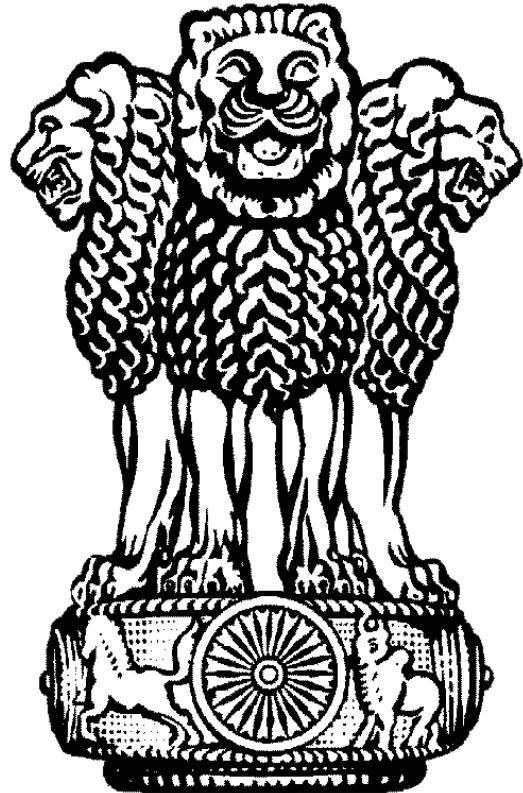




Goa Institute of Management



# Ministry of Statistics and Programme Implementation

सत्यमेव जयते

Advanced Analytics using Python

Team 12

# Team Members

---



**Apoorva Gupta**

---



**Luv Saxena**

---



**Hazia Fernandes**

---



**Pranjal Jindal**

---



**Paulami Sanyal**

---



**Prinshu Pandey**

---

# Contents of the Report

## 1 Understanding

- Client Data
- Objectives
- Indices
- Calculation of parameters
- Hurdles

## 2 Prioritization

- Time Series analysis
- Methodology
- Targets and Indicators

## 3 Measurement

- Progress Update
- Data Analysis
- Next steps

## SECTION 1

# Understanding Indices

# Indices

- National Account Statistics
- Industry Indices
- Price Indices
- Fiscal Statistics
- External Sector Statistics
- Production Statistics
- Labour Statistics
- Infrastructure Statistics



# Our Objectives

---

## Working on indices

Performing Data Analysis on the given data

Using Time Series model

Predicting scores for future

# Impact

---



## Time Series

---

Used data from 2011 to predict for future.



## Prediction

---

We used sectors data of National Account Statistics to get the prediction and calculating the score



## Correlation

---

We used National Account Statistics and developed the correlation matrix within it's sectors

