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An interactive GST + ERP System for handling small scale Indian businesses

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***Abstract:** An ERP solution, often known as an Enterprise Resource Planning System, has become among of the highly productive and helpful installations. ERPs are incredibly competent of offering a strong organizational structure and simplifying the complete firm with simplicity. ERPs have been increasingly popular in last several decades due to the significant cost savings and excellent administration of an organization's overall business operations. ERP administration is an incredibly expensive operation due to the thorough and comprehensive integration, which is why much of it has been focused on major organizations. This is also why almost all of these new ideas have been out of reach for small to medium sized firms. Several other researchers were also barred from accessing these technologies and applying numerous modifications due to the expensive cost. As a result, an effective method to building a comprehensive approach to an ERP for the involved in administering small to medium enterprises is required. This research article provides an effective approach that enables the manager and the staff to access this software to make purchases, handle client and employee data, view performance charts etc. in much detail in the upcoming sections.*

***Keywords:** GST verification, Pan Number Verification, Database connectivity, purchase Entries, Sales Entries.*

I. INTRODUCTION

This research article introduces an Enterprise Resource Planning system, which itself is equivalent to an appropriate data management strategy. A data management strategy is a large software program used to maintain and monitor databases. It can create, run, and upgrade databases. The acronym for database management system is DBMS. It can consistently analyze and regulate data, assuring information confidentiality and reliability. DBMS may be used by users to govern data in databases, whereas database professionals can use it to manage databases. A database management system (DBMS) is a collection of capabilities that support clients or software programs to create, modify, or retrieve collections using numerous techniques at the right moment.

ERP systems have shown to be quite valuable in properly structuring and enhancing the management of huge organizations all over the world. These major corporations pay exorbitant fees to implement these technologies. The enormous expense of deployment outweighs the benefits realized via the execution of such a method. After the implementation, the firms have saved a significant percentage of revenue since they now have a well-organized prototype of the present procedures in place. This was heavily concentrated on major industry can firms since they could finance such a wide-scale deployment, as well as the research expenditures. Because of the expense and lack of management infrastructure, medium and small scale techniques were not recognized for this type of implementation. Due to the technique being black walled at major businesses, any relevant knowledge by academics and other professionals in this respect has been suppressed. The significant proportion of such deployments have been tailored to the specific organization's objectives and specifications. As a result, using such ERP systems raises the corporation's operational productivity while also improving its ability to meet its respective development and employee engagement targets.

The suggested technique may be employed in a wide range of scenarios, including small and medium-sized businesses of all sizes. This solution enables the user to successfully administer their companies and achieve higher overall productivity. The entrepreneur and the corporation's staff are the intended users of this program. The employee will utilize this method to monitor their spending and salary, as well as any other contact with management. Managers may also handle enquiries and numerous business-related operations using this self-contained interface. This approach provides the registration and login of a number of staff and managers that can effectively handle the operations of the organization. The staff can perform a large number of activities, such as adding client information, handling sales, handling purchases, checking inventories, viewing performance graphs, and much more. This allows for a much effective and useful mechanism for the purpose of increasing the organizational performance of the business by a large margin. This ERP solution will be effectively elaborated in the upcoming sections of this research article.

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This research article dedicates section 2 for the evaluation of the past works under the name literature survey. And the implemented technique is broadly described under the section Proposed methodology which is numbered as 3. Section 3 discusses the obtained results from the experimental process. And finally, section 5 concludes this paper along with the scope for future enhancements.

II. LITERATURE SURVEY

I. Eisa et al. proposed a cloud data center database management system (DBMS) framework that includes unique storage capabilities, surveillance, and conflict control methods [1]. As a result of the challenges, transaction performance has increased and the frequency of transaction self-destructs has reduced. The statistics demonstrate that the recommended data warehousing module manages 'write and read' activities faster than competing storage management solutions like RAID and Oracle ASM. Because it parallelizes the 'read' transaction amongst storage media, the potential alternative manages interactions better than earlier storage and management solutions when users request records on separate positions with varying rates. Receiving information from several parts consumes less effort than receiving data from a single piece since application servers complete the transaction simultaneously.

L. Lei et al. [2] provide a game-changing mobile-cloud database solution for collecting and manipulating mobile data in cloud repositories for smartphone apps.

