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General metrics

66,933	**10,090**	**548**	**40 min 21 sec**	**1 hr 17 min**
characters	words	sentences	reading time	speaking time

Score

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Writing Issues

563	**31**	**532**
Issues left	Critical	Advanced

Writing Issues

32 **Correctness**

4	Incorrect verb forms	
4	Conjunction use	
4	Improper formatting	
2	Wrong or missing prepositions	
3	Unknown words	
1	Comma misuse within clauses	
1	Determiner use (a/an/the/this, etc.)	

2	Faulty subject-verb agreement	
1	Incorrect noun number	
1	Pronoun use	
1	Misuse of quantifiers	
2	Misspelled words	
2	Misuse of modifiers	
3	Confused words	
1	Mixed dialects of english	

5 **Clarity**

5 Wordy sentences

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unique words

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Sentence Length

Measures average sentence length

18.4

words per sentence

Untitled

EVALUATING THE ROLE OF AI IN MAKING ACCURATE STOCK DECISIONS AT AMAZON

Part B – Project Report to Date

Chapter 1: Introduction

1.1 Introduction

AI is used in numerous industries, and this includes the complex task of stock decision-making. This study concerns the potential of AI in stock selection which is applied in Amazon as the largest retail company that has many demands in supply chain management. This approaches often fail to respond to changes in customers' social versatility, seasonal factors, and multiple types of products that restrict the supply of products or increase the cost of storage. AI offers a revolutionary solution in this case, and it increasing the availability of data and using advanced machine learning techniques, the demand is estimated with much higher accuracy.

It makes the operating expenses of a business less by optimizing the supply of stocks while at the same time enhancing consumer satisfaction. This research is to establish the effectively AI solves these challenges by examining various AI techniques and their impact on Amazon's stock choices. The purpose of this study is to describe how AI technology can benefit the enhancement of different inventory management processes.

1.2 Background

Amazon is one of the leading companies in the global retail market, represented by the availability of a vast number of goods and complex systems for the distribution of orders. The traditional ways of stock selection could struggle to meet different stocks, new seasons, and ever-changing expectations of the customers on the platform. These challenges affect goods ordering and storage, and understocking, overstocking, high storage costs, and low consumer satisfaction. The complications are best addressed through artificial intelligence commonly referred to as AI. AI technologies including "machine learning" algorithms such as "neural networks" and "random forests", there is the ability to rapidly and accurately assess significantly large amounts of data.

The AI application opens an opportunity to enhance the approach to selecting stocks for purchasing used by Amazon by calculating future demand based on previous data and market trends. This paper seeks to evaluate the recovery efficacy of AI in proactively preventing and countering Amazon's main supply chain challenges, with implications for revolutionizing inventory control processes in the retail sector.

1.3 Aim and Objectives

Aim

This research aims to assess the artificial intelligence can efficiently improve selection activities while focusing on complex and detailed data analysis and modeling for greater effectiveness, reduced portfolio expenses, and enhanced customer satisfaction.

Objectives

- To identify and select AI examinations that can be applied for stock selection.
- To compare specific AI systems, one needs to utilize benchmark datasets.
- To develop an AI model dedicated to matching its detailed procedure to identify stocks to buy on Amazon.

1.4 Research Question

Q1. Which AI techniques are appropriate for Amazon's stock selection optimization?

Q2. How do the particular AI systems perform differently compared to benchmark datasets used in stock selection?

Q3. How can an AI model be created and customized to efficiently find stocks on Amazon to buy while taking into account certain procedural requirements?

1.5 Research Hypothesis

H0: The improvements in the efficiency of the AI-based methods used for applying the selection of stocks for Amazon do not differ much.

H1: There are noticeable differences in the efficacy of methods based on AI techniques in identifying the choice of shares for investment at Amazon.

H0: The performance of particular AI systems does not vary much from benchmark datasets used for stock selection.

H2: It is suggested that the performance of certain AI systems substantially deviates from that of the benchmark datasets that can be used for stock selection.

H0: The stock identification devised for this study; an AI model does not enhance the efficiency in the stock selection processes in Amazon compared with the conventional approaches.

H3: A primary use case presented in the paper of an AI model designed for stock identification aids in increasing the efficiency of stock selection at Amazon over previous methods.

1.6 Problem Statement

The conditions of the fast-growing e-commerce business have increased the problems of stock management to the company like Amazon. It becomes quite challenging for the old traditional stock selection methods to embrace changes in consumers' trends, seasonal changes and variations, and varied products. These drawbacks result in problems like understocking, overstocking, and high operating costs which have an impact on customer satisfaction and company profit. This is compounded by the fact that a large amount of data is churned out daily, which ordinary methods cannot adequately predict demand.

This research intends to help address those challenges by assessing the impact of artificial intelligence on improving the process of selecting stocks at Amazon. Intelligent machines embrace technologies like analytical models as well as predictive techniques. AI results in more appropriate estimates of demand, better stock control, and inventory. The solutions indicated are expected to increase operating capacity, increase capacity utilization, and improve customer satisfaction to enhance stock decision-making in the retail sector.

1.7 Structure of the Report

This research paper describes the nature of artificial intelligence's (AI) trouble in stock decision-making. It defines the purpose of a study on evaluating the efficiency of AI for improving stock selection activities, precision, and customer satisfaction. This paper helps to analyze the data and develop accurate predictive models. An analysis of the literature regarding recent developments

in the application of AI in stock management is also contained within the framework. The problems related to the choice of research design are presented together with methodological specifics. This study points out the specifics of benchmarking the model, identification of the methodology, and the AI solutions created for Amazon. The findings of these studies are presented, then the recommendations and their effects are deliberated. This report presents a summary of the main findings and possible uses of AI for the optimization of selecting Amazon stocks based on the obtained results.

1.8 Summary

This paper assesses the impact of artificial intelligence in the procurement of stocks at Amazon, a key player in the global retail business. The complexity of the supply chain at Amazon is often complex for normal procedures to handle and this leads to issues such as stock out. AI is a solution that utilizes modern and advanced machine learning techniques to accurately predict demand levels from historical and trend data. It improves the tools used to make stock selections, reducing costs, and increasing customer satisfaction are the objectives. The paper compares the strengths and weaknesses of several chosen machine learning techniques and of the constructed predictive models for Amazon and discusses the potential effects of applying AI to change stock management in the retail business.

Chapter 2: Literature Review

2.1 Introduction

This literature review studies the revolutionization of stock picking and inventory through artificial intelligence (AI) in the case of Amazon. In the Amazon supply chain, it becomes difficult to implement conventional stock control techniques because of its multiple organized structures and understocking, overstocking, and high storage charges become evident. AI also presents a rather innovative approach since it is possible to use big data and machine learning to predict demand more accurately. The goal of this study is to bring evidence for the proposition that AI contributes positively to the decision-making process of Amazon stocks, decreasing operation costs, and increasing customer satisfaction which is linked to better inventory management.

