

CODEBASICS RESUME CHALLENGE 11



Lok Sabha Elections 2014 & 2019

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Problem Statement



- **AtliQ Media** is a private media company and they wanted to telecast a show on Lok Sabha elections 2024 in India.
- Unlike other channels they do not want to have a debate on who is going to win this election, they rather wanted to present insights from 2014 and 2019 elections without any bias and discuss less explored themes like voter turnout percentage in India.
- The task is to generate meaningful insights from data according to the list of primary and secondary questions.

Overview of Data



- The sample dataset was provided in the form of CSV files. 
- The CSV format based files are **constituency_wise_results_2014**, **constituency_wise_results_2019** and **dim_states_codes**.
- The first two files contain details about candidates, their state and constituency, and the votes they received out of the total electors.
- 'dim_states_codes' consist of names and standard two-letter codes assigned to each state and union territory.

Data Cleaning and Transformation



- Proper validation have been done for constituencies spelling mismatches and identical names of the constituencies have been removed.
- For the year 2014, Andhra Pradesh underwent bifurcation and all the constituencies from that year has been attributed to Telangana state.
- I have added a new column named '**election_year**' and combined the election data for the years 2014 and 2019 into one table '**Elections_2014_2019**' to facilitate generating insights.

```
CREATE TABLE Elections_2014_2019 AS  
SELECT * FROM constituency_wise_results_2014  
UNION ALL  
SELECT * FROM constituency_wise_results_2019;  
SELECT COUNT(*) FROM Elections_2014_2019;
```


Tools Used





PRIMARY INSIGHTS

1. List top 5 / bottom 5 constituencies of 2014 and 2019 in terms of voter turnout ratio?



Among the top constituencies in terms of voter turnout ratio, Dhubri and Bishnupur have maintained their positions in both election years. Conversely, Srinagar, Anantnag, Baramulla, and Kalyan have consistently shown low voter turnout ratios.

Voter Turnout Ratio is the percentage of eligible voters who cast a ballot in an election.

Top 5 Constituencies

pc_name	voter_turnout_ratio_2014	voter_turnout_ratio_2019
Dhubri	88.35	90.66
Nagaland	87.82	NULL
Tamluk	87.59	NULL
Bishnupur	86.72	87.31
Lakshadweep	86.61	NULL
Barpeta	NULL	86.55
Jalpaiguri	NULL	86.49
Arunachal East	NULL	86.46

Bottom 5 Constituencies

pc_name	voter_turnout_ratio_2014	voter_turnout_ratio_2019
Srinagar	25.86	14.43
Anantnag	28.84	8.94
Baramulla	39.13	34.57
Kalyan	42.88	45.29
Patna Sahib	45.33	NULL
Hyderabad	NULL	44.84

2. List top 5 / bottom 5 states of 2014 and 2019 in terms of voter turnout ratio?



Nagaland, Lakshadweep, and Tripura are topping the charts in terms of voter turnout ratio, while Jammu & Kashmir, Bihar, Uttar Pradesh and Maharashtra have the lowest voter turnout ratios.

Top 5 States

state	voter_turnout_ratio_2014	voter_turnout_ratio_2019
Nagaland	87.82	82.91
Lakshadweep	86.61	85.18
Tripura	84.72	82.35
Dadra & Nagar Haveli	84.07	NULL
Sikkim	83.33	NULL
Manipur	NULL	82.54
West Bengal	NULL	81.72

