Introduction to Indian Census Data - 2011

The goal of this analysis is to explore the 2011 Indian Census data, revealing insights about the country's population distribution, gender ratios, and growth rates across different states.

Exploratory Data Analysis (EDA) in SQL

1

Demographic Trends

Analyzing population growth, age distribution, and migration patterns to uncover key demographic insights.

2

Socioeconomic Indicators

Examining factors like literacy rates, income levels, and access to basic amenities to assess development and inequality.

3

Spatial Analysis

Leveraging geographic data to identify regional variations and patterns, informing targeted interventions.

4

Univariate And Bivariate Analysis

Taking And see the Columns One By One And also see data based on Multiple Regions.

Project Highlights :-

1. **Total Population of India:**
   - Calculated the total population : 1,21,08,54,977

```
-- Total Population of India..
select sum(population) as Total_Population
from Dataset_02 ;
```

2. **Average Population Growth :**
   - Analyzed growth rates to determine average population growth **19.25**.

```
--Average Growth
select avg(growth)*100 as Average_Growth_PErcantage
from DataSet_01  ;
```

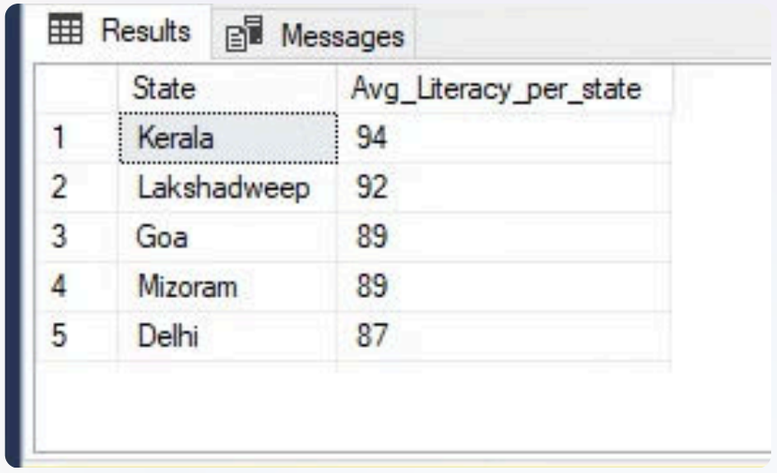
Top 5 States by Average Literacy Rate :

According to the Indian Census 2011, the states with the highest literacy rates are Kerala (94%), Lakshadweep (92%), Goa (89%), Mizoram (89%), and Delhi (87%). These states stand out for their significant achievements in education, serving as benchmarks for other regions aiming to improve literacy.

```
-- Average Litercy Rate BY State
select State , round(avg(Literacy), 0) as Avg_Literacy_per_state
from Dataset_01
group by State
order by Avg_Literacy_per_state desc
offset 0 rows fetch next 5 rows
```

column Avg_Literacy_per_state(, null)

Output :-



Results | Messages

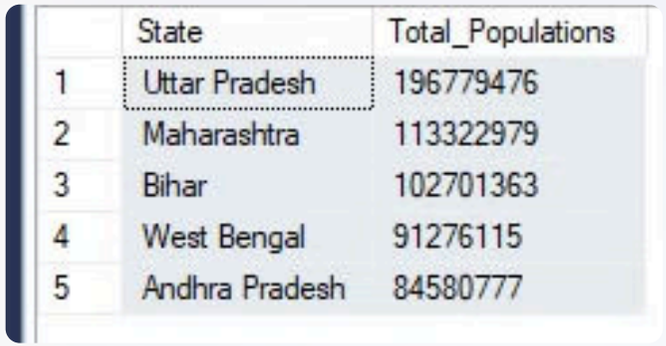
	State	Avg_Literacy_per_state
1	Kerala	94
2	Lakshadweep	92
3	Goa	89
4	Mizoram	89
5	Delhi	87

Top 5 States by Population:

According to the Indian Census 2011, the states with the highest populations are Uttar Pradesh (196,779,476), Maharashtra (113,322,979), Bihar (102,701,363), West Bengal (91,276,115), and Andhra Pradesh (84,580,777). These states have the largest populations, highlighting areas with significant demographic density and diverse challenges.

```
-- Top 5 State Based on Populations..
With AB as (select a.district , a.state , a.growth , a.sex_ratio , a.literacy , b.area_km2  ,
b.Population
from Dataset_01 a join Dataset_02 b
on a.District = b.District)
select top 5 State , round(sum(population),0) as Total_Populations
from AB group by state
order by Total_Populations desc;
```