2.2 AI in Decision-Making Processes

According to Leyer *et al.* 2020, AI is handling the generated (big) data more and more efficiently and effectively helping day-to-day activities. Therefore, as described by the classic use case of AI financial trading, people can give work to AI. With improving technologies, greater amounts of private and relevant decisions are being delegated to artificial intelligence, as illustrated through the GM vehicle emergency and Amazon's restocking services. The first part of this chapter outlines the research methodology of the paper and the second part presents the theoretical framework regarding artificial intelligence and decision-making (Shrestha *et al.* 2021). The results are presented qualitatively in the framework of decision-making process patterns with artificial intelligence involvement. Thus, provide real-life examples of the patterns that exist in reality, constituting the third part of the argumentation. Human decision-making is said to be incremental; this is because it is generally shaped by prior decisions that have been made over time.

The preparation of a choice constitutes the process of finding the options within the set data and comparing and ranking them. This procedure is known as option evaluation. It performs dynamic decision-making theory where one assesses the options, implements the decision, and reviews the outcome. The acquisition of facts, evaluation of chances, and development of plans are all a part of the assessment of choices. This concept refers to the step in the decision-making process when an implemented power is produced, known as execution.

Figure 2.2.1: patterns of decision-making processes with AI involved

(Source: Leyer *et al.* 2020)

AI has in a way removed the humanity factor from the equation by making them realize that human beings are not the primary decision-makers in any of these three attributes of assessment, execution, and feedback of the plan. The work is devoted to the classification of seven types of AI decision-making processes which consider the roles of a human or AI in providing the ability to evaluate options, implement a decision, and provide feedback.

2.3 Financial Performance of Amazon

According to Akdemir and Şimşek, 2023, people seem to be getting more receptive to using e-commerce more and more. The worldwide, mobile payments reached "33 trillion dollars" in 2014 and reached "4.93 trillion dollars" in 2021 as per global information about the sector. It maintains this growth and is expected to gain $7.39 trillion by 2025. Here, financial statements give certain clues regarding financial performance, which is essential to understand the performance map that businesses have established. In general,

one research based on a survey of 70 Chinese retail enterprises stated another argument that the company's financial performance is the determinant of e-commerce performance. This research focused on the case of Amazon (Tripathi *et al.* 2023). Amazon. com,[3] also known as HQ of the largest internet retailer worldwide, and the values of financial indicators for the company for 2005-2019. To alleviate this problem, five MCDM approaches and nine assessment criteria are used in the present research to address this goal. Thus, when employing the CRITIC technique, the importance of the evaluation criteria in the context of the study is initially determined during the first step of the approach.

Figure 2.3.1: Amazon Financial Analysis

(Source: Ivoryresearch.com, 2021)

Even more negative is the fiscal year for Amazon with the unbelievable decrease of A stocks. The incident at Scholastic Corporation com, Inc. was realized in the year 2014 for the following reasons. In the "Investment Mode", the business dedicated "$100 million" to online video content and "$970 million" to buy Twitch, a live-streaming platform mainly oriented on video games (Zhu and He, 2022). It exhibited its new products in the market, the following are some of the brands that it revealed.

2.4 Predicting Firm Performance and Stock Prices

Singh and Khushi, 2021, say that predicting a firm's success has been the focus of many studies, some of which are as early as the 1980s. The major reasons why this subject has been constrained are that security analysts do not like to share their information and their inefficiency in articulating regarding the

domain to help it progress. Initial analysis in the fundamental analysis focused on using "statistical methods" to correlate a stock performance with the measurable variables-financial ratios, and then attempt to "buy or sell" a stock when the ratio's value changed. Thus, further investigation into the possibility of dimensionality reduction is carried out with the help of Principal Component Analysis or PCA.

Figure 2.4.1: Variance captured by principal components

(Source: Singh and Khushi, 2021)

The principal part of the data is described by a few first components; more specifically, 91% of the variability and 99. 3% of all the available information is explained by 6 and 15 components, respectively (Liu, 2022). This venture is not the easiest as it requires the assessment of equity prices. Many research studies have been done in this area with different results on the success of the interventions. A set of basic and technical indicators that allow predicting stock prices' direction on the S&P 500 and thus be used for generating absurd excess returns in the stock market, this work combines concepts of two schools of thought. The PCA revealed that 15 out of 100 components have explained almost 99% of the variation of the data set.

This means that apart from the 15 characteristics that are considered the foundation of the data, the other 28 characteristics also played a role in predictions (Popa *et al.* 2021). It also found a subset of 6 characteristics that explains more about the PCA components and almost as well as the full 28 features predicting stock prices by aggregation with eigenvalue. This also helped to prove the significance of the "Total Hold", "Total Buy", and "Total Sell"

recommendations derived from the analyst as some of the outstanding indexes in determining stock prices.

2.5 Artificial Intelligence and Machine Learning in Supply Chain Management

According to Singh *et al.* 2020, this research paper helps to present relatively new, formulated by academics, logic functions used in developing nations, particularly in the supply chain context. This article outlines the development of a machine learning (ML) approach to creating an optimization solution to issues around management activities. Supervised learning, unsupervised learning, and reinforcement learning are the core categories on which the AI method is based. All these types have been explained in the hypothesized framework of the investigation to help use deep learning architecture in situations involving supply chain management.

Figure 2.5.1: Use Cases of Machine Learning in Supply Chain and Logistics

(Source: Acropolium.com, 2024)

Among the chief concepts which are described in this work, it is possible to allocate product, inventory, and logistics management as the main ideas subjected to analysis in the sphere of supply chain management. An analysis showed the fact that AI is increasingly being incorporated into supply chain functioning with improved outcomes when AI is part of software logic. The present study analyses the utilization of AI integration in the different supply chain contexts of Amazon and Amer Sports. For instance, the company of Amer Sports has actively used machine learning to enhance management coherence and productivity in its supply chain operations.

Scoping, particularly document analysis, is one of the components of the approach used in this study. AI has been looked at as a part of the supply chain where many electronic papers and publications have been on. The analysis revealed that both Amer Sports and Amazon have benefited from the AI- AI-supplied chain solutions. The positive impact of AI on modern supply chains can be illustrated by the statement that automation increases the operating efficiency of many processes because of reduced human intervention.