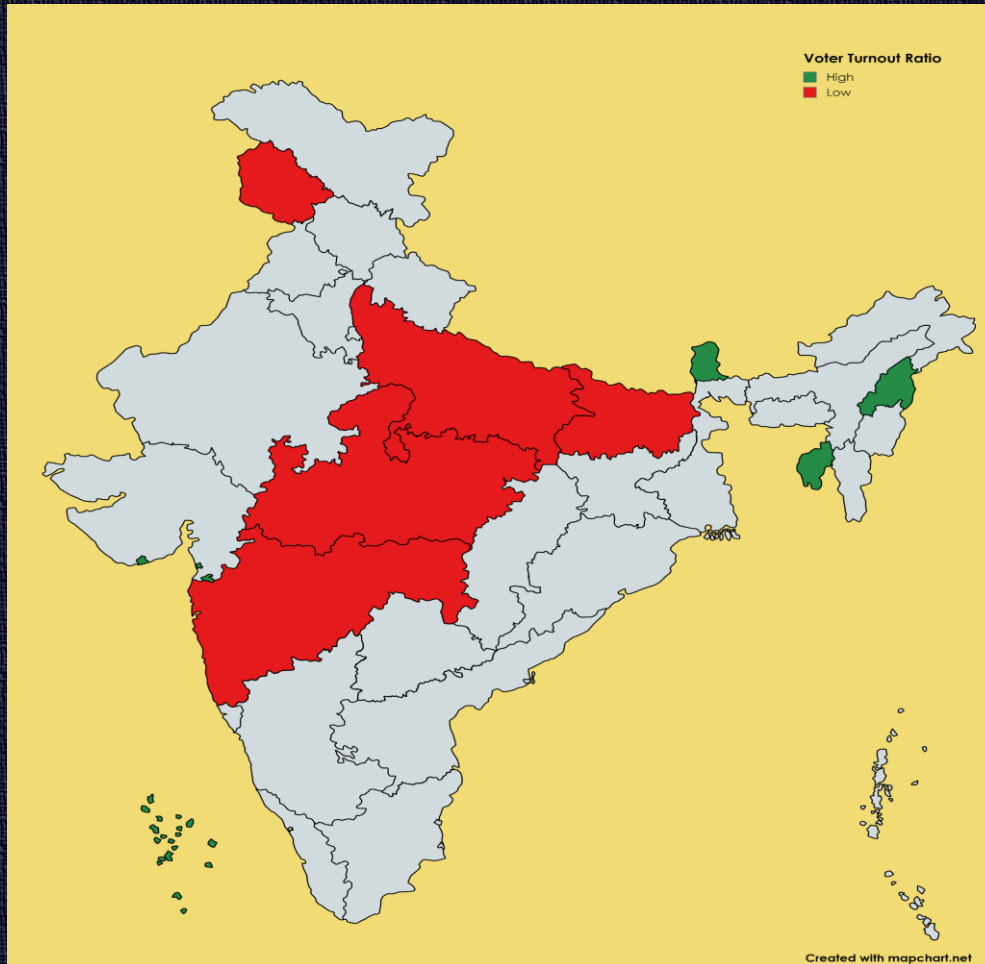
Bottom 5 States

state	voter_turnout_ratio_2014	voter_turnout_ratio_2019
Jammu & Kashmir	49.66	44.84
Bihar	56.25	57.30
Uttar Pradesh	58.42	59.18
Maharashtra	60.29	60.96
Madhya Pradesh	61.59	NULL
NCT OF Delhi	NULL	60.58

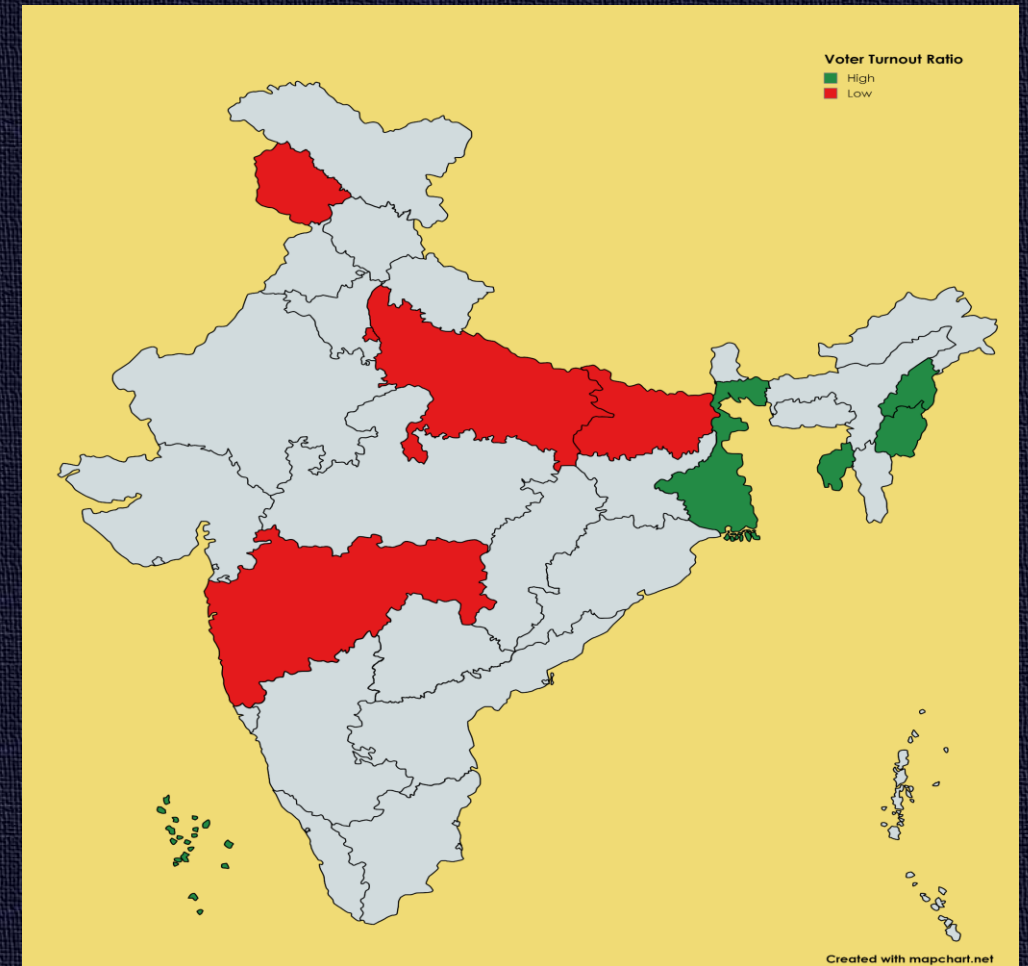
Comparison of Voter Turnout Ratio Between 2014 and 2019 Using Map Visualization



