ABSTRACT BOOK

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INDEX

Sr. No.	Roll No.	Name of Student	Title	Supervisor/Co-Supervisor	Page no.
1	21001504001	AYUSHI DEWAN	Image Compression using CNN along with nearest neighbour reduction	Dr. Deepika Punj	4
2	21001504003	DHARMENDER SINGH	Utilization of Machine Learning Algorithm for Real-time Intrusion Detection and Classification	Dr. Naresh Chauhan	5
3	21001504004	JITENDER	Classifier Configuration for Medical Service Application using ML	Dr. Naresh Chahuan	6
4	21001504005	KHUSHBOO	Image Segmentation using deep Learning Along U-NET Architecture	Dr.Rashmi Popli	7
5	21001504006	KOHSHEEN	Security in SmartContract	Dr. Ashlesha Gupta	8
6	21001504007	MOHIT	Breast Cancer Using Deep learning	Dr. Piyush Gupta	9
7	21001504009	NEERAJ	Enhancing web App Security through Penetration Testing using RNN and Decision Trees	Dr. Harish Kumar	10
8	21001504010	NILESH	Data Model Analysis for Speech Clarification usingTransformers	Dr. Ashutosh Dixit	11
9	21001504011	PRIYA	Botnet Detection using ML	Dr. Poonam	12
10	21001504012	RAVI SHANKAR	Abstractive Text Summarization using BERT and Seq2Seq Algorithm on Amazon Reviews	Dr. Harish Kumar	15
11	21001504013	SAGAR	Sentiment Analysis Using Deep Learning	Dr. Lalit Mohan Goyal	16
12	21001504014	SONAM	Comparative Analysis of Short Term Load Forecasting Techniques	Dr. Payal Gulati	17
13	21001504015	SUMIT	Blockchain Based Supply Chain Management System	Dr. C.K. Nagpal	19

14	21001504016	TANISHA	Recording Tweets Using Blockchain	Dr. C.K. Nagpal	20
15	20001504004	ANKIT BHARDWAJ	Green Corridor with Cyber Security	Dr. Sapna Gambhir	21
16	20001504008	KESHAV GANGULY	Empowering Libraries: A Blockchain Initiative	Dr. Poonam	22
17	20001502010	PRIYANSHU AGGARWAL	Blockchain Application in Logistics and Value Chain Management	Dr. C.K. Nagpal	23
18	19001503008	RICHA	Tourist Behavior Analysis using Big Data and Support Vector Machine for Tourism	Dr. Rashmi Popli	24

ABSTRACT

Image compression plays a crucial role in managing the vast amount of visual data generated and transmitted across various platforms. This thesis investigates the combination of Convolutional Neural Networks (CNN) with nearest neighbor reduction for image compression. The goal is to exploit the strengths of both techniques to achieve superior compression performance while preserving visual quality.

The proposed methodology involves using a CNN architecture to learn and extract meaningful image features. These features are then utilized in conjunction with nearest neighbour reduction to compress the image. The CNN serves as a powerful tool for capturing high-level representations, while the nearest neighbor reduction technique contributes to reducing the spatial dimensions of the image.

To evaluate the effectiveness of the proposed approach, extensive experiments are conducted on benchmark datasets. The results demonstrate that the combined CNN and nearest neighbour reduction technique outperforms traditional compression methods in terms of both compression ratio and perceptual quality. Moreover, the computational efficiency of the approach is also considered, ensuring its practical feasibility in real-world applications.

Overall, this research offers insights into the synergistic combination of CNN and nearest neighbour reduction for image compression. The findings contribute to advancing the state-of-the-art in image compression techniques, providing a valuable resource for researchers and practitioners in the field.

Ayushi Dewan
21001504001

ABSTRACT

Information systems are being challenged with increasingly complex difficulties. New tactics are used to frame and launch threats and attacks. Approaches that focus on the data contained in networks. Information constantly changes as it passes across subtle domains, depending on the users, system administrators, and other people who need access. Information system security is crucial against threats like intrusions and denial-of-service attacks. Using the identities of authorized users or any back doors and holes in the network, the intrusion is a serious threat to unauthorized data or lawful networks. Intrusion Detection Systems are mechanisms created to identify intrusions at different levels (IDS).

