



Abstract— The Smart Retail Inventory and Demand Prediction System is a deep learning-based project developed to forecast weekly product demand, enabling businesses to manage inventory proactively and minimize stockouts or overstocking. The core objective of the system is to enhance sales insights by leveraging time-series data and advanced deep learning models, thus supporting smarter inventory decisions that increase profitability and operational efficiency. The system primarily uses an LSTM model for demand forecasting, with additional models like GRU, CNN for time series, CNN-LSTM hybrid, Transformer-based (simplified transformer), and Temporal Convolutional Network (TCN) implemented for comparative analysis. Problem: Traditional inventory systems rely on... (only first 800 chars shown)



**Analysis complete.** Our feedback is listed below in printable form. Some of the items have been truncated or removed to provide better print compatibility.

## Alerts

### Research Paper With No Works Cited List?

You marked this as a 'Research Paper' but no Works Cited, Bibliography, or similar list of sources could be found. If this actually is a research paper be sure to include a list of sources for the paper in your final draft.

## *Plagiarism Detection*

### Original Work

**Originality:** 100%



**This paper does not exhibit any signs of plagiarism.** Well done!

More info on our originality scoring process (<http://www.PaperRater.com/page/plagiarism-detection>) .

## *Spelling*

### Spelling Suggestions

No spelling errors found.

## *Grammar*

### Grammar Suggestions

Error	Suggestion
dataset	data set
	In
.	

•	
•	
•	
lead	leads
relied	rely
failed	fail
relied	relies
struggled	struggle
dataset,	data set,
dataset	data set
	of

## Word Choice

### Usage of Bad Phrases

**Bad Phrase Score:** 0.52 (lower is better)

The Bad Phrase Score is based on the quality and quantity of trite or inappropriate words, phrases, egregious misspellings, and cliches found in your paper. You did equal or better than **98%** of the people in your education level.



Great work - your score is well above average! Continue choosing quality phrases in your writing.

## Style

### Usage of Transitional Phrases

**Transitional Words Score:** 64

This score is based on quality of transitional phrases used within your paper. You did equal or better than **52%** of the people in your education level.



**Good job!** Your usage of transitional phrases is above average. Nevertheless, you may still benefit from reading the info below.

One sign of an excellent writer is the use of transitional phrases (e.g. therefore, consequently, furthermore).

Transitional words and phrases contribute to the **cohesiveness**

([http://www.PaperRater.com/vocab\\_builder/show/cohesiveness](http://www.PaperRater.com/vocab_builder/show/cohesiveness)) of a text and allow the sentences to flow smoothly. Without transitional phrases, a text will often seem disorganized and will most likely be difficult to

understand. When these special words are used, they provide organization within a text and lead to greater understanding and enjoyment on the part of the reader.

The following transitional phrases were found in your document:  
specifically, and, especially, thus, however, particularly, in time, in addition, accordingly

Consider using additional transitions where appropriate:

- consequently ([http://paperrater.com/vocab\\_builder/show/consequently](http://paperrater.com/vocab_builder/show/consequently))
- moreover ([http://paperrater.com/vocab\\_builder/show/moreover](http://paperrater.com/vocab_builder/show/moreover))
- nevertheless ([http://paperrater.com/vocab\\_builder/show/nevertheless](http://paperrater.com/vocab_builder/show/nevertheless))
- notwithstanding ([http://paperrater.com/vocab\\_builder/show/notwithstanding](http://paperrater.com/vocab_builder/show/notwithstanding))
- conversely ([http://paperrater.com/vocab\\_builder/show/conversely](http://paperrater.com/vocab_builder/show/conversely))
- ordinarily ([http://paperrater.com/vocab\\_builder/show/ordinarily](http://paperrater.com/vocab_builder/show/ordinarily))

Transitional phrases may be used in various places in a text:

- between paragraphs
- between sentences
- between sentence parts
- within sentence parts

Consider this example:

She didn't like the pudding and, **consequently**, threw it all away.

The word '**consequently**' contributes to greater unity or cohesion between sentences and allows the text to flow more smoothly.

## *Style*

### Sentence Length Info

**Total Sentences:** 66

**Avg. Length:** 19.4 words

**Short Sentences** (< 17 words): 17 (26%)

**Long Sentences** (> 35 words): 0 (0%)

**Sentence Variation:** 7.3 words (std deviation)



Great work! Your average sentence length is within an acceptable range.

Line chart of the length of each sentence (first 50 sentences). A jagged chart indicates variation.



Helpful Resources:

- Effective Use of Sentence Length (<http://blog.paperrater.com/2015/05/effective-use-of-sentence-length.html>)

## *Style*

### Readability Indices

For more than 80 years, great minds have attempted to represent a text with a single score that summarizes its complexity. Writers sometimes use such 'readability indices' to gauge whether or not their text is appropriate for an audience of a particular grade level. Several of the most popular readability scores are included below. More info on interpreting these scores (<http://blog.paperrater.com/2015/04/readability->

indices.html) .