2014



2019



3. Which constituencies have elected the same party for two consecutive elections, rank them by % of votes to that winning party in 2019 ?



constituency	state	party	win_percentage_votes_in_2019
Surat	Gujarat	BJP	74.47
Navsari	Gujarat	BJP	74.37
Vadodara	Gujarat	BJP	72.30
Kangra	Himachal Pradesh	BJP	72.02
Bhilwara	Rajasthan	BJP	71.59

- ✓ Among the constituencies which have voted for the same party in both election years, '**BJP**' party has notably maintained its position.
- ✓ Out of 331 constituencies that have voted for the same party in both election years, 233 constituencies have consistently supported the '**BJP**'.

4. Which constituencies have voted for different parties in two elections (list top 10 based on difference (2019-2014) in winner vote percentage in two elections) ?



constituency	state	party_in_2014	party_in_2019	win_percentage_votes_in_2014	win_percentage_votes_in_2019	diff
Alipurduars	West Bengal	AITC	BJP	29.62	54.40	24.78
Autonomous District	Assam	INC	BJP	39.23	61.73	22.50
Kanniyakumari	Tamil Nadu	BJP	INC	37.64	59.83	22.19
Puducherry	Puducherry	AINRC	INC	34.57	56.27	21.70
Bhagalpur	Bihar	RJD	JD(U)	37.74	59.30	21.56
Sambhal	Uttar Pradesh	BJP	SP	34.08	55.60	21.52
Jhanyharpur	Bihar	BJP	JD(U)	35.64	56.80	21.16
Chikballapur	Karnataka	INC	BJP	33.63	53.78	20.15
Ghazipur	Uttar Pradesh	BJP	BSP	31.11	51.20	20.09
Supaul	Bihar	INC	JD(U)	34.30	53.78	19.48

We can identify significant shifts in voter preferences and political dynamics within those constituencies. Understanding these shifts is crucial for future political planning and targeted campaigning.

5. Top 5 candidates based on margin difference with runners in 2014 and 2019



Narendra Modi and C. R. Patil both from the '**BJP**' party have been on top based on margin difference with runners in 2014 and 2019.

2014

candidate	total_votes	margin_difference
NARENDRA MODI	845464	570128
VIJAY KUMAR SINGH	758482	567260
C. R. PATIL	820831	558116
RAMCHARAN BOHARA	863358	539345
DARSHANA VIKRAM JARDOSH	718412	533190