DHARMENDER SINGH
(21001504003)

ABSTRACT

Machine learning (ML) techniques have gained significant prominence in the field of medical diagnostics for prediction and classification tasks. These techniques have proven invaluable in accurately and efficiently identifying illnesses for sickness diagnosis, leading to improved patient care. The advancements in systems and equipment utilized in healthcare have contributed to the increasing average human longevity. However, numerous challenges and issues persist within modern healthcare systems, including inaccurate patient information, data privacy concerns, lack of correct data, limited medical knowledge, and the use of classifiers for generating predictions, among others. To overcome these challenges, a range of sickness detection and prediction systems have been developed. Expert systems utilize knowledge-based rules and decision trees to aid in diagnosing diseases, while clinical prediction systems integrate patient data and evidence-based guidelines to provide real-time decision support. Decision support systems combine ML algorithms with clinical data to assist in diagnosis and treatment planning. Personal health record systems empower individuals to manage their health data and contribute to research efforts. Efforts are being made to address the challenges associated with inaccurate patient information through improved data collection processes, data interoperability, and data quality assurance measures. Data privacy concerns are being addressed by implementing robust security protocols and data anonymization techniques. To mitigate the lack of correct data, initiatives for data-sharing collaborations, standardized datasets, and data augmentation techniques are being pursued. Enhancing medical knowledge and interpretability of ML models are active areas of research, aiming to provide transparent and understandable insights into the decision-making process.

JITENDER MANGLA
(21001504004)

ABSTRACT

Malignant or cancerous tumors are the second leading cause of death in the world after cardiovascular. In developing countries, the death rate for tumor disease reaches 70%, while in developed countries the rate is death can be suppressed because the equipment and health services are very good. Quick diagnosis and earlier will certainly be able to reduce the death rate of this disease. The CNN method is capable of reading images of MRI to predict patients against brain tumor disease. This research uses CNN with UNet architecture to train and test as many as 2,850 brain tumor images with masks. The use of the scheme is considered to be effective because apart from being able to produce segmentation. images accurately, the time used is quite short so that the examination is more efficient, inexpensively, accurately classifies tumor types and can determine using tumor development vide dice score.

KHUSHBOO
(21001504005)

ABSTRACT

Today there is no protection or control over files or records in the systems operational inside the public blockchain, it can be easily modified and there is no control over said changes except for certain applications that offer a history of changes but these are few, such changes in the files can cause great loss of data, because they may contain sensitive and extremely important information, the objective is to implement distributed ledger technologies, where information once shared on a Blockchain, remains immutable. So that file management is kept safe and the information they contain immutable, the implementation of a system that helps us to develop said characteristics, for this purpose registration technologies are used distributed. Thanks to the technological innovation that has given way to the creation of technologies of decentralized and distributed ledger such as Blockchain and the development of DApps that make use of SmartContracts, it is possible to carry out the development of a system that registers and later validate that the records of permits and absenteeism are not altered, in the same way In this way, this technology helps us to decentralize the information since it is stored and is validated in a Blockchain through a SmartContract, thus allowing keep you safe. The proposed scheme successfully able to implement the secured smart contracts using proposed hash algorithm within the public blockchain to keep data secured among the trusted resources which are part of the blockchain.

Kohsheen Kundu
(21001504006)

ABSTRACT

Breast cancer is the most common cancer in females over the world. It accounted for 2.3 million new cases in 2020, accounting for 11.7% of all cancer cases. In the same year breast cancer surpassed lung cancer as the most occurring cancer among people worldwide. Between 1965 and 1985, there was an almost 50% increase in cases of breast cancer in India.