## SECTION 2

---

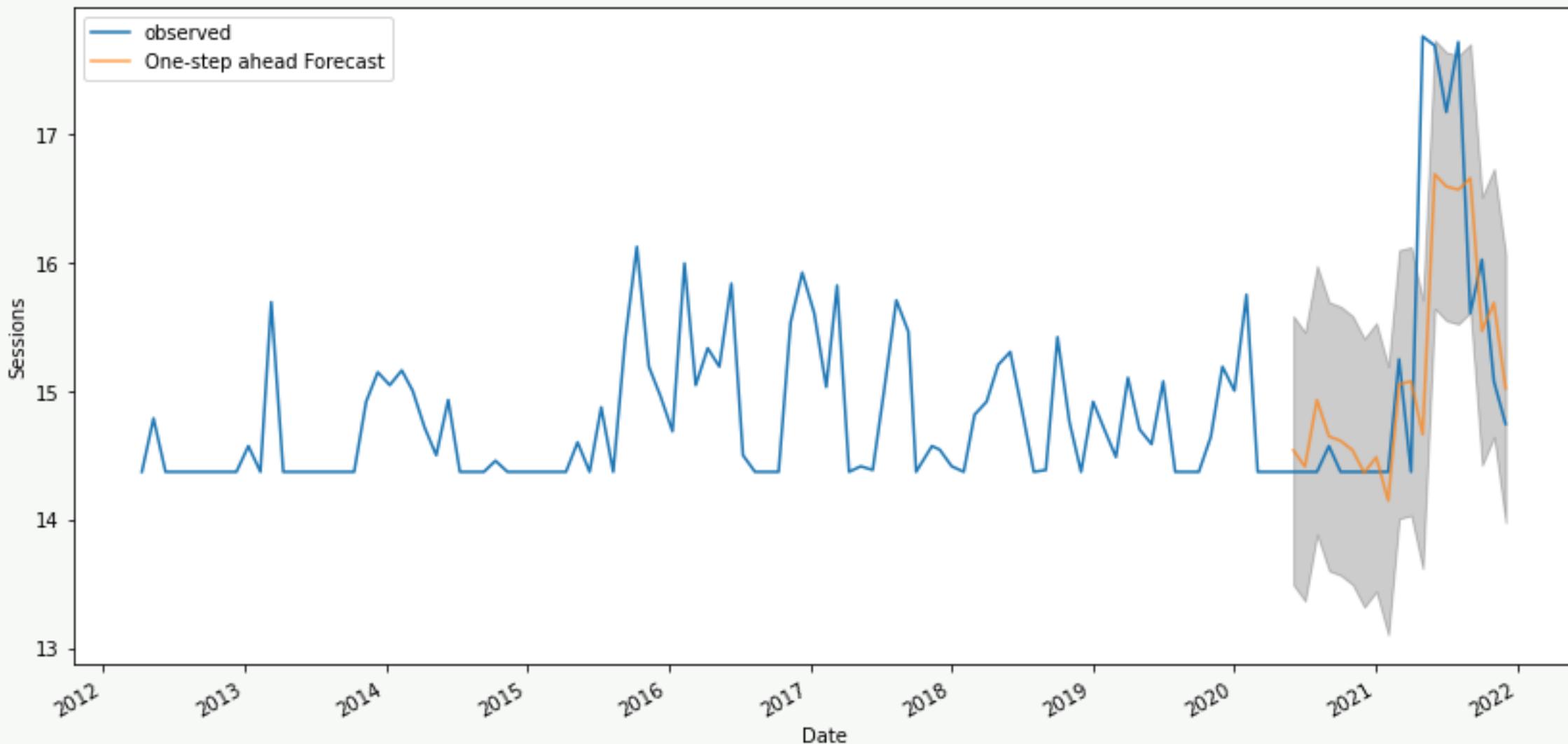
# Prioritization



# Time Series Analysis

Time series analysis was performed on Industry Indices of major sectors:

1. Mining
2. Electricity
3. Manufacturing
4. General

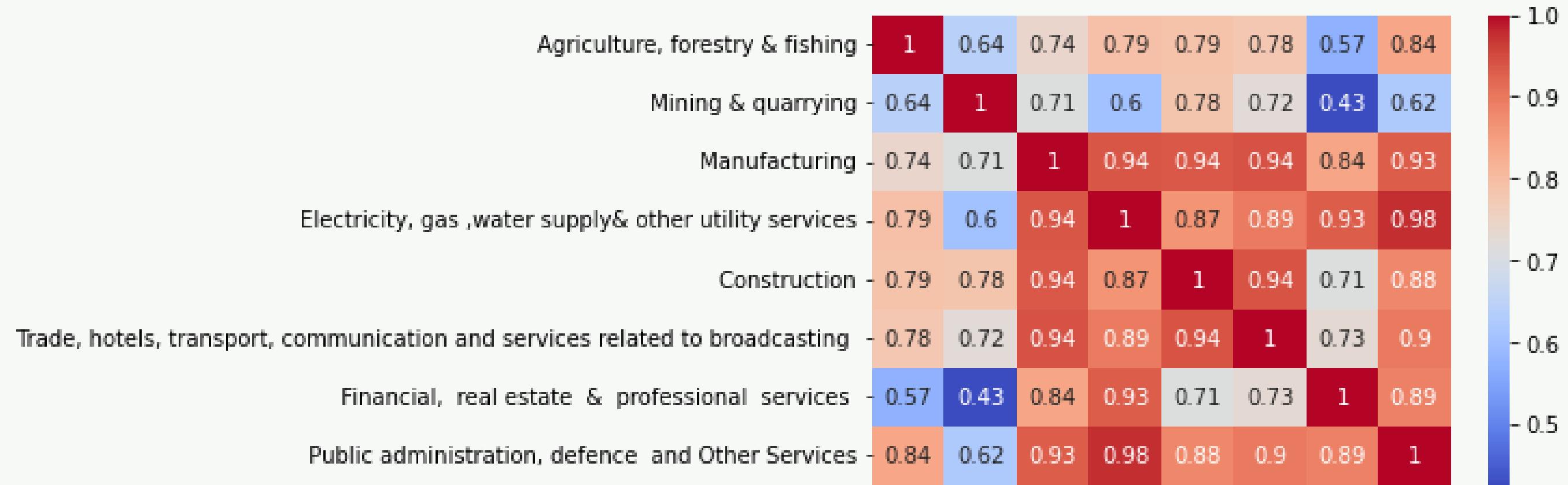


# Correlation

A correlation matrix was obtained on  
National Accounts Statistics data  
Performed in major sectors:

- 1.Mining
- 2.Electricity
- 3.Manufacturing
- 4.Trade
- 5.Financial
- 6.Agriculture
- 7.Public Administration
- 8.Electricity Gas

# Correlation Matrix



# Prediction

A prediction was made on  
National Accounts Statistics data  
Performed in major sectors:

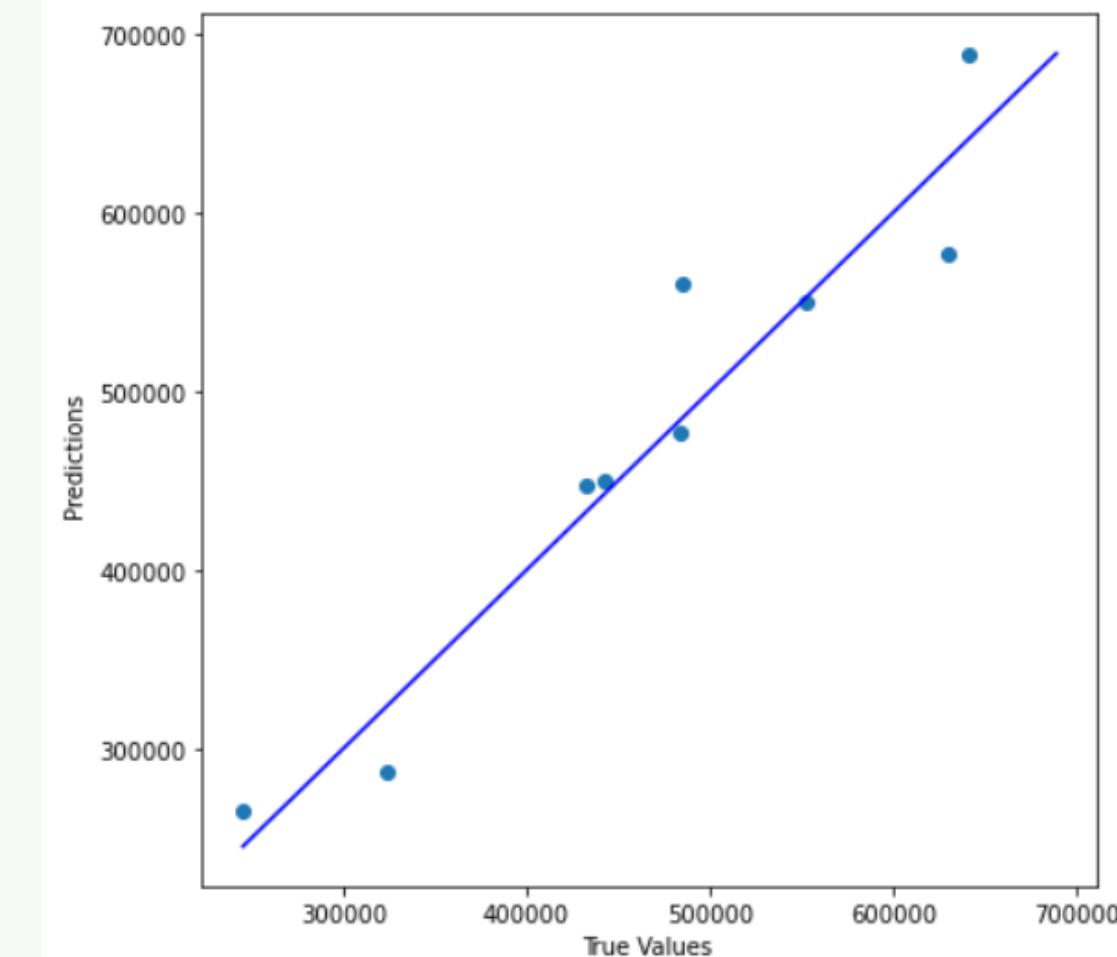
- 1.Mining
- 2.Electricity
- 3.Manufacturing
- 4.Trade
- 5.Financial
- 6.Agriculture
- 7.Public Administration
- 8.Electricity Gas

```
mape_score = np.mean(np.abs((y_test - y_pred) / y_test)) * 100
mape_score
```

```
6.405231429300367
```

```
plt.figure(figsize=(7,7))
plt.xlabel('True Values ')
plt.ylabel('Predictions ')
p1 = max(max(y_pred), max(y_test))
p2 = min(min(y_pred), min(y_test))
plt.plot([p1, p2], [p1, p2], 'b-')
plt.scatter(y_test,y_pred)
```

```
<matplotlib.collections.PathCollection at 0x1fb8a3616a0>
```



## SECTION 3

# Measurement



# Progress Update

1

## Sector Analysis

**Agriculture, forestry and fishing and mining and quarrying are the key sectors.**

2

## Indices

Time series on IIP index- Key columns are mining, electricity and manufacturing

# Next Steps

1

---

Elaborate on sectors of  
every indices.

2

---

Discovering Indices which  
can help to grow GDP

3

---

Clustering of  
sectors/indices to check  
the major contribution on  
GDP



# Acknowledgement and Resources

**Dr. Soumen kumar Manna**

---

Mentor

**Dr. P Balasubramanyam**

---

Give Goa Team

A group of four professionals are gathered around a wooden office desk, engaged in a collaborative discussion. On the left, a man in a dark shirt and glasses looks down at a tablet. Next to him, another man in a light-colored jacket and glasses is also looking at the tablet. In the center, a woman wearing round glasses and a white blouse is gesturing with her hands while speaking. To her right, a woman with long blonde hair and sunglasses is listening attentively. The desk is cluttered with various items: a small potted plant, a laptop, a smartphone, a book, and some papers. The background shows shelves filled with books and other office equipment.

Thank you!