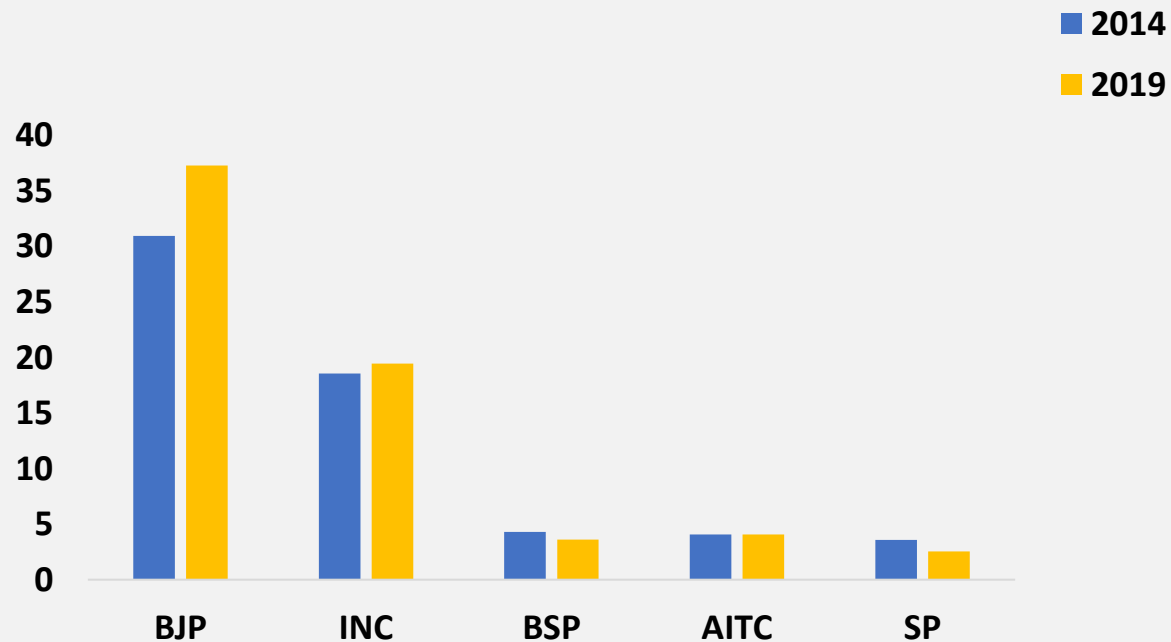
2019

candidate	total_votes	margin_difference
C. R. Patil	972739	689668
Sanjay Bhatia	911594	656142
KRISHAN PAL	913222	638239
SUBHASH CHANDRA BAHERIA	938160	612000
RANJANBEN BHATT	883719	589177

6. % Split of votes parties between 2014 vs 2019 at national level



Top 5 Parties by Vote Split Percentage



'BJP' and 'INC' have clearly seen an increase in vote percentage in the election year 2019. While BJP saw a growth of around 20%, INC saw a growth of around 5% in 2019.

7. % Split of votes parties between 2014 vs 2019 at state level



state	party	split_pct_2014	split_pct_2019
Andaman & Nicobar Islands	AAAP	1.96	1.37
Andaman & Nicobar Islands	AIFB	0.12	NULL
Andaman & Nicobar Islands	AINHCP	NULL	0.10
Andaman & Nicobar Islands	AITC	1.20	0.83
Andaman & Nicobar Islands	BJP	47.80	45.30
Andaman & Nicobar Islands	BSP	0.60	1.20
Andaman & Nicobar Islands	CPI(ML)(L)	0.23	NULL
Andaman & Nicobar Islands	CPM	0.93	NULL
Andaman & Nicobar Islands	INC	43.69	45.98
Andaman & Nicobar Islands	IND	1.84	4.54
Andaman & Nicobar Islands	NCP	0.60	NULL
Andaman & Nicobar Islands	NOTA	0.82	0.68
Andaman & Nicobar Islands	SP	0.20	NULL



For the Union Territory of **Andaman & Nicobar Islands**, the '**BJP**' experienced a **decrease** in the % Split of votes from 2014 to 2019, while the '**INC**' saw an **increase**.

Note: Considered a small segment of the result set for analysis purposes.

Two Major National Parties of the Country



- ✓ We can find out about the two major national parties of the country by executing this query.
- ✓ Turns out '**BJP**' and '**INC**' are the two major national parties of the country.

```
SELECT party,SUM(total_votes)
FROM elections_2014_2019
GROUP BY 1
ORDER BY 2 DESC
LIMIT 2;
```



BJP



INC

8. List top 5 constituencies for two major national parties where they have gained vote share in 2019 as compared to 2014.



- ✓ As it is clearly evident that for both the parties the vote share has **increased** in 2019 as compared to 2014 from these constituencies.
- ✓ 'INC' has performed well with a whopping vote share difference of 60.15, compared to **'BJP'** which has a highest vote share difference of 46.67.



state	constituency	party	gain_in_vote_share
Tripura	Tripura West	BJP	46.67
West Bengal	Purulia	BJP	42.14
Tripura	Tripura East	BJP	39.75
Bihar	Maharajganj	BJP	37.26
West Bengal	Ranaghat	BJP	35.51



state	constituency	party	gain_in_vote_share
Tamil Nadu	Karur	INC	60.15
Tamil Nadu	Tiruchirappalli	INC	54.07
Tamil Nadu	Arani	INC	51.47
Tamil Nadu	Thiruvallur	INC	50.99
Tamil Nadu	Krishnagiri	INC	49.00