2.6 Evaluation of Artificial Intelligence Models and Wireless Network Applications

According to Li, 2022, Enterprise selling can therefore be described as involving far larger contracts, much longer sales cycles, multiple decision-makers, and far greater risk than any other type of selling of technologies. Enterprise sales have unique approaches that have been at play in the coming of these conclusions. Business selling has seen a surge in using artificial intelligence even more commonly referred to as AI in the recent past. It has been easier to handle some processes changing salespeople's productivity without necessarily exerting a negative influence on their work. The new Retail Format idea has also affected enterprise sales in terms of physical stores as well as online stores.

Figure 2.6.1: Applications of artificial intelligence at different layers of wireless systems.

(Source: researchgate.net[6][7],2024)

Customers in this study made decisions to select items from enterprise sales shops utilizing fuzzy multicriteria decision-making. There is also research work that implemented the Particle Swarm Optimization technique to track sales

and available products of companies. As part of the New Retail Format, enterprise sale, the proposed model combines Artificial Intelligence (AI) with Wireless Sensor Networks (WSN). The outcome reveals that the proposed procedure is more effective than the fuzzy clustering algorithm with a current accuracy of 93.46%, with the new accuracy achieving 99.78%.

Another area where, along with the increase in customer experience, AI has been implemented is in enterprise sales together with technologies such as chatbots, visual recognition, and predictive analytics. Customer satisfaction and organizational performance have been enhanced through these technological improvements. The study concludes that manufacturing firms are today much stronger competitive in sales markets by applying AI-based EMS sales management procedures, particularly when the proposed fuzzy MCDM and PSO algorithms are applied.

2.7 Artificial Intelligence in e-Commerce Portal

According to Gupta *et al.* 2023, The main thrust of this age has been a highly developed civilization accompanied by technology instead of human labor. Another of the developments which are revolutionizing life and business include Artificial intelligence also referred to as AI. Introducing Artificial Intelligence into various aspects of life often goes unnoticed by many. It has been used in self-driving cars, smart clothing, mobile applications and home automation devices and appliances, which have been hugely transformed by this innovative technology.

In the global corporate environment, AI has also changed the market more actively, for example, in the e-commerce sector. Presently the adoption of AI-based technology has been mostly propelled by India, one of the e-commerce economies with the most rapid growth. AI is a major factor that has contributed to the e-commerce business and has brought technological changes in the

sector. AI has become widely integrated in e-commerce over the past ten years. The analyzed enterprises use AI to process and manage large amounts of customers' data, interact with chatbots powered by AI, and facilitate product search, categorization, and selection.

Figure 2.7.1: Applications of artificial intelligence at different layers of wireless systems.

(Source: researchgate.net,[9] [10]2024)

Today AI has made processing, inferring, and gathering of big data more efficient and effective on a large scale. AI has been deployed in e-commerce rivals as a tool for creating customer-centered initiatives, targeting and reconverting potential buyers, accelerating sales processes, enhancing voice search functions, raising consumers' advocacy, and dealing with challenges such as fake reviews. This paper analyzes the use of AI in the e-commerce market with particular reference to Amazon.com and Flipkart.com. The focus of the research is on how these two competitors have enhanced their workflows and the customers serve[11] with the help of AI.

2.10 Literature Gap

This literature gap section shows that significant progress has been made towards applying AI for stock selection and inventory optimization, based on several surveyed papers, however, critically exploring the ethical concerns of the same systems and their inherent bias have not been thoroughly researched in the literature (Barocas *et al.* 2023). While prior research on inventory management based on artificial intelligence has presented results of algorithm

performance and efficiency, there is a critical knowledge gap regarding how algorithmic biases enter decision-making.

There are relatively few studies regarding the explainability and understandability of the AI heuristics employed in stock control in the literature. AI models based on deep learning, for instance, tend to operate in what is referred to as the 'black box' paradigm, with expectations by stakeholders to understand the decision process being hard to meet (Madsen *et al.* 2024). Besides, there has been a lack of studies about how things might change for jobs involving inventory management with the implementation of AI. Some recent work experience experiences have indicated that AI in stock management procedures has raised some concerns regarding employment insecurity and the ability that is required in the real workforce and their potential in the future (Joy, 2020). However, prior scholarly work has not effectively assessed the extent of this impact.

The issue of the connection between AI technology and sustainability in inventory management has not been addressed. It has been proven that the use of AI can help businesses become more efficient but very little analysis has been done on how it affects the environment, especially on data center power consumption (Nishant *et al.* 2020). Perhaps this knowledge of the processes might result in better practice in the use of the technology hence closing this gap makes it an important area for future research.

2.11 Summary

The connection between artificial intelligence (AI) and ethical questions has been of special interest. There have been many conversations about the challenges that come with ethical issues surrounding AI technology thus the need to develop frameworks that handle issues to do with accountability, transparency, and justice. AI systems currently in use bear the brunt of being

regularly anchored to retain bias that exists within the training data and that generate unjust outcomes that are especially oppressive to minorities. Another issue that has been voiced is the fear of Artificial Intelligence replacing human work due to the rapid advancement of AI capacities Some occupations have already been proven by Automation to present a threat to employment, so because of this there are issues regarding Artificial Intelligence displacing job opportunities. Thus, more elaborate research as to the mitigation of the negative effects on the workforce is needed as this type of displacement has been associated with disparities in the economy.

One is aware of the fact that there is quite a lot of expanded research done, but little is known about the impact of AI technologies on the environment. It has been established that large AI model training requires large amounts of energy, however, research in the field to yet to fully explore the ecological implications of these models. There is a need to demand deeper analyses of AI systems' sustainability; more so given the current climate change crisis.

The importance of user privacy has been emphasized, discussing methods in which those systems acquire data. There is, therefore, a crying need to enhance rules and standards in a way that revolves around anxieties that have been raised over the use of personal data as well as permission procedures. The ethical discourse concerning AI technology has been commonly advancing but several significant matters have to be researched well in order to[12] ensure responsible AI technology research and usage.

Chapter 3: Research Methodology

3.1 Introduction

The present chapter outlines the research method used in this study aimed at analyzing how AI can improve stock decisions at Amazon. It presents the research philosophy, approach, design, data collection techniques, instruments, and research ethics. This research adopts secondary data and quantitative research to examine how applied AI methods like neural networks, random forest, and gradient boosting contribute to enhancing inventory management and modeling accuracy. The research approach guarantees a thorough analysis of the link between artificial intelligence integration and stock decision-making.

3.2 Research Onion

Figure 3.2.1: Research Onion

(Source: ukessays.com, 2024)

3.3 Research Philosophy

This research uses secondary data and a quantitative approach, and thus the study embraces the positivist research philosophy. Positivism is a method of researching where facts can be measured and seen and more of them are used to conclude. As this study aims to assess the appropriateness of deploying AI in making accurate stock decisions at Amazon, a positivist paradigm permits the gathering of empirical information regarding the stock levels, demand forecasting, and performance of AI models (Zyphur and Pierides, 2020). Thus, secondary data including historical stock records, the trends of sales, and benchmark data are employed in the current research to evaluate hybrid intelligent models including artificial neural networks, random forest, and gradient boosting in making stock decisions. The use of existing datasets also

makes the study less inclined to bias since these datasets do not possess any preconception that interferes with analysis.