Index	Score
Automated Readability Index	19.2
Coleman-Liau Index	20.5
Dale-Chall Readability Formula	11.1
Flesch Reading Ease	7.0
Flesch-Kincaid Grade Level	17.5
Fry Readability Formula	6.0
Gunning-Fog Index	21.0
LIX	67.3
Linsear Write	17.0
Raygor Estimate Graph	14.0
SMOG (Simple Measure of Gobbledygook)	17.8
Spache Readability Formula	56.3

## Style

### Passive Voice

**Passive Voice Sentences:** 10.6%

Many writers feel that passive voice represents poor writing form, as it allows the object of an action to be the subject of a sentence. The following sentences were detected as having passive voice:

- ... Transformer, and TCN models **are also trained** on the same dataset for accuracy ...
- Each model **is evaluated** on forecasting the next week's ...
- ... Convolutional Networks (TCN) **are employed** for comparative analysis.
- ... a deep learning-based solution **is required** to forecast the demand for each ...
- ... Transformer-based models, and TCN **are used** for comparative analysis, providing ...
- ... Transformer-based models, and TCN **are used** for comparative analysis to ...
- These models **were trained** on the same historical retail sales ...



Helpful Resources:

- Active vs Passive Voice (<http://blog.paperrater.com/2015/05/passive-voice-vs-active-voice.html>)

## Style

### Sentence Beginnings

**Simple Sentence Starts:** 8%

You did equal or better than **86%** of the people in your education level.



**Nice work!** The variety and complexity of your sentence starts is above average.

Variety is the hallmark ([http://www.PaperRater.com/vocab\\_builder/show/hallmark](http://www.PaperRater.com/vocab_builder/show/hallmark)) of a good writer and this is especially true in regards to sentence starts. Creatively arranging sentence beginnings breaks up the monotony ([http://www.PaperRater.com/vocab\\_builder/show/monotony](http://www.PaperRater.com/vocab_builder/show/monotony)) and choppy style associated with a simple noun phrase followed by a verb. This does NOT mean that all sentences should begin with prepositional phrases, transitions, or adverbial phrases, but it does mean that you should be certain to pay attention to sentence starts and deliberately edit for variety if necessary. Here are some simple sentence starts that we found in your text:

- **Retailers require a...**
- **Inventory mismanagement continues to...**
- **Traditional inventory planning relies heavily...**
- **Data was then...**
- **Our system provides an...**

Starts by Part of Speech:

Adjective: 11%

Adverb: 3%

Article: 0%

Conjunction: 0%

Noun: 23%

Preposition: 12%

Pronoun: 5%

Verb: 2%

Other: 36%



Helpful Resources:

- Sentence Beginnings - your sentences' first impression (<http://blog.paperrater.com/2015/06/sentence-beginnings.html>)

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## *Vocabulary Words*

### Usage of Academic Vocabulary.

**Vocabulary Score:** 532.93

This score is based on the quantity and quality of scholarly vocab words found in the text. You did equal or better than **96%** of the people in your education level.



**Vocabulary Word Count:** 139

**Percentage of Vocab Words:** 13.6%

**Vocab Words in this Paper** (top 20):

proactively, leveraging, temporal, integrating, recurrent, mismanagement, inefficiencies, predictive, comprehensive, leverages, enabling, objective, enhance, insights, profitability, operational, efficiency, primarily, implemented, comparative



**Outstanding job!** You really know your vocab. Take a look at our Vocab Builder ([http://www.PaperRater.com/vocab\\_builder/index](http://www.PaperRater.com/vocab_builder/index)) if you want some extra practice.

**Tips**

Whether you are writing for a school assignment or professionally, it is imperative that you have a vocabulary that will provide for clear communication of your ideas and thoughts. You need to know the type and level of your audience and adjust your vocabulary accordingly. It is worthwhile to constantly work at improving your knowledge of words. To help with this task, please consider using our **Vocabulary Builder** ([http://www.PaperRater.com/vocab\\_builder/index](http://www.PaperRater.com/vocab_builder/index)) to improve your comprehension and usage of words.

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**→ Grade****Auto Grader****Grade:** 95 A

The grade above is NOT complete! We do not actually use a crystal ball to generate your grade. Instead, this grade takes into account spelling, grammar, word choice, style, vocabulary, and more; but it does NOT examine the *meaning* of your words, how your ideas are structured, or how well your arguments are supported. We should also mention that our automated grader doesn't **always** get things right. So, please consider this grade to be one facet of your paper's overall grade.

