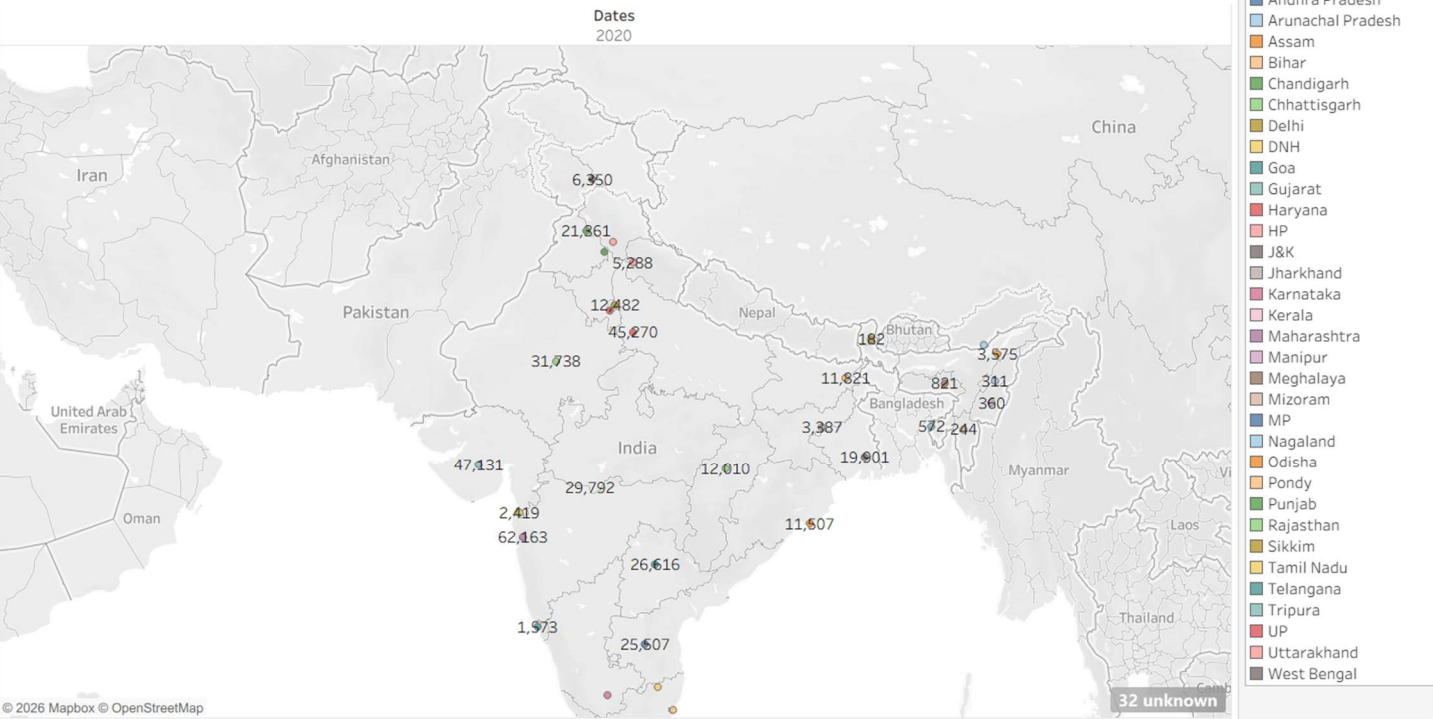
### Convert Date Format

Converted "Dates" column into proper Date format (DD-MM-YYYY or YYYY-MM-DD).