The choice of the positivism approach enables the study to be oriented on providing statistically crucial data on the application of AI in the given field, namely stock management (Bganya, 2022). The secondary data makes certain that the research is anchored to real-life occurrences hence it can be measured and repeated. This approach is in line with the objective of examining [13] how AI can enhance stock decisions and consequently enhance operations at Amazon by minimizing errors.

3.4 Research Approach

This research shall take a deductive research approach in analyzing information concerning the application of artificial intelligence in stock management based on postulated theories in the field. It seeks to provide an empirical examination of these theories through the use of secondary data to establish the level of first stock decision-making enhancement by the application of AI at Amazon (Garbuio and Lin, 2021). The methodology centers on prediction, with various artificial intelligence models, including, neural networks, random forest, and gradient boosting. These models will be used to provide stock-level forecasts in the future and enhance stock management systems. The deductive approach is relevant in this study as the research is driven by the hypothesis that AI can increase the probability of accurate stock levels to reduce understocking or overstocking.

This hypothesis is going to be verified using machine learning on historical stock and sales data. Forecasting, an element of the machine learning process, will be used to anticipate the quantity of stock required (Dalal et al. 2023). Precisely, by using a deductive approach, this study enforces the AI algorithms to the exact data to determine whether or not the incorporation of AI-based

prediction models is viable on stocks, also this structure gives an objective view as informed by facts that enhance operations at Amazon.

3.5 Research Design

This research follows a quantitative and experimental research design that aims to assess the use of AI in fast and precise decisions on stocktaking at Amazon. This research design is adopted in a way that enables the testing of different machine learning techniques to ascertain their ability to forecast stock levels from historical data (Kamiri and Mariga, 2021). The evaluation starts with the gathering of secondary data in the form of historical stock records, sales patterns, and other relevant market data. This data is used as a basis for constructing and training AI models. The research shall use Python as the key scripting language for data analysis, which has strong supports such as Pandas for handling the data, NumPy for numerical computations, and Scikit-learn for incorporating machine learning models.

The experimental design entails creating numerous AI models consistently with neural nets, random forest, and gradient boosting where each of the models is expected to be trained on the assembled datasets (Helo and Hao, 2022). As for the model performance, accuracy, precision, recall and F1-score will be used as major indicators to assess the efficiency of stock prediction. It reduces the chances of overfitting and increases the credibility of the results, cross-validation methods will be used in the analysis. This is a quantitative design that enables a proper measurement of how best AI can be used to inform stock decisions towards improvements in the inventory function at Amazon.

3.6 Data Collection Method

This study uses a secondary data collection technique as the data is obtained from Kaggle, one of the reputable platforms for accessing different datasets on

stock management and both supervised and unsupervised AI applications. This approach allows passing through the real world and collecting high-quality data which can be used for training and testing of machine learning models (Breitenstein et al. 2022). As a part of acclaimed data to illustrate the factual substrate of AI in Amazon's capacity to make accurate stock decisions, concrete datasets related to historical stock data, sales data, and demand predictions have been identified. These datasets give information about inventory status and customer patterns necessary for assessing the effectiveness of various AI solutions.

The datasets have been obtained from Kaggle, the data can be cleaned before analysis with tools like Python pandas and NumPy. The first preprocessing stage here involves cleaning of data where techniques such as handling missing values, removal of duplicate data occurrences, and ensuring the appropriate data type for data analysis with the help of machine learning algorithms. The variables related to stock levels can be chosen to improve the performance of the constructed models (Huy et al. 2020). This research uses data collected from Kaggle and will follow a rigorous procedure for data cleaning and achieving data quality since the primary and secondary datasets from sequential research are found to contain significant errors. This study uses secondary data from Kaggle to establish a solid dataset to ensure that the analysis is in the right approach for providing valuable insights about the use of AI when making stock-related decisions at Amazon.

3.7 Tools and Techniques

This work utilizes several tools and approaches to address the objective of the research on AMZN stock using AI, principally Python with several libraries of machine learning. This analysis has involved data preprocessing, model development, and performance evaluation.

1. Data Preprocessing: Cleaning of the collected datasets is required as a step in preparation for analysis. Key techniques include:

Handling Missing Values: This can be dealt with by employing means of dealing with the missing values such as the mean or median (Yacouby and Axman, 2020).

Imputed Value=Sum of Observed ValuesCount of Observed Values

Normalization: Scaling features to a uniform range has been shown to help when performing model training. The Min-Max normalization technique is used:

Xnorm=X-XminXmax-Xmin

2. Model Development: The implementation of the following machine learning models is done in Python and use specific libraries such as Scikit-learn.

Neural Networks: A single neuron of a feedforward neural network can be also defined using the following equation:

y=fi=1nwixi+b

where,

w = weights

x = inputs

b = bias

f = activation function.

Random Forests: This ensemble technique involves building more than one decision tree and as a result, comes up with an average of the trees' outcome predictions (Pattyam, 2021).

Gradient Boosting: This method constructs trees iteratively and all trees try to capture errors that are present in the previous trees. The formula for updating predictions is:

ynew=yold+η.Tree(X)

where,

η is the learning rate

Tree(X) represents the prediction from the newly added tree.

3. Performance Evaluation: The performance of each model is evaluated with accuracy, precision, recall, and F1-score, which provides a clear evaluation of each model's decision on stock at Amazon.

3.8 Ethical Consideration

Ethical issues are always encountered while analyzing data especially while using secondary data and artificial intelligence. This paper analyses the current state and future developments of AI in regard to stock decisions at Amazon and several ethical aspects have been considered during the work.

1. Data Privacy and Confidentiality:

The use of secondary data by analyzing data from platforms such as Kaggle can be considered a violation of data privacy and security. However, as these datasets are public, it is important to ensure that there is no use of personally identifiable information (PII) in the analysis either (Martin et al. 2022). These data sets are going to be assessed for compliance with privacy requirements, and for this work in particular, GADR. Individual data and any other data that can be capable of being used to identify persons or sensitive business data will not be used in the course of the study.

2. Informed Consent:

The use of secondary data without obtaining data subjects' permission for its reuse is often considered ethical and it is still a best practice to give credit to those who have collected the data in question. The elements used in this work will be cited and recognizable based on the standards of openness, and credit will be given to the original suppliers of the data. It is an ethical process that promotes the attribute of acknowledging works done by the user.