Early detection of breast cancer is critical for saving many lives. The likelihood of surviving breast cancer might improve to 80% if it is detected early. Breast cancer can happen because of different reasons, like a family history of the disease, exposure to radiation, obesity, alcohol consumption or smoking, menstruation at a young age or late menopause, and a previous history of breast condition. The fundamental keys to improving outcomes are screening and early detection. As a result, researchers must examine existing and emerging breast cancer detection techniques used for screening and diagnosis to identify potential areas for improvement. For effective breast cancer detection, this research examines alternative models that integrate Machine Learning (ML) methods. Logistic Regression, Decision tree, K-nearest neighbor, Random forest, Support vector machine, and Extreand Gradient Boost algorithm were used to access and compare the performance of the four machine learning classifiers in terms of key characteristics including accuracy, recall, precision, and F1-Score. The findings in this research provide an overview of current state-of-the machine-learning algorithms for breast cancer diagnosis. Deep learning algorithms are vital in detecting early signs of breast cancer. In the experiment, three deep learning algorithms like Convolutional neural network, recurrent neural networks, and, artificial neural network were compared first and then a novel algorithm for detecting breast cancer was developed. Multiple Recurrent neural networks (M-RNN) are employed in the experiment to classify and detect breast cancer. The proposed algorithm is implemented on different epoch sizes. The Wisconsin breast cancer dataset was used to implement the algorithm. The algorithm produced better and more accurate results when compared with existing techniques.

(21001504007)

ABSTRACT

Web Application Servers and Data Networks security has become an important area of research due to the growing threats against this type of system. In this research work, two of the most worrying attacks using penetration testing have been studied: SQL injection attacks and Cross Side Scripts. These attacks are characterised by a high capacity to evolve rapidly, applying changes in their attack strategies, and are mainly focused on jeopardising the availability of data and applications, blocking access to authorised users. The main deficiency observed in the state of the art is that the existing security measures focus on guaranteeing the confidentiality and integrity of the data, paying little attention to availability. One of the innovations of the SQL Injection and Cross Site Script architecture is that the intrusion detection process is carried out by blindly applying these techniques in the various layers of the application using machine learning techniques namely Decision Tree and ID3. Intrusion detection in the application layer of distributed systems is quite complicated due to the enormous volume of traffic generated. Subsequently, the proposed scheme uses payloads able to define the penetration testing on the web application servers and data networks using Machine learning techniques namely Decision Tree and ID3 with 76.06% of accuracy and expose the vulnerable information on the fly.

Neeraj Singh Attri

(210015004009)

ABSTRACT

Open-domain question answering (QA) is a challenging task that requires a deep understanding of natural language and the ability to retrieve relevant information from vast knowledge sources. In this thesis, we present a comprehensive study on the development of a hybrid approach for open-domain QA, which combines the strengths of a BERT-based reader model and a graph-based multi-hop retriever. To investigate the effectiveness of our hybrid model, we conduct extensive experiments using diverse datasets, including HOTPOTQA, Squad, and Natural QA. We gather and preprocess these datasets, splitting them into training, validation, and test sets. We then develop a graph-based retriever using a knowledge graph, such as Wikipedia, and train it to identify relevant articles and sentences for answering multi-hop questions. Simultaneously, we develop a BERT-based reader model to read the retrieved information and generate accurate answers. The training of our hybrid model involves fine-tuning the reader on the training set to improve its ability to answer multi-hop questions. We integrate the retriever and the reader to create a hybrid model that combines their strengths. The retriever identifies relevant articles and sentences, while the reader reads them to provide accurate answers. We train the hybrid model on the training set and evaluate its performance on the validation and test sets. We also analyze its performance and compare it to existing state-of-the-art models, using evaluation metrics such as precision, recall, and F1 score.

Throughout our research, we address challenges related to overfitting and underfitting, employing techniques such as regularization and model tuning to mitigate these issues. Our results show that while our hybrid model may not outperform other data models in every scenario, it achieves comparable performance, demonstrating the effectiveness of our approach. In conclusion, this thesis contributes to the field of open-domain QA by presenting a hybrid approach that combines the strengths of a BERT-based reader model and a graph-based multi-hop retriever. The results obtained from our extensive experiments showcase the potential of our approach for accurately answering complex, multi-hop questions.

