



# *A comparative study on Cyber Crime between two vast countries of the World – A Statistical Investigation.*

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An abstract is a brief summary of a my project, highlighting its main objectives, methods.

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It is a collection of related data points organized in a structured format.

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Analysis is the process of examining data, draw conclusions and decision-making.

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A conclusion is a summary of findings and insights drawn from research or analysis.



01

# Abstract

**An abstract is a brief summary of a my project, highlighting its main objectives, methods.**

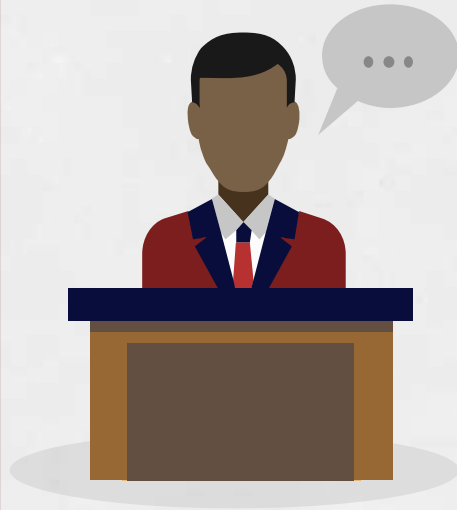


# Abstract

This project presents a comparative **study on cybercrime between two of the world's most populous and technologically advanced countries: India and the United States**. The primary objective is to analyze and compare cybercrime trends across all states in both nations using an ANOVA model if it's can't happen then we will go for some Non-Parametric Tests and gets the proper results. By examining historical cybercrime data from various **TOP 10 states in INDIA**, this study seeks to identify patterns and underlying factors contributing to cybercrime incidents over different years.

The research employs an ANOVA model to assess the variations in cybercrime rates among different states within each country, considering key factors such as population density, some particular facts such as **personal revenge, fraud, sexual exploitation, anger** and as well as year-to-year changes. This analysis helps in understanding the distribution and intensity of cybercrime across different regions and time periods.

Furthermore, the project utilizes time series analysis techniques to forecast cybercrime trends for **the next 10 years in both India and the USA on the basis of the past 20 years data (2003-2022)** . **And also predict the future cybercrime values for TOP 10 states for INDIA from top 15 states of India on the basis of the past 20 years data (2003-2022)**. This involves analyzing past data to forecast for upcoming future years.



# Introduction



This project undertakes a comparative study of cybercrime trends between two of the world's largest and most technologically strong countries: India and the United States. Both nations, despite their geographical and cultural differences, face some challenges in combating cybercrime. By examining and comparing the cybercrime trends within these countries, this study aims to provide a clear understanding of the dynamics of cybercrime. In the digital age, the threat of cybercrime has expanded significantly. Cybercriminals exploit vulnerabilities in digital systems to commit a wide range of cases like anger, sexual exploitation, fraud, personal revenge and others.

# Objective

Some objectives of our project are given below:

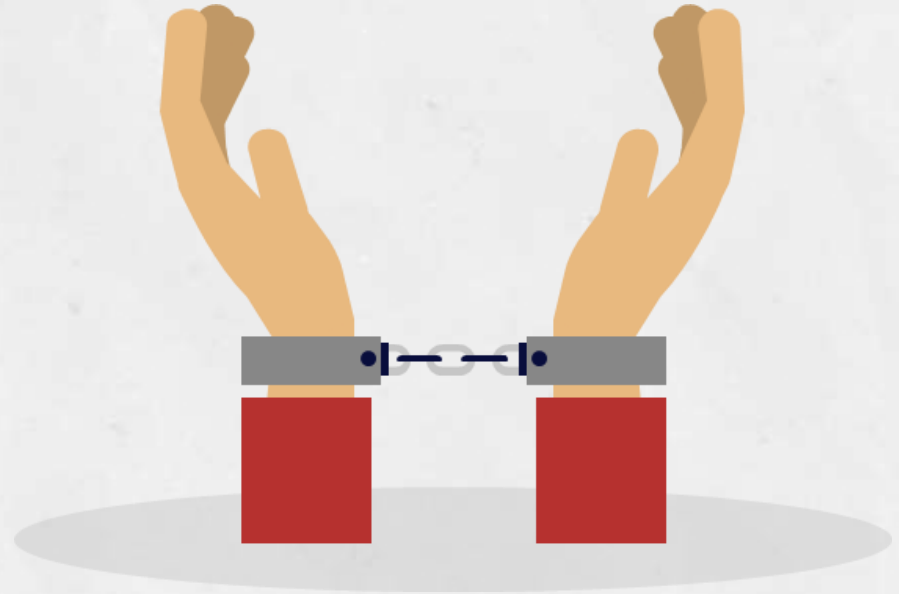
- **Identify Variations in Cybercrime Rates:** Assess the differences in cybercrime rates among different states within each country, considering key factors such as population density, internet penetration, economic conditions, and legislative measures.
- **Forecast Future Values:** Utilize time series analysis techniques to predict cybercrime trends for the next 10 years in both India and the United States as well as for top 10 states for both the countries providing a long-term perspective on potential cybercrime challenges and opportunities.
- **Compare Cybercrime Dynamics:** Draw comparisons between the cybercrime scenarios in India and the USA to identify commonalities and differences, which could inform better cybersecurity practices and policies.
- **Predict TOP 10 states for INDIA:** Here we want to forecast the number of cybercrime cases in currently TOP 15 states in INDIA on the basis of the past 20 years values (2003-2022) and this forecasted results we are going to predict the TOP 10 states on the basis of cybercrime cases for INDIA.



02

# Dataset

**It is a collection of related data points organized in a structured format.**



# Data Source



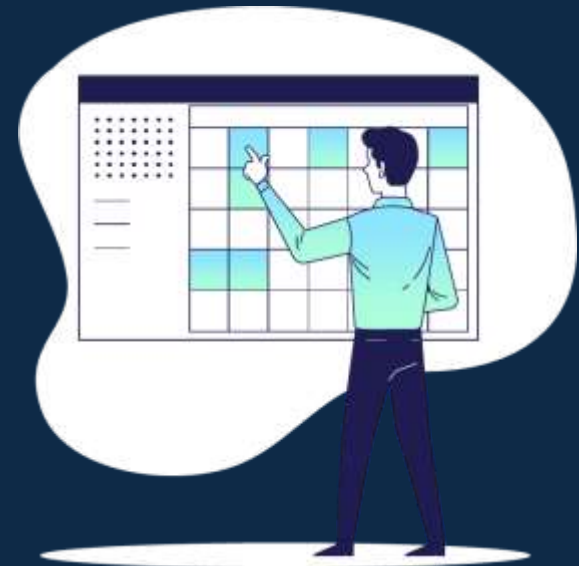
In the context of analyzing cybercrime data for India and the USA, the data collection procedure involves meticulous steps to ensure accuracy, reliability, and comprehensiveness. Below is an outline of the procedure, specifically for collecting the cybercrime data for India.

- The data containing number of cybercrimes for different factors for different states and union territories of India for the years 2017, 2018, 2019, 2020 is obtained from the official website of **National Crime Records Bureau (NCRB), Ministry of Home Affairs, India.**
- The data containing the total number of cybercrimes for different states and union territories of India for the years 2003 to 2022 is obtained from the official website of **National Crime Records Bureau (NCRB), Ministry of Home Affairs, India.**
- The data containing the total number of cybercrimes for different states of USA for the years 2003 to 2022 is obtained from the official website of **FBI, USA.**



State/UT	Personal Revenge	Anger	Fraud	Sexual Exploitation
Karnataka	36	12	2764	55
Karnataka	27	10	5441	85
Karnataka	12	4	11381	90
Karnataka	147	13	9680	191
Uttar Pradesh	41	208	3450	117
Uttar Pradesh	47	73	2351	343
Uttar Pradesh	301	81	3549	430
Uttar Pradesh	78	210	4674	560
Maharashtra	47	80	2171	462
Maharashtra	99	129	1998	724
Maharashtra	48	45	3551	557
Maharashtra	36	105	3413	612
Telangana	14	201	529	58
Telangana	19	3	732	77
Telangana	11	4	2013	78
Telangana	96	24	4436	85
Andhra Pradesh	24	5	537	61
Andhra Pradesh	34	26	733	92
Andhra Pradesh	16	17	1211	84
Andhra Pradesh	83	39	1149	169
Assam	246	83	48	217
Assam	239	46	389	113
Assam	555	263	243	289
Assam	654	164	242	483
Jharkhand	31	11	460	14
Jharkhand	16	6	783	16
Jharkhand	8	0	964	15
Jharkhand	4	4	1069	13
Bihar	12	5	397	16
Bihar	5	8	351	8
Bihar	27	7	844	8
Bihar	84	34	1218	32
Rajasthan	2	3	331	29
Rajasthan	9	11	499	60
Rajasthan	17	45	938	103
Rajasthan	22	10	641	67
Gujarat	6	5	305	24
Gujarat	17	32	401	23
Gujarat	5	20	363	32
Gujarat	6	31	875	37

**Dataset of the state wise  
(Top 10) cybercrime data for  
India corresponding to some  
different factors.**



Dataset corresponding to the cybercrime cases  
for previous 20 years (2003-2022) for India

Year	Cyber crime cases in India
2003	201
2004	68
2005	179
2006	142
2007	217
2008	288
2009	420
2010	966
2011	1791
2012	601
2013	201
2014	7201
2015	8045
2016	12317
2017	13635
2018	18495
2019	30729
2020	29633
2021	27427
2022	31905

Dataset corresponding to the cybercrime cases  
for previous 20 years (2003-2022) for USA

Year	Cyber crime cases in USA
2003	124509
2004	207449
2005	231493
2006	207492
2007	206884
2008	275,284
2009	336,655
2010	303,809
2011	314,246
2012	289874
2013	262813
2014	269422
2015	288012
2016	298728
2017	301,580
2018	351,937
2019	467,361
2020	791,790
2021	847,376
2022	800,944

## Dataset corresponding to the past 20 years cybercrime data across top 15 states for India

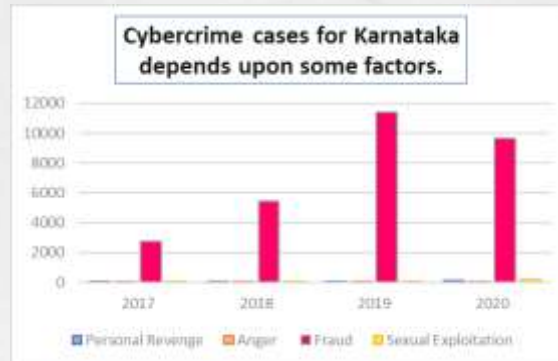
Year	Karnataka	Uttar Pradesh	Assam	Maharashtra	Rajasthan	Telangana	Chhattisgarh	Nagaland	Madhya Pradesh	Kerala	Haryana	Odisha	Gujarat	West Bengal	
2003	0	2	0	17	0	0	0	10	107	1	1	2	0	29	0
2004	14	2	0	17	0	0	0	14	8	2	0	1	0	2	0
2005	38	4	1	26	18	0	0	22	14	3	8	6	0	2	0
2006	27	0	1	35	4	0	0	8	14	12	1	12	5	5	6
2007	40	5	0	49	16	0	0	10	16	38	0	0	6	1	2
2008	57	2	1	37	4	0	0	21	25	65	0	3	9	17	0
2009	97	14	2	53	27	0	0	18	30	64	0	2	16	20	13
2010	153	32	18	142	52	0	0	52	105	148	1	7	30	35	49
2011	151	101	31	306	122	0	8	37	349	227	42	7	90	52	43
2012	25	44	0	90	7	0	25	2	25	43	116	13	55	10	113
2013	0	2	0	17	0	0	0	10	107	1	1	2	0	29	0
2014	1010	1659	379	511	542	688	93	146	171	401	135	49	148	105	316
2015	1414	2161	483	348	639	472	180	126	393	248	208	43	162	103	295
2016	1101	2639	696	2380	941	593	259	144	616	283	401	317	258	362	478
2017	3152	4490	941	586	950	455	530	173	426	199	382	60	238	104	398
2018	5777	5513	1617	518	775	585	687	218	417	258	382	217	448	250	181
2019	12007	9353	1989	551	1074	1629	1015	268	340	218	346	410	447	294	181
2020	10740	9131	2827	699	616	306	967	535	323	346	490	720	370	325	76
2021	8125	7586	3840	537	596	655	832	831	171	460	414	730	297	444	62
2022	12549	8952	1417	746	825	360	811	1484	418	375	429	755	407	437	91
Statewide	56477	51692	14243	7665	7208	5743	5407	4129	4075	3392	3357	3356	2986	2626	2304

# Graphical Representation

*We need Graphical representation because, Graphical representation is vital in statistical projects as it visually communicates complex data, aiding in comprehension for both experts and non-experts. Graphs reveal patterns, trends, and relationships that may not be immediately apparent in numerical data. They facilitate comparisons, trend analysis, improving data analysis quality.*

*Overall, graphical representation enhances data interpretation, communication, and analysis in statistical projects. Here we can draw some diagram from the data and for the comparison.*

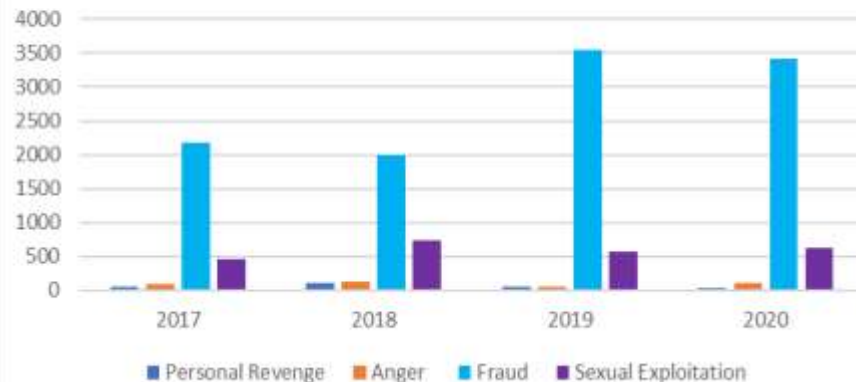
**Diagram for the dataset of the state wise (Top 10) cybercrime data for India corresponding to some different factors.**



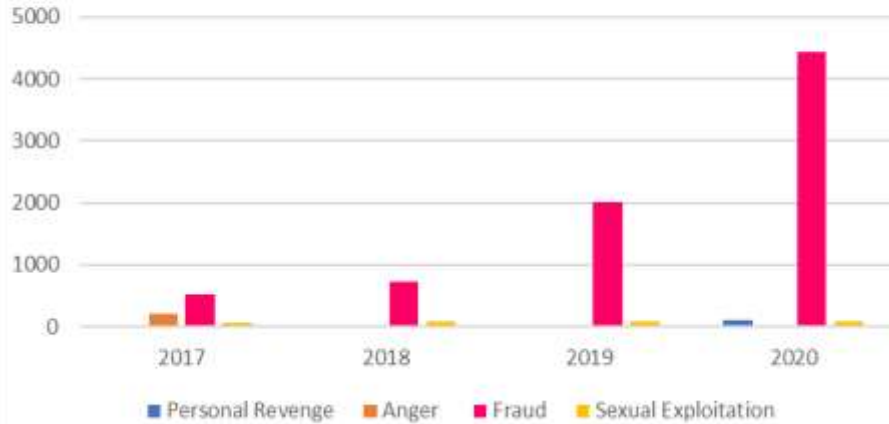
### Cybercrime cases for Uttar Pradesh depends upon some factors.



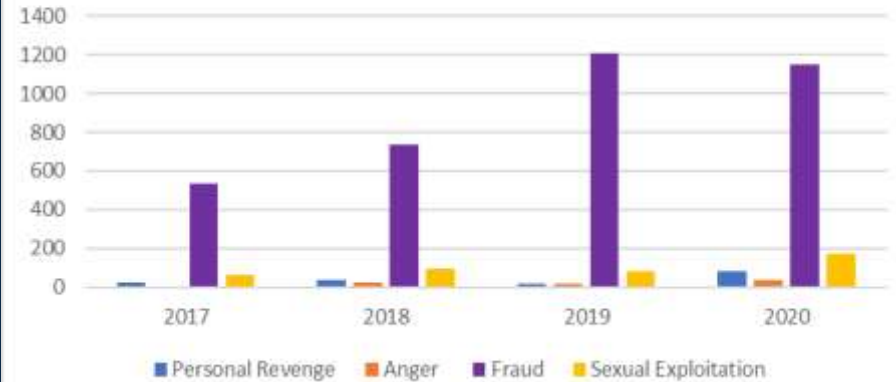
### Cybercrime cases for Maharashtra depends upon some factors.



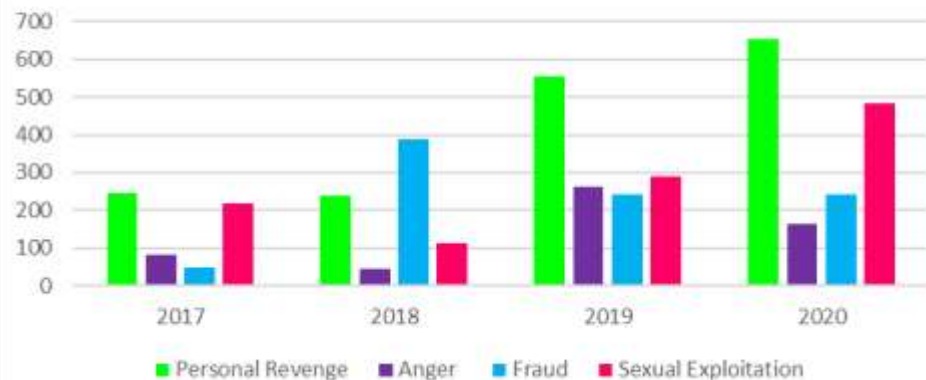
### Cybercrime cases for Telangana depends upon some factors.



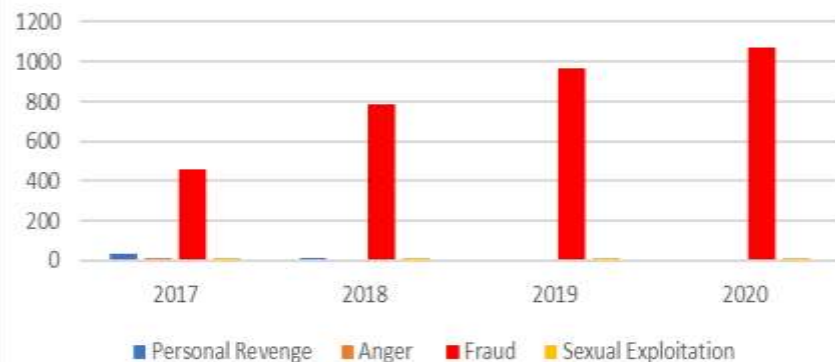
### Cybercrime cases for Andhra Pradesh depends upon some factors.