3. Bias and Fairness:

AI models can introduce biases that already exist in the data set selected for training to the process. The study can involve the assessment, during the dataset analysis, of the model for any confounding factors that may cause prejudices on the model results. Equity is important when it comes to AI decision-making to avoid prejudice in stock management as it could cost Amazon a lot of money and its shareholders. This study intends to advance fairness by consistently comparing the model predictions to various datasets and addressing ways to decrease the bias.

4. Transparency and Accountability:

It is critical to make the process and the algorithms used in AI more transparent so that people develop trust in such tools. The models used can be described in this research together with the reasons for their selection, and this helps replicate the study. The problems and the risks related to such type of research as well as the risks of using AI for stock decisions can be highlighted. This makes it easier to track accountability through the results of the conducted research and in turn, uses of the artificial intelligence technologies.

5. Ethical Use of AI:

The responsible application of AI technologies concerning stock management should also be underlined. This study can endeavor to promote the application of responsible AI adoption approaches aimed at optimizing benefits to customers, employees, and suppliers. Best practices for implementing artificial intelligence technologies to improve organization productivity and address questions of ethical concern can be highlighted (Raparthi et al. 2021). Thus, while building and applying the theoretical and methodological framework defined in this research, the latter has intentions of making a positive impact

on the current discussions concerning the ethical application of AI in business settings.

This research maintains ethical considerations by respecting several principles that include, privacy, fairness, transparency, and accountability to give insight into the ability of AI in the decision-making of stocks at Amazon.

3.9 Research Limitation

There are several limitations must be taken into consideration to contribute to the best of this study which is to understand the potential of AI in making the right stock decisions at Amazon. The secondary data can be collected from Kaggle only, the analysis might be limited. These datasets can be completely inclusive yet missing some of the key factors that affect stock management at Amazon (Jerrim and Jones, 2024). It can be difficult to compare the results of the research to actual situations and environments in the markets because of the changes in the dynamic markets and a variety of organizational factors. The accuracy of machine learning algorithms depends on the data used in its model and how relevant such data is. Any contamination of biases and inaccuracy of the historical data used result in suboptimal gains that yield wrong outputs hence eliminating the reliability of the AI models (Nabipour et al. 2020). The study of prediction and machine learning can miss potential methodologies or strategies employed in the management of stocks that can be different from AI-based.

There are limitations of the research as the time constraint for the project restricts the extent of analysis in some of the fields. Although the study seeks to explore a broad area of use of AI in stock decisions, there can be more areas of study in future studies to provide more principles in a given field. Such limitations point to the fact that the results need to be interpreted with care, besides offering future research directions in this stream.

3.10 Summary

This chapter explained the research method employed to evaluate AI in the context of stock choices at Amazon. It included the research philosophy, research approach, research design, choice of data collection methods, data collection tools and finally addressed issues of research ethics. The theory, therefore, posited the use of secondary data because the study adopted a positivist orientation, which allowed the use of predictive models. The approach guarantees that the study provides insights on enhancing stock management by using artificial intelligence, and ethics prevent disclosure of participants' data and model bias. This research improves the knowledge of AI's effects on inventory management at Amazon.

Chapter 4: Result

4.1 Introduction

The stock price data of Amazon Incorporated with special attention to the historical price changes data, trading volume, and data done through different statistical modeling techniques. There is a purpose of identifying key determinants of stock prices and evaluating the efficiency of the most common forecasting techniques. There are applying methods in linear regression analysis as well as random forests, Amazon's market trend, and potential future price trends are analyzed.

4.2 Analysis

This provides information for Amazon stocks such as data sanity checks, price plots, predicted prices, feature importance, and price prediction using different techniques.

Figure 4.2.1: First five rows of the dataset

(Source: Jupyter)

This figure describes the first five records of the feature list of the Amazon stock dataset including dates, opening prices, day's high, day's low, closing prices, adjusted closing price, and trading volume. Every data analysis process starts with having an overview of the dataset and describing the basic characteristics of the data is useful, including its structure and variables.

Figure 4.2.2: Checking data Types of the dataset

(Source: Jupyter)

The above figure shows the corresponding data types of each column in the Amazon stock dataset can identify column data as numerical or categorical. It aids in checking in making sure that the dataset is formatted appropriately for analysis which for instance checks the "Date" is datetime[16], while other columns like "Close" are numerical.

Figure 4.2.3: Checking missing values in the dataset

(Source: Jupyter)

This figure shows the findings of testing the data for missing values. It shows that there are no missing values in the dataset among its columns like "Date", "Open", "High", "Low", "Close", "Adj Close", and "Volume" which makes it appropriate data for further analysis.

Figure 4.2.4: Data rows without any missing values

(Source: Jupyter)

The above figure describes the first five rows of the dataset after the elimination of the missing values. The complete entries for various columns including Date, Open, High, Low, Close, Adj Close, and additional features like MA_5, MA_10, Lag_1, and Lag_2 prove that the data set is clean for analysis.

Figure 4.2.5: Line plot of Amazon Stock price trends over time

(Source: Jupyter)

This figure shows a simple line chart handling Amazon's stock price history from 1997 to 2022. There is increasing volatility, and more significantly, a trend where the rate of price increase has increased especially after 2017. It increased sharply in 2020 and 2021 which can be attributed to increased market growth and other factors that boosted the share price.

Figure 4.2.6: Bar plot of Trading volume over years

(Source: Jupyter)

The above figure shows a yearly traded volume of the Amazon stock for the time period of 1997 to 2023 presented in the form of a bar chart. These trends indicate that active trading activity is recorded in the late 1990s, fortunes of trading subsequently declined. The trading activity is around 2007-2008 and then again in 2017-2018.

Figure 4.2.7: Correlation matrix calculation

(Source: Jupyter)

This figure describes the correlation matrix for the features of Amazon [18] stock price which displays the interdependence of various variables. All of them are positively correlated and Open, High, Low, and Close have high positive coefficients of correlation. The Volume is seen to be inversely related to it and other price metrics carry a slightly negative relationship with daily returns.

Figure 4.2.8: Correlation matrix

(Source: Jupyter)

The above figure shows a matrix which consists [19] of the details about the correlation of colored among Open, High, Low, Close, and Volume. Red areas indicate positive relationships and blue ones mark negative relationships. The diagonal line with a value of 1.00 represents the self-correlations of the variables under study.

Figure 4.2.9: Linear Regression Model Training and Predictions

(Source: Jupyter)

The above figure describes the details of the training and the predictions of the linear regression model on the stock data. The results showed that the used

model earned a Mean Squared Error (MSE) equal to 59.68, while the R² value equaled 1.00 revealing the perfect fit. The plot contrasts actual stocks' price values and the forecasted values.