This approach not only offers a common architecture for linking mobile apps to cloud services, but it also addresses the shortcomings of conventional mobile database systems by incorporating essential mobile distributed technology characteristics such as multi-tenancy and adaptability. Moreover, it maintains to provide mobile apps with significant mobile database capabilities such as portability and location-aware, automated session redundancy. Based on the research findings of the prototype software's trials, the authors believe that the proposed MCloudDB technique, which makes use of traditional cloud databases, gives a better choice for mobile data administration and accessibility.

B. Sengupta et al. proposed a secure decentralized cloud storage service for static data based on the core storage structure of HAIL. The program that provides POR guarantees. The authors offer a security paradigm for decentralized online storage techniques. In contradiction to HAIL, an aggressor cannot alter a dissemination codeword in the disclosed approach alone without client realizing [3]. The authors use methodical Cauchy Reed-Solomon codes in a static data architecture and provide a technique for expanding such codes to accommodate new symbols appended to preexisting message characters. The changes to the parity symbols have no impact on the existing messaging symbols. The development of such extendable code might be useful in a range of diverse scenarios.

A. Sharma presented a NoSQL-based multi-tenant information storage infrastructure [4]. The data store was built using Cassandra, a column-based NoSQL family database. The proposed solution has the benefit of being easy to offer data segregation between tenants while also allowing for versatility in schema creation or update. The deployment findings show that the proposed Multitenant architecture provides tenants with the necessary data separation and operates well for large datasets, however query execution time increases for sparse data.

C. -P. Chang et al. designed and implemented a cloud backup integration system that automatically adjusts to the needs of the user. The system operates as a singular file system, allowing the user absolute control throughout his logical viewpoint. From the browser window, the file data is instantaneously transferred to the cloud backup suppliers [5].

Despite the fact that this architecture has a minor overhead, the system provides capabilities that can significantly ease the maintenance of these online storage services.

Some of the available options include splitting documents throughout numerous cloud storage transactions, moving file information to inform transferring for files which shouldn't be split, supplying a single reasonable view that is not partitioned by cloud services account limitations and communicating the naturalistic worldview with other consumers, and instantaneously determine the optimal profile to position a file effectively.

K. Al Nuaimi et al. proposed a creative storage optimization technique for the cloud. The major goal is to boost upload speed while minimizing storage usage and costs for clouds holding large data. The coordinated dual-direction dissemination from several cloud storage, which depends on the availability of numerous replicas on the data centres, boosts download speed. To create place for new data, the replicas' non-downloaded sectors on the remote computer are deleted [6]. The elimination of replica partitions is important for decision making gathered from earlier twin channel downloading.

A client, for example, may need to transmit a shared folder to the cloud, although certain cloud services don't have enough space to accept this document. In this circumstance, the writers look for blocks that have not been retrieved from that server in a certain amount of time and remove them to create way for the new file.

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S. Muthurajkumar et al [7] developed a working data storage system to conserve space. In this technique, a unique technique dubbed Temporal Data Deduplication Algorithm (TDDdA) has already been introduced to enhance performance. This technique emphasizes on routinely assigning and displaying management information system to users, while also allowing temporal constraints to boost security.

The proposed Temporal Data De-duplication Algorithm (TDDdA) is confined to two methods, including one and those without Temporal. This research has also been performed in a real - world environment for inspecting documents and allowing users to validate source code. Obfuscation is another method of assuring security that may be utilized in instructions to increase performance. Secrecy will be increased by combining obfuscation and encryption methods. This method safeguards data stored in the cloud against both domestic and foreign client vulnerabilities.

ACTOR is an active Cloud storage paradigm developed by Z. Qiao et al. that uses the on-drive processing capability of Ethernet-connected devices as the smart big data diagnostic and archiving alternative. ACTOR consists of thousands of energy-efficient Ethernet-connected SSDs, which can help big data applications save resources and costs. Secondly, information processing close to storage devices permits computation and storage management chores to be delegated to Ethernet-connected equipment, leading to improved parallelism [8].

This hardware parallelism might be used to process massive amounts of data provided to storage technologies by data-intensive workloads. So much more data transmission may very well be conserved by compression and consolidating data beforehand transferring it, resulting in many fewer data packets being delivered to computers located.