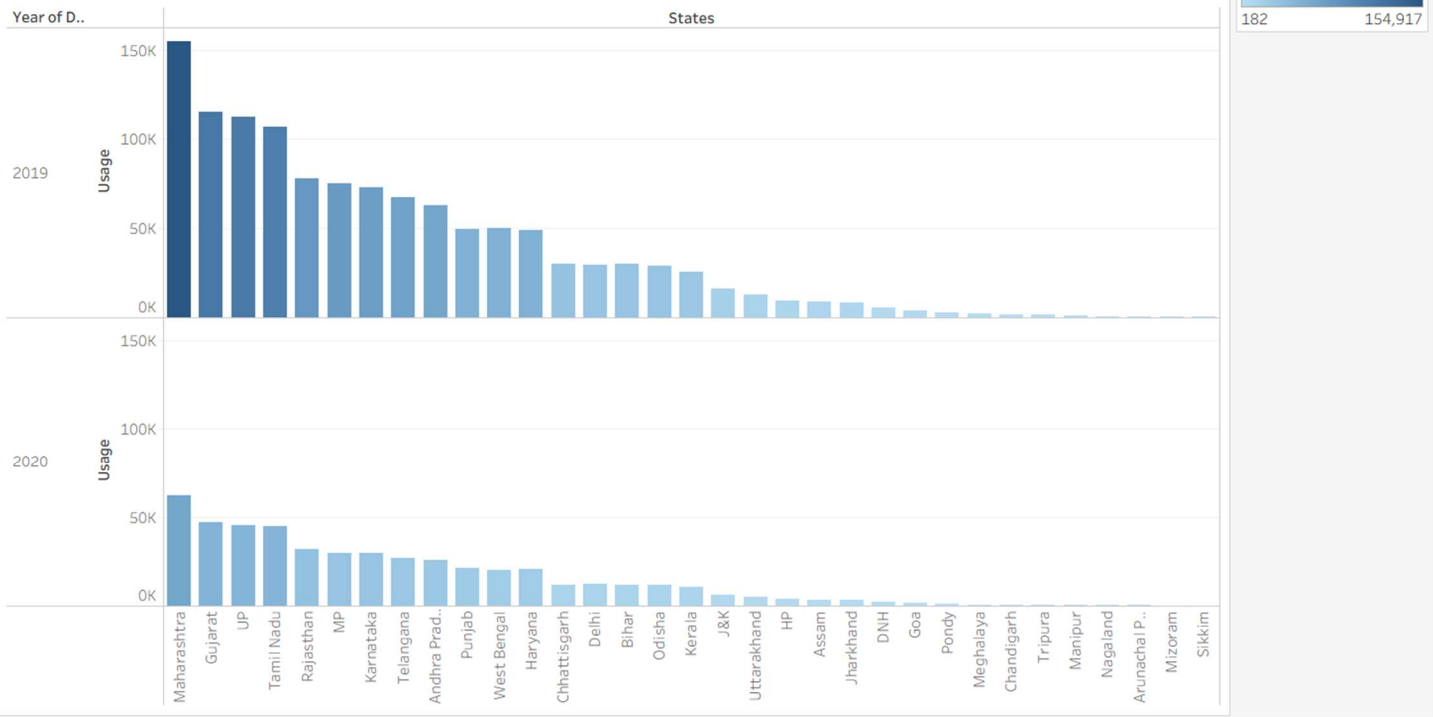
### Business Questions with visuals:-



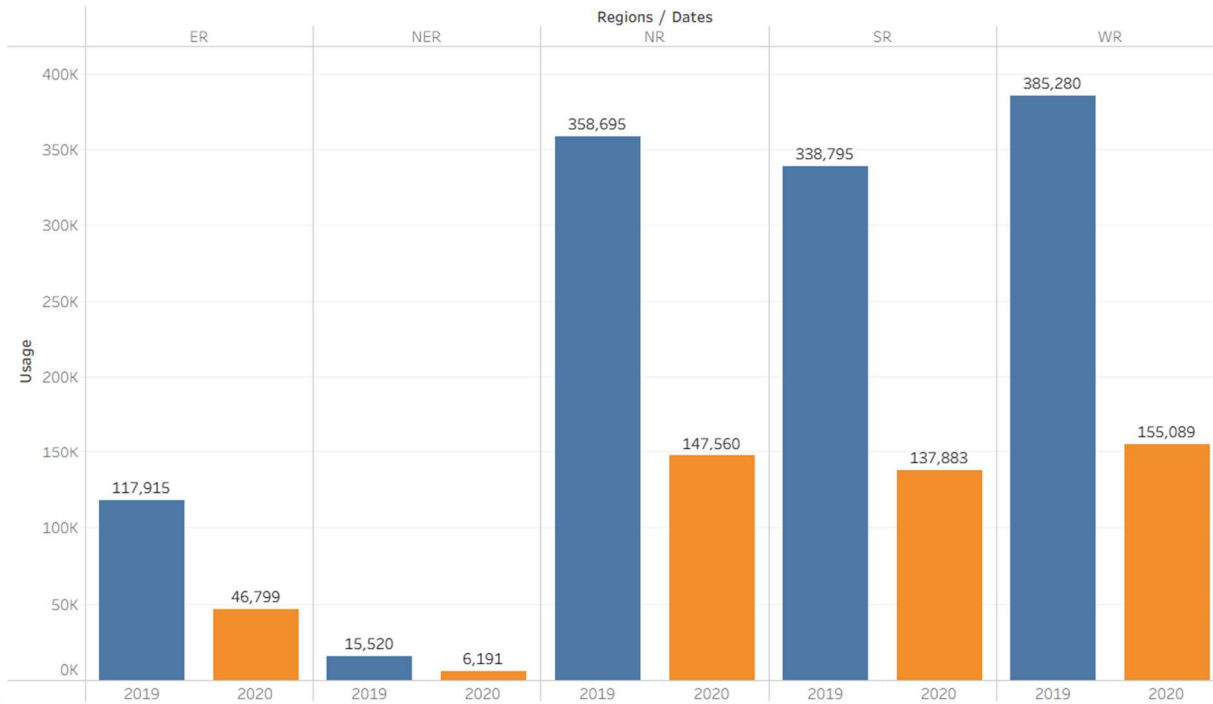