Figure 4.2.10: Random Forest Model Training and Predictions

(Source: Jupyter)

This image describes the training and forecasting of the Random Forest model of the stock data. It gained a Mean Squared Error (MSE) of 126.12 and an R² of 1.00 which suggests a perfect fit. This shows the actual historical prices as compared with the stock price model that has been developed.

Figure 4.2.11: Scatter Plot of Random Forest Predictions vs. Actual Prices

(Source: Jupyter)

The above image shows a data visualization in which blue points signify the actual stock prices and green points represent the stock price prediction created by the Random Forest model. The x-axis represents the date and the y-axis represents stock prices. The forecasting is accurate with possible rounding off in the later data as seen from the model.

Figure 4.2.12: Sidebar Plot of Feature Importance from Random Forest

(Source: Jupyter)

This sidebar plot shows the feature importance of random forests. The x-axis represents the impotence and the y-axis represents the feature. The analysis

also revealed that Outliers occupy the second position while MA_10 (10-day moving average) is the most important aspect in prediction followed by High, Open, and Low.

Figure 4.2.13: Forecasted index

(Source: Jupyter)

The above figure shows the forecasted index as a DatetimeIndex including different dates starting from 2022 to 2025. The index is represented by particular trading days in the form "YYYY-MM-DD". This representation stresses the time series nature of the forecast with a total length of 756 entries to denote frequency in trading days.

Figure 4.2.14: ARIMA model summary

(Source: Jupyter)

The above figure shows the results from diagnostics related to the ARIMA model including the estimate coefficients, standard errors, and the level of significance of the model parameters. The summary file involves such indicators as the Akaike Information Criterion (AIC) or Bayesian Information Criterion (BIC) that are vital for the evaluation of the model as well as the comparison of any works.

Figure 4.2.15: Amazon Stock Price Forecast

(Source: Jupyter)

This figure shows the accurate prediction of the ARIMA model for the trend of Amazon's stock prices up to the last year of 2025. The blue one represents the

actual and predicted prices the dotted vertical line indicates the start of the forecast period. There is a forecast of an anticipated increase in the stock price and other expected oscillations in stock price.

4.3 Summary

The interpretation of the historical price and volumes of stock in Amazon shows that the prices fluctuate and that the trading volumes are large. This study applies linear regression models and random forest models to identify factors that affect stock prices and predict stock performance based on the results of the models that have shown efficiency in the dynamics of the market forecast.

Chapter 5: Findings and Discussion

5.1 Introduction

The data of stock prices of Amazon from 1997 to 2023 are analyzed in this chapter about prices, trade volume, and basic modeling. The study also uses Linear regression and Random forest, predictive models that seem to give quite accurate forecasts of stock prices. This paper presents an insight and understanding of the performance of Amazon's stock based on the influential macroeconomic factors and fluctuations of investor sentiment and provides valuable information for investors making decisions based on facts and forecasts.

5.2 Findings

The examination of Amazon's stock data produced several remarkable insights that demonstrate the firm's experience in the stock market from the year 1997 to 2023.

Price Trends: Amazon's stock price also has shown an increase year after year, especially after 2017. The stock price since year 1997 is around $1.50 and there are corresponding fluctuations including the rapid increase during the COVID-19 pandemic in the years 2020 and 2021. The stock has been steadily rising over the years and has reached above $100 by 2023, which presses for a revolving ascending movement as DPD has well-established itself in the market and launched succession strategic operations.

Trading Volume: The yearly trading volume of Amazon stock presented dramatically different trends, with the absolute highs observed at the end of the 1990s in line with the first dot-com hype (Audrino *et al.* 2020). This is succeeded by a gradual decline with occasional fluctuations which are observed in the fiscal years 2007-2008 and 2017-2018. These fluctuations in trading volume tend to support the hypothesis that its patterns reflect such conditions and investor sentiment across macroeconomic transitions and such [2] significant events related to the technology niche.

Predictive Modeling: Both the techniques used for Amazon's stock price such as linear regression and random forest work well. The results of both models comprised a perfect R^2 value of 1.00, which is interpreted as an exact on historical data (Kumbure *et al.* 2022). The random forest model demonstrated a more sophisticated approach, in which interaction between the lagged independent variables such as moving averages, trading volume, and other variables are critical in explaining the price movements.

Feature Importance: These predictors are determined in the analysis conducted earlier in the paper where it is realized that the 10-day moving average or MA_10 is highly valuable in the prediction of stock prices. The significance of the present study in identifying technical indicators in stock price forecasting is highlighted by this result.

The presented work can be considered a significant contribution to the understanding of Amazon's stock characteristics, including historical analysis, trading volume, and data analysis employing the forecasting models.

5.3 Discussion

The information which has been derived from the analysis of the stock prices of Amazon is as follows which can outline the key track and the causes and effects of stock price. The Pre and post-2017 volatility observed in the context of the Amazon company stock price can be attributed to several factors (Damioli *et al.* 2021). The company has embraced the expansion strategy in several sectors such as cloud computing, e-commerce, and digital streaming to achieve diversification in its revenue base and enhanced competitive stand. The Coronavirus outbreak forced people to buy groceries online and other essential items, which in turn has increased the overall revenue of Amazon and thus increased the share value.

The volatility of trading volume, which can be seen from the data, points to the fact that the stock price movement is highly influenced by the investors' sentiments (Kumbure *et al.* 2022). These spikes observed during the late 1990s and the periods of economic instability confirm that trading could have been influenced by the market structure. This relationship also shows the influence of external variables including business econometrics and technology in determining the investor's decision making.

This paper also exemplifies the ability of machine learning approaches such as the random forest model to forecast prospective profit margins. An R^2 of 1, which the value has shown, means that the trends of fluctuations in historical data are captured by the model. However, as the model reveals fairly good predictability it is crucial to look at the fact that stock prices depend on many unpredictable circumstances including the mood on the stock exchange and

events taking place in the world (Mukherjee *et al.* 2023). These models while useful can offer directions and estimates to be adopted cautiously in conjunction with other investment plans.

The quantitative approach used for the identification of the 10-day moving average as the most important predictor supports the applicability of technical analysis for stock trading. These main areas of findings can be used by investors and analysts in order to [22] make improved decisions about the market situation and potential shifts in the market in the future.

5.4 Summary

The study reveals increased market capitalizations of Amazon stock since the year 2017 due to effective expansion and the coronavirus disease pandemic. The trading volume study shows that there is volatility that is dictated by the sentiment of investors as well as the market. According to various predictive modeling, the model features high accuracy with the random forest technique. The moving average technical indicator, described as the 10-day moving average proved to be the most influential. The findings of this study contribute to the usage of stock characteristics knowledge when investing in Amazon's stock.