Nilesh

21001504010

Abstract

Introduction of internet has revolutionized the field of computing and communication. Today, it has become indispensable part of human life. With the advancement in internet and new tools and technologies people are able to access information and communicate throughout the world. It has enabled individuals and organizations to perform their businesses at ease. In other words, internet has open numerous options to make human life easier, but it also comes with a price, i.e cyber attack. In recent years, cyber attacks have increased rapidly and the rapid growth is mainly because of large amount of available valuable data around the world. In general, attackers target an individual or an organization for various malicious purposes such as theft of information, identity theft, disruption of businesses and so on. These attacks are carried out using various malicious tools like malware, viruses, ransomware, phishing, DDoS, botnet, etc. Out of these malicious tools, botnet is one of the most dreadful threats because of its disguised and aggregated nature as well as its rapid transmissible nature and difficult to detect.

Botnet is a malicious entity controlled remotely by a machine or a person. The machine or person who remotely controls the botnet is called Botmaster. Botnet can hide, carry, and spread any type of malicious activity such as viruses, malware, trojan horses, ransomware, hacking, spamming, Distributed Denial of Service (DDoS), etc. Based on existing architecture, botnet can be broadly categorized as Centralized, P2P and, Hybrid botnet. Botnet is one of the most used tools by malicious agents to implant any kind of attack. The detection of botnet is a difficult and it demands special technique and different skills.

The botnet detection techniques are ranging from signature based to deep learning based. Signature based method detects the botnet by matching the signature of bot. The signature based techniques are not so fruitful if there are numerous bots with different characteristics. The limitations of signature based botnet detection is addressed by both flow and behavior based botnet detection. But, in these methodologies it is difficult to identify each attack individually. All these limitations of botnet detection give rise for methods that can detect bot accurately and can stop zero day attack. The ML and DL based techniques are contributing significantly for the detection of botnet on zero day attack. In order to develop a ML or DL based model, a dataset consisting of various features is required. Some of the botnet dataset have limited features which are not enough for the effective detection of botnet. A dataset can have few or large number features. A lesser number of features or a large number of features may reduce or upgrade the performance of machine learning or deep learning models. The

performance of machine learning or deep learning models can be improved if they get implemented using the optimal number of features. For these purposes, efficient feature engineering approaches are required.

In this thesis, we have proposed botnet detection using machine learning. In this work, we have evaluated multiple machine learning models as well as developed multiple ANN based models. We have also employed some existing feature engineering approaches and develop two novel methods for finding the best sets of features.

Towards this, we have first evaluated multiple ML models for classification of botnet as malignant or benign. In this work, we have used Support Vector Machine, Logistic Regression, K-Nearest Neigbhor and Decision Tree classifiers. In order to increase the efficiency of these models we have tuned their hyper parameters. We have also analyzed different feature engineering methods to select the best feature set from a dataset. For this purpose, we have used Principal Component Analysis, Univariate Feature Selection, Recursive Feature Selection, Feature Importance and Correlation Matrix. The feature selected using these methods are used for training and test of the above mentioned ML models. The experimental results show that performance of the ML models have improved significantly in combination with feature engineering approaches. In this work, KNN has performed best with every combination of feature engineering approaches.

In general, a deep learning based classification model has advantages over machine learning because we can add multiple hidden layers in order to enhance performance. It can also be used to solve more complex problems. In this thesis, we have proposed an Artificial Neural Network (ANN) architecture for multi-class classification of botnet. The number of hidden layers in the proposed architecture is identified using an incremental approach. In this incremental approach, first, we have implemented the ANN model with one hidden layer, then with two hidden layers, and after that with three hidden layers and so on. The process continues until the model started to get overfitted. In our experiment, the model gets overfitted at five hidden layers, so we have selected four hidden layers for the proposed model. The model is evaluated using a multi-class labelled dataset and we got the accuracy of 99.04%.