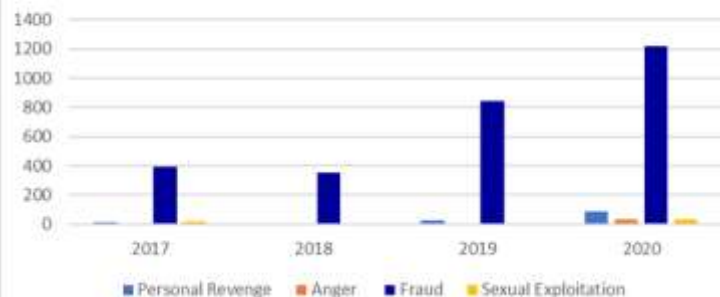
### Cybercrime cases for Assam depends upon some factors.



### Cybercrime cases for Jharkhand depends upon some factors.



**Cybercrime cases for Bihar depends upon some factors.**



**Cybercrime cases for Rajasthan depends upon some factors.**

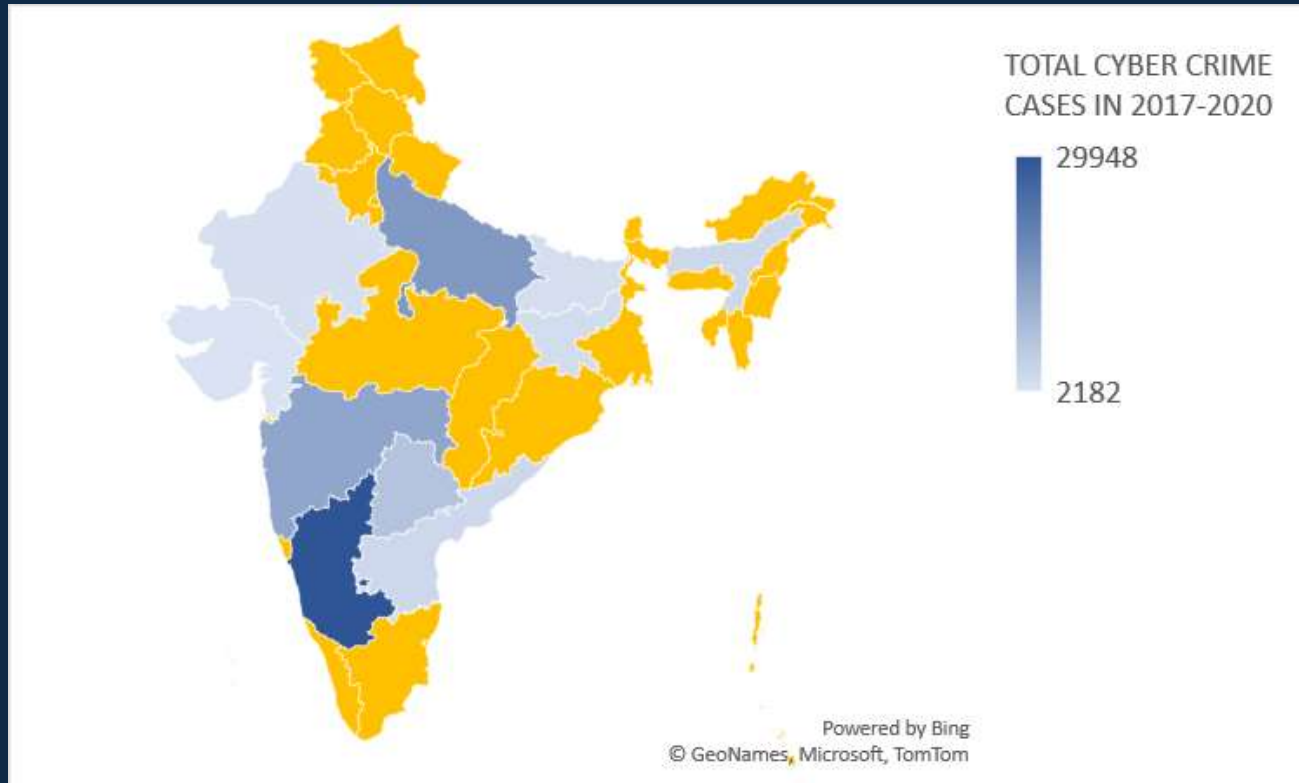


**Cybercrime cases for Gujarat depends upon some factors.**

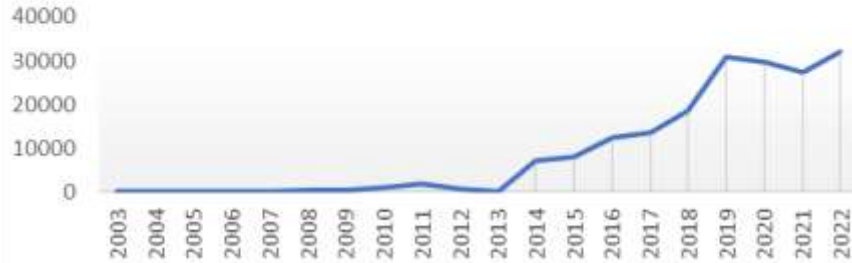




## Heatmap for cybercrime cases in India (Top 10 states only) in 2017-2020



Numbers of cybercrime cases in India  
corresponding to the years 2003-2022



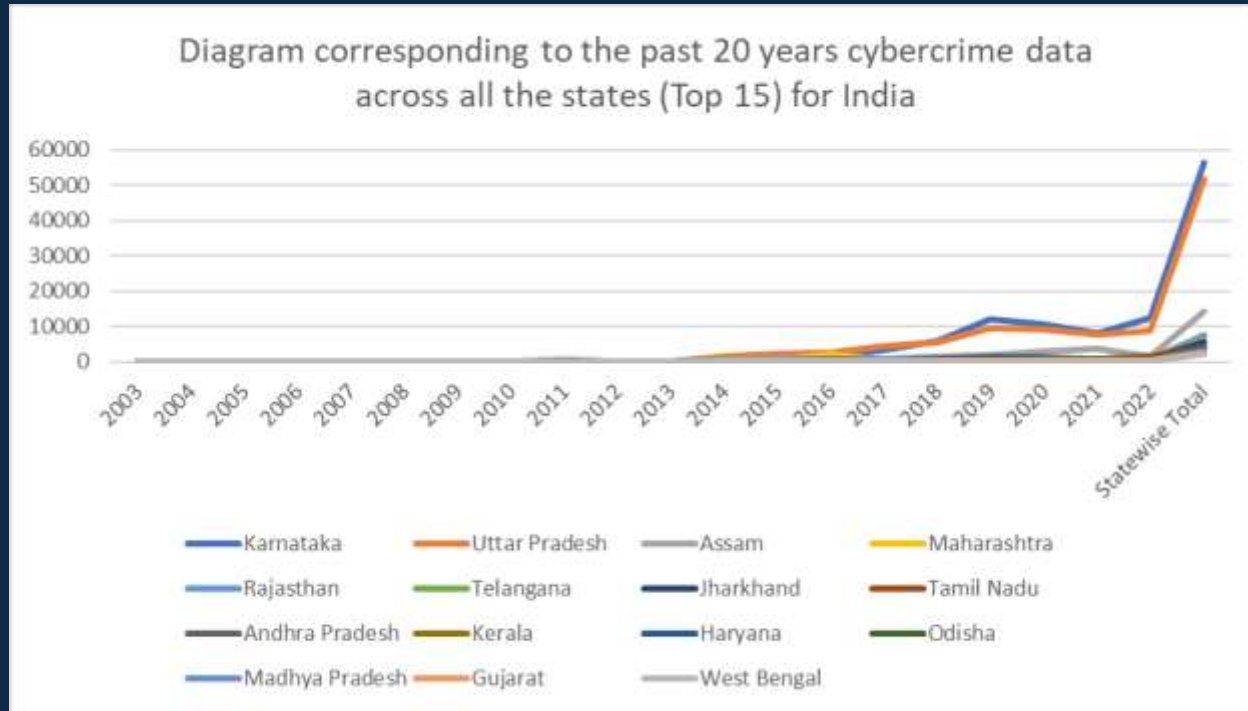
Numbers of cybercrime cases in USA  
corresponding to the years 2003-2022



Diagram for dataset corresponding to  
the cybercrime cases for previous 20  
years (2003-2022) for **INDIA** and  
**USA**



# Diagram for dataset corresponding to the past 20 years cybercrime data across all the states (Top 15) for India



03

# Analysis

**Analysis is the process of examining data, draw conclusions, and decision-making.**



# METHODOLOGY



- **Data Analysis via Graphical Representations:** Here we are going to represent our dataset graphically viz. dataset corresponding to the state wise cybercrime in India depends upon different factors for the years (2017-2020), dataset corresponding to the past 20 years cybercrime data for India, dataset corresponding to the past 20 years cybercrime data for USA, dataset corresponding to the past 20 years cybercrime data across all the states for India. And we are going to represent all this data set with some statistical tools like bar diagram, line diagram, pie chart & others.
- **Test Regarding ANOVA:** In this step here, we are going to test the ANOVA procedure for the dataset corresponding to the state wise cybercrime in India depends upon different factors for the years (2017-2020) but ANOVA is applicable if and only if the test for normality (**Shapiro-wilk test**) gets accepted. If the test for normality gets rejected then we should go for some non-parametric tests like **Kruskal Walli's test**.

- **Forecasting:** Here we are going to forecast our dataset corresponding to the past 20 years cybercrime data for India & dataset corresponding to the past 20 years cybercrime data for USA dataset for the years 2003-2022. And try to get the forecasted values for upcoming 10 years like 2023 to 2032.
- **Comparison:** In this step here, we are going to compare the forecasted values for upcoming 10 years which we can get from the previous step and compare on the basis of that.
- **Prediction the ranking of Top 10 states in India:** Here we are going to forecast the dataset corresponding to the past 20 years cybercrime data across all the states for India. Here we are basically select only top 15 states corresponding to the past 20 years data and forecast them. After gets the forecasted values we can rank them as TOP 10 state corresponding to forecasted values for upcoming 10 years (2023-2032).



# Analysis regarding the ANOVA model

Here we are comparing the mean number of incidents for different types of cybercrimes (Personal Revenge, Anger, Fraud, Sexual Exploitation) across various states in India. The goal is to understand if the incidence rates of these cybercrimes differ significantly between states.

But, **It's only happen if and only if all the assumptions of ANOVA are get satisfied. Otherwise we should go for some Non-parametric tests ( Kurskal Test)**

For each type of cybercrime, we establish the following hypotheses:

- **Null Hypothesis ( $H_0$ ):** The means of the cybercrime incidents are equal across all states.

$$H_0: \mu_1 = \mu_2 = \dots = \mu_k$$

where  $\mu_i$  is the mean number of incidents for the  $i^{th}$  state, and  $k$  is the total number of states.

- **Alternative Hypothesis ( $H_1$ ):** At least one state has a different mean number of cybercrime incidents compared to others.

$$H_1: \text{At least one } \mu_i \text{ is different}$$



One-way ANOVA relies on the following assumptions to produce valid results:

**Independence:** The observations within each group and between groups are independent.

**Normality:** The data for each group should be approximately normally distributed.

**Homogeneity of Variances:** The variances among the groups should be approximately equal (homoscedasticity).

To check the assumption of normality before applying ANOVA, we can use the **Shapiro-Wilk** test in R for each type of cybercrime data across different states. The Shapiro-Wilk test helps us determine if a data comes from a normally distributed population. We can perform the Shapiro-Wilk test in R for the **dataset of the state wise (Top 10) cybercrime data for India corresponding to some different factors.**







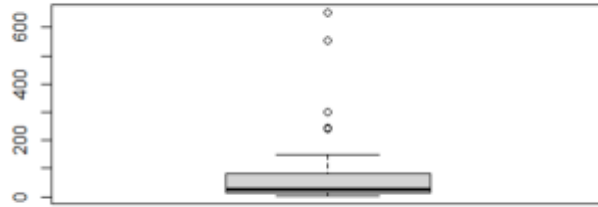
## ***RESULTS***

<b>Factor</b>	<b>p-value</b>
Personal Revenge	0.000169
Fraud	0.000000828
Anger	0.0156
Sexual Exploitation	0.00838

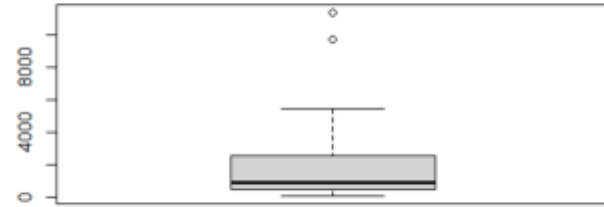
From the above result we can see that all the p-values which we get from the Shapiro-wilk test are less than 0.05. so, we reject the null hypothesis and conclude that the data is not normally distributed. So, here as our normality assumptions for ANOVA is violated. **So, we can't apply ANOVA for this dataset.**

# Checking Normality with Graphical Representation

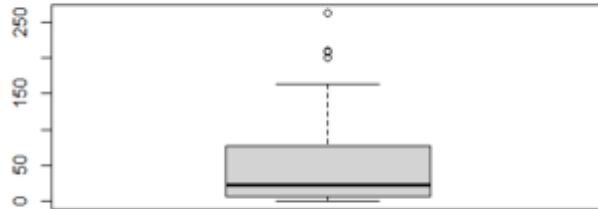
**Box Plot:** From here we can check the symmetry of the data and presence of the outliers



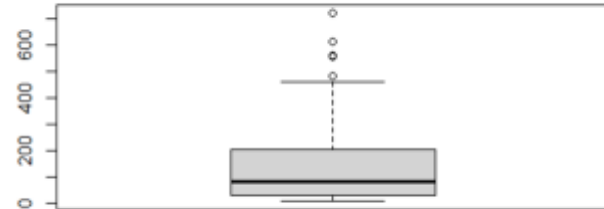
Personal Revenge



Fraud



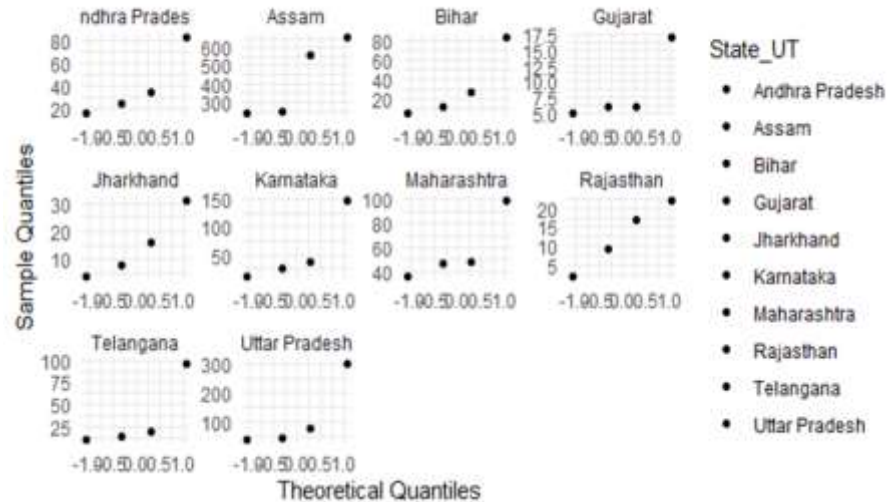
Anger



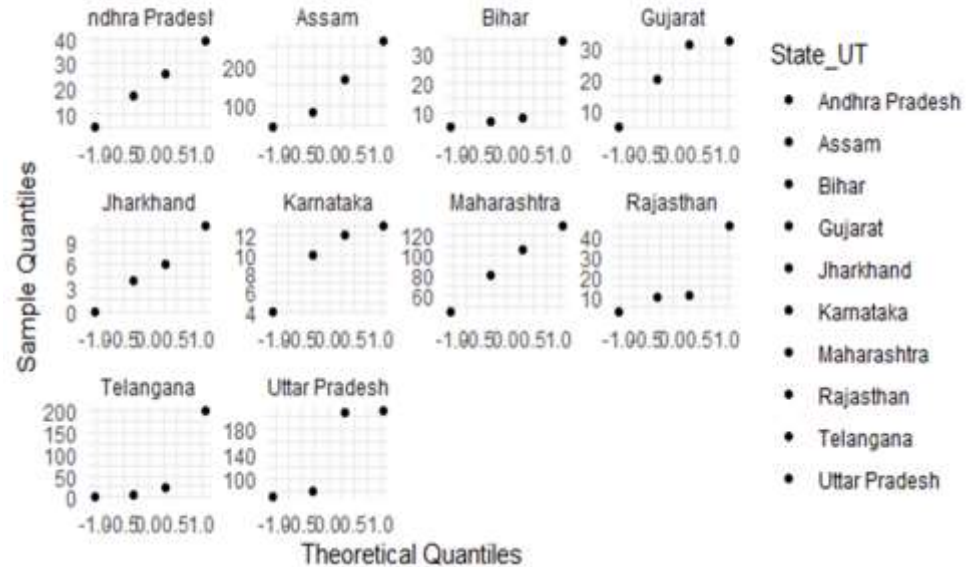
Sexual Exploitation

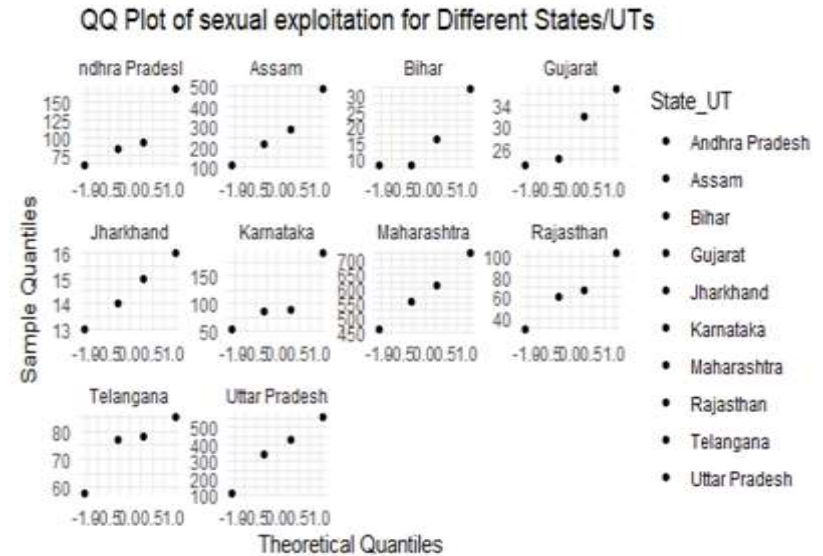
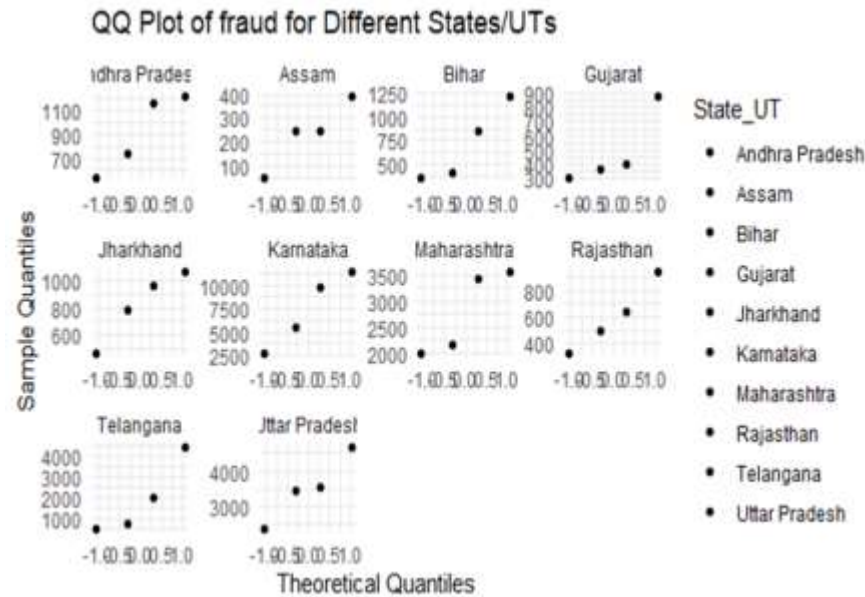
**Q-Q Plot:** Q-Q plots compare the quantiles of your data against the quantiles of a normal distribution.