2020 state consumption



Total consumption



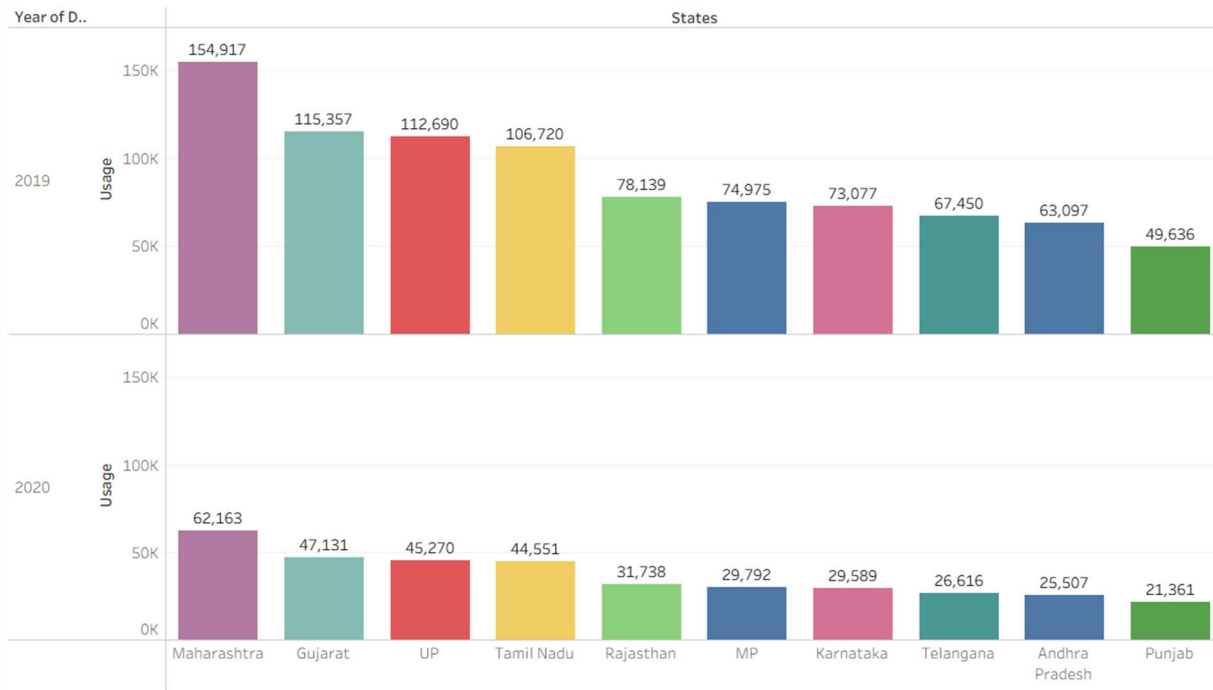
## Usage by region



YEAR(Dates)