Next, we have proposed a methodology based on fuzzy logic to extract new features from a dataset having limited features. In this methodology, first, some features are identified that can be part of the dataset and are called extracted features. The crisp value of extracted features is first converted into fuzzy values using the process called fuzzification. Then, we have made some fuzzy rules to determine the participation of extracted features in the dataset. The fuzzy

rules are made based on the range of extracted features. The ranges are defined as Low, Mid and High. The participation value of the extracted features is checked in a range of 1-10. The participation value of each extracted features we got is five, which is calculated using a fuzzy aggregated function. The fuzzy aggregated function is the aggregation of all the fuzzy rules created for finding the participation of a feature. Finally, we got total nine features from the dataset consisting of five features. Further, an ANN based model is used for the detection of a botnet. The proposed ANN based model is performing well with an accuracy of 99.94%.

Finally, we have proposed a feature selection approach for the dataset having large number of features and an ANN model is evaluated using the selected features. The proposed approach is divided into two phases. In the first phase, we have developed a methodology for feature engineering that is based on Ant Colony Optimization (ACO). The ACO based methodology works with an objective function using which is used to find the best feature set. The value of the objective function depends on the pheromone level, evaporation rate, and a control variable. Initially, the correlation between all the features is evaluated using the Pearson correlation coefficient. Then Pearson correlation coefficient is used to find out the pheromone level of each of the features. The value of the evaporation rate and control variable is set to a constant value. After this, a new objective function is evaluated using the pheromone level, evaporation rate and control variable. The new created objective function is then used to find the optimal set of features. The optimal set of features is then used by an ANN based botnet detection model. The proposed model gives an accuracy of 99.68%. The proposed model is performing well when compared with a full feature set ANN based model and Multi-Objective PSO.

Priya

(21001504011)

ABSTRACT

In the information age, we experience "information overload", and through automatic text summaries, we could obtain more concise information that would allow us to quickly obtain critical information, saving the reader a lot of time and effort. Manual text summarization is a very expensive task, in terms of time and effort, and is unfeasible for many tasks. Therefore, the need to investigate, contribute and obtain improvements in the field of automatic text summary arises. In this research, we mainly focus on abstractive text summarization of Amazon reviews. Most of the recent deep learning methods rely on data labelled for abstraction to achieve good-quality extractive summaries. Therefore, we proposed a framework based on Deep learning and NLP for text summarization comprising LSTM, BERT, and Sequence-to-Sequence attention network-based approach to summarise the information and to increase abstraction accuracy. The proposed scheme can combine multidimensional sentence features such as topic, semantics, keywords, and position through range fusion to achieve optimal text summaries and be able to define accuracy using Precision, Recall, and F-Score vide ROUGE Score. Therefore, this automatic abstractive text summary tool would be useful in presenting a summary of the content of which said methods that have obtained state-of-the-art results at the time of the carrying out of the experiments.

Ravi Shankar
(21001504012)

ABSTRACT

The sentiment analysis is a system that is used to perform automated analysis processes on various services and product reviews. This scheme incorporates data namely IMDb (Internet Movie Database) to be classified using BERT. However, the sentiment analysis is segregated into mainly 3 stages namely pre-processing, feature extraction, & classification sentiment. For feature extraction, the Word2Vec (Word Embedding using Word to Vector) method is used. IMDb Data is classified into two classes, namely negative and positive.. The test results show that the test classes (negative and positive) is obtained on 79% of training data and 21% of test data achieving a precision of 96.10% for negative class and 89.20% for positive class. Thereafter, recall of 88.40% of the negative class and 96.40% of the positive class. Subsequently, the F1 score of 92.10% for the negative class and 92.60% for the positive class. Consequently, attaining the accuracy of 92.40% respectively This accuracy has been proven to be quite good and quite far effective and reliable for the classification process such as sentiment analysis.