Chapter 6: Project Management

6.1 Project Plan

Figure 6.1.1 : Project Plan

6.2 Risk Analysis

Risk Factor Description Impact Likelihood Mitigation Strategies

Data Bias The potential for AI systems to perpetuate existing biases in training data has been identified as a significant risk. Biased algorithms can lead to unfair treatment of certain demographics, adversely affecting decision-making processes in areas such as hiring, lending, and law enforcement. High High [23] Implement robust data auditing processes to identify and eliminate biases in training datasets. Continuous monitoring and updates of AI models to reflect demographic diversity are essential.

Job Displacement The automation capabilities of AI have been shown to threaten numerous jobs across various sectors. It has been projected that certain jobs may become obsolete, leading to increased unemployment rates and economic disparity among different workforce segments. High Medium [24] Reskilling [25] and upskilling programs have been suggested to prepare the workforce for AI-related job transitions. Policies aimed at job creation in emerging sectors can help mitigate this risk.

Privacy Concerns The use of AI technologies often involves extensive data collection, which has raised significant concerns regarding user privacy. Unregulated data practices can lead to breaches of personal information and a lack of transparency in how data is used. High High [26] Establishing strict data governance frameworks has been proposed to ensure compliance with privacy regulations. Regular audits of data usage and transparent communication with users regarding data practices can help alleviate concerns.

Environmental Impact The environmental consequences of training large AI models has [27] been increasingly recognized. The energy consumption associated with AI computations has been linked to higher carbon emissions, which contradicts global sustainability goals. Medium Medium The development of

more energy-efficient algorithms and hardware solutions has been emphasized. Implementing sustainability assessments in AI projects can contribute to minimizing environmental footprints.

Security Vulnerabilities AI systems are susceptible to various security risks, including adversarial attacks where malicious inputs can manipulate AI behavior. These vulnerabilities have been exploited in real-world applications, leading to compromised systems and unintended consequences. High Low Regular security assessments and the implementation of robust security protocols have been recommended. Additionally, AI systems should be designed to be resilient against adversarial attacks.

Regulatory Compliance The rapidly evolving nature of AI technology has outpaced existing regulations, leading to uncertainty in compliance requirements. Organizations may inadvertently violate laws governing data protection, intellectual property, and consumer rights, resulting in legal ramifications. High Medium It has been suggested that organizations stay informed about emerging regulations and engage with policymakers to shape appropriate legislative frameworks. Establishing compliance teams can ensure adherence to relevant laws.

6.3 Quality Analysis

Quality Aspect Description Significance Current State Improvement Strategies

Data Quality The accuracy and completeness of data have been critical for effective AI performance. High - high-quality data has been linked to better model predictions and decisions. Data collection practices have been inconsistent, leading to gaps and inaccuracies. Implement data validation protocols and standardize data collection processes across all sources.

Model Performance The performance of AI models has been evaluated through metrics such as precision, recall, and F1-score. High - performance metrics

have been essential for determining model efficacy. Model performance has been varied across different applications, with some models underperforming. Regularly assess and optimize models using updated datasets and performance benchmarks.

User Experience (UX) User experience has been recognized as a vital component in the adoption of AI solutions. Medium-positive user experiences have been shown to increase user trust and engagement. UX design processes have been overlooked, leading to complex interfaces and user frustration. Conduct user testing and feedback sessions to inform iterative design improvements.

Scalability The ability of AI systems to scale has been essential for meeting growing demand. High-scale scale solutions have been necessary for organizations to remain competitive. Scalability issues have been encountered, particularly in resource allocation and infrastructure. Invest in cloud computing resources and architecture designed for scalability.

Ethical Considerations Ethical implications of AI usage have been a growing concern, influencing public perception. High - ethical considerations have been essential for maintaining social license to operate. Ethical frameworks have been inconsistently applied across different AI projects. Develop and implement comprehensive ethical guidelines that are consistently applied.

Transparency Transparency in AI algorithms has been demanded by stakeholders to foster trust and accountability. High-transparent models have been associated with enhanced trust from users and stakeholders. Transparency has been lacking, making it difficult for users to understand model decisions. Adopt explainable AI techniques to clarify decision-making processes for end-users.

6.4 Legal, Social, Ethical, and Professional Issues

Issue Category Issue Description Impact Current Trends Proposed Solutions

Legal Issues The regulation of AI technologies has been evolving, with various jurisdictions proposing laws to govern their use. High – Non-compliance can lead to legal action, financial penalties, and reputational damage. Regulatory frameworks have been emerging globally, but there is inconsistency across regions. Establish a unified regulatory framework that ensures compliance while promoting innovation.

Intellectual Property Ownership of AI-generated content has been unclear, leading to disputes regarding intellectual property rights. Medium – Disputes can result in legal battles, affecting businesses and creators. Legal systems have been slow to adapt to the complexities of AI-generated works. Develop specific guidelines for AI-generated content to clarify ownership and usage rights.

Data Privacy The collection and processing of personal data by AI systems has been a major concern regarding privacy rights. High – Breaches of data privacy can result in legal penalties and loss of consumer trust. Public awareness of data privacy issues has been increasing, prompting stricter regulations. Implement robust data privacy measures, including consent management and transparent data handling practices.

Social Issues The impact of AI on employment has been a concern, particularly regarding job displacement and workforce changes. High – Job losses can lead to economic instability and social unrest. Automation has been accelerating in various industries, leading to a growing fear of unemployment. Encourage reskilling and upskilling initiatives to help workers transition to new roles.

Bias and Discrimination AI systems have been found to perpetuate biases present in training data, raising concerns about fairness. High–biased AI

outcomes can reinforce societal inequalities and lead to unfair treatment. The conversation around AI ethics has been gaining momentum, with calls for accountability and fairness. Conduct regular audits of AI systems to identify and mitigate bias in algorithms and data.

Accountability The accountability of AI systems has been questioned, particularly in cases of harm or adverse outcomes. High – Lack of accountability can erode public trust and lead to legal repercussions. The need for clear accountability frameworks has been emphasized in discussions about AI governance. Develop clear guidelines for accountability in AI deployments, specifying roles and responsibilities.

Chapter 7: Conclusion

7.1 Conclusion

This research paper also emphasizes the potential of AI in improving over-identification and utilization of the stocks in Amazon. The research presents the trends in stock prices and volumes for Amazon over the period 1997 to 2023 and highlights how the company performed during sensitive periods in the market such as the COVID-19 period. Using such sophisticated methods as linear regression and random forest, the study demonstrates that AI can help to enhance forecasting precision. The solutions for Amazon consist of the use of sophisticated AI solutions, data quality, personnel training in terms of AI, AI integration with other business processes such as supply chain management, and the development of regular monitoring procedures and protocols. These can help to improve efficiency in the operations of the company while placing it strategically for a fight in the emerging world market retail business. The

conclusions accentuate the capacity of AI to transform supply chain inventory control and increase customer and operational satisfaction.