QQ Plot of Personal Revenge for Different States/UTs



QQ Plot of Anger for Different States/UTs





So, when the normality assumption for ANOVA is violated, it's generally acceptable to proceed directly to **non-parametric tests** like the **Kruskal-Wallis test** without checking for homoscedasticity (equal variances). Non-parametric tests do not require the assumption of normality and are less sensitive to differences in variances across groups.

**Kruskal-Walli's test:** We can use the Kruskal-Walli's test to compare the distributions of our data across different groups. We can perform the Kruskal-Wallis test for our dataset in R.

Factor	p-value
Personal Revenge	0.00294
Anger	0.00354
Fraud	0.000391
Sexual Exploitation	0.0000636

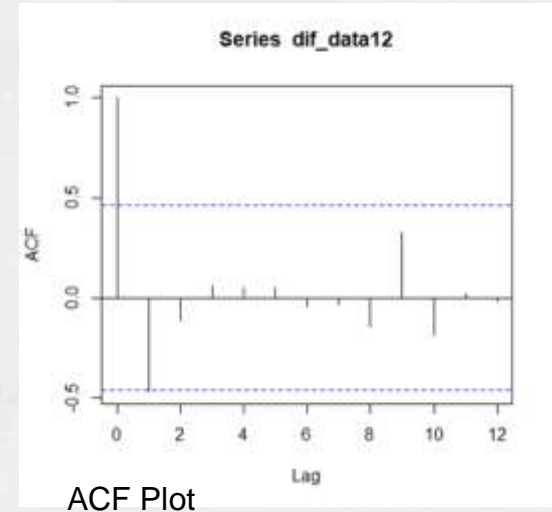
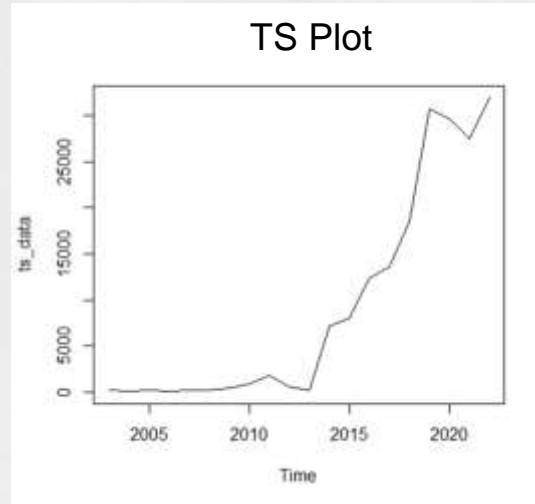
From the above result we can conclude that,

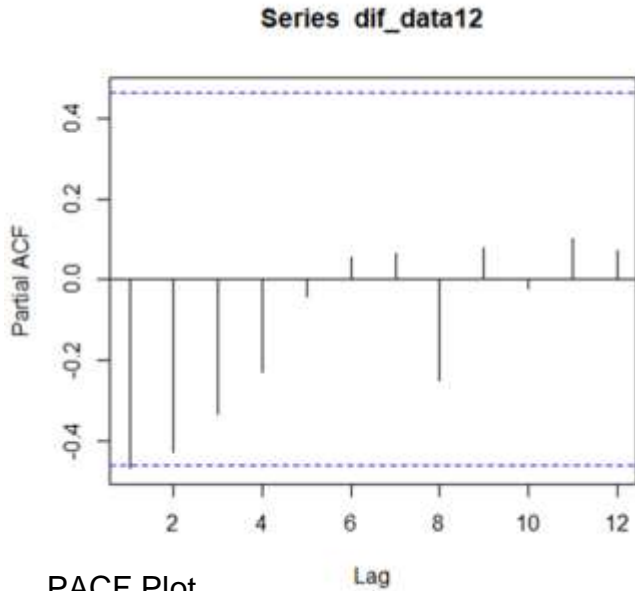
*For our dataset, it suggests there is significant difference present among all the groups (States).*



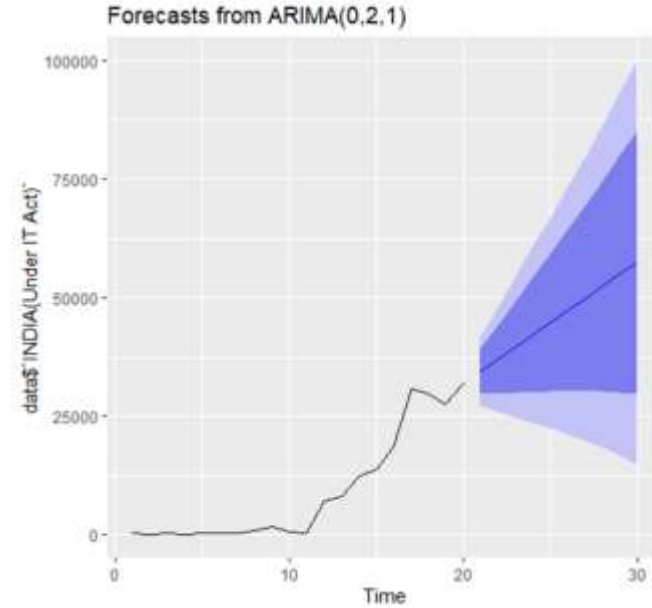
# Forecasting cybercrime cases for India

Now, we will try to forecast the data of future values of cybercrimes based on allover India using the future the data of past 20 years data in R.



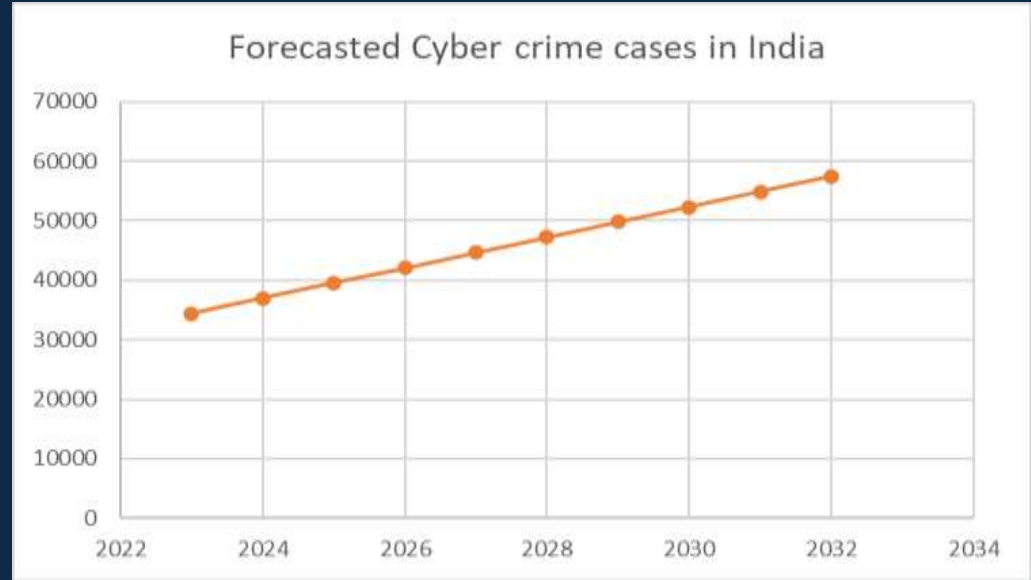


PACF Plot



From the above forecasting plot, it can be observed the increasing trend regarding the number of future cybercrime cases in India.

Year	Forecasted Cyber crime case
2023	34459.37
2024	37013.74
2025	39568.12
2026	42122.49
2027	44676.86
2028	47231.23
2029	49785.61
2030	52339.98
2031	54894.35
2032	57448.72

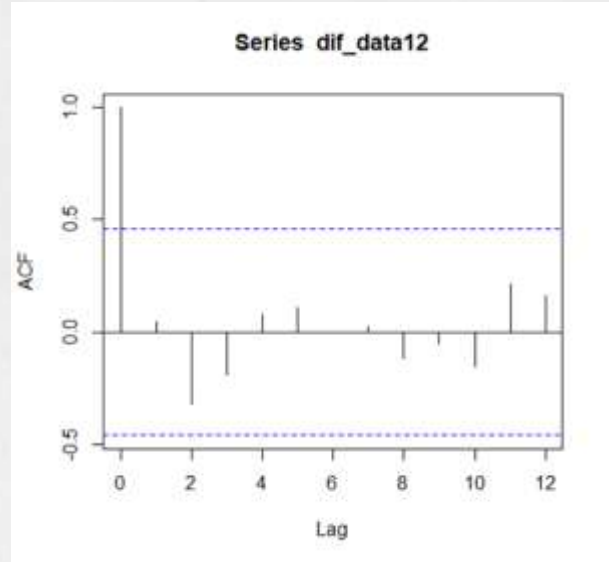
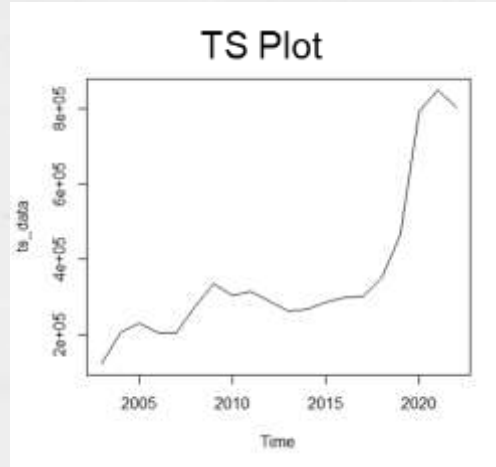


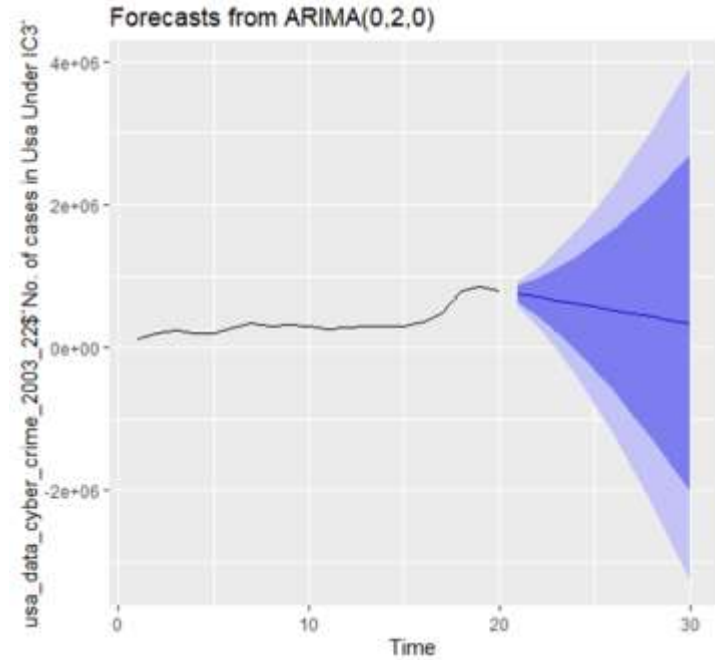
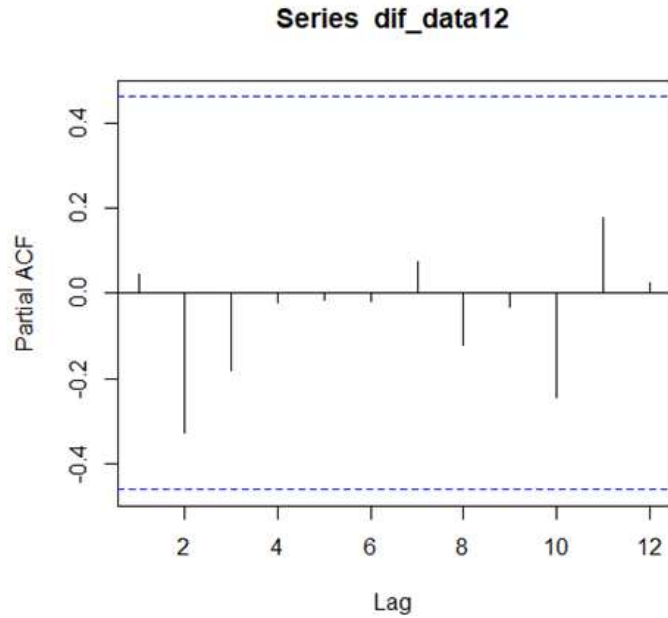
From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows a strictly increasing trends.



# Forecasting cybercrime cases for USA

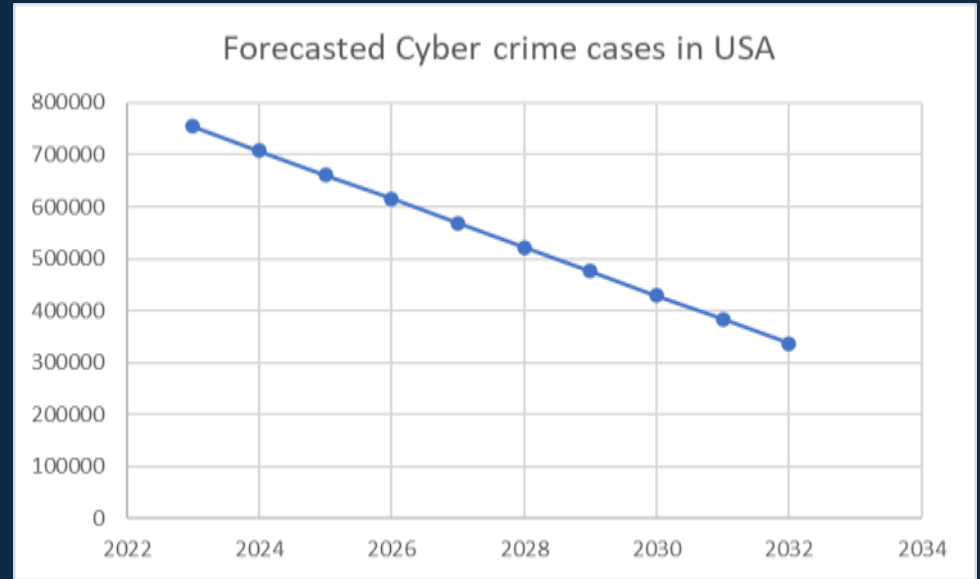
Now, we will try to forecast the data of future values of cybercrimes based on allover USA using the future the data of past 20 years data in R.





From the above forecasting plot, it can be observed the decreasing trend regarding the number of future cybercrime cases in USA.

Year	Forecasted Cyber crime cases
2023	754512
2024	708080
2025	661648
2026	615216
2027	568784
2028	522352
2029	475920
2030	429488
2031	383056
2032	336624



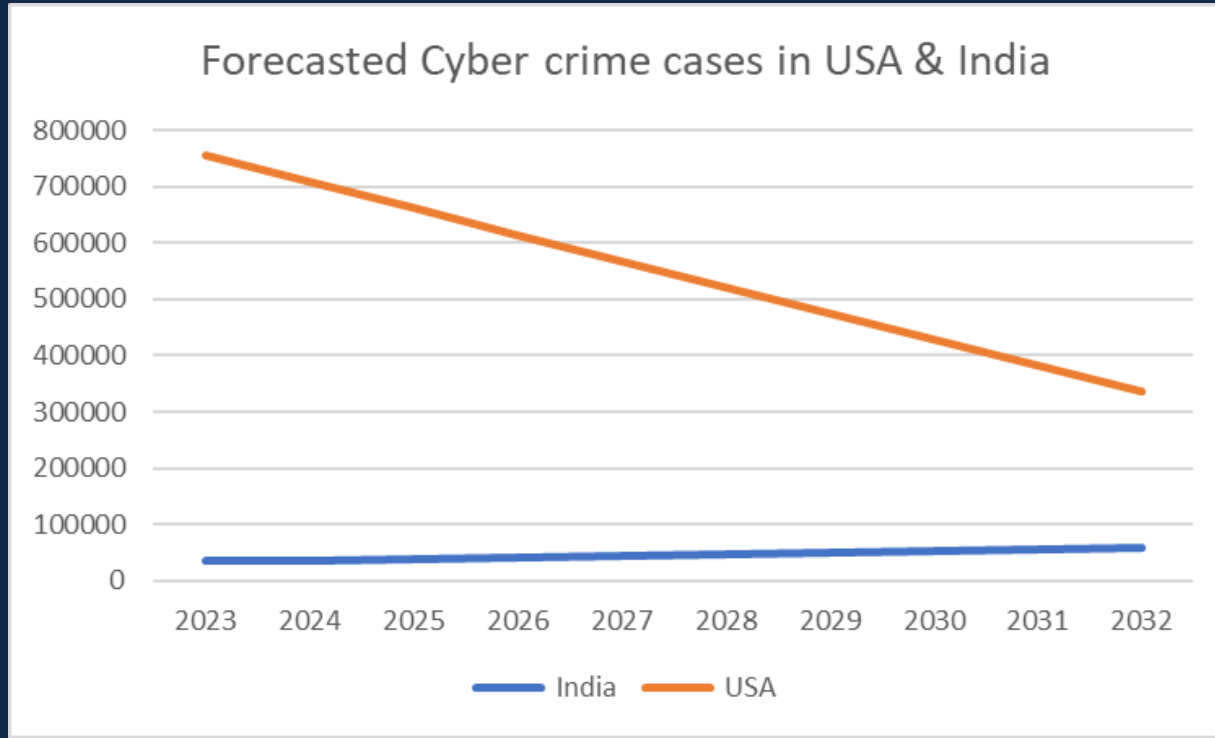
From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows a strictly decreasing trends.