Sagar Dalal

21001504013

ABSTRACT

One of the most important, delicate, and accuracy-demanding aspects of the power systems has always been short-term load forecasting (STLF). In order to realise a smart power system of the future, an accurate STLF enhances not only the system's economic viability but also its operational safety, stability, and dependability.

Control, operation, and planning of the power system need the accurate forecasting of electrical load. Power system operators can assure a dependable and steady power supply while minimising costs and having a smaller negative environmental impact when energy demand is accurately projected. The effective operation of the power grid, including the scheduling of power generation, load balancing, and demand response management, depends in large part on short-term load forecasting (STLF), which forecasts the electrical demand for a few hours to a few days in advance. The capacity of machine learning (ML) approaches to manage complicated, non-linear correlations between load and social, economic, and meteorological aspects has led to its widespread application in STLF. ML models can also learn from historical data to capture patterns and trends, making them suitable for STLF applications.

In this study, a comparative analysis of different ML-based techniques for STLF was conducted. Hourly load data from two different regions over a period of one year were used to train and test the ML models. The selected ML models included artificial neural networks (ANNs), support vector regression (SVR), decision trees (DT), and random forests (RF). These models were chosen because they are popular and well-established ML algorithms in load forecasting literature. Each ML model's performance was evaluated using metrics such as correlation coefficient (R), mean absolute percentage error (MAPE), and root mean squared error (RMSE).. These criteria were used to assess the models' precision and generalizability in forecasting the electrical load across various time periods. The study's findings demonstrated that ANNs consistently performed better in terms of accuracy and generalizability than the other ML models. High predicting accuracy was attained by ANNs with an average MAPE of less than 2% and an RMSE of less than 5%. This is explained by ANNs' capacity to learn intricate non-linear correlations between load and many exogenous variables, such as the time of day and the weather.

The study also emphasised the value of preprocessing and feature selection methods in raising forecasting accuracy. The most pertinent input variables for the forecasting models were found using feature selection approaches, and the input data was normalised and outliers were removed using

preprocessing procedures. Time series analysis and regressions frequently use historical data on electricity alone, without the addition of exogenous variables.The relevant studies are assessed in light of a number of factors, including the use of an ANN type, input variables, and short-term electricity consumption prediction accuracy that was attained.

In conclusion, this work offers useful guidance for power system planners and operators in terms of picking suitable ML methods for STLF applications. The most effective ML model for accurate and trustworthy STLF is discovered to be ANNs. The study also highlights how crucial feature selection and preprocessing methods are to raising predicting accuracy. The results of this study may be used to enhance power systems' sustainability, dependability, and efficiency, which would eventually benefit customers and the environment.

Sonam

21001504014

ABSTRACT

Supply chain system is one of the area where the blockchain technology is revolutionizing. The supply chain is a network of enterprises, information, tasks, and resources that creates and delivers commodities. For supply chain management system , blockchain offers a decentralized, transparent , unchangeable, and secure platform that can boost efficiency, cut costs, increase transparency, and foster trust.

The primary building element of a supply chain that uses blockchain technology and the system is a distributed record of transactions that records and validates every single transaction and activity along the supply chain. From the source of the unprocessed ingredients to the last consumer in the supply chain, it provides a digital trail of all the goods and services. Transparency and accountability are ensured since every party to the supply chain has access to the same data and can instantly verify and approve each transaction.

The removal of middlemen like banks, brokers, and third-party service providers is actually the key benefits of a supply chain system based on blockchain . This lowers costs, boosts effectiveness, and quickens the supply chain. Additionally, the blockchain's immutability guarantees that all transactions are safe and impervious to manipulation, lowering the possibility of fraud, forgery, and theft.

The increased transparency that a blockchain-based supply chain system offers is another benefit. Since everyone in supply chain has access to the same data, there is greater transparency and accountability. This promotes speedy and precise decision-making while assisting in the identification of supply chain bottlenecks and inefficiencies. Additionally, the transparency of the blockchain can support the advancement of moral and ethical behaviours, including ethical hiring, responsible sourcing, and environmentally friendly manufacturing.