S. Manjula et al. [9] suggested an infrastructure that provides a secure approach that information needed to determine into sections to safeguard user information over the internet.

The cloud server's data division helps to prevent hackers from viewing the complete file. Moreover, however if the attacker accesses the stored file, he are also unable to tell which part of the document it is or what data it includes because it is protected. With proper authorization, safe file dissemination will be achievable. If one of the public cloud fails, the solution should be designed to recover data from the remaining cloud servers using the duplication mechanism. The file's encryption with an indestructible algorithm and dividing the file safe data.

S. Ramamoorthy proposes a system for accessing and modifying cloud data using blockchain approaches. This hybrid technique avoids unwanted data modification and removal in the public cloud infrastructure. The use of randomized hashes and a private blockchain among public cloud nodes improves access to data and revision security. Additionally, the privacy test demonstrates that the recommended technique successfully inhibits risky usage patterns on this platform. The suggested shared information accessibility infrastructure would make use of OpenLedgers, which are managed via blockchain technology [10]. The openLedgers are multilateral tables that store information about every participant in the community network, including exchanging data and information.

B. Hu et al. offer a cloud-based account management approach for the SME SaaS Ecosystem and its implementation. The account service aims to deliver a multi-tenant, flexible, and transparent managed services infrastructure as a service to corporate users [11]. The suggested account services differs from existing public accounting systems in the following ways: 1) It will be configured as a standalone virtualized environment with a concentrate on enterprise software, particularly SaaS; 2) Multi-tenancy is completely backed, and that each organization is a resident of the transaction provider with sharp delineation with other leaseholders; and 3) The underlying methodology includes a partition-based distributed system that guarantees the provider is expandable and accessible.

S. Luo et al. describe Boafft, a decentralized deduplication cloud storage platform. It offers scalable speed and performance by parallelizing data deduplication throughout many cloud server with little deduplication ratio decrease [12].

First, Boafft uses an efficient and robust routing technique based on data similarity, which not only reduces bandwidth of the network but then also calculates data storage sites quickly. Furthermore, each data server maintains a based on the correlation table in memory that may be used to substantially deduplicate data and minimize disc random reads/writes. Finally, the authors use a caching receptacle of active fingerprints based on access frequency to maximize the data deduplication percentage on a particular node.

H. Zhong [13] describes a database management system capable of handling and managing databases, along with building, utilizing, and maintaining them. As a result, the database may be monitored and managed globally, assuring its authenticity and protection. The database management system allows users to retrieve the database's data. Database management systems may also utilize DDMS to keep their databases up to date. It may offer a wide range of features, enabling multiple organizations and individuals to construct, edit, and search database at the very same time.

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III. PROPOSED SYSTEM

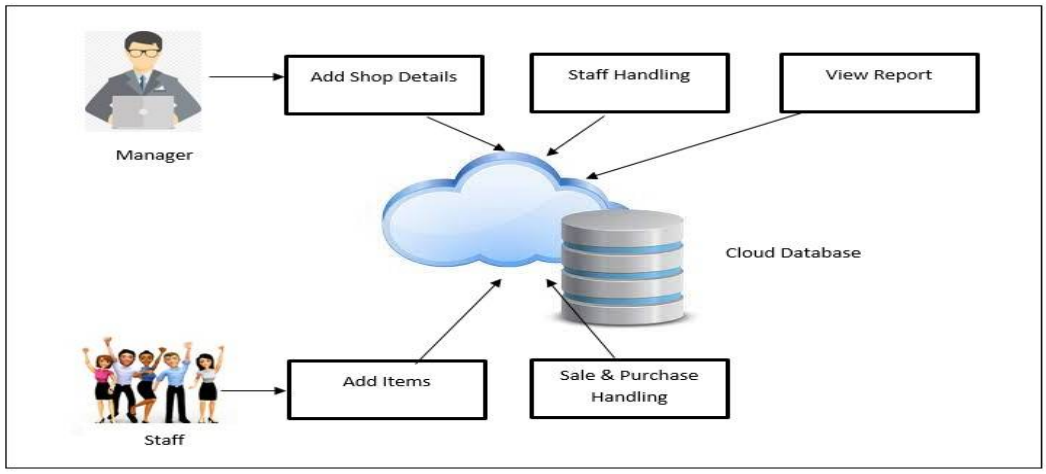


Figure 1: System overview

The presented technique for the purpose of achieving ERP or Enterprise Resource Planning scheme has been depicted in the figure 1 above. The presented approach consists of various actors and the tasks which are performed by these actors are detailed in the steps given below.