Output :-



	State	Total_Populations
1	Uttar Pradesh	196779476
2	Maharashtra	113322979
3	Bihar	102701363
4	West Bengal	91276115
5	Andhra Pradesh	84580777

Top 5 States with Highest Female Population:

According to the Indian Census 2011, the states with the highest female populations are Uttar Pradesh (93,878,050), Maharashtra (54,681,393), Bihar (49,182,975), West Bengal (44,465,717), and Andhra Pradesh (42,141,160). These states have the largest female populations, reflecting significant demographic trends and gender distribution.

```sql
-- Top 5 State Where Numbers of Female is Highers
With AB as (select a.district , a.state , a.growth , (a.sex_ratio/1000 ) as new_Sex_ratio,
a.literacy , b.area_km2  , b.Population ,
round(( Population / ((a.sex_ratio/1000 ) + 1) ), 0) as Num_of_Male,
round((Population * (a.sex_ratio/1000 ) ) / ((a.sex_ratio/1000 ) + 1) , 0) as Num_of_Female
from Dataset_01 a join Dataset_02 b
on a.District = b.District)
select top 5 state , sum(num_of_female)  as Numbers_Of_Female
from AB
group by state
order by Numbers_Of_Female desc;
```

Output :-

	state	Numbers_Of_Female
1	Uttar Pradesh	93878050
2	Maharashtra	54681393
3	Bihar	49182975
4	West Bengal	44465717
5	Andhra Pradesh	42141160

Which State Have the Highest Area :-

According to the data from the Indian Census 2011, Rajasthan holds the highest area among the mentioned states, covering 345,956 square kilometers.

```sql
-- How many area have present in the state
With AB as (select a.district , a.state , a.growth , (a.sex_ratio/1000 ) as new_Sex_ratio,
a.literacy , b.area_km2  , b.Population ,
round(( Population / ((a.sex_ratio/1000 ) + 1) ), 0) as Num_of_Male,
round((Population * (a.sex_ratio/1000 ) ) / ((a.sex_ratio/1000 ) + 1) , 0) as Num_of_Female
from Dataset_01 a join Dataset_02 b
on a.District = b.District)
select top 5 state , sum(Area_km2) as Total_Area
from AB
group by state
order by Total_Area desc ;
```

Output :-

	state	Total_Area
1	Rajasthan	345956
2	Maharashtra	317947
3	Madhya Pradesh	284188
4	Andhra Pradesh	275045
5	Uttar Pradesh	240579

Literacy Percentages of Every State or Union Teritary

The states and union territories with the highest literacy percentages are Kerala at 94%, followed by Lakshadweep at 92%, Mizoram at 91%, Goa at 89%, and Andaman And Nicobar Islands at 88%.

```sql
-- Literacy Percantage of Every State or Union Teritary...
select State , sum(Population) as Total_Population , sum(Literate_People) as Total_Literate_People ,
sum(Illiterate_people) as Total_Illiterate_People ,
round((SUM(Literate_People) / SUM(Population)) * 100 , 0) AS Literacy_Percentage
from (select a.district , a.state , a.Growth , a.Sex_Ratio , a.Literacy , b.Area_km2 , b.Population
round((b.Population * a.Literacy/100) , 0) as Literate_People ,
round(( Population - (b.Population * a.Literacy/100)) , 0) as Illiterate_people
from Dataset_01 a join Dataset_02 b
on a.district = b.district) ABC
group by State
order by Literacy_Percentage desc;
```

Output :-

	State	Total_Population	Total_Literate_People	Total_Illiterate_People	Literacy_Percentage
1	Kerala	33406061	31395554	2010507	94
2	Lakshadweep	64473	59218	5255	92
3	Mizoram	1097206	999927	97279	91
4	Goa	1458545	1293736	164809	89
5	Andaman And Nicobar Islands	274984	241015	33969	88

Conclusion :-

This project was an incredible learning experience, allowing me to deepen my SQL skills and gain valuable insights into India's demographic trends. I'm eager to apply these skills to future data analysis projects and continue exploring the vast world of data analytics.

Feel free to check out the full project details and SQL queries in my **GitHub repository** or reach out if you have any questions or feedback!