9. List top 5 constituencies for two major national parties where they have lost vote share in 2019 as compared to 2014



state	constituency	party	ABS(loss_in_vote_share)
Andhra Pradesh	Narsapuram	BJP	48.57
Andhra Pradesh	Visakhapatnam	BJP	45.99
Andhra Pradesh	Tirupati	BJP	43.53
Maharashtra	Sangli	BJP	15.66
Daman & Diu	Daman & diu	BJP	10.85



‘BJP’ has seen a drop in vote share in 2019 in the constituencies of Narsapuram, Vishakhapatnam and Tirupati which are cities in **Andhra Pradesh**. **Daman and Diu**, a Union Territory, has also shown a dip.

Dadra & Nagar Haveli, Ratnagiri – Sindhudurg, Aurangabad, Arunachal West, Raiganj are the constituencies for **‘INC’** where they have lost vote share in 2019 as compared to 2014.



state	constituency	party	ABS(loss_in_vote_share)
Dadra & Nagar Haveli	Dadra & Nagar Haveli	INC	40.79
Maharashtra	Ratnagiri - sindhudurg	INC	31.25
Maharashtra	Aurangabad	INC	28.85
Arunachal Pradesh	Arunachal West	INC	23.80
West Bengal	Raiganj	INC	21.95

10. Which constituency has voted the most for NOTA?



- ✓ By executing this query we can find out which constituency has voted the most for NOTA.
- ✓ It turns out Nilgiris from Tamil Nadu state in 2014 and Gopalganj (SC) from Bihar state in 2019 have voted the most for NOTA.



```
WITH ranked_votes AS (  
  SELECT election_year, pc_name, SUM(total_votes) AS votes,  
         ROW_NUMBER() OVER (PARTITION BY election_year ORDER BY SUM(total_votes) DESC) AS rn  
  FROM elections_2014_2019  
  WHERE party = "NOTA"  
  GROUP BY election_year, pc_name  
)  
SELECT election_year, pc_name, votes  
FROM ranked_votes  
WHERE rn = 1;
```

election_year	pc_name	votes
2014	Nilgiris	46559
2019	Gopalganj (SC)	51660

NOTA –
None of the
Above

11. Which constituencies have elected candidates whose party has less than 10% vote share at state level in 2019?



state	pc_name	candidate	party	vote_percentage
Assam	Kokrajhar	Naba Kumar Sarania	IND	4.83
Assam	Dhubri	BADRUDDIN AJMAL	AIUDF	7.80
Bihar	Vaishali	Veena Devi (W/o Dinesh Prasad Singh)	LJP	7.86
Bihar	Hajipur (SC)	PASHU PATI KUMAR PARAS	LJP	7.86
Bihar	Samastipur (SC)	Ramchandra Paswan	LJP	7.86
Bihar	Khagaria	Choudhary Mehboob Ali Kaiser	LJP	7.86
Bihar	Nawada	Chandan Singh	LJP	7.86
Bihar	Jamui (SC)	CHIRAG KUMAR PASWAN	LJP	7.86
Bihar	Kishanganj	Dr. Mohammad Jawed	INC	7.70

- These are the constituencies that have elected candidates whose party has less than 10% vote at state level in 2019.
- It becomes crucial to identify these areas where minor or less dominant parties have strong local support despite having a minimal overall impact at the state level for detailed political analysis or strategic planning for future elections.



SECONDARY INSIGHTS



12. Is there a correlation between postal votes % and voter turnout % ?

state	voter_turnout_ratio_2019
Lakshadweep	85.18
Nagaland	82.91
Manipur	82.54
Tripura	82.35
West Bengal	81.72
Assam	81.57
Puducherry	81.24
Arunachal Pradesh	81.15
Sikkim	81.02
Andhra Pradesh	80.22



state	postal_votes_ratio_2019
Arunachal Pradesh	3.13
Sikkim	2.73
Himachal Pradesh	0.92
Uttarakhand	0.83
Andhra Pradesh	0.57
Manipur	0.56
Jammu & Kashmir	0.55
Tripura	0.42
Rajasthan	0.39
Mizoram	0.36

We can clearly see that Arunachal Pradesh, Sikkim, Andhra Pradesh, Manipur, and Tripura are among the top 10 states with the highest postal vote ratios. This is also the case for voter turnout ratios. The availability and efficiency of postal voting tend to **positively** correlate with voter turnout ratios.