# COMPARISON

Table for Comparison

INDIA				USA			
Original Values		Forecasted Values		Original Values		Forecasted Values	
Year	Cyber crime cases	Year	Forecasted Cyber crime case	Year	Cyber crime cases	Year	Forecasted Cyber crime cases
2003	201	2023	34459.37	2003	124509	2023	754512
2004	68	2024	37013.74	2004	207449	2024	708080
2005	179	2025	39568.12	2005	231493	2025	661648
2006	142	2026	42122.49	2006	207492	2026	615216
2007	217	2027	44676.86	2007	206884	2027	568784
2008	288	2028	47231.23	2008	275,284	2028	522352
2009	420	2029	49785.61	2009	336,655	2029	475920
2010	966	2030	52339.98	2010	303,809	2030	429488
2011	1791	2031	54894.35	2011	314,246	2031	383056
2012	601	2032	57448.72	2012	289874	2032	336624
2013	201			2013	262813		
2014	7201			2014	269422		
2015	8045			2015	288012		
2016	12317			2016	298728		
2017	13635			2017	301,580		
2018	18495			2018	351,937		
2019	30729			2019	467,361		
2020	29633			2020	791,790		
2021	27427			2021	847,376		
2022	31905			2022	800,944		

### Line diagram for comparison



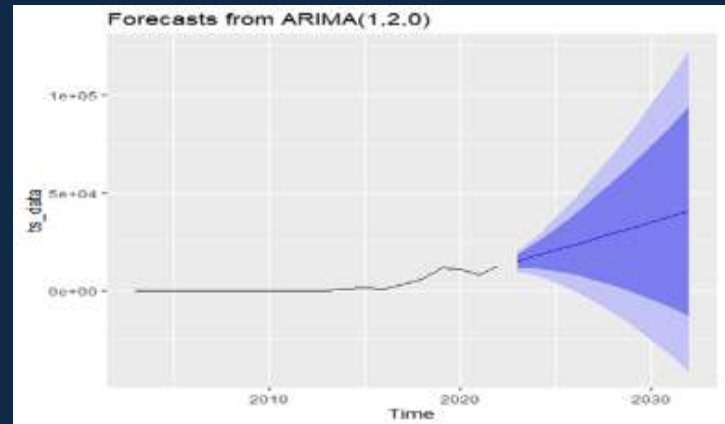
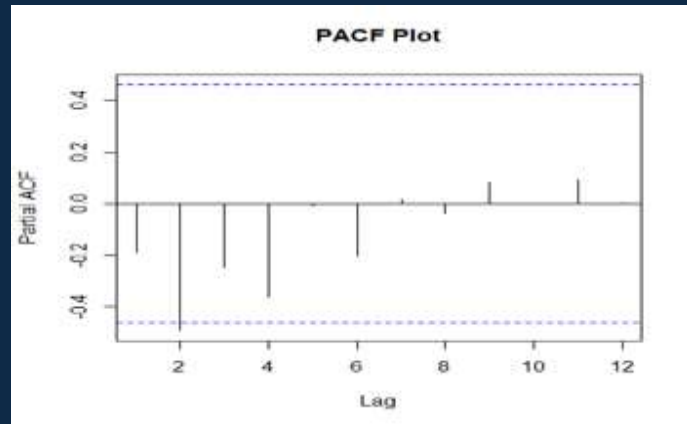
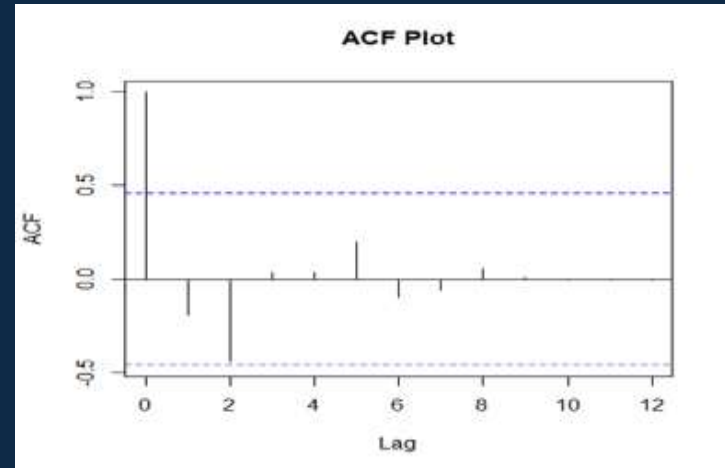
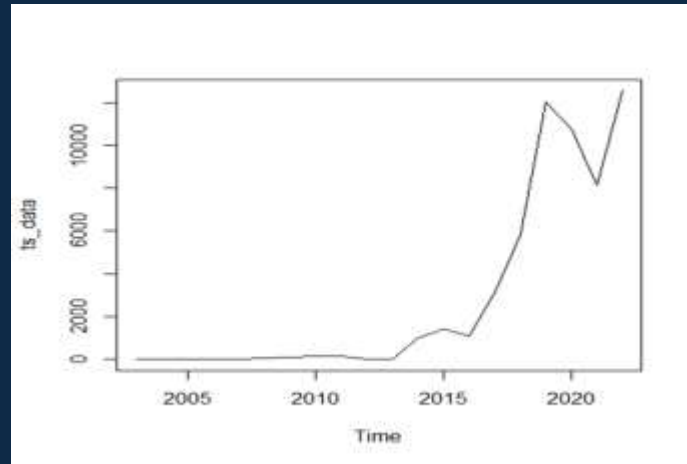
**From the above table and the line diagram we can conclude that, after 10 years from now the forecasted cybercrime cases in India shows an increasing tendency as well as the forecasted cybercrime cases in USA shows a decreasing tendency.**

# Prediction the ranking of Top 10 states in India

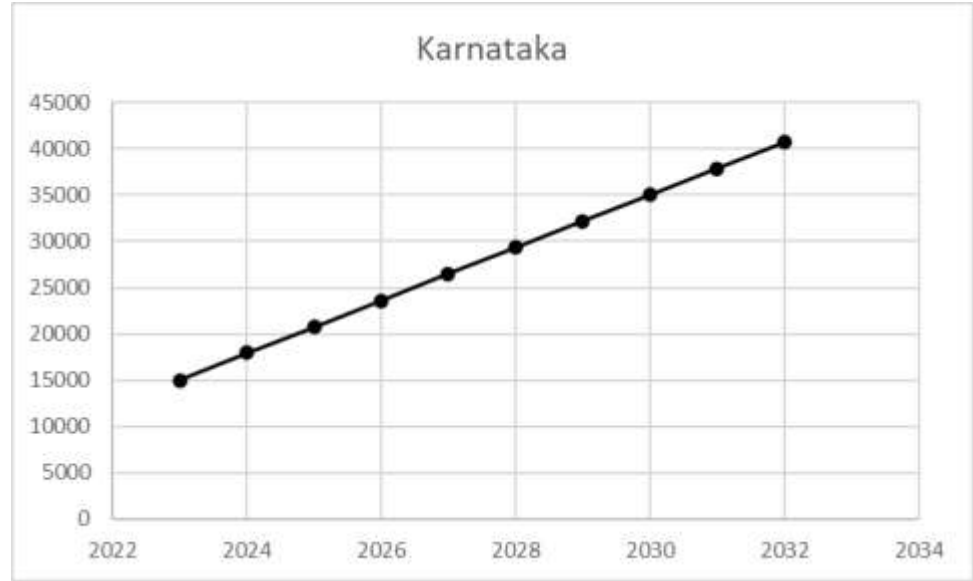


- Now, we are trying to forecast the dataset corresponding to the past 20 years cybercrime data across top 15 states for India for upcoming 10 years (2023-2032). And after getting the forecasted values on the basis of the forecasted values of top 15 states we can rank them as top 10 states in India for the cybercrime cases for the years 2023 to 2032.
- Now, we will try to forecast the data of future values of cybercrimes based on all 15 states separately using the future the data of past 20 years data. For forecasting future time points, we have considered the dataset corresponding to the cybercrime cases for previous 20 years (2003-2022). And we are trying to predict the future values for the next 10 years (2023-2032).

# Karnataka



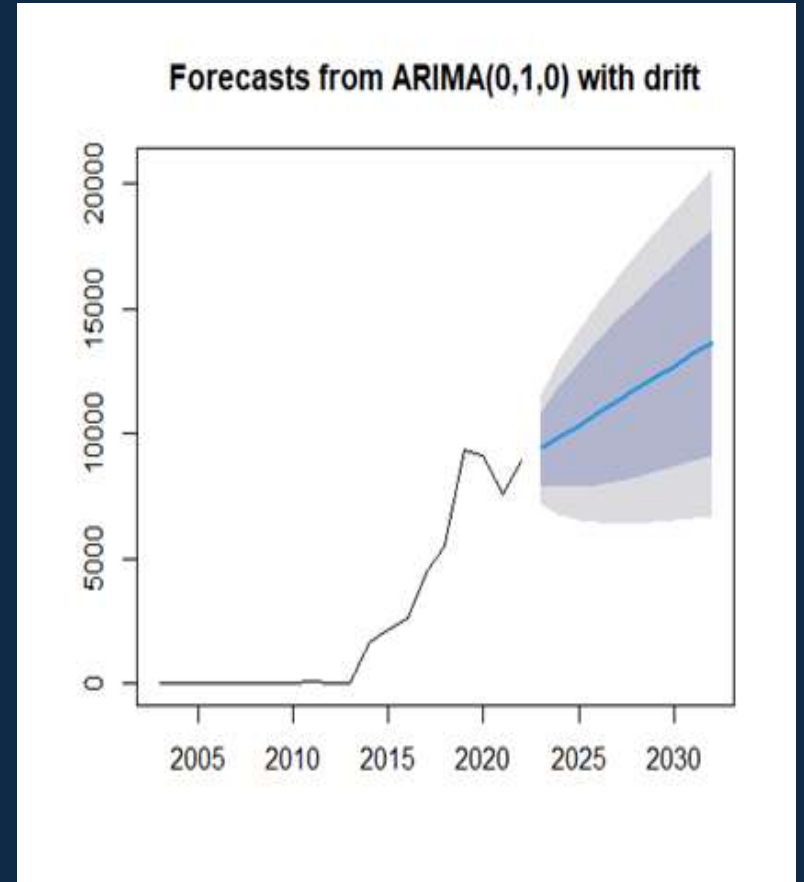
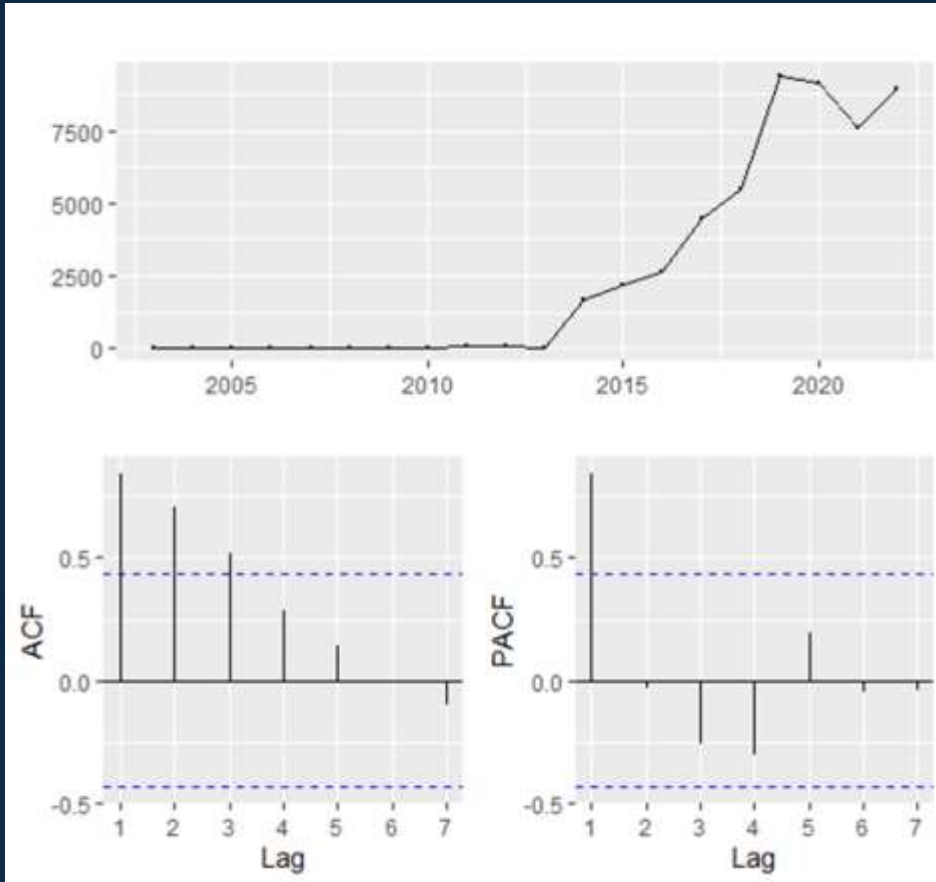
year	Karnataka
2023	14950.78
2024	17933.52
2025	20749.36
2026	23613.14
2027	26463.15
2028	29317.12
2029	32169.95
2030	35023.11
2031	37873.17
2032	40729.26



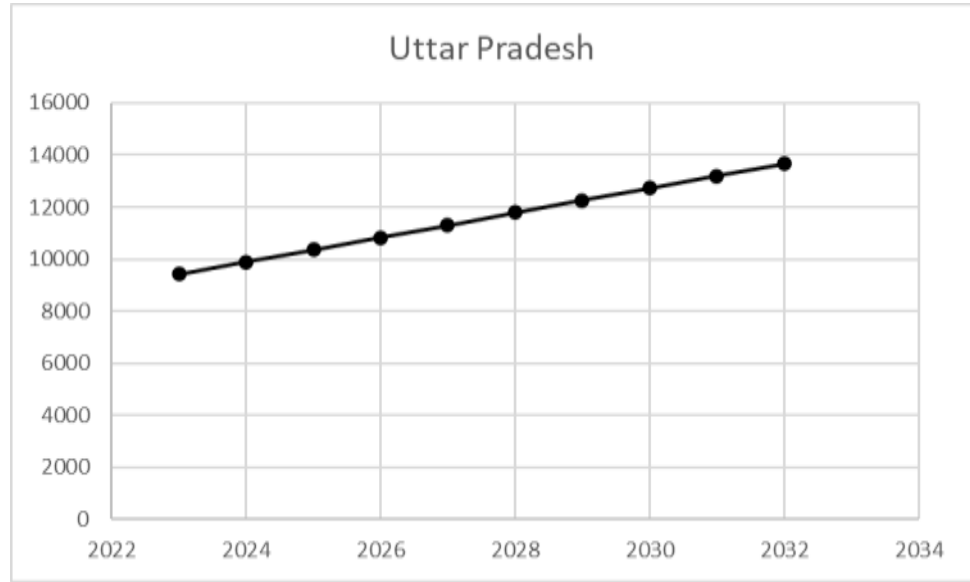
**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows a strictly increasing trends.**



## Uttar Pradesh

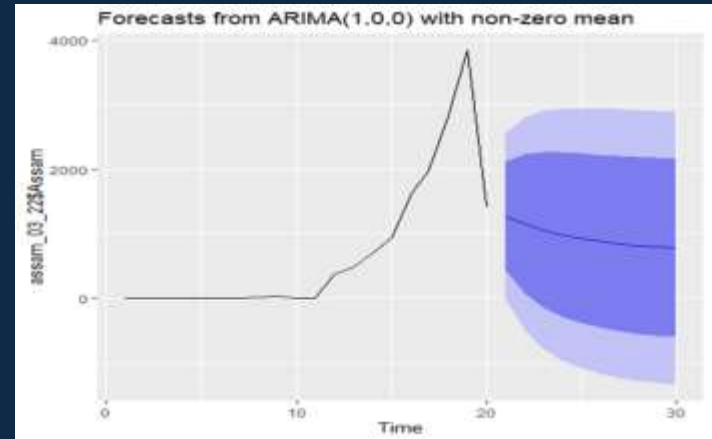
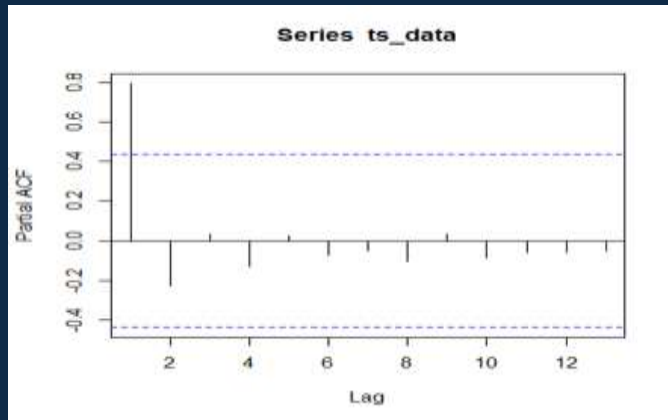
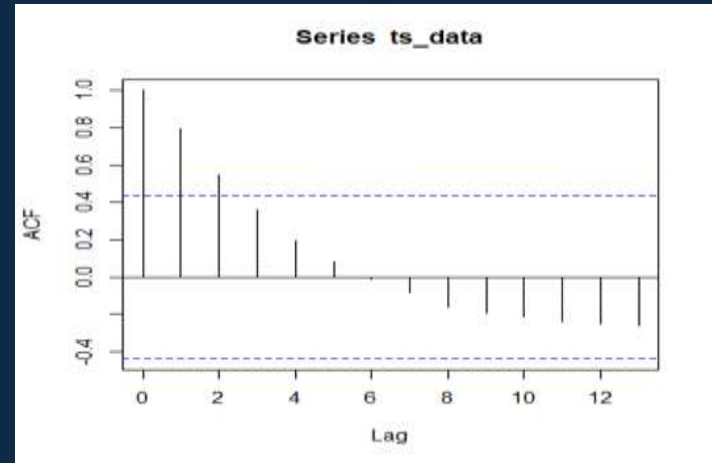
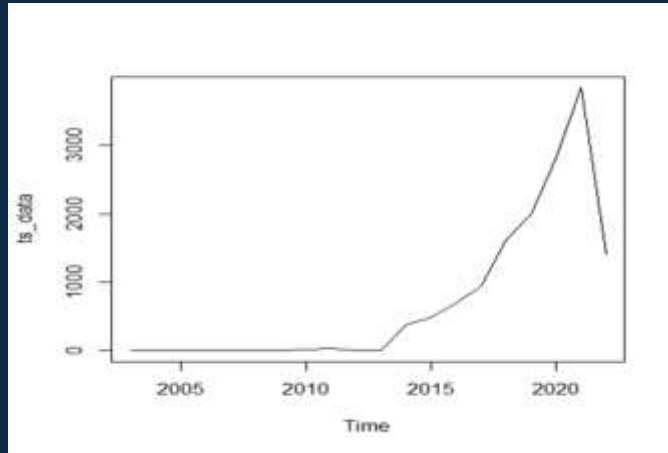


year	Uttar Pradesh
2023	9423.053
2024	9894.105
2025	10365.158
2026	10836.211
2027	11307.263
2028	11778.316
2029	12249.368
2030	12720.421
2031	13191.474
2032	13662.526

