

# **INDIAN INSTITUTE OF TECHNOLOGY JODHPUR**

**NH 62 Nagaur Road, Karwar, Jodhpur, Rajasthan**



## **MTech – Data Engineering**

### **TIME SERIES ANALYSIS**

**Plagiarism Report on  
RESERVE BANK of INDIA BALANCE SHEET FORECASTING**

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## Executive Summary, Topic 1 to 3

The screenshot shows the Duplchecker.com interface with the URL https://www.duplichecker.com in the address bar. The top navigation bar includes 'Plagiarism Checker', 'Check Grammar', 'AI Detector', and a 'Pro' button. The main content area displays the 'Scan Properties' section with 0 sources found, 872 words, and 6839 characters. It also shows a large 'Plagiarism 0%' indicator and a 'Unique 100%' badge. Below this is the 'Executive Summary' section, which contains a detailed text about a forecasting project for the weekly balance sheet data of the RBI, mentioning ARIMA models and monetary economics. To the right of the summary is a cartoon illustration of a person sitting at a desk with a laptop, looking at a checklist. A blue speech bubble icon is in the bottom right corner.

## Topic 4 to 5

The screenshot shows the Duplchecker.com interface with the URL https://www.duplichecker.com in the address bar. The top navigation bar includes 'Plagiarism Checker', 'Check Grammar', 'AI Detector', and a 'Pro' button. The main content area displays the 'Scan Properties' section with 0 sources found, 998 words, and 6959 characters. It shows a large 'Plagiarism 0%' indicator and a 'Unique 100%' badge. Below this is the 'Executive Summary' section, which contains a detailed text about Exploratory Time Series Analysis, specifically Univariate Time Series Visualization. It discusses line plots, trends, and moving averages. A bulleted list includes: 'Trend Analysis: This involves the determination of long-term directional movements from visual inspection and moving averages.', 'Upward: Reflecting an increase in reserves, deposits, or circulation.', 'Downward: Suggesting contraction or policy-driven reductions.', and 'Stationarity: nonconstant signal around a constant mean'. At the bottom, it mentions 'Moving Averages: The application of rolling windows (e.g., 4-week or 12-week moving averages) serves several purposes:' followed by a bulleted list: 'Smooths short-run volatility' and 'Reveals underlying trends'. To the right of the summary is a cartoon illustration of a person sitting at a desk with a laptop, looking at a checklist. A blue speech bubble icon is in the bottom right corner.

## Topic 6 to 9

https://www.duplichecker.com

Plagiarism Checker Check Grammar AI Detector Pro

**Scan Properties**

Sources Found	0
Words	998
Characters	7489

**Plagiarism** 0% **Exact Match** 0% **Partial Match** 0%

**Unique** 100%

6. Key Findings and Time Series Insights  
6.1 Correlation Patterns in Time Series  
The analysis reveals strong correlations between deposits and loans across different sectors. From a time series perspective, this suggests:  
Cointegration: Two or more time series that share a common stochastic trend, indicating long-run equilibrium relationships  
Lead-Lag Relationships: The observation that government deposits decrease when loan advances rise suggests a temporal sequence where one series affects another with potential delays  
Structural Breaks: Policy changes or economic events can create shifts in these relationships, visible as changes in correlation patterns over time  
6.2 Asset Composition Trends



Checklist icon

## Topic 10, References

https://www.duplichecker.com

Plagiarism Checker Check Grammar AI Detector Pro

**Scan Properties**

Sources Found	0
Words	365
Characters	2812

**Plagiarism** 0% **Exact Match** 0% **Partial Match** 0%

**Unique** 100%

10. Conclusion and Future Directions  
10.1 Summary of Time Series Contributions  
This project successfully demonstrates comprehensive time series analysis applied to real-world financial data. The use of ARIMA models provides reliable short-term forecasts while the exploratory analysis reveals important relationships and trends in India's monetary system. The weekly frequency data offers granular insights into rapid changes in financial conditions, making it valuable for operational decision-making.  
10.2 Methodological Strengths  
The project's strengths include:

- Appropriate data preprocessing for time series analysis
- Systematic exploratory analysis revealing temporal patterns
- Use of established forecasting methodology (ARIMA)
- Clear visualization of historical trends and forecasts



Congratulations!  
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