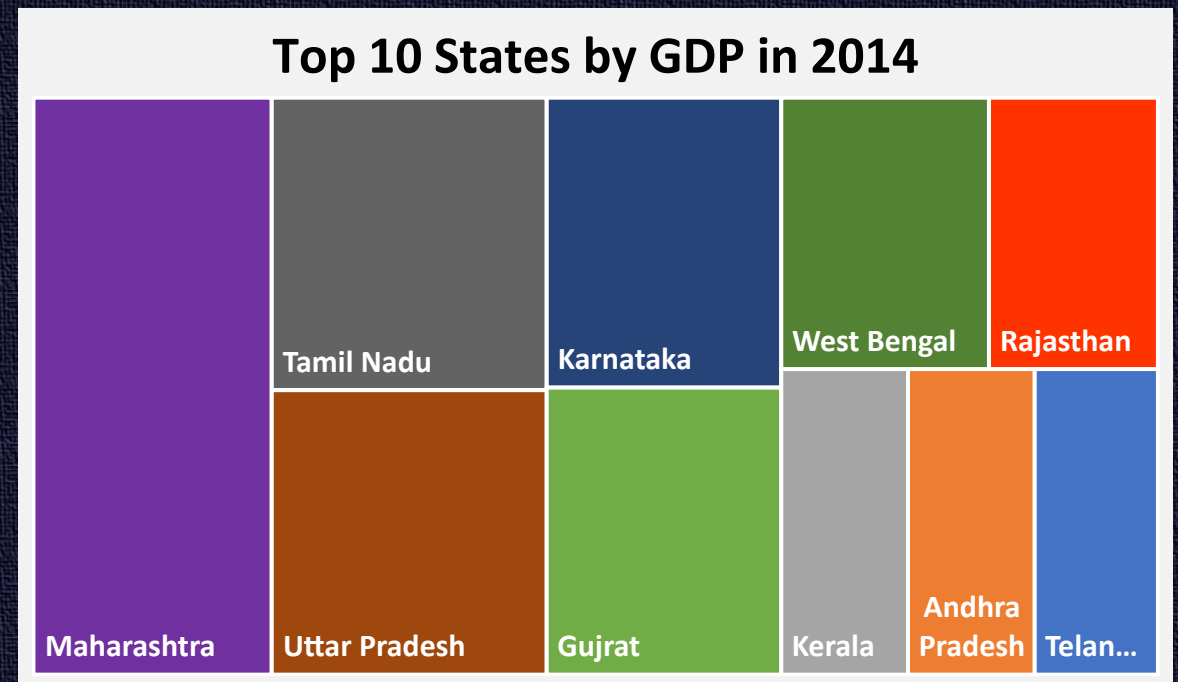
Note: For analysing this correlation, we are taking the result set from the election year **2019**.

13. Is there a correlation between GDP of a state and voter turnout % ?



Only West Bengal and Andhra Pradesh align with the top 10 states by GDP. The relationship between a state's GDP and voter turnout percentage is **complex** and influenced by various social, economic, and political factors, requiring context-specific analysis for a comprehensive understanding.

state	voter_turnout_ratio_2014
Nagaland	87.82
Lakshadweep	86.61
Tripura	84.72
Dadra & Nagar Haveli	84.07
Sikkim	83.33
West Bengal	82.17
Puducherry	82.10
Assam	80.08
Manipur	79.61
Andhra Pradesh	78.71



Note: For analysing this correlation, we are taking the result set from the election year **2014**. For more information please visit : https://en.wikipedia.org/wiki/List_of_Indian_states_and_union_territories_by_GDP