2019  
2020

## Top N



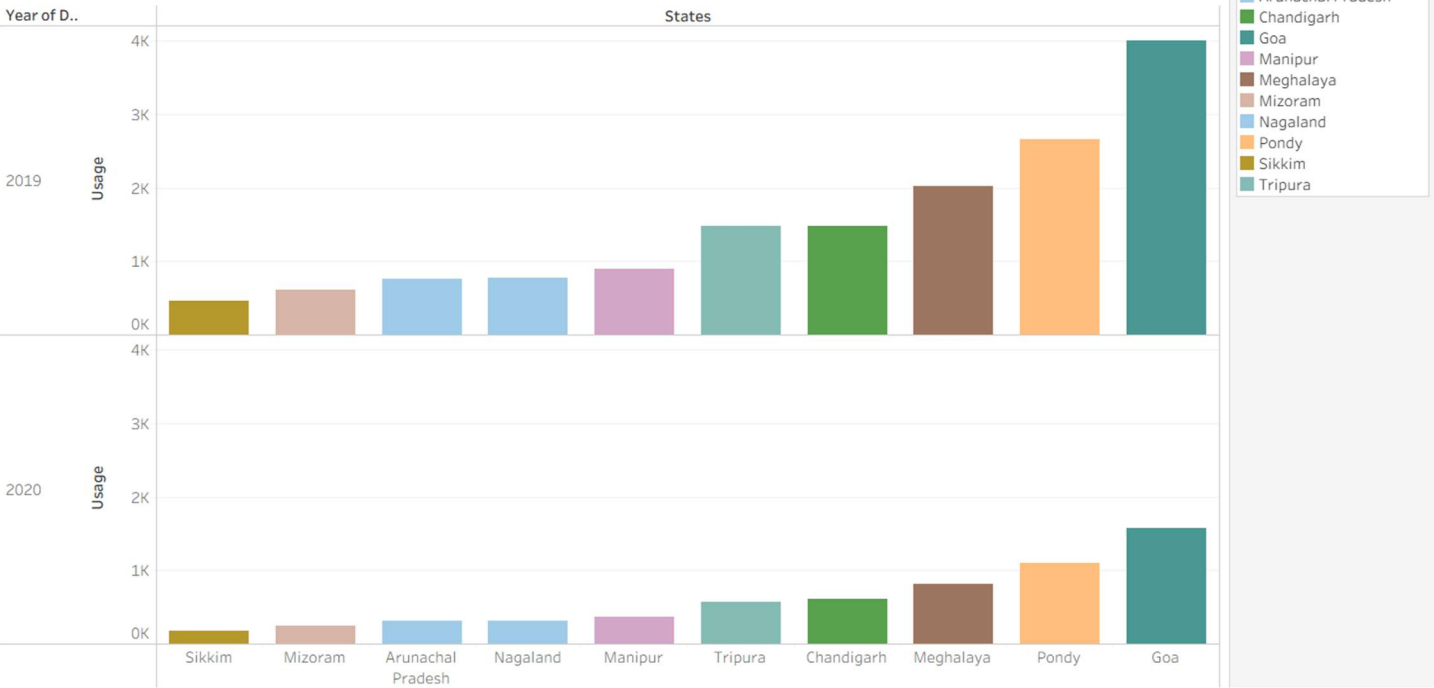
Top N

10

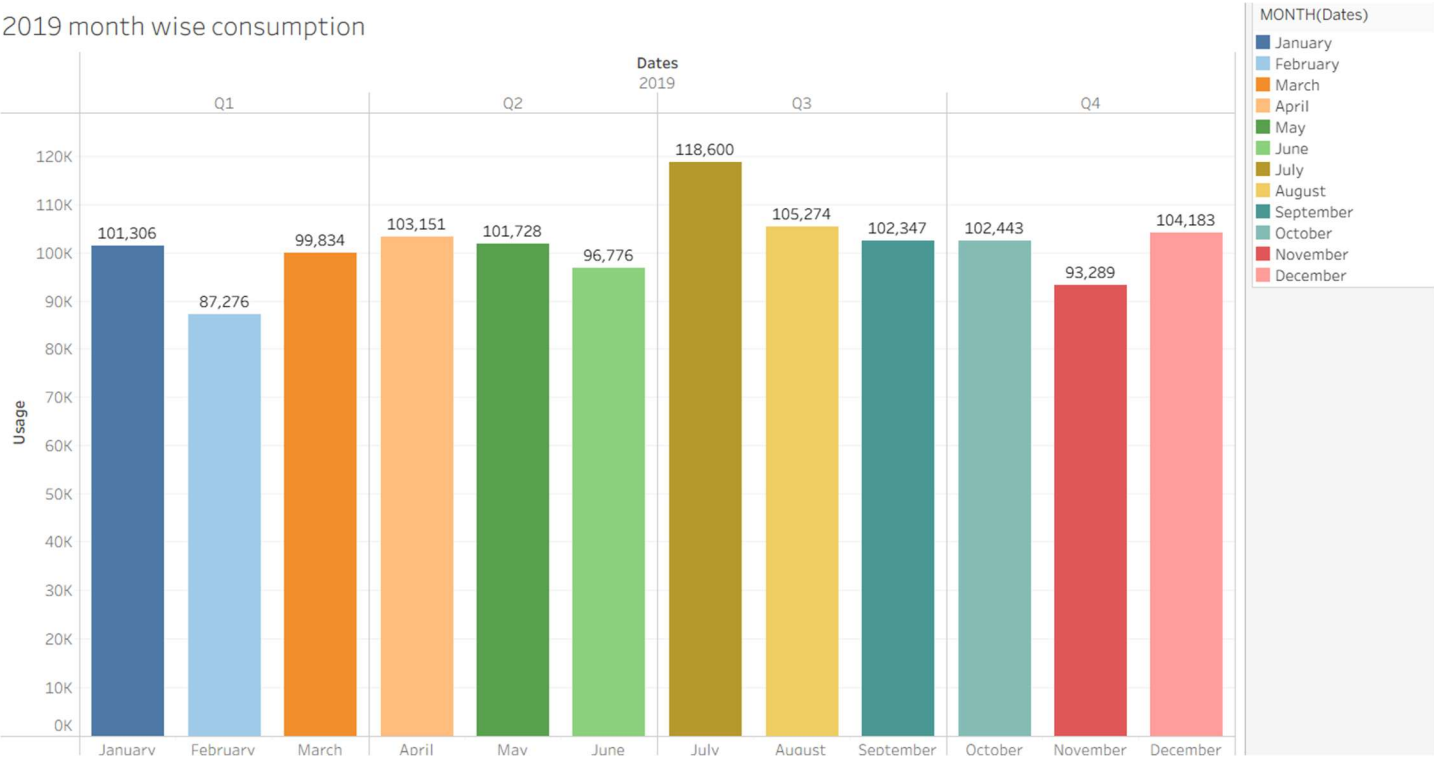
States

Andhra Pradesh  
Gujarat  
Karnataka  
Maharashtra  
MP  
Punjab  
Rajasthan  
Tamil Nadu  
Telangana  
UP