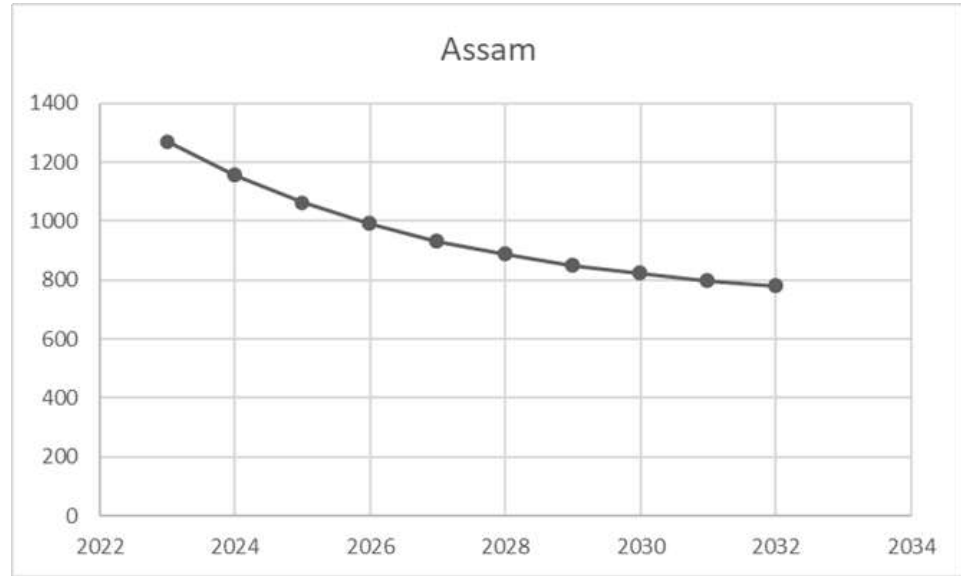


**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows a strictly increasing trends.**

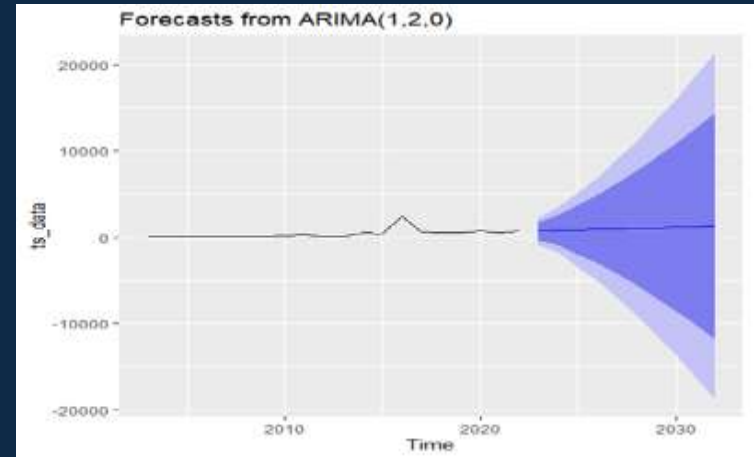
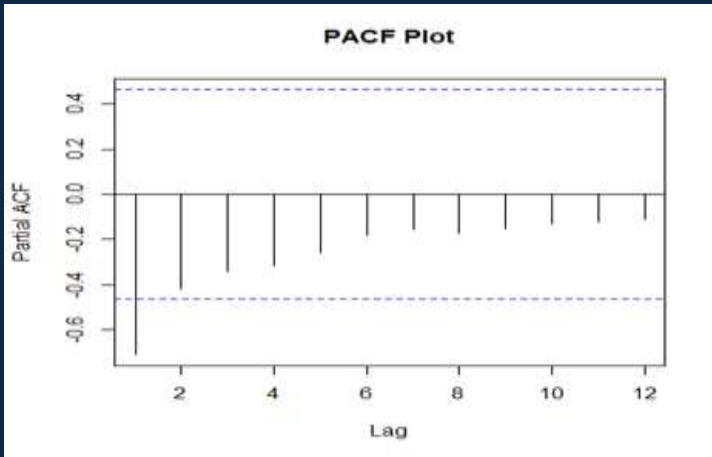
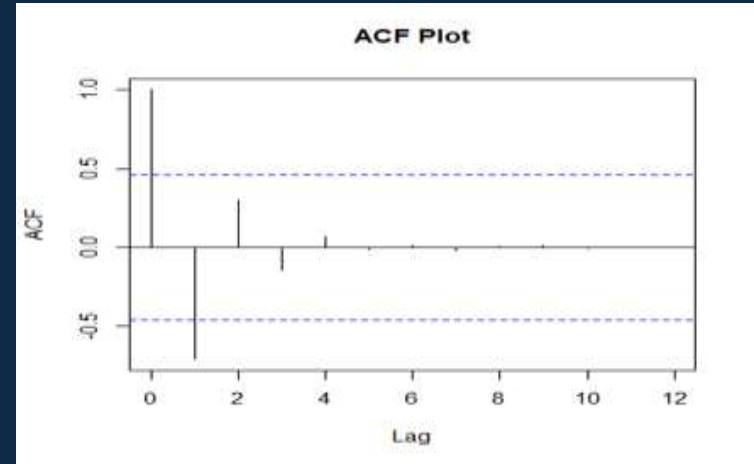
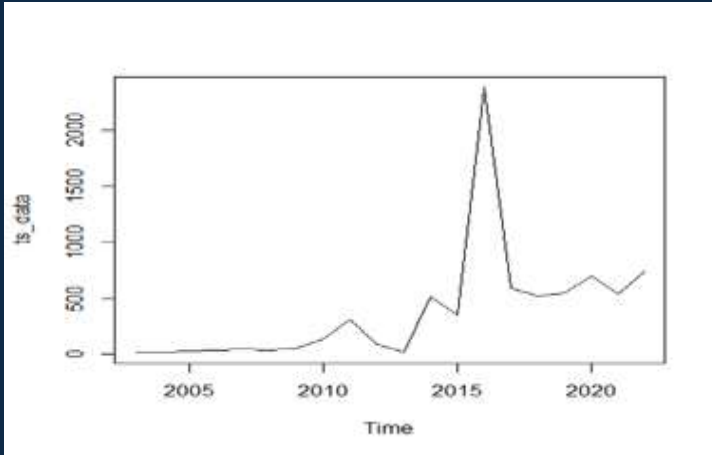
# Assam



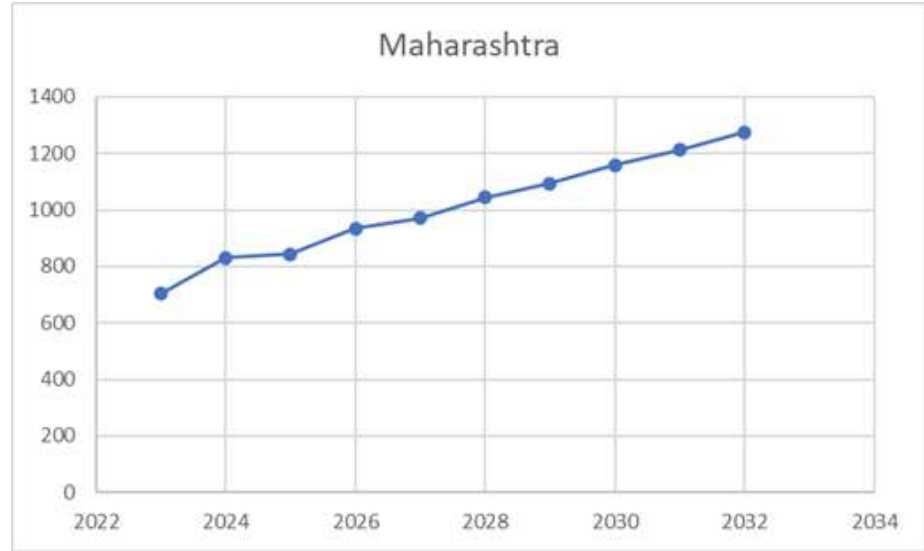
year	Assam
2023	1270.1359
2024	1153.8286
2025	1061.7202
2026	988.7761
2027	931.0087
2028	885.2605
2029	849.0307
2030	820.3389
2031	797.6168
2032	779.6222



**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows a decreasing trend.**

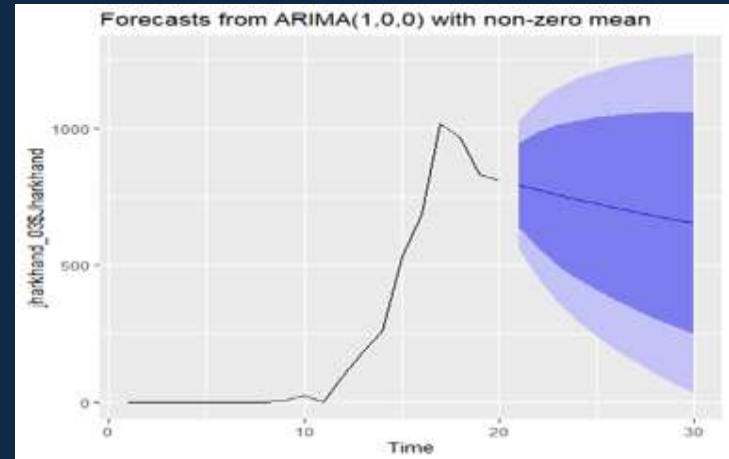
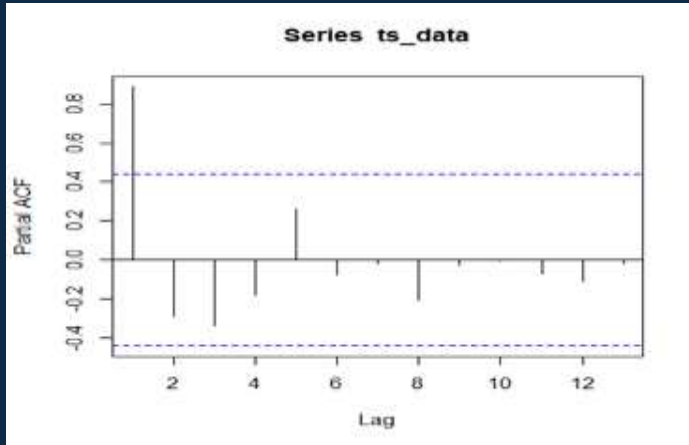
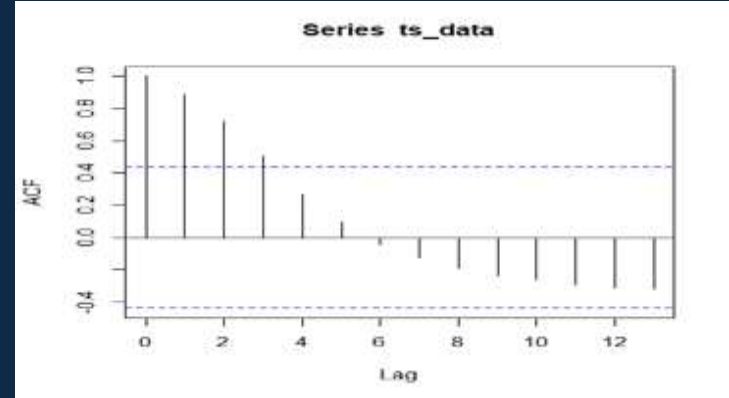
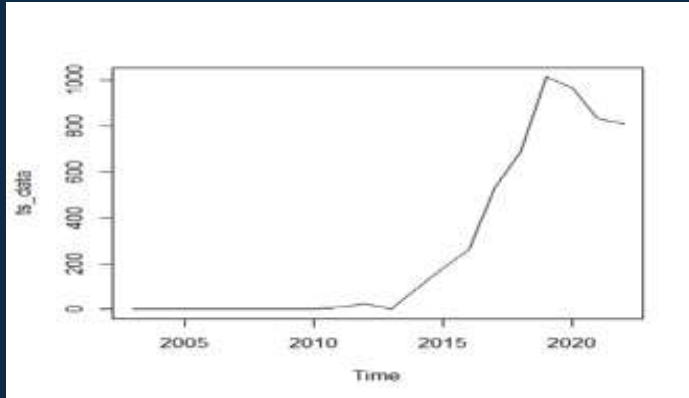


year	Maharashtra
2023	702.8972
2024	831.1039
2025	842.902
2026	933.8023
2027	970.9509
2028	1044.625
2029	1093.4791
2030	1159.199
2031	1213.4583
2032	1275.5053

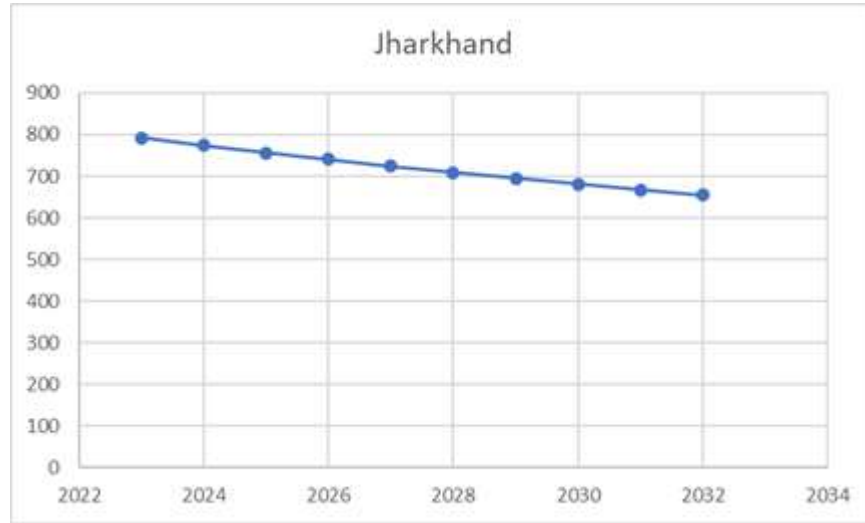


**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows an increasing trend.**

# Jharkhand



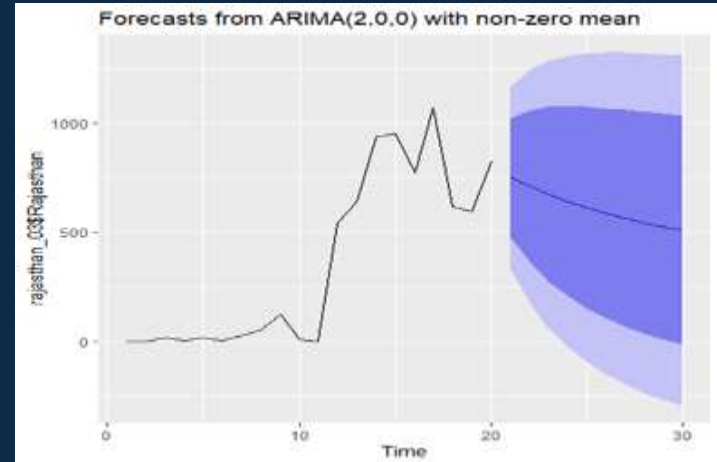
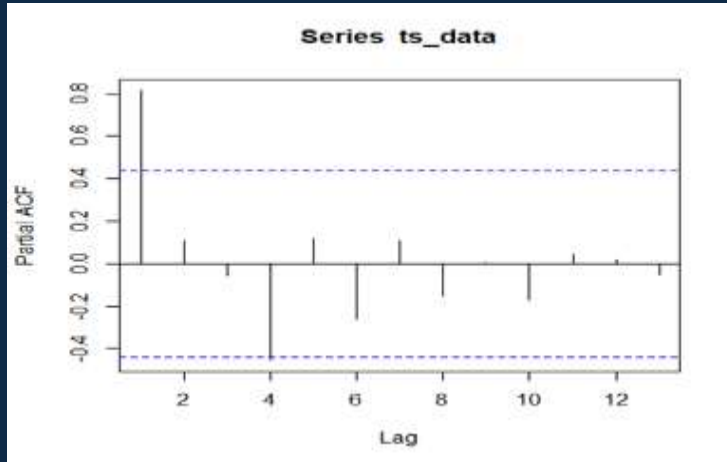
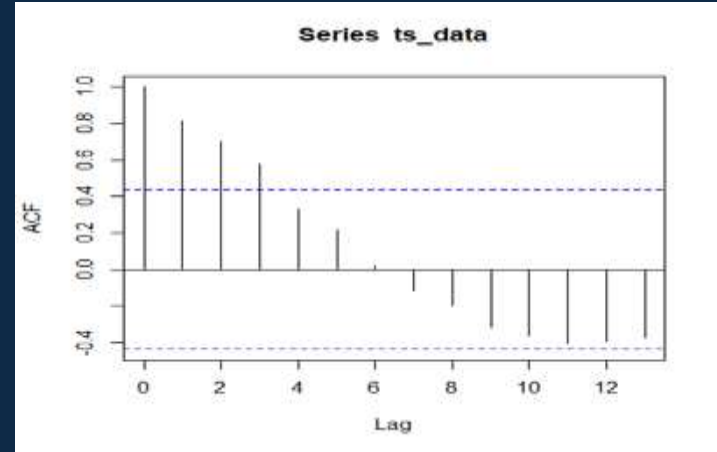
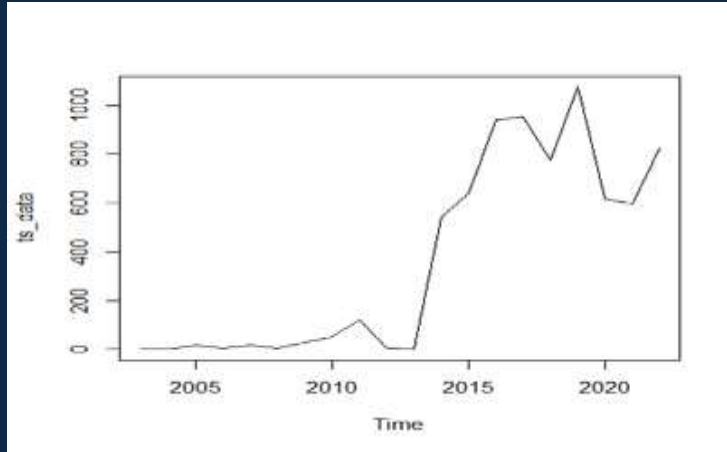
year	Jharkhand
2023	792.1144
2024	774.027
2025	756.7041
2026	740.1134
2027	724.224
2028	709.0062
2029	694.4316
2030	680.473
2031	667.1045
2032	654.301



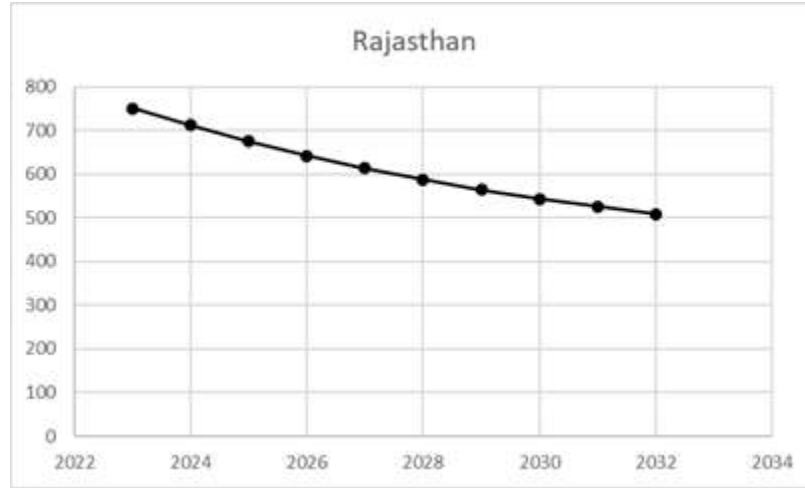
**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows a decreasing trend.**