14. Is there any correlation between literacy % of a state and voter turnout % ?

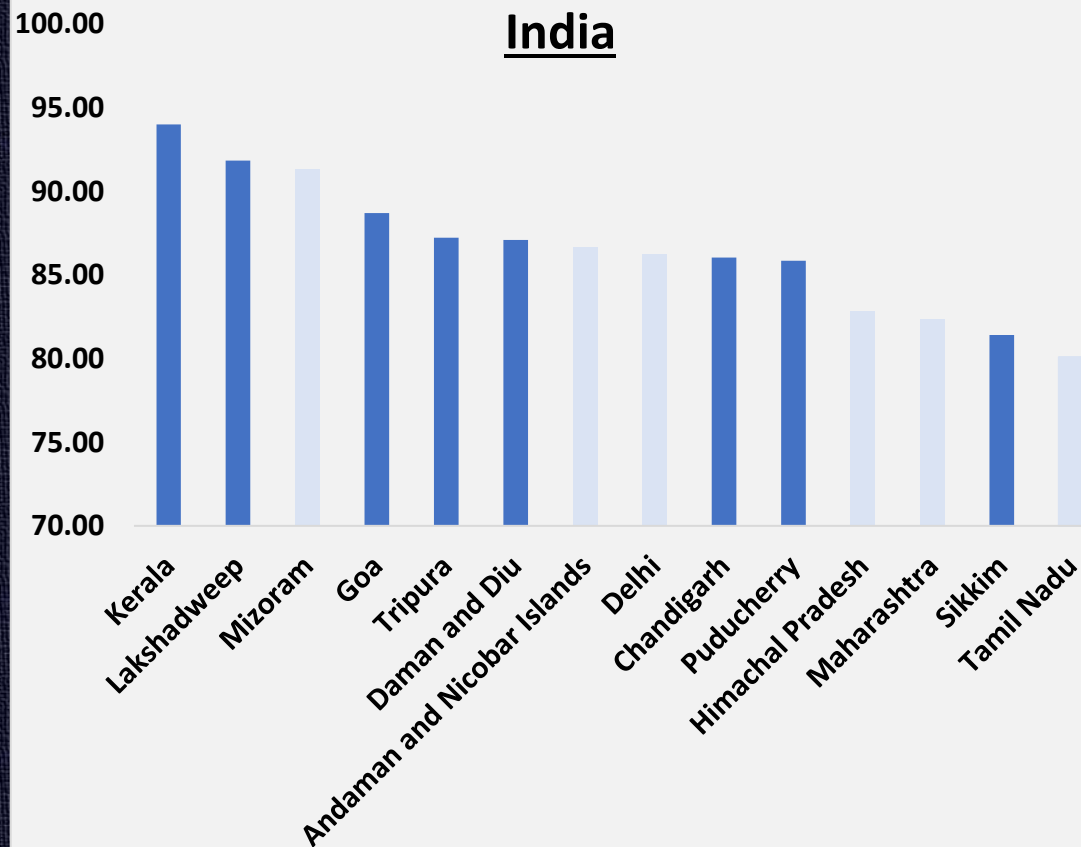


state	voter_turnout_ratio_2014
Nagaland	87.82
Lakshadweep	86.61
Tripura	84.72
Dadra & Nagar Haveli	84.07
Sikkim	83.33
West Bengal	82.17
Puducherry	82.10
Assam	80.08
Manipur	79.61
Andhra Pradesh	78.71
Arunachal Pradesh	78.61
Daman & Diu	78.01
Goa	77.02
Kerala	73.89
Chandigarh	73.71

Lakshadweep, Tripura,
Sikkim, Puducherry,
Daman & Diu, Goa,
Kerala, and Chandigarh

are among the top 15
states for both voter
turnout in 2014 and
literacy rates in India.