1) The Manager has certain responsibilities as mentioned below.

a) *Add Company Details:* The Manager can access the Home Menu from the dashboard to add the home company and its detailed information into the ERP system. After that the manager will enter the details of the company such as company name, address, bank details, PAN, etc. and click on save to save the details. The PAN number is validated as shown in the algorithm 1 given below.

ALGORITHM 1: PAN Number Validation

```
//Input : PAN Number as String PSTR
//Output: Boolean TRUE or FALSE
Function: isValidPAN(PSTR)
1: Start
2: FLAG=TRUE,C1=0,C2=0
3:   for  i=0 to size of PSTR
4:         ch= PSTR [i]
5:          X=(int)ch
6:        if ( X>=65 AND X<=90)
7:              C1++
8:       else if ( X>=4 AND X<=57)
9:              C2++
10:  end for
11:   SUM=C1+C2
12:  if(SUM!=10)
13:       FLAG=FALSE
14:  end if
15:   return FLAG
16: Stop
```

b) *Edit Company Details: The Manager can also edit the Home company information by accessing the home button on the Dashboard and selecting the edit home company information button. After that the manager edit the previously entered details of the company such as company name, address, bank details, PAN Number etc. and click on save to save the details.*
c) *Add Staff: The manager has the staff button on the dashboard menu which can be used to create an entry for a new staff member. Once that is selected, the manager can enter the details of the staff such as name, Date of Birth, mobile number etc. and click on the save button.*
d) *View and Edit Staff: The existing staff can also be viewed by the manager through the use of the same staff menu on the dashboard. This also allows the editing of the details of the existing staff member by clicking the edit button.*
e) *View Staff Report: The staff report is also managed by the manager through the selection of staff report on the manager dashboard. The report consists of the login and log out details of all the employees which will be displayed to the manager.*
f) *View Sale Graph: The manager can utilize the report tab to access the sale graphs. The sale graphs displays the sale of the items with the amount in INR individually in the form of a bar graph. The graph opens in a different window that can be closed after viewing.*
g) *View Purchase Graph: The manager can utilize the report tab to access the purchase graphs. The purchase graphs displays the purchase of the items with the amount in INR individually in the form of a bar graph. The graph opens in a different window that can be* closed after viewing.

2) The CEO performs certain responsibilities as mentioned below
a) *View Sale Graph:* The CEO can utilize the report tab to access the sale graphs. The sale graphs displays the sale of the items *individually with the amount in INR in the form of a bar graph. The graph opens in a different window that can be closed after viewing.*
b) *View Purchase Graph: The CEO can utilize the report tab to access the sale graphs. The sale graphs displays the sale of the items individually* with the amount in INR in the form of a bar graph. The graph opens in a different window that can be closed after viewing.

The Staff performs certain responsibilities as mentioned below
a) *Add Client:* The staff has the ability to add the client for enabling purchase and sale of goods. The manage client tab is accessed and the add client option is clicked by the user to get the add client page. On this page the staff enters all the relevant details of the client, such as general information, statutory details. Bank Details and contact details then clicks the save button.
b) *Search Party:* The staff also has the ability to search the details of the entered clients which can be accessed through the search client detail option. The search query can be passed to search the added clients, there are also options to add new party and edit the existing clients in this page.
c) *Edit Client/Party:* The staff can edit the previously added clients or parties through this option. The edit client option allows the staff to edit all the relevant parameters of the client, such as general information, statutory details. Bank Details and contact details then click the save button to save the details.
d) *Add Item:* The staff can add items that can be used for the purpose of purchase and sale. This is achieved by the add item option from the manage item tab. The Add item option allows the staff to enter the relevant details about the items such as type, item name, product description, quantity, GST Rate and HSN code after which the save button is clicked to save the details.
e) *HSN Code Selection:* The HSN code stands for Harmonized System of Nomenclature which is being used since a long time for the classification of goods. This system allows for an effective classification of goods that is recognized across the world. The system has inbuilt repository that can be used for the purpose of achieving a much effective search for the HSN item code that can be selected by clicking the select button.
f) *Search Item:* The staff also has the ability to search for the already added items through the search item option. The staff can either add a new item by clicking the add item button, or the user can also edit the selected entry by clicking the edit button.
g) *Edit Item:* The edit item page allows the staff to edit the item attributes that have been entered previously, such as type, item name, product description, quantity, GST Rate and HSN code after which the save button is clicked to save the details.
h) *Stock Register:* The staff has the access to the stock register that allows the staff to see different items and the stock that is available currently. The stock can be downloaded by clicking the download button which results in a excel sheet that can be stored on the selected location.