# Rajasthan

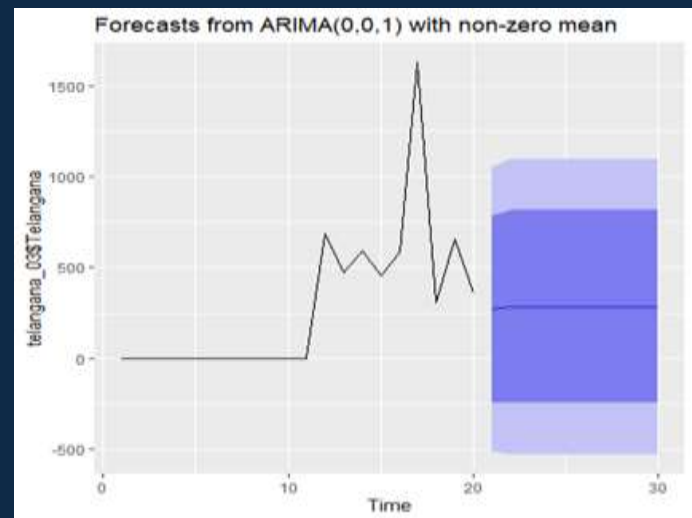
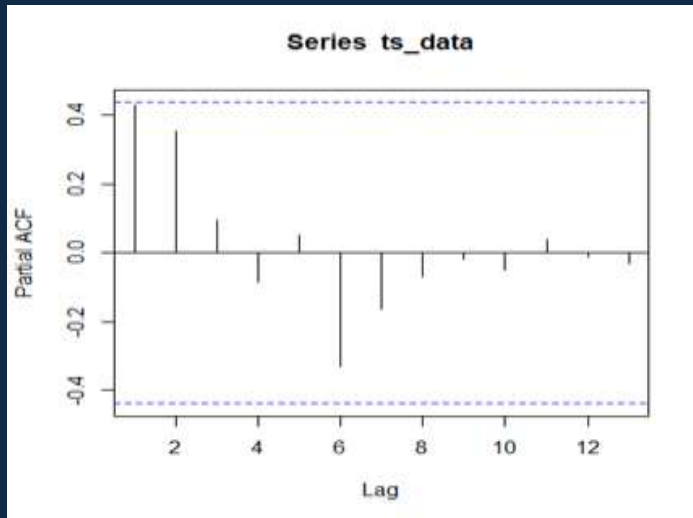
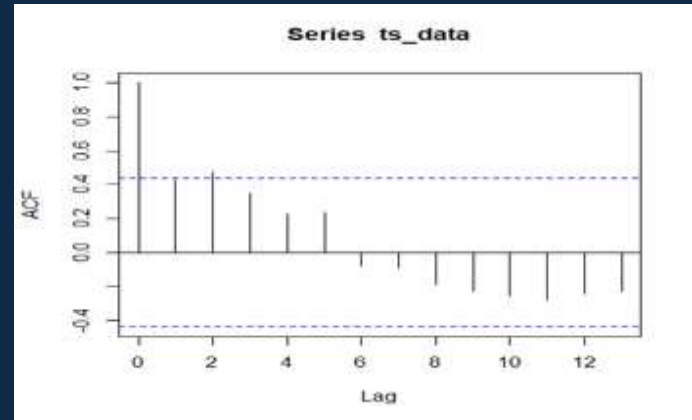
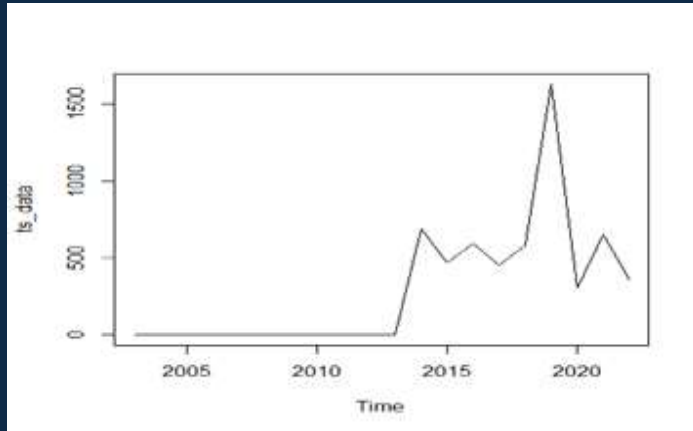


year	Rajasthan
2023	750.0979
2024	711.6961
2025	674.6748
2026	642.0313
2027	612.9632
2028	587.108
2029	564.1076
2030	543.6471
2031	525.4459
2032	509.2546

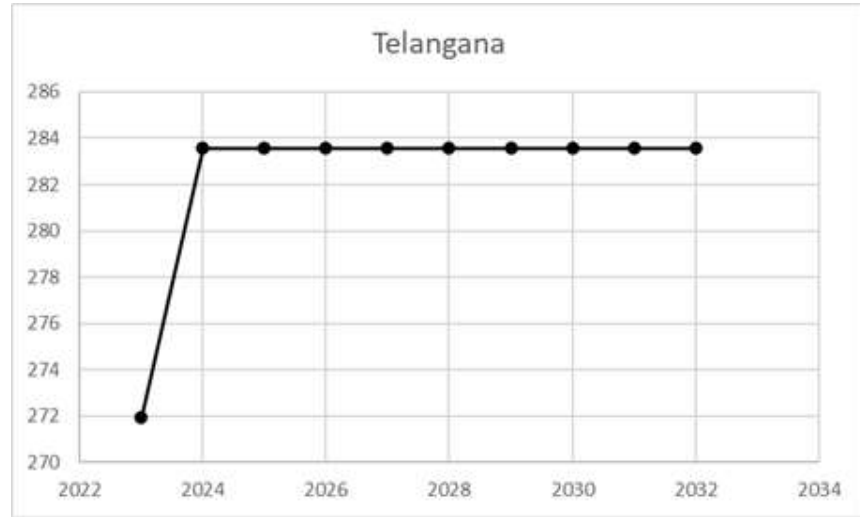


**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows a decreasing trend.**

# Telangana

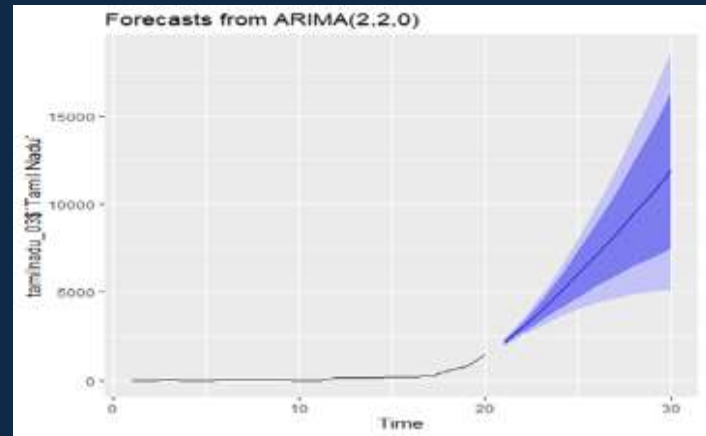
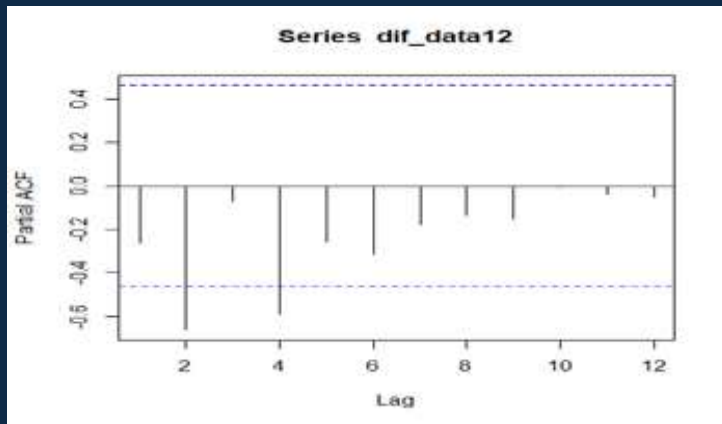
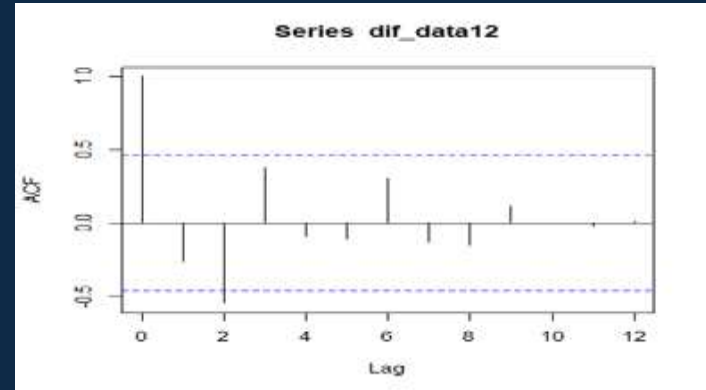
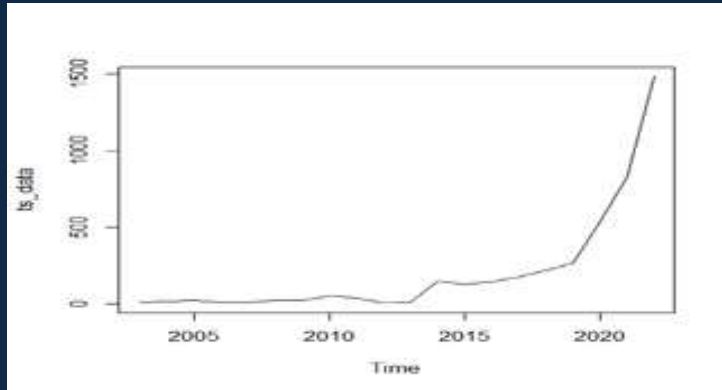


year	Telangana
2023	271.9122
2024	283.5758
2025	283.5758
2026	283.5758
2027	283.5758
2028	283.5758
2029	283.5758
2030	283.5758
2031	283.5758
2032	283.5758

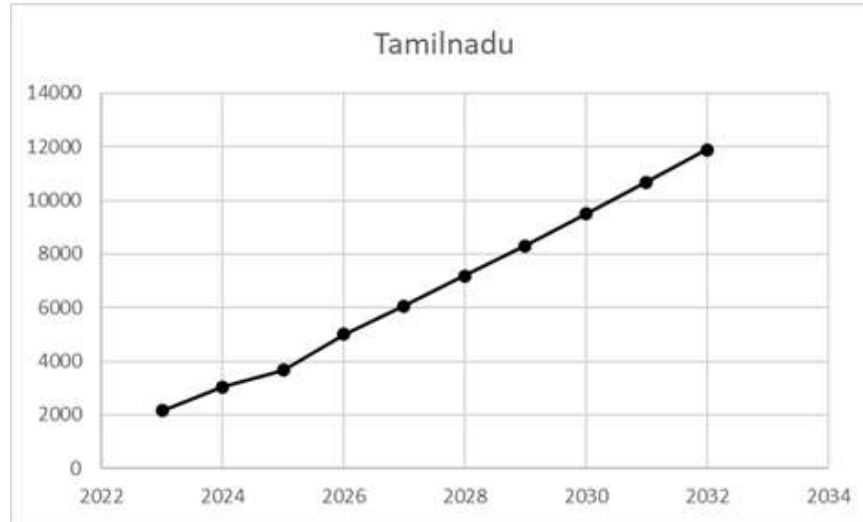


**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows an increasing trend.**

# Tamil Nadu

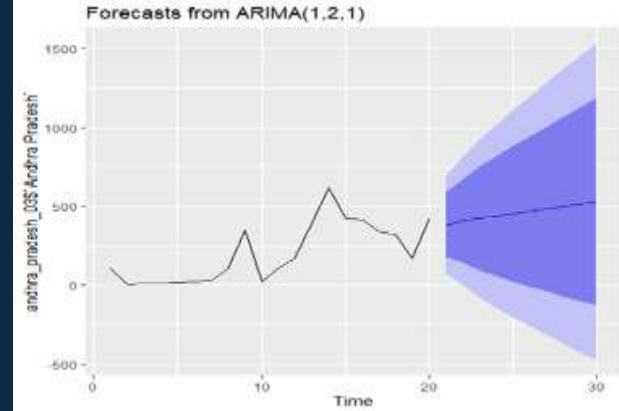
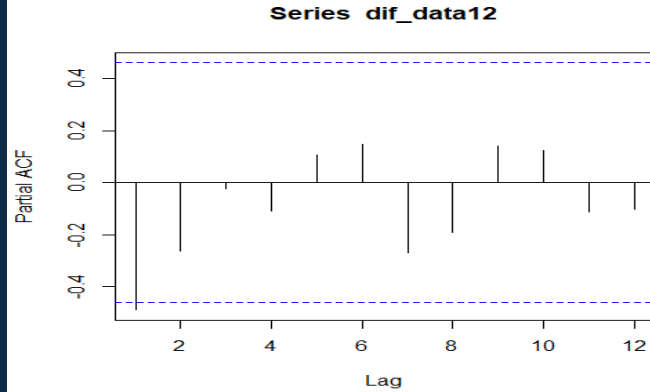
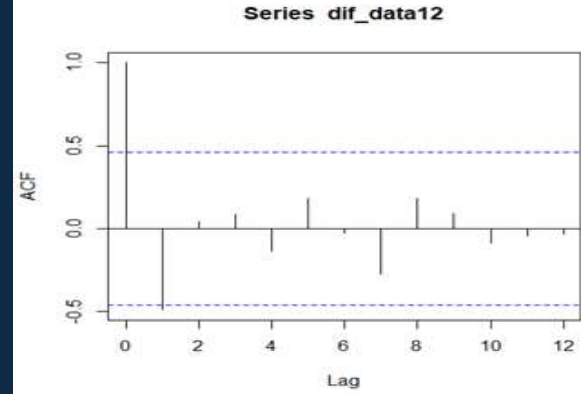
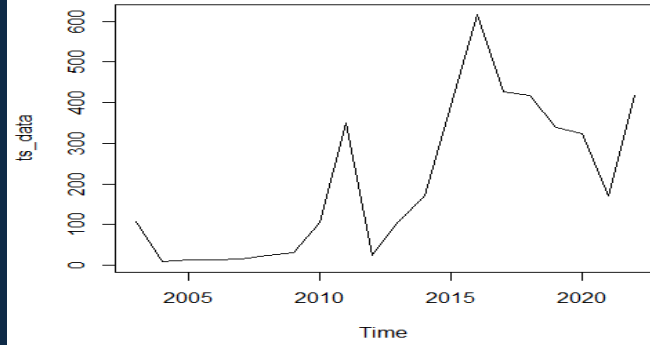


year	Tamilnadu
2023	2163.603
2024	3053.879
2025	3665.434
2026	5001.461
2027	6053.332
2028	7178.832
2029	8315.619
2030	9496.01
2031	10684.207
2032	11898.257

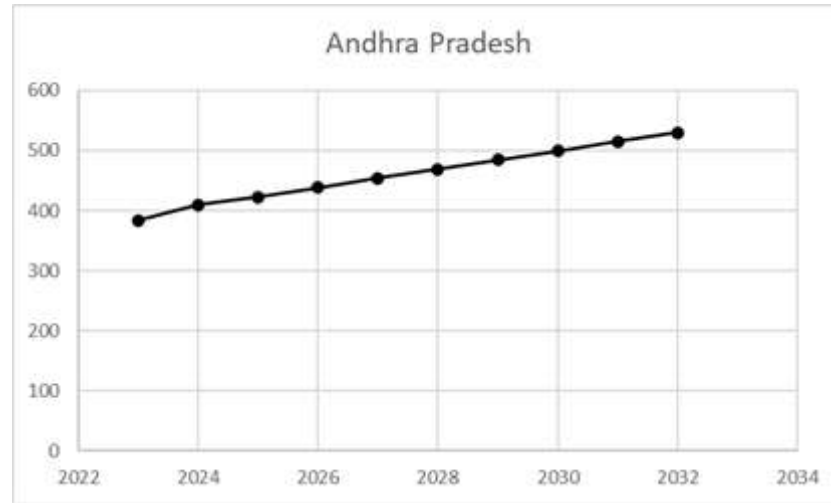


**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows an increasing trend.**

# Andhra Pradesh



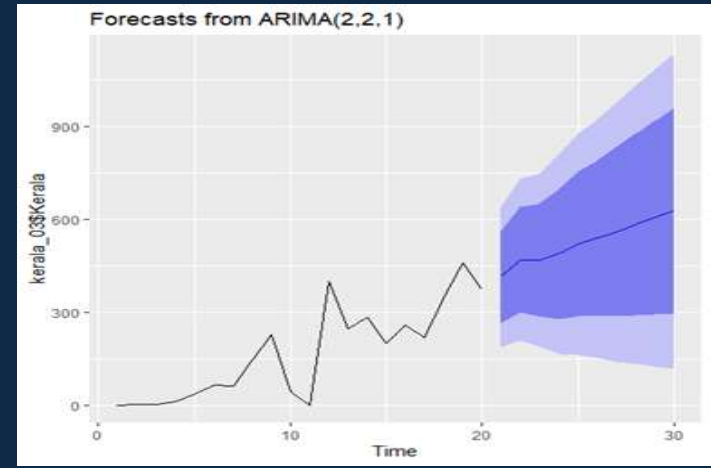
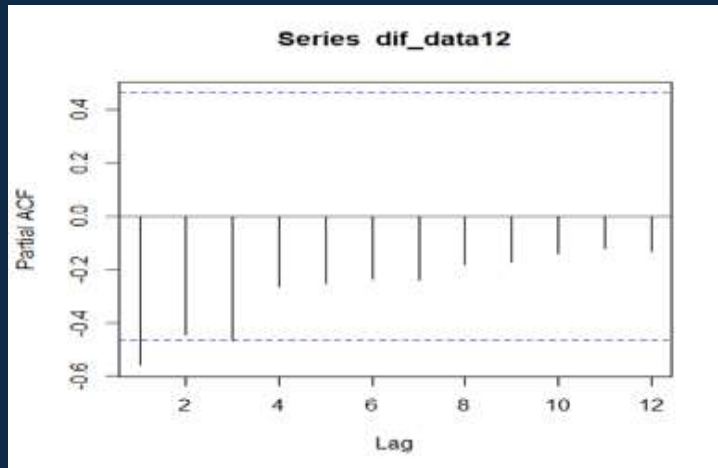
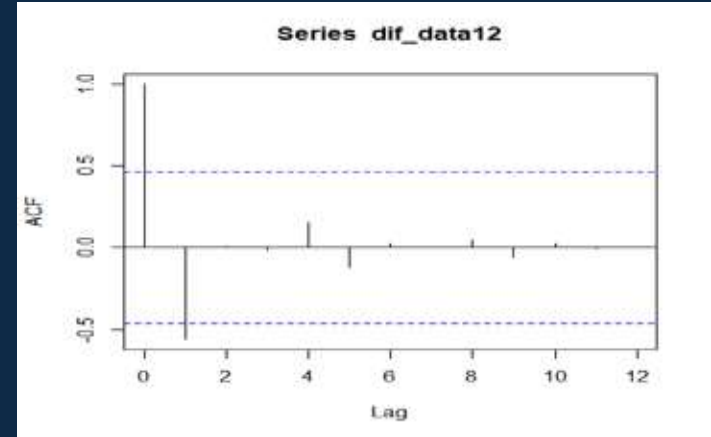
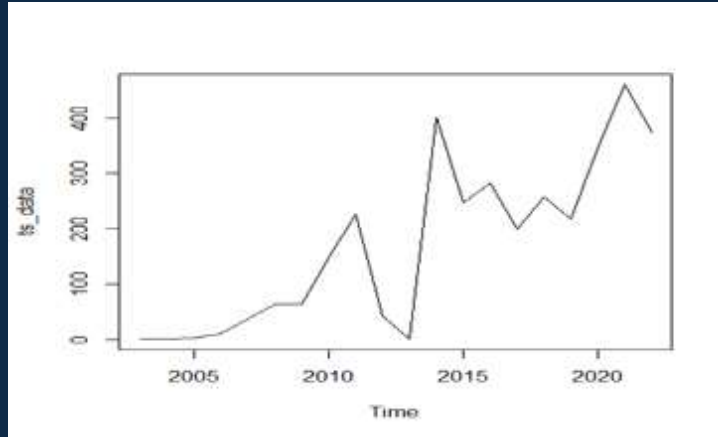
year	Andhra Pradesh
2023	383.8822
2024	409.6961
2025	422.7332
2026	438.4941
2027	453.6744
2028	468.9784
2029	484.2561
2030	499.5394
2031	514.8214
2032	530.1038