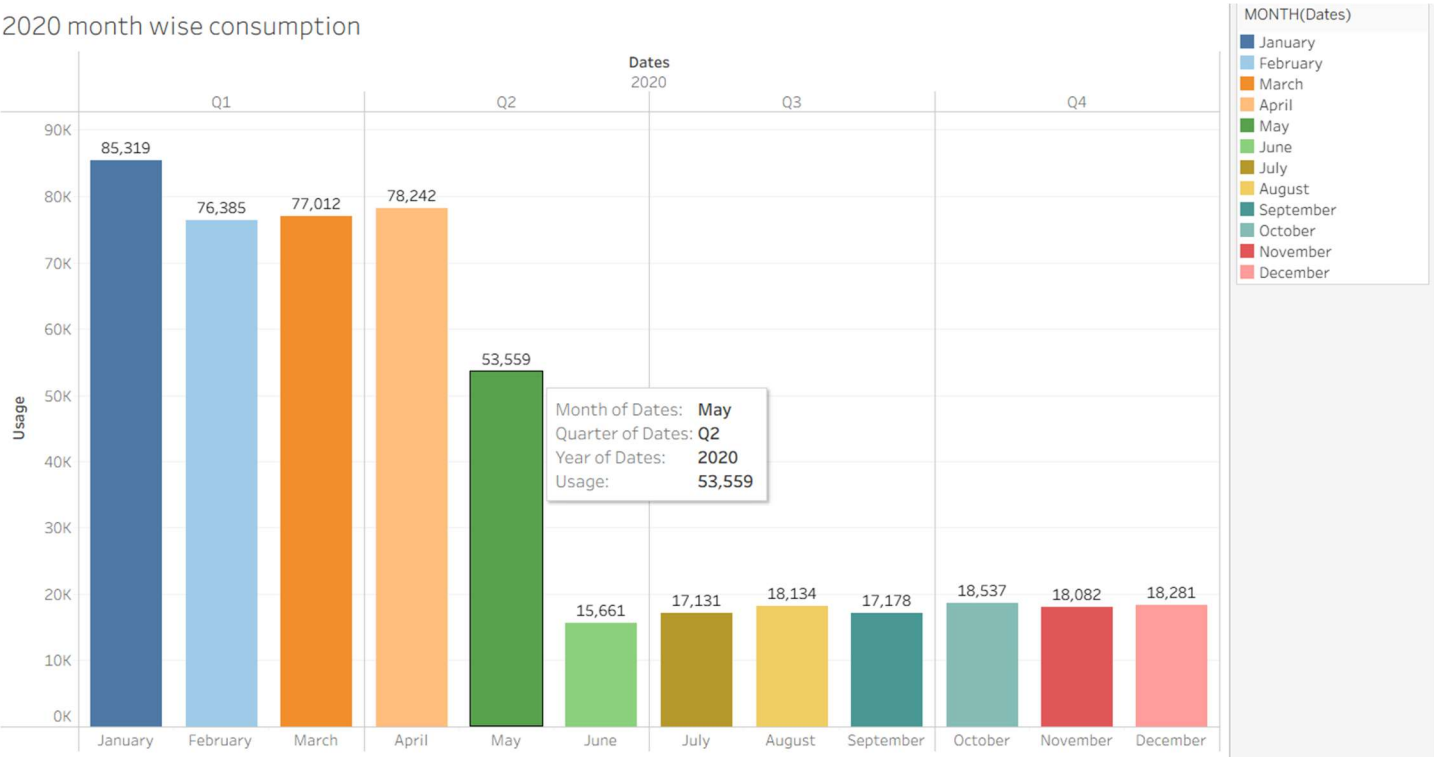
Bottom N



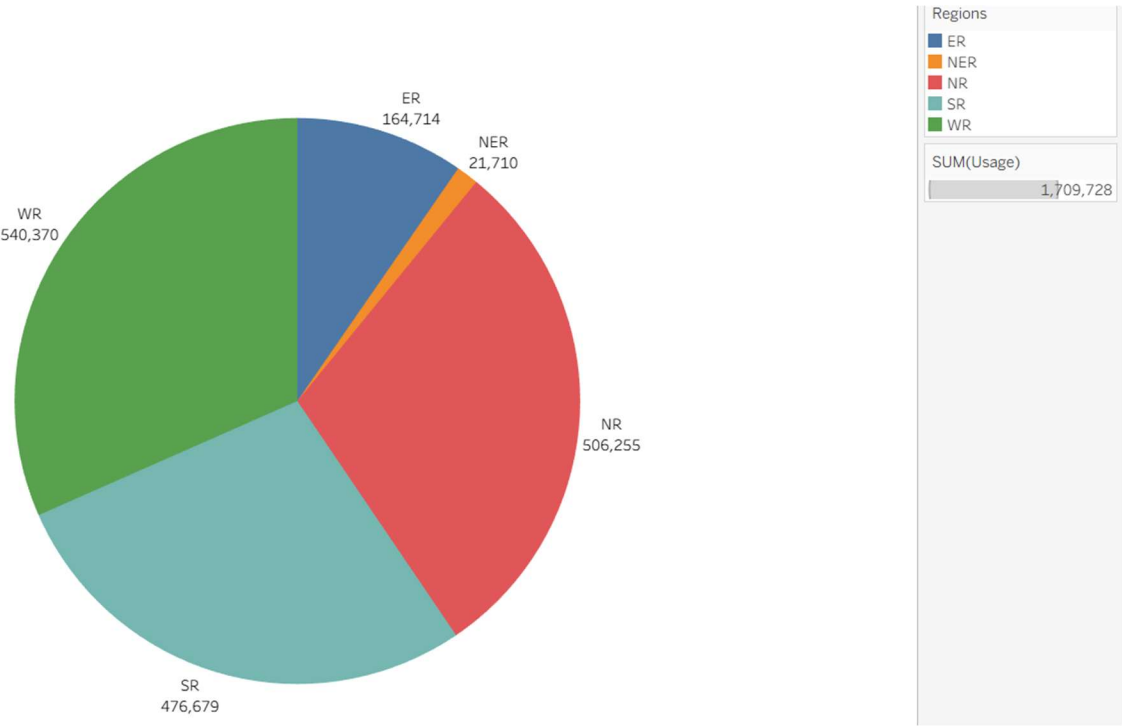
2019 month wise consumption