i) *New Purchase:* The staff is tasked with recording any new purchases through the new purchase option in the purchase tab. The staff then enters the relevant details of the purchase, such as the search party, purchase type, cost center, sale ref, invoice number, invoice date, purchase order number. Payment term in days, item name, quantity, price, discount, transport charges, packaging charges and then click the button to save the purchase.

j) *Search Purchase:* The staff can also search the previously made purchases through the search purchase section. The staff needs to enter the relevant search query or the date range to filter the search results. The searched entries then can be downloaded in a workbook format by clicking the download button below. The entries can also be deleted in this page using the delete button.

k) *Purchase Payment:* The staff can also search for the payment status for purchases that have been performed previously. The staff can filter this list by providing the name of the client and the payment status such as payable, payment done and partial payment. The staff can also filter the results using a date range. The results can be downloaded by clicking the download button and the staff can save the changes using the save button.

l) *Advance Payment:* The staff can also access the facility for advance payment for the purchases for the future. This is done by accessing the advance payment option and providing the input in the form of the name of the client/party, the amount paid, date of payment, mode of payment and the description. These details then can be saved by clicking the save button.

m) *New Sale:* The staff is tasked with recording any new sale through the new sale option in the sale tab. The staff then enters the relevant details of the sale, such as the search party, purchase type, cost center, sale ref, invoice number, invoice date, purchase order number. Payment term in days, item name, quantity, price, discount, transport charges, packaging charges and then click the button to save the sale.

n) *Search Sale:* The staff can also search the previously made sales through the search sales section. The staff needs to enter the relevant search query or the date range to filter the search results. The searched entries then can be downloaded in a workbook format by clicking the download button below. The entries can also be deleted in this page using the delete button.

IV. RESULTS AND DISCUSSIONS

The proposed methodology, which uses the Java programming language and the NetBeans IDE to achieve the effective Enterprise Resource Planning system. The development laptop is furnished with a Windows Operating System, powered by an Intel core i5 processor utilizing 8 GB of RAM, and 500 GB internal memory. The MySQL database is in charge of database management.
The proposed technique has been rigorously tested for efficacy over a wide variety of parameters. The findings of the empirical investigation are presented below.

A. Scalability Analysis of Database Transactions

The scalability of database transactions is determined using the given approach for an Enterprise Resource Planning technique. An extensive investigation is being carried out for this goal, which includes the realization of the ERP system with 3 separate logins and other organization related data that is being stored on the database. Table 1 shows the volume of database transactions that have been recorded and displayed.

S. No	No. of Database Transactions	Time Taken (in Seconds)
1	256	0.512
2	541	1.005
3	801	1.764
4	965	2.004
5	1299	2.217

The tabulated data is then used to generate the graph shown in Figure 2. The graphical representation has been shown to be effective in demonstrating the relationship amongst the number of activities and the time taken to accomplish them on the MySQL Database. The research findings provide a better understanding of the technique and the use of MySQL Database to guarantee the proper storage and administration of the organization's data. The frequency of Database operations is clearly not proportional to the time it requires to finish the transaction. This demonstrates that the MySQL storage mechanism was properly applied. The data contributed to understanding the higher durability of the ERP system.

V. CONCLUSION AND FUTURE SCOPE

The presented ERP solution for management and organization of small scale industries or companies has been elaborated in this research article. The approach has been designed to facilitate the registration and login access of 3 different types of actors. These logins include, the CEO, the Manager, and the staff. The CEO has the least use cases where they can only access the performance reports in the form of sale and purchase graphs. The Manager is tasked with the realization of the staff login, where the manager registers the staff by providing the relevant details. The manager can also add a company, and also edit the previously added companies. The manager can also view the staff reports to keep an eye on the work being performed by the staff. The manager can also view purchase and sale graphs. The staff can perform the most amount of use cases, such as adding a client,

In the future this system can be enhanced to work in real time cloud environment to host in the amazon database using the RDS. And also this system can be developed as the mobile application as well as centralized local host web application to help the small scale industries to handle the ERP through the multiple workstations.