In conclusion, a supply chain management system based on blockchain has several benefits for both companies and customers. It offers a safe, open, and effective platform for managing the intricate web of processes that go into the development and delivery of a good or service. Businesses may utilise blockchain technology to lower costs, boost productivity, improve transparency, encourage moral and sustainable behaviour, all while ensuring the security and satisfaction of their clients.

Sumit Phogat

21001504015

ABSTRACT

Our everyday lives have grown completely dependent on social media, and Twitter has emerged as one of the most well-liked social networking sites. Twitter's centralised structure, meanwhile, raises questions about data security, censorship, and authenticity. By allowing decentralised, transparent, and secure networks, blockchain technology has the ability to allay these worries. The goal of this thesis is to investigate the conception and use of a blockchain-based Twitter, a decentralised social media network that makes use of blockchain technology to give consumers a safer and more transparent experience. As blockchain-based Twitter is decentralised, there is no central authority in charge of running it, and users may communicate with one another directly and without the use of middlemen. By doing away with middlemen, this lowers the possibility of data leaks and hacker assaults. The integration of blockchain technology into social media platforms can have a number of advantages, including increased authenticity and transparency, improved security, and enhanced user privacy. Users may be certain that the data they are viewing is authentic and free from tampering since all transactions here on blockchain are documented and cannot be changed. By utilising security features such as encryption and other measures to guarantee that users can decide who gets access to their data, blockchain technology also enables enhanced user privacy. The potential advantages and drawbacks of using blockchain technology on social media platforms will be looked at in this thesis, along with possible applications for blockchain-based solutions. We will also review the major characteristics and functionalities of Twitter's blockchain-based version while analysing the existing literature on social media networks based on blockchain. A thorough analysis of pertinent academic material on social media platforms and blockchain technology will be part of the research technique for this thesis. In order to compile empirical data on the usage of Twitter built on the blockchain and its possible effects on users, we will also undertake case studies and polls. The ramifications of our results for the long-term viability of social media platforms and the possible impact of blockchain technology on the social media landscape will be covered in the thesis' conclusion. In general, the goal of this thesis is to provide readers a thorough grasp of blockchain-based Twitter and how it may change the social media environment. The results of this study have significant ramifications for social media corporations, politicians, and people looking to increase their online privacy and security. This study can contribute to the development of more safe and open social networking platforms in the future by highlighting the potential advantages of blockchain technology in the field of social media.

Tanisha

21001504016

ABSTRACT

Building a safety system that satisfies the legal requirements of legislators has been a challenge for a long time. Distributed ledger technologies is an exciting technological advancement in the information technology world. Cyber technologies offer an infinite range of applications benefiting from sharing economies. This paper aims to evaluate the application of vehicle safety as service to implement distributed electronic systems. The paper elucidates the requirements of building Greens corridor safety system and identifies the legal and technological limitations of using Cyber technologie as a service for realising such systems. The paper starts by evaluating some of the popular Cyber technologie frameworks that offer Edge as a service. We then propose a novel electronic system based on IoT that addresses all limitations we discovered. More generally this paper evaluates the potential of distributed ledger technologies through the description of a case study, namely the process of a system and implementing a Greens corridor application which improves the security and decreases the cost of hosting a nationwide network.

Ankit Bhardwaj

(20001504004)

ABSTRACT

This thesis explores the potential applications of blockchain technology in the field of library management providing solutions to challenges faced in traditional methods/systems. As libraries continue to evolve in the digital age, traditional systems face challenges in terms of security, transparency, and efficiency. Blockchain, a decentralized and immutable ledger, has emerged as a disruptive technology with the potential to address these challenges.

The research begins with a comprehensive review of the current landscape of library management systems, highlighting the limitations and vulnerabilities that arise in centralized databases. Subsequently, the fundamental concepts and features of blockchain technology are examined, emphasizing its decentralized nature, cryptographic security, and consensus mechanisms. Drawing upon existing literature and case studies, this thesis explores how blockchain can enhance various aspects of library management, including cataloging, lending, authentication, copyright management, and interlibrary transactions. By leveraging blockchain's transparent and tamperproof nature, libraries can foster trust among stakeholders, streamline processes, and facilitate the exchange of resources.