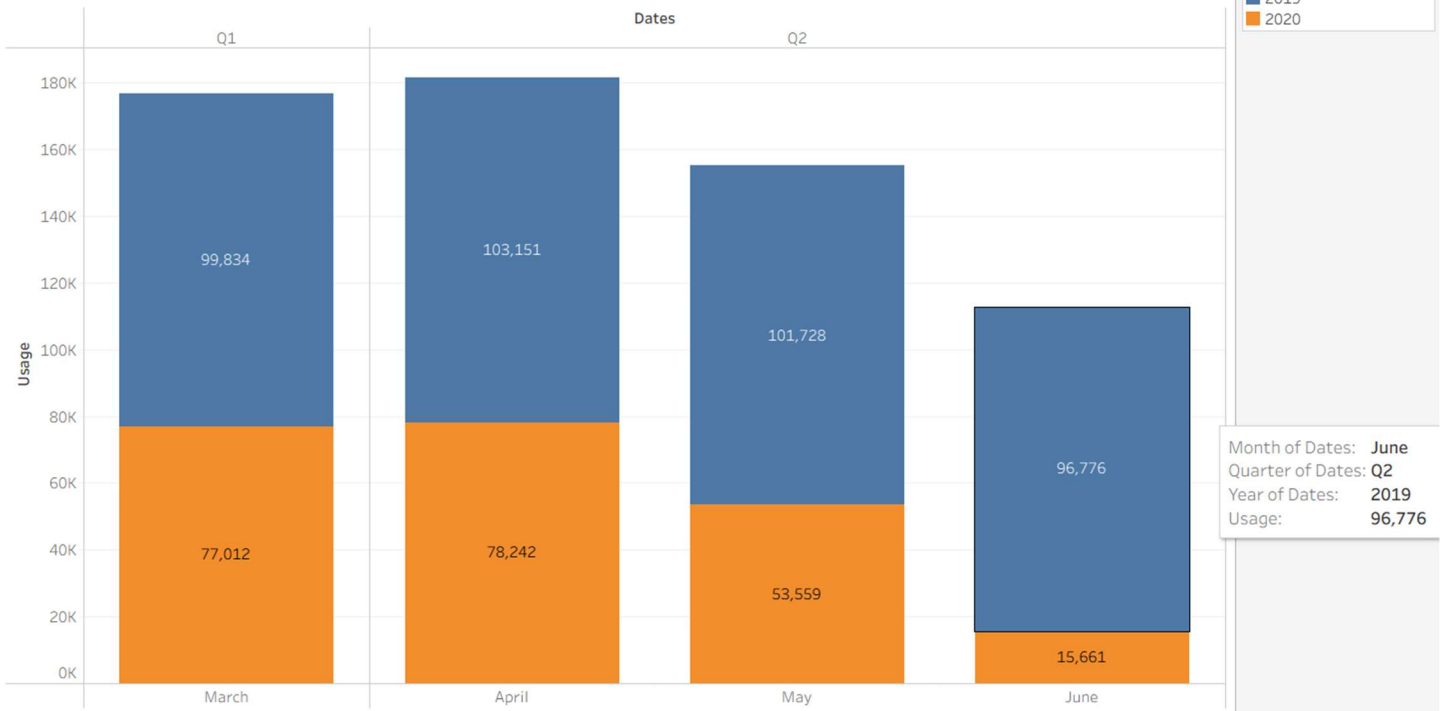
2020 month wise consumption



Total region consumption



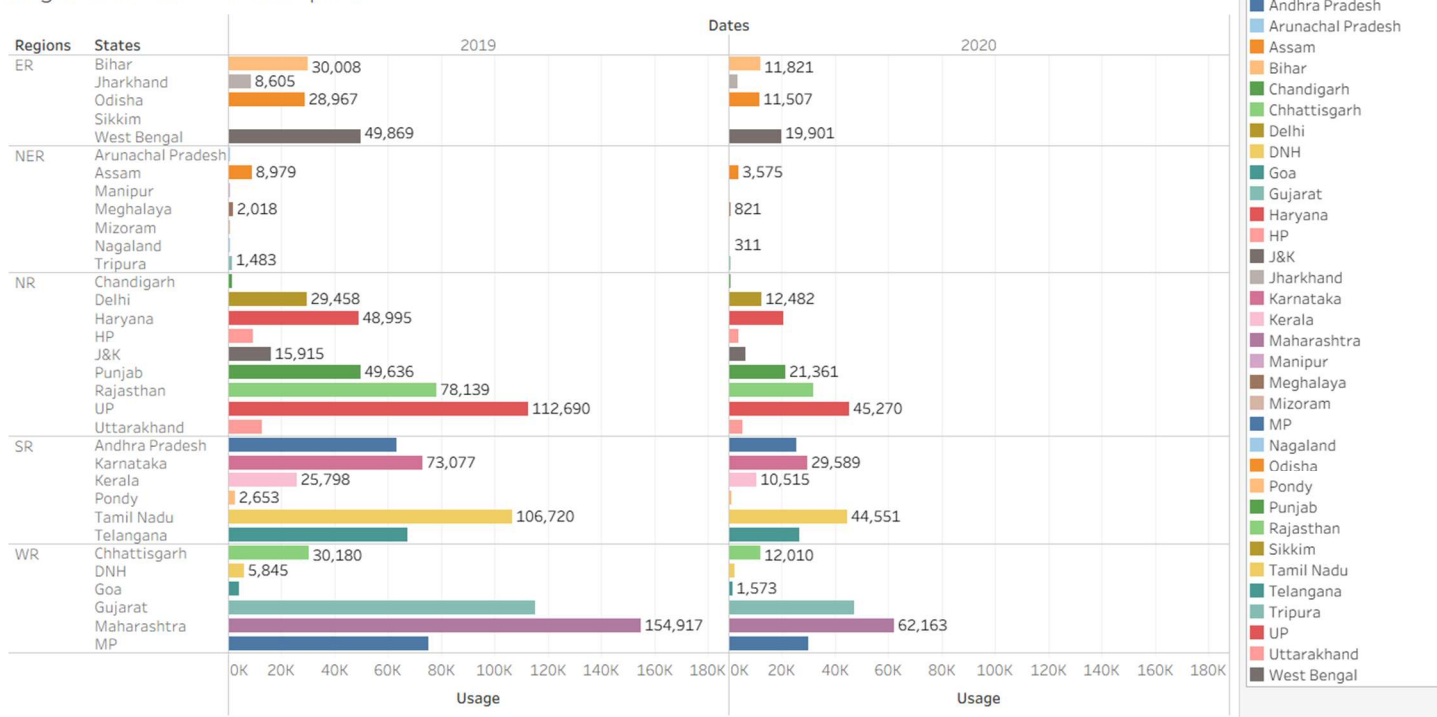