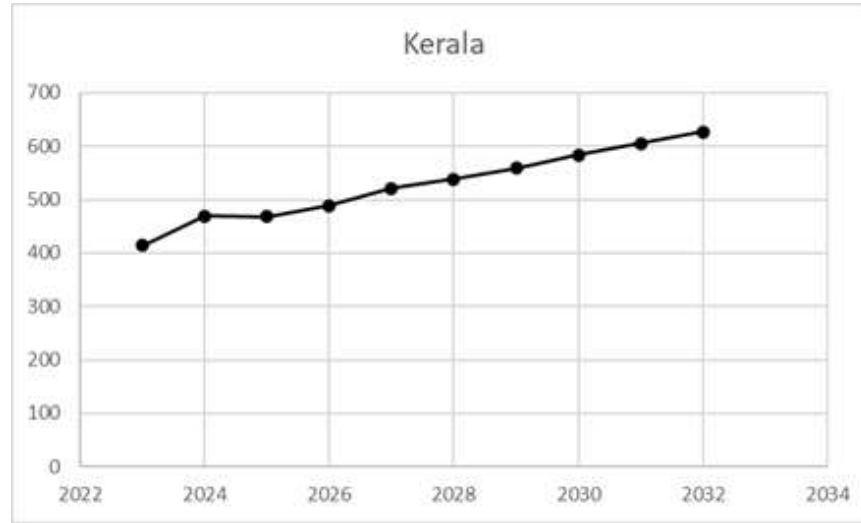
**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows an increasing trend.**



# Kerala

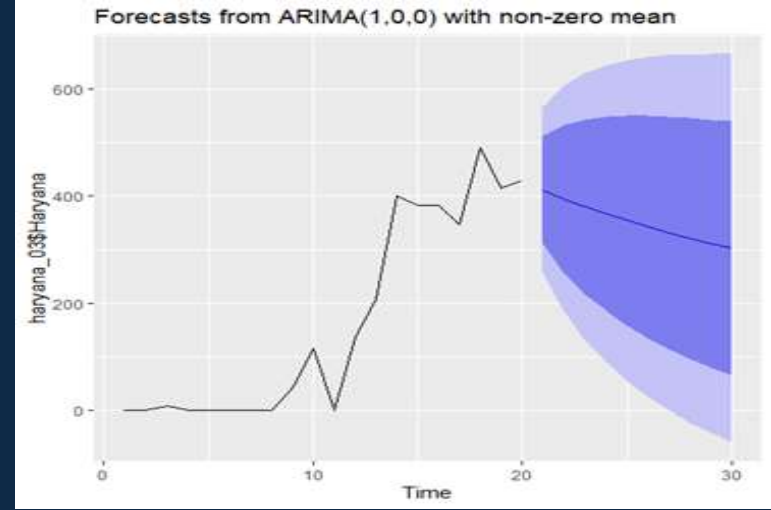
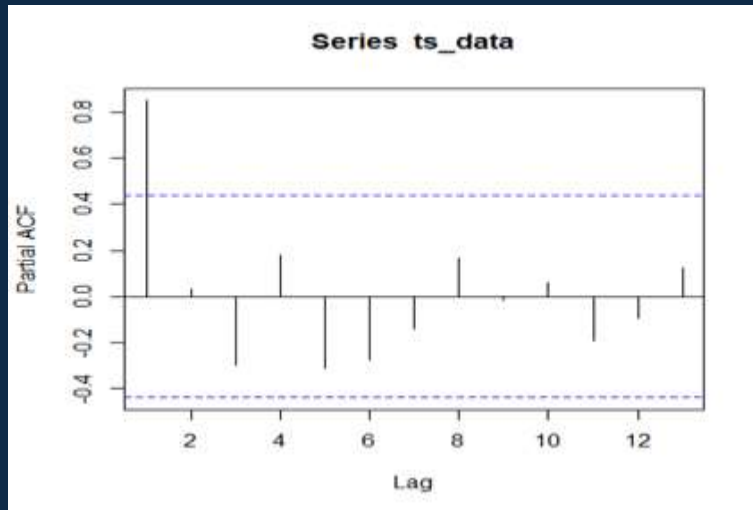
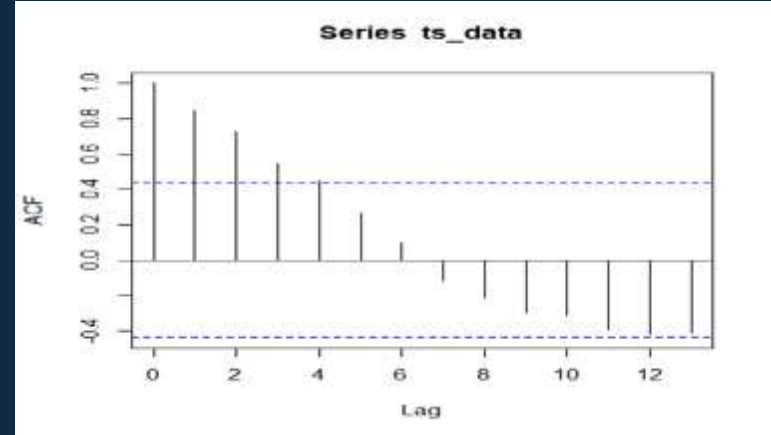
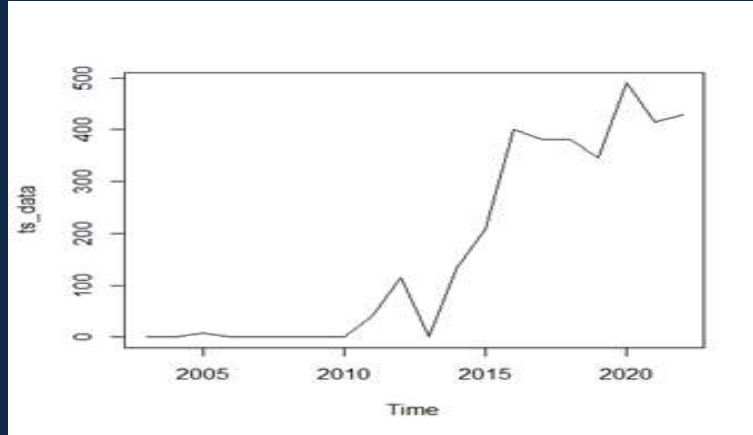


year	Kerala
2023	414.2218
2024	469.2477
2025	468.4711
2026	489.0455
2027	520.6865
2028	538.6271
2029	559.0313
2030	583.5199
2031	605.046
2032	626.451

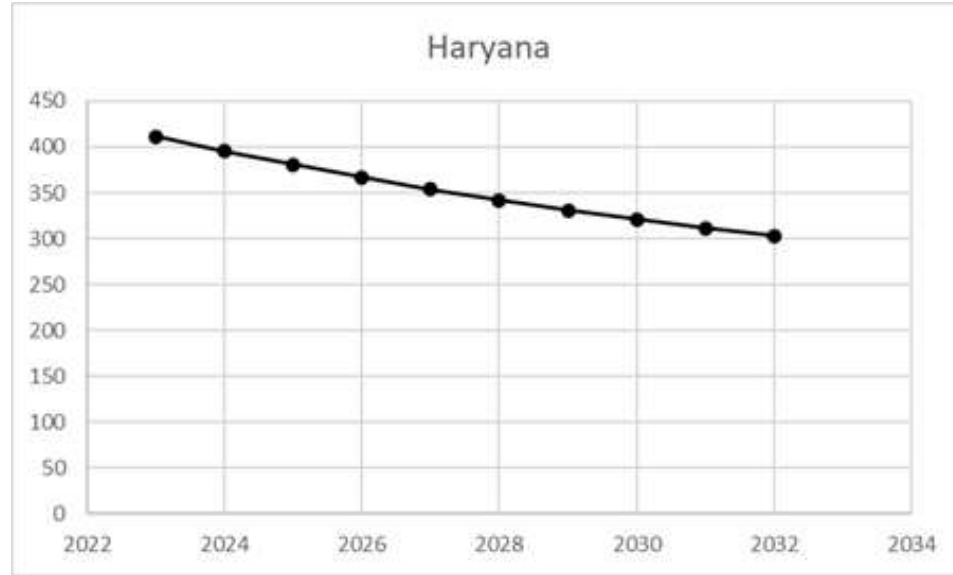


**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows an increasing trend.**

# Haryana

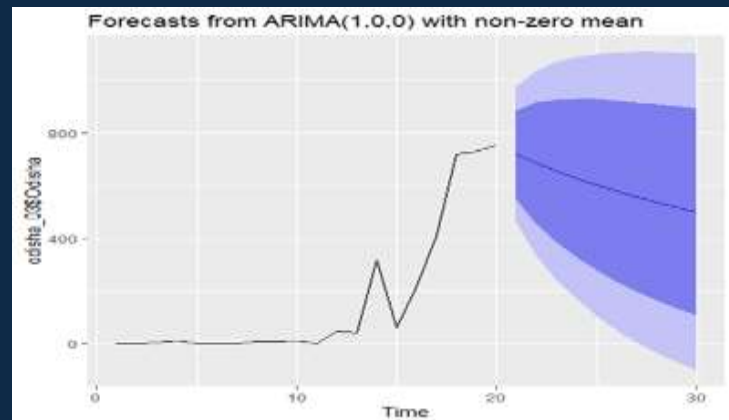
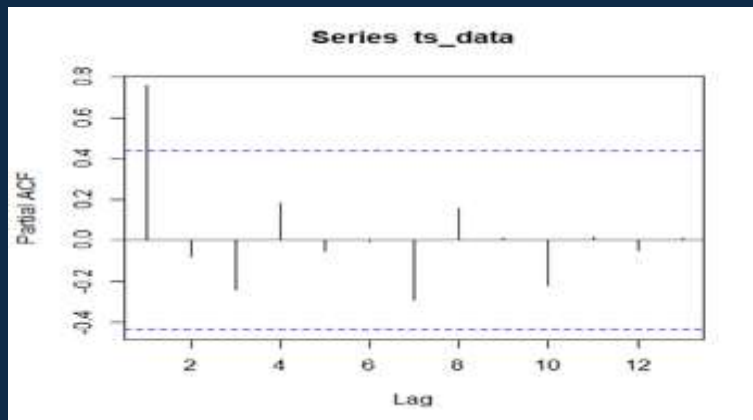
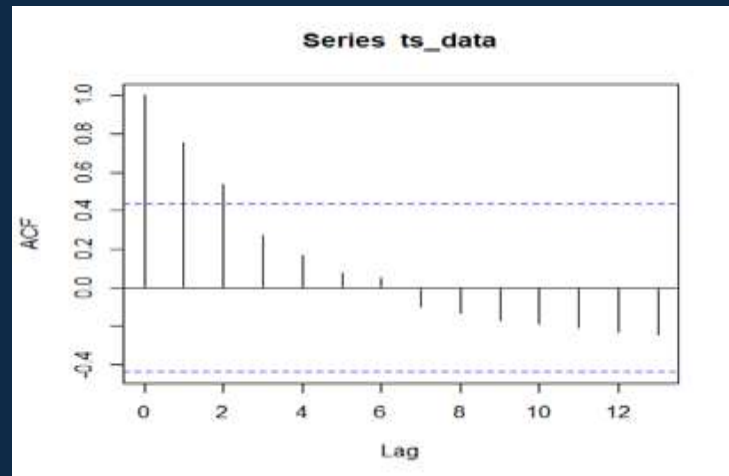
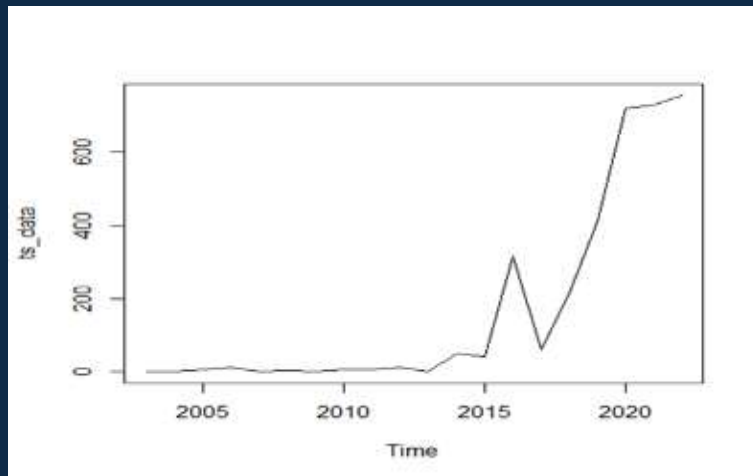


year	Haryana
2023	411.5815
2024	395.4542
2025	380.5224
2026	366.6975
2027	353.8974
2028	342.0462
2029	331.0735
2030	320.9142
2031	311.508
2032	302.799

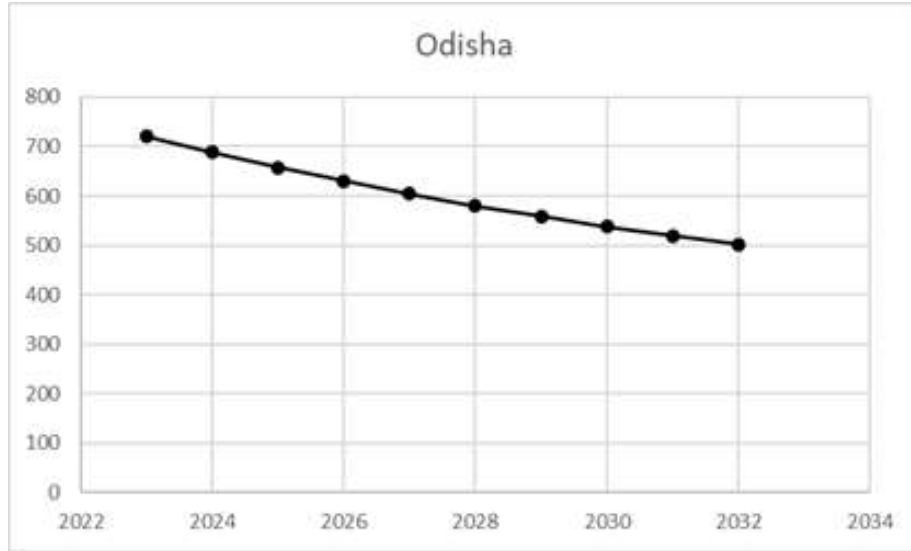


**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows a decreasing trend.**

# Odisha

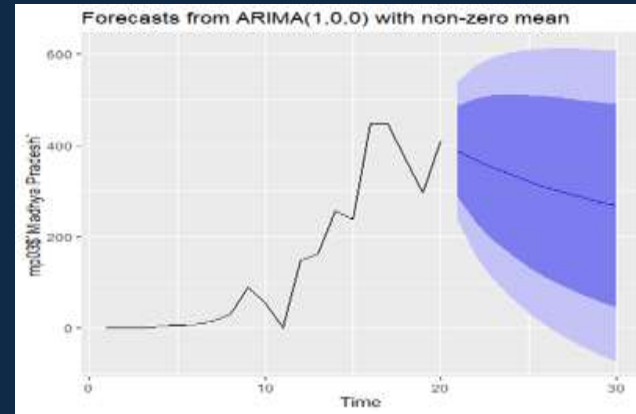
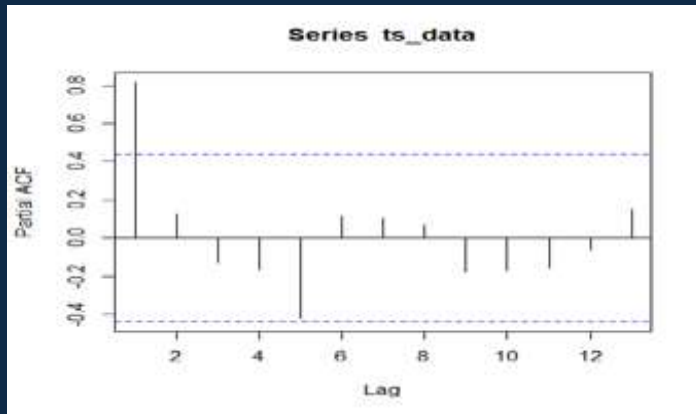
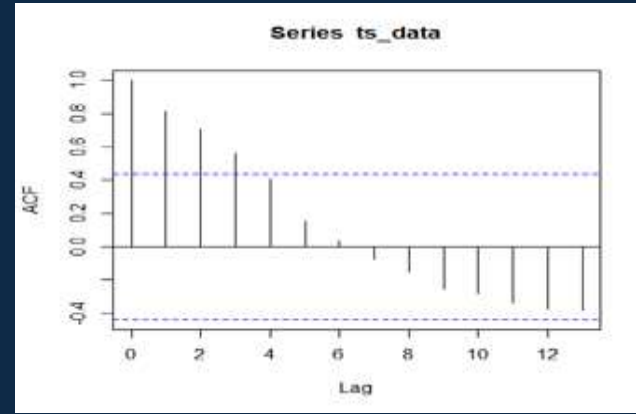
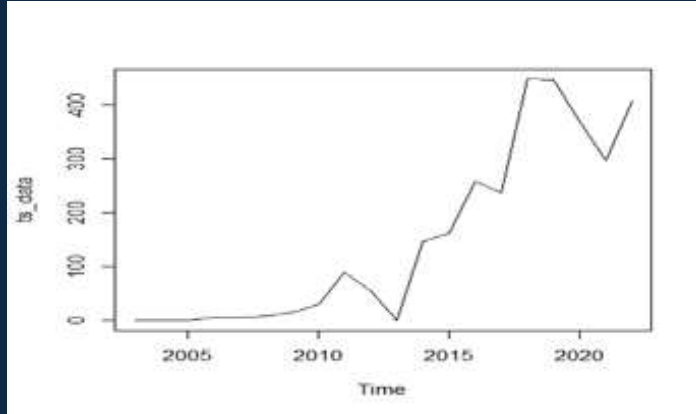


year	Odisha
2023	719.9453
2024	687.5006
2025	657.4715
2026	629.6782
2027	603.9542
2028	580.1454
2029	558.1093
2030	537.7139
2031	518.837
2032	501.3655