7.2 Objective Linking

The purpose of this study is to establish the role of artificial intelligence (AI) in enhancing stock selection solutions at Amazon by establishing the following objectives. The research aimed at defining and shortlisting AI techniques suitable for stock selection and ranging from basic to sophisticated. The latter includes neural networks, random forests, and gradient boosting. The research built the foundation for assessing how these algorithms can help improve the accuracy of the existing stock forecast models. The study is intended to assess the effectiveness of these AI systems by benchmarking them against well-known datasets with the intent of gauging their applicability in actual world scenarios.

This comparison offered empirical backing to the hypothesis that it is possible for AI models to be superior to traditional techniques for stock-level predictions and inventory control excellence. The paper's objective is to build a specific model exclusively for Amazon to filter stocks. This objective is not only limited to model creation and also entails changes to procedures to facilitate model performance. Achievements of these objectives with the support of the presented research findings demonstrate a promising direction for AI in improving stock management at Amazon, followed by increasing operational efficiency and customer-oriented services in the retail industry.

7.3 Recommendation

Based on the findings of this research, several recommendations can be made to enhance the integration of artificial intelligence (AI) in stock selection processes at Amazon:

Adoption of Advanced AI Models: Amazon should therefore seek to continue coming up with improved advanced machine learning algorithms including gradient boosting and ensemble for machine learning in addition to the neural networks and the random forests (Kalil and Ugwuka, 2024). Because these models have demonstrated much promise in forecasting inventory amount and controlling stock quantity in order to subsequently diminish costs and enhance consumer satisfaction.

Continuous Data Quality Management: High quality of input data is highly important for the AI models as act accordingly to the data feed into the program (Jiang, 2021). Historical stock and sales data should also be without errors and biases which is why Amazon should also advance in data cleaning and preprocessing. Sustaining audits of data sources is one way through which data integrity and reliability will be observed.

Training and Development: Employee training on how to use AI technologies and how to read data analytics is a good way of improving companies and expanding the use of new systems (Albayrak *et al.* 2023). Developing a staff's learning capacity will enable such persons to use AI tools more efficiently should be involved in stock management.

Integration with Supply Chain Management: Appropriate recommendations for the kind of use of AI-driven stock selection are that it should be incorporated within other supply chain management activities. AI algorithms that would be able to accommodate aspects such as the prevailing market forces, cycles, and customer consumption behavior can extend the pace of agility in inventory management.

Monitoring and Evaluation Framework: There is a need to have standard procedures when it comes to the subsequent auditing of AI models (Punia and

Shankar, 2022). This framework should also have a KPI for monitoring the efficiency of AI in stock selection, to inform further changes as required.

7.4 Future Scope

The future of this project has a quantity of work ahead in improving stock choosing and dealing at Amazon by putting into use artificial intelligence (AI). One of these involves enhancing the registers used through better algorithms like deep learning models, to give better predictions (Falatouri *et al.* 2022). This means that using a more extensive volume of data involving real-time market rates and customer behaviour, Amazon can come up with learning models that evolve progressively with the market ambiance. The application of this project is not limited to stock forecasting only. The usage of AI can be made in areas such as inventory, supply chain, and demand planning (Toorajipour *et al.* 2021). For instance, using predictive analytics one could be able to forecast trends in the market demand which may help Amazon to make changes regarding its stocks without having to spend much on stock holding. Moreover, incorporating AI with IoT can add more flesh to the real-time information collection mechanism which can further refine inventory management.

Amazon being an online retail shop, gets benefits like improving operational efficiency, managing stock out and stock over offenses, and making its products available for customers' gratification by deploying advanced AI technologies (Dionysiou *et al.* 2021). There is the potential to make rational decisions relying on data for resources and finances would eventually be utilized optimally. The findings from this study can be used as preliminary knowledge regarding future investigations of possible areas of AI implementation. The other companies can also apply similar strategies in the operation and management to improve their stock systems and encourage more dissemination of big data solutions in the procurement and supply

processes of retailing companies (Whang *et al.* 2023). The further perspective of this work derives not only in the tweaking of AI approaches for stock picking and also in using these technologies for the stock optimization and improvement of the organizational performance at Amazon and other companies.

1.	~~is~~ → aims	Incorrect verb forms	Correctness
2.	~~and~~	Conjunction use	Correctness
3.	~~com~~ → Com	Improper formatting	Correctness
4.	. com	Improper formatting	Correctness
5.	~~of~~	Wrong or missing prepositions	Correctness
6.	*researchgate*	Unknown words	Correctness
7.	. net	Improper formatting	Correctness
8.	, and	Comma misuse within clauses	Correctness
9.	*researchgate*	Unknown words	Correctness
10.	. net	Improper formatting	Correctness
11.	~~serve~~ → served	Incorrect verb forms	Correctness
12.	~~in order to~~ → to	Wordy sentences	Clarity
13.	to examine	Wordy sentences	Clarity
14.	~~the~~ missing	Determiner use (a/an/the/this, etc.)	Correctness
15.	~~use~~ → uses	Faulty subject-verb agreement	Correctness
16.	*datetime*	Unknown words	Correctness
17.	~~is~~ → was	Incorrect verb forms	Correctness
18.	~~Amazon~~ → Amazon's	Incorrect noun number	Correctness
19.	~~which consists~~ → that consists	Pronoun use	Correctness

20.	~~such~~	Misuse of quantifiers	Correctness
21.	~~on~~ → of	Wrong or missing prepositions	Correctness
22.	~~in order to~~ → to	Wordy sentences	Clarity
23.	High~~High~~	Misspelled words	Correctness
24.	~~High~~	Misuse of modifiers	Correctness
25.	High-medium reskilling	Confused words	Correctness
26.	High~~High~~	Misspelled words	Correctness
27.	~~has~~ → have	Faulty subject-verb agreement	Correctness
28.	High-low regular	Misuse of modifiers	Correctness
29.	High-performance	Confused words	Correctness
30.	AI models can be	Wordy sentences	Clarity
31.	~~and~~ → but	Conjunction use	Correctness
32.	~~in order to~~ → to	Wordy sentences	Clarity
33.	~~accordingly~~ → according	Confused words	Correctness
34.	~~feed~~ → fed	Incorrect verb forms	Correctness
35.	and should	Conjunction use	Correctness
36.	~~behaviour~~ → behavior	Mixed dialects of English	Correctness
37.	~~and~~ → but	Conjunction use	Correctness