## Usage before and during lockdown



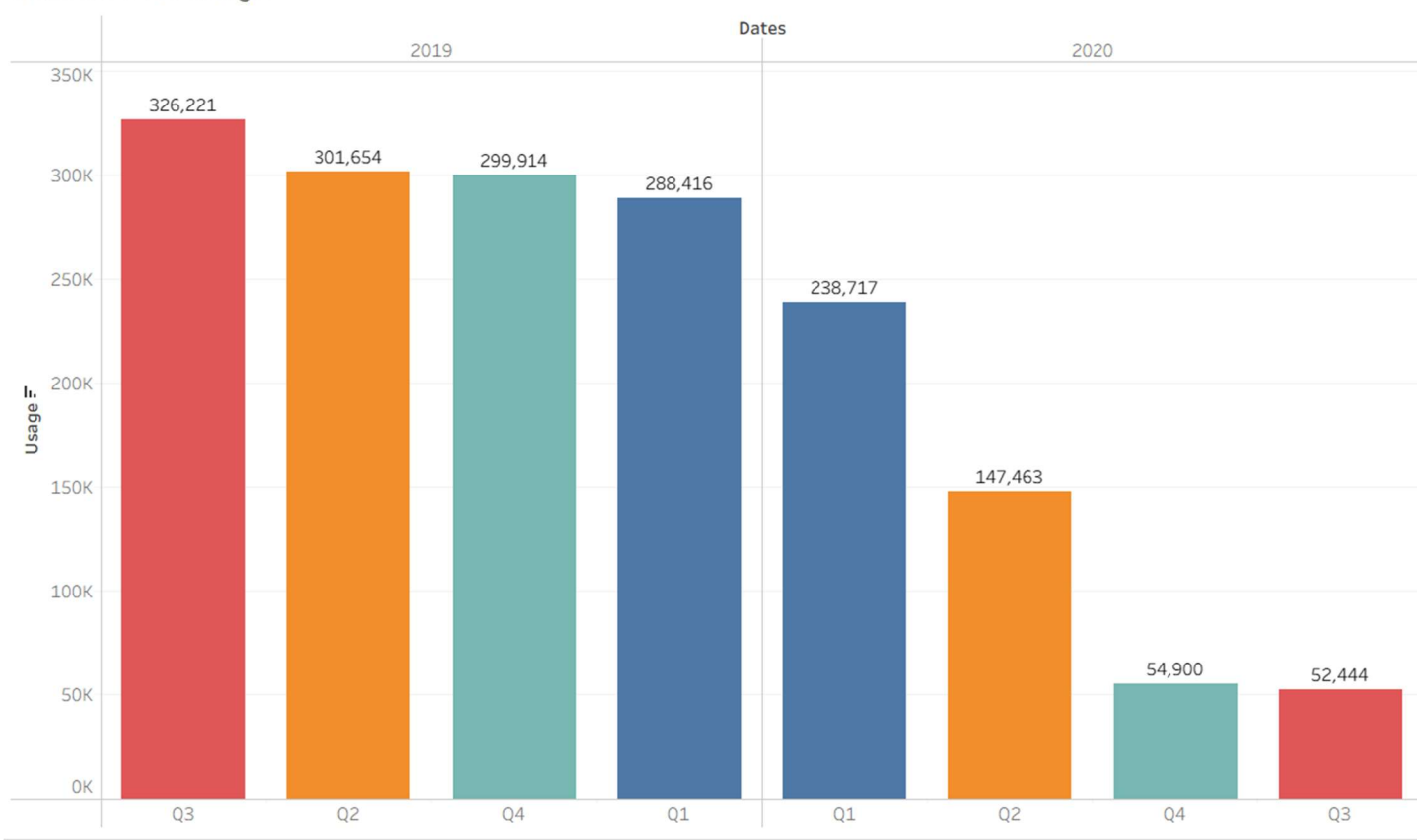
## Monthwise top consumption



## Regionwise state consumption