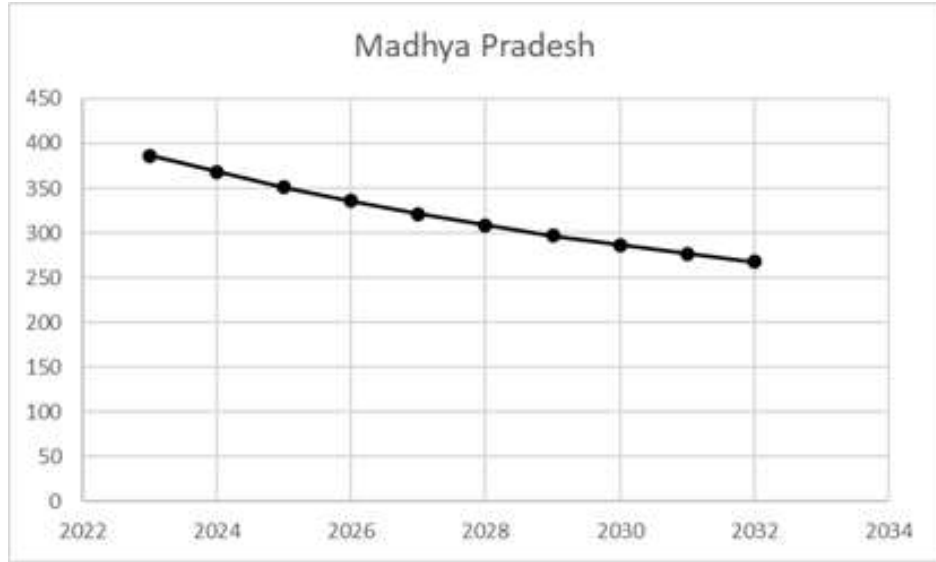


**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows a decreasing trend.**

# Madhya Pradesh



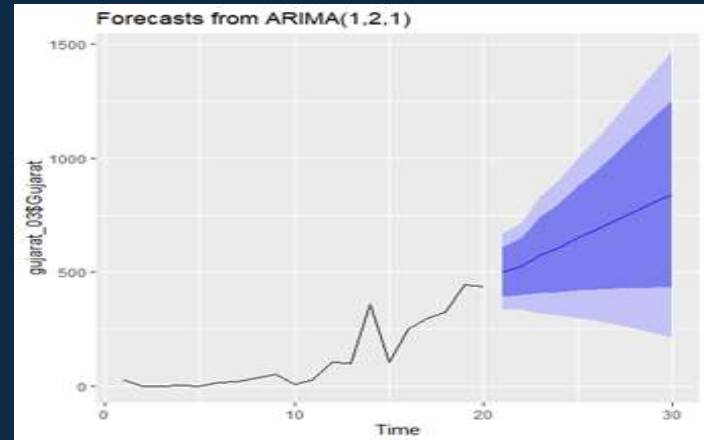
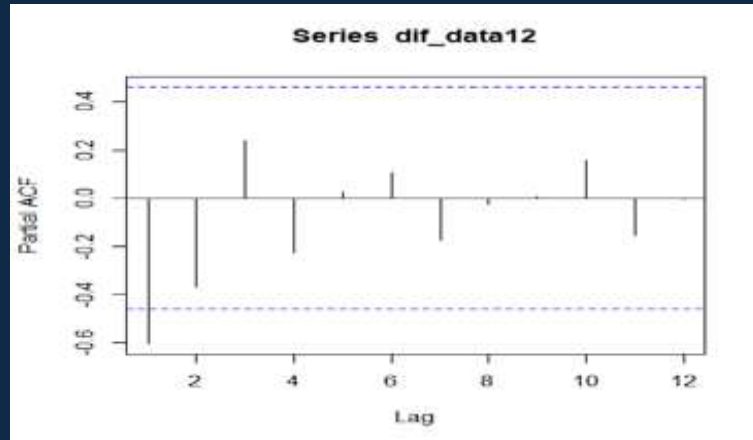
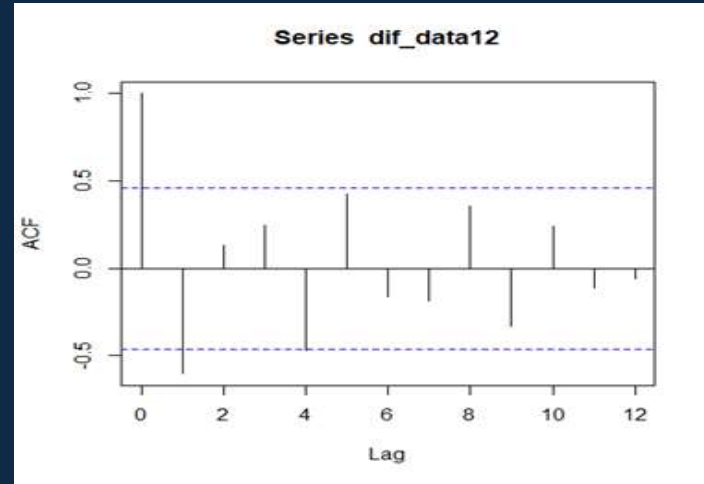
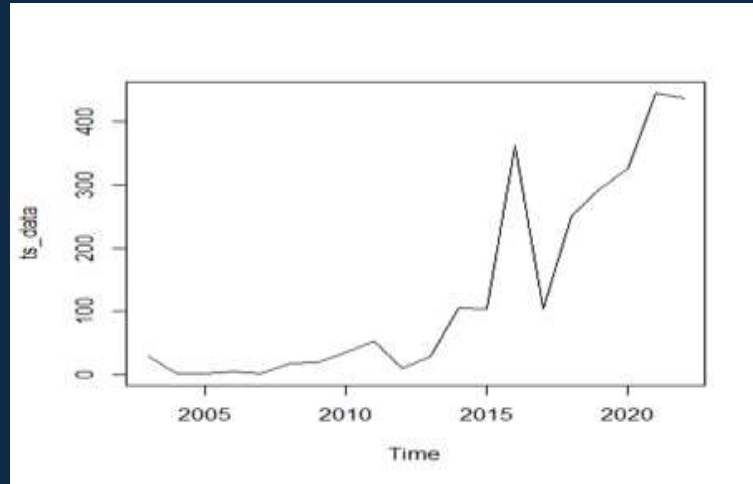
year	Madhya Pradesh
2023	386.5844
2024	367.9791
2025	351.0237
2026	335.5718
2027	321.49
2028	308.657
2029	296.962
2030	286.304
2031	276.5911
2032	267.7395



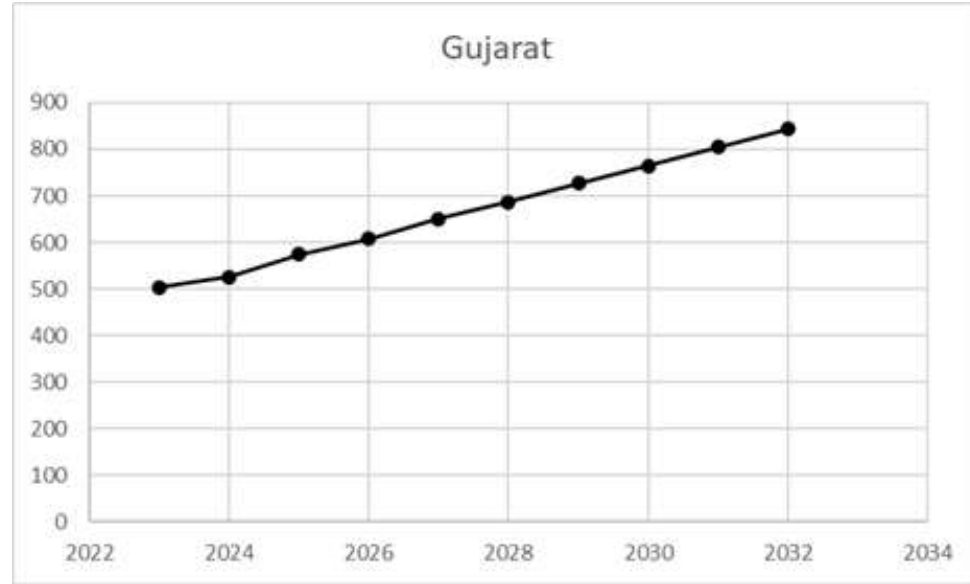
**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows a decreasing trend.**



# Gujarat

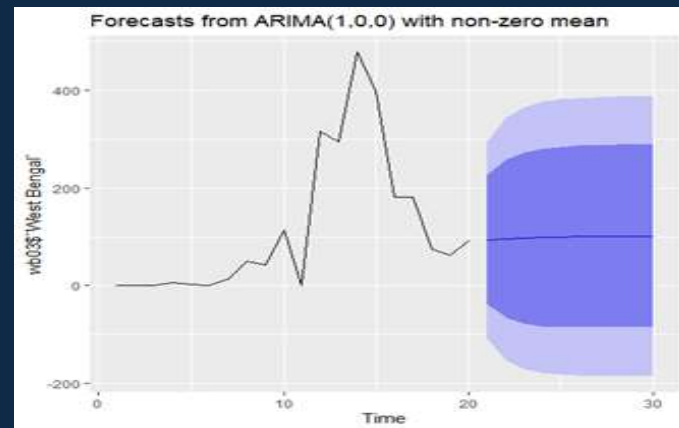
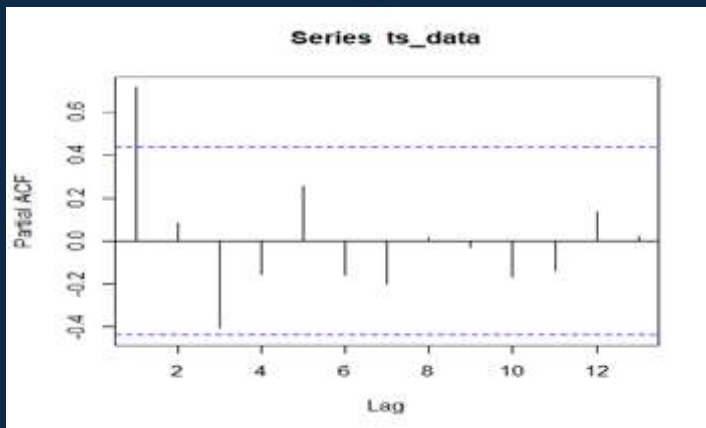
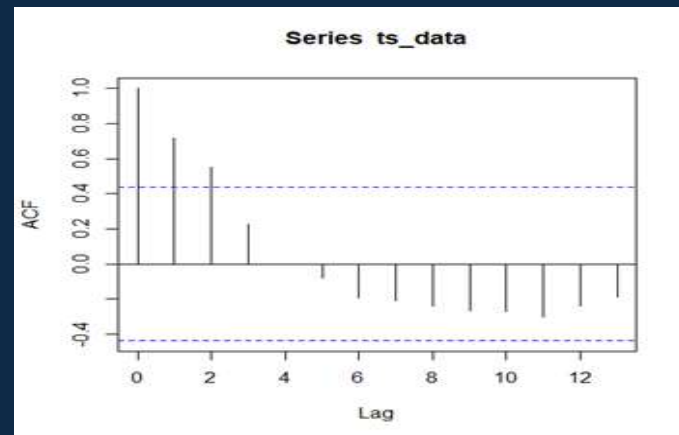
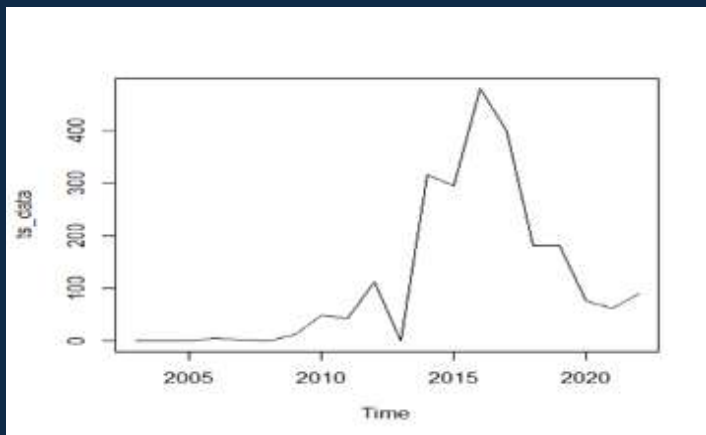


year	Gujarat
2023	503.7397
2024	525.6755
2025	574.8339
2026	607.452
2027	650.1199
2028	686.6816
2029	726.9534
2030	764.971
2031	804.3582
2032	842.9133

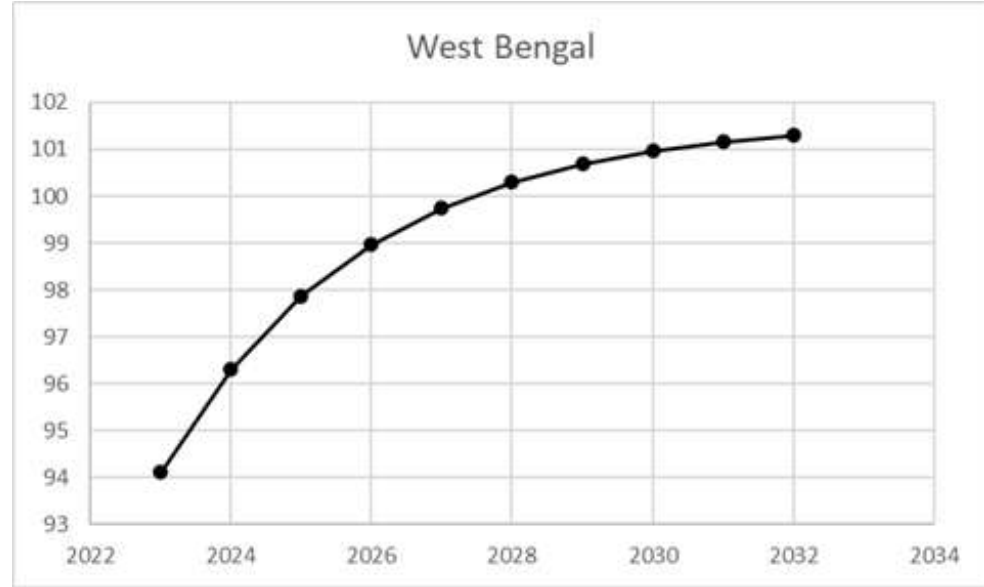


**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows an increasing trend.**

# West Bengal



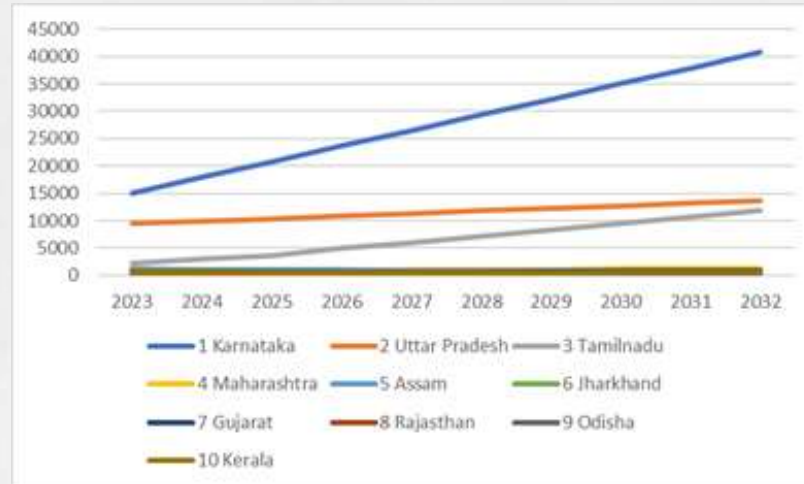
year	West Bengal
2023	94.10816
2024	96.30711
2025	97.86281
2026	98.96343
2027	99.74209
2028	100.29297
2029	100.6827
2030	100.95843
2031	101.1535
2032	101.29151



**From the above line diagram, we can observe that, the forecasted data for the years 2023 to 2032 shows an increasing trend.**



Now we have the forecasted values of the number of cybercrimes for the years 2023 to 2032 for the top 15 states of India as per previous 20 years data. Now, we are going to rank them as per upcoming 10 years forecasted values and find the TOP 10 states in India corresponding to the forecasted cybercrime number for upcoming 10 years.



# Table for Ranking

Rank	State	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	Karnataka	14950.78	17933.5	20749	23613.1	26463.15	29317.1	32170	35023.1	37873.2	40729.26
2	Uttar Pradesh	9423.053	9894.11	10365	10836.2	11307.26	11778.3	12249.4	12720.4	13191.5	13662.53
3	Tamilnadu	2163.603	3053.88	3665.4	5001.46	6053.332	7178.83	8315.62	9496.01	10684.2	11898.26
4	Maharashtra	702.8972	831.104	842.9	933.802	970.9509	1044.63	1093.48	1159.2	1213.46	1275.505
5	Assam	1270.136	1153.83	1061.7	988.776	931.0087	885.261	849.031	820.339	797.617	779.6222
6	Jharkhand	792.1144	774.027	756.7	740.113	724.224	709.006	694.432	680.473	667.105	654.301
7	Gujarat	503.7397	525.676	574.83	607.452	650.1199	686.682	726.953	764.971	804.358	842.9133
8	Rajasthan	750.0979	711.696	674.67	642.031	612.9632	587.108	564.108	543.647	525.446	509.2546
9	Odisha	719.9453	687.501	657.47	629.678	603.9542	580.145	558.109	537.714	518.837	501.3655
10	Kerala	414.2218	469.248	468.47	489.046	520.6865	538.627	559.031	583.52	605.046	626.451

So, from the above table we can conclude that, our TOP 10 states of India for upcoming 10 years corresponding to the forecasted cybercrime cases are **Karnataka, Uttar Pradesh, Tamil Nadu, Maharashtra, Assam, Jharkhand, Gujarat, Rajasthan, Odisha, Kerala.**



# Conclusion

The results of this study have important implications for policymakers, cybersecurity professionals, and researchers. By pinpointing key areas that need stronger security measures and policies, the study offers guidance on developing effective strategies to reduce the impact of cybercrime. It also gives the benefits of international cooperation between India and the USA in cybersecurity practices and innovations.

In conclusion, this project adds to our understanding of cybercrime by providing a detailed analysis and comparison of trends in India and the USA. It highlights the need for ongoing monitoring, flexible strategies, and international collaboration to effectively combat the ever-changing threat of cybercrime.



# Thank you!