Highest State Wise Literacy Rate in
India

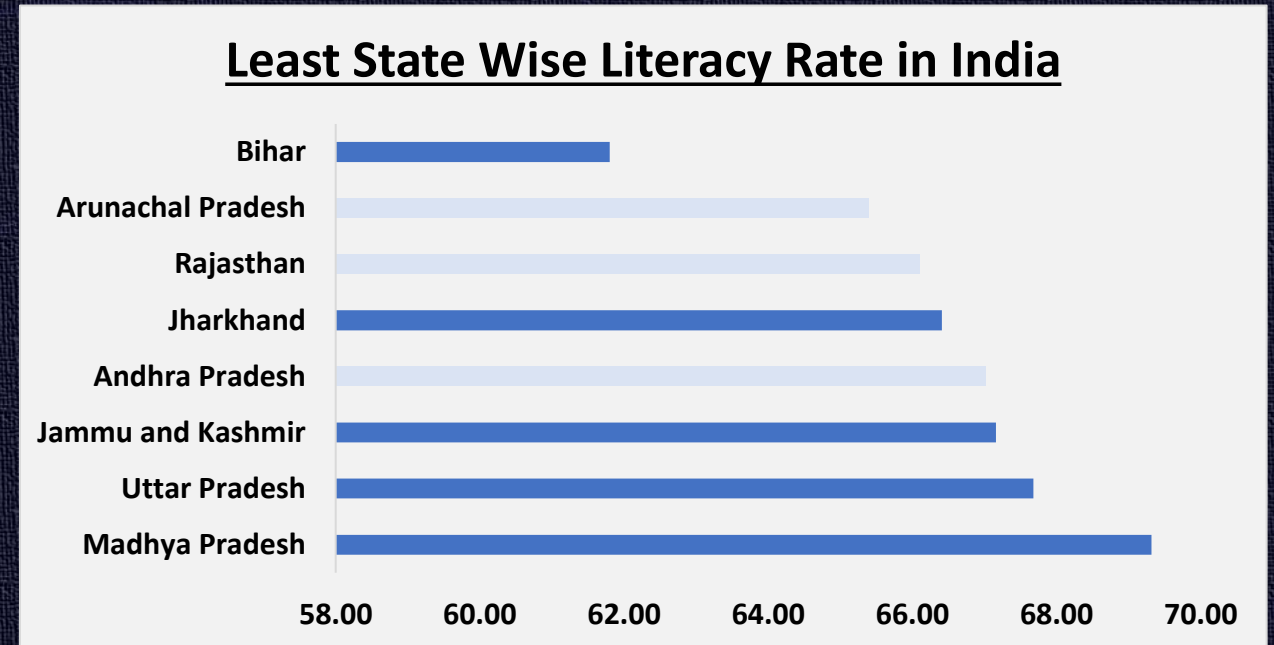


Note: For analysing this correlation, we are taking the result set from the election year **2014**.

14. Is there any correlation between literacy % of a state and voter turnout % ? (Contd.)



state	voter_turnout_ratio_2014
Jammu & Kashmir	49.66
Bihar	56.25
Uttar Pradesh	58.42
Maharashtra	60.29
Madhya Pradesh	61.59
Uttarakhand	61.62
Mizoram	61.69
Gujarat	63.60
Jharkhand	63.80

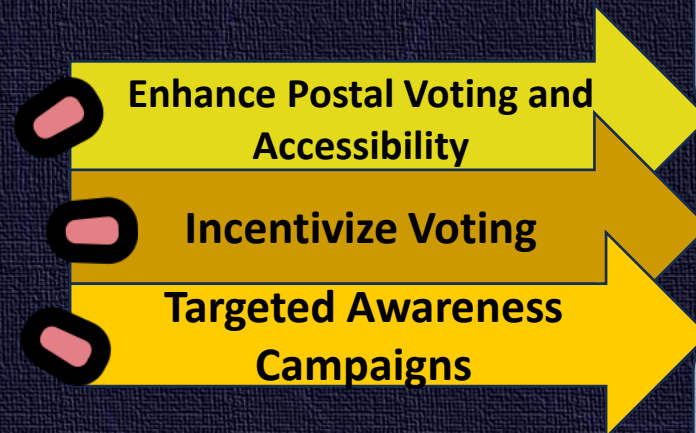
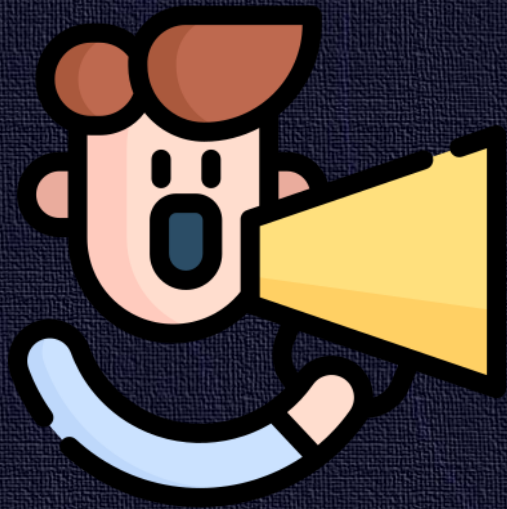


- ✓ Jammu & Kashmir, Bihar, Uttar Pradesh, Madhya Pradesh, and Jharkhand have the lowest voter turnout ratios and literacy rates in India.
- ✓ Higher literacy rates tend to correlate with higher voter turnout ratios and vice versa. So the correlation is often **positive**.

Note: State wise literacy rate data is according to the **2011 Census**. Please visit this site for more information :

<https://www.mospi.gov.in/data>

15. Provide 3 recommendations on what the election commission/government can do to increase the voter turnout % ?



Ensure that all eligible voters are aware of and can easily use postal voting options, especially in **high turnout states**. This can further boost turnout and set an example for other states.

Provide **incentives** such as tax benefits, discounts on public services, or recognition awards to encourage voter participation.

Implement **educational campaigns** that highlight the importance of voting and how it impacts local communities. Use local languages and culturally relevant materials to ensure the message resonates with the population.



THANK YOU