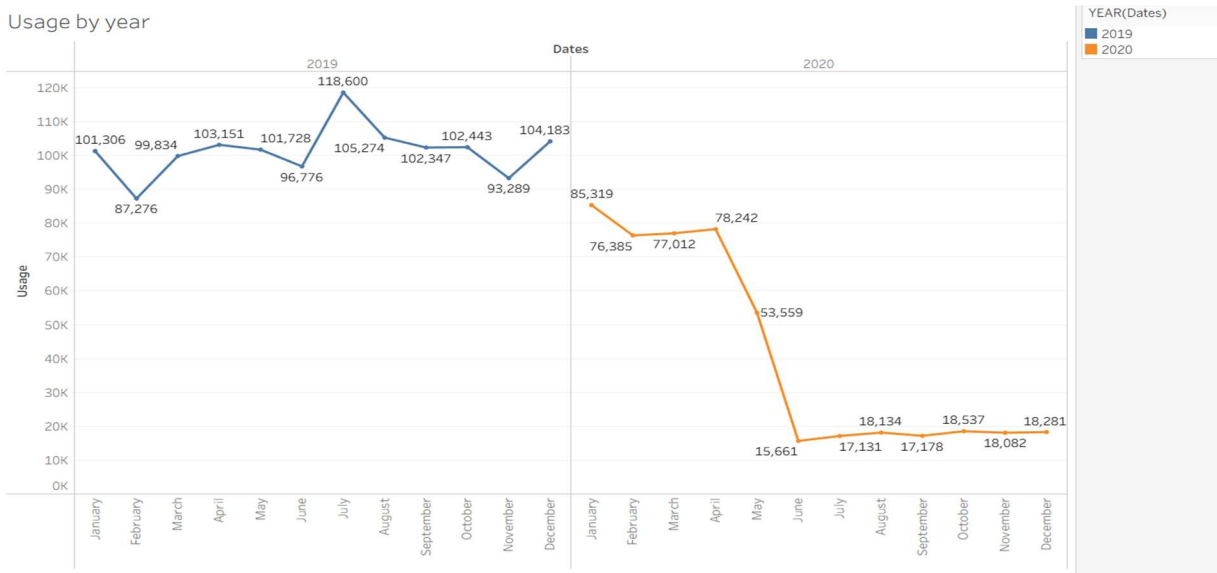


## Quarterwise usage





Usage by year



Metro city states



Year wise consumption in region