Furthermore, potential implementation challenges and considerations are discussed, such as scalability, privacy concerns, integration with existing systems, and user adoption. Strategies for mitigating these challenges are proposed, highlighting the importance of collaboration between libraries, technology providers, and relevant stakeholders.

To validate the feasibility and effectiveness of blockchain in library management, a tabular representation of blockchain’s solution to identified and potential challenges in libraries is formulated, demonstrating key functionalities and showcasing the benefits of blockchain integration.

In conclusion, this thesis argues that blockchain technology holds great promise for transforming library management systems. By embracing blockchain's decentralized architecture and leveraging its inherent security features, libraries can enhance data integrity, streamline processes, and foster trust within the library ecosystem. However, further research and real-world experimentation are necessary to address implementation challenges and fully realize the potential of blockchain in the library domain.

Keshav Ganguly

20001504008

ABSTRACT

Blockchain technology has gained significant attention in recent years due to its potential to revolutionise various industries, including logistics and value chain management. This thesis aims to explore the applications of blockchain technology in these domains and assess the benefits it can bring to enhance transparency, efficiency, and security.

In the logistics industry, traditional systems face challenges related to data management, trust, and traceability. By implementing blockchain, logistics companies can create a decentralised and immutable ledger that records every transaction and movement of goods. This enables real-time visibility and tracking of shipments, reducing delays, errors, and disputes. Smart contracts, built on the blockchain, automate and streamline various processes such as documentation, customs clearance, and payments, resulting in faster and more reliable transactions.

Similarly, blockchain technology offers transformative potential in value chain management. By utilising blockchain, organisations can create transparent and auditable supply chains, ensuring the integrity and authenticity of products. This enhances trust among stakeholders and consumers, mitigating issues related to counterfeiting and product provenance. Blockchain-based platforms enable secure sharing of information among participants, facilitating seamless collaboration and coordination in complex value chains. Additionally, blockchain's decentralised nature eliminates the need for intermediaries, reducing costs and increasing operational efficiency.

However, the adoption of blockchain in logistics and value chain management is not without challenges. Scalability, interoperability, and regulatory compliance are significant hurdles that need to be addressed. Additionally, organisations must consider the costs and complexities associated with implementing and maintaining blockchain systems.

Despite these challenges, the potential benefits of blockchain in logistics and value chain management are substantial. The technology offers increased transparency, efficiency, and trust, leading to improved supply chain operations, reduced fraud, and enhanced customer satisfaction.

Priyanshu Aggarwal

(20001502010)

ABSTRACT

Tourism is a journey action conceded out by masses both individually and in-crowd to trip assured destinations for enjoyment and to learn about the distinctiveness of traveler or tourist areas/places, to develop themselves in a short or temporary period. This Support Vector Machine with MapReduce method will later provide data in the form of choices of tourist attractions to be visited by potential tourists, which will make it easier for potential tourists to determine which tourist locations to visit and provide information about these tours. The problem in this study is how to classify the types and tourist attractions in India using the Support Vector Machine classification method with inculcation with MapReduce. This study uses the Support Vector Machine and MapReduce method with the object of research choosing Kashmir as the research object. The research was conducted using social media source namely Twitter. The conclusions of the results of this study are (1) brief information on the classification design, it is hoped that visitors will find it easier and faster in determining the type of tourist spots at Kashmir (2) with the Support Vector Machine classification design it is hoped that it can help visitors to be able to describe tourist attractions in Jammu and Kashmir State. However, researchers used Big Data (MapReduce) and Support Vector Machine classification algorithm approach for opinion or suggestion evaluation. Subsequently, the proposed scheme can achieve approx 98% accuracy using performance evaluation techniques.

Richa

19001503008