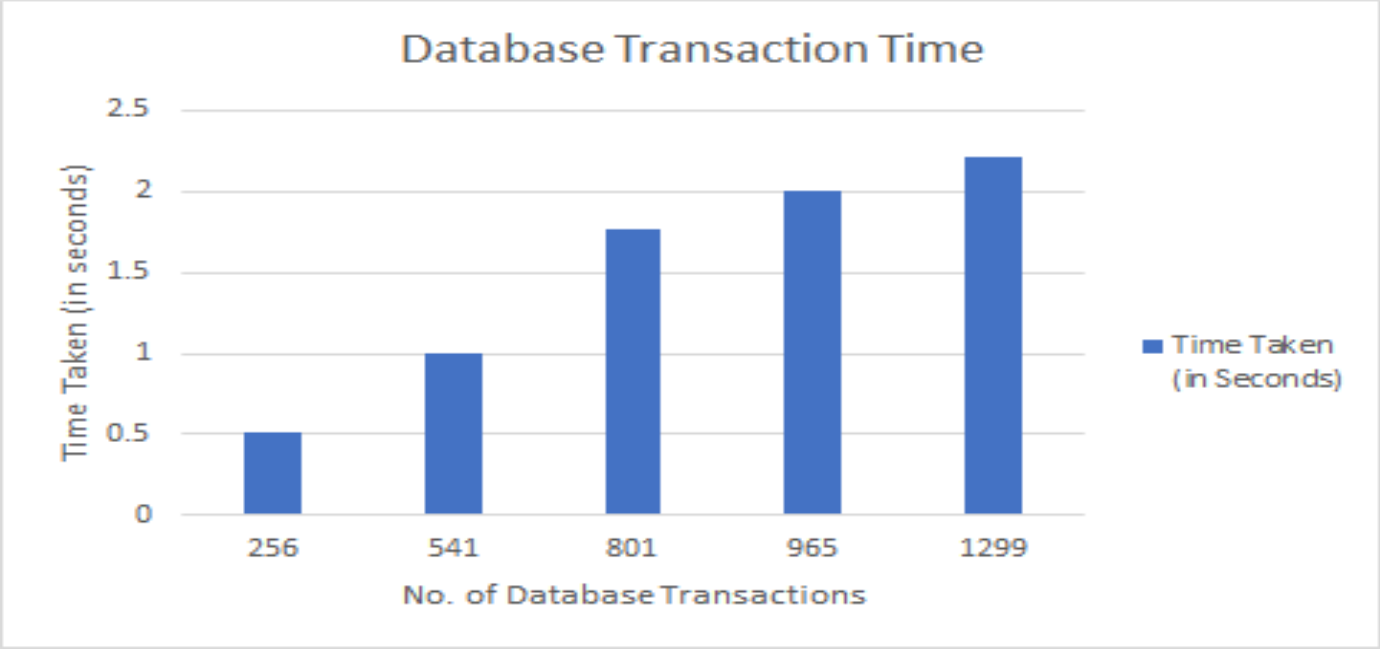


Figure 2: Blockchain Transactions

REFERENCES

[1] Eisa, R. Salem, and H. Abdelkader, "A fragmentation algorithm for storage management in a cloud database environment," 2017 12th International Conference on Computer Engineering and Systems (ICCES), 2017, pp. 141-147, DOI: 10.1109/ICCES.2017.8275293.
[2] L. Lei, S. Sengupta, T. Pattanaik and J. Gao, "MCloudDB: A Mobile Cloud Database Service Framework," 2015 3rd IEEE International Conference on Mobile Cloud Computing, Services, and Engineering, 2015, pp. 6-15, DOI: 10.1109/MobileCloud.2015.30.
[3] B. Sengupta, N. Nikam, S. Ruj, S. Narayanamurthy, and S. Nandi, "An Efficient Secure Distributed Cloud Storage for Append-Only Data," 2018 IEEE 11th International Conference on Cloud Computing (CLOUD), 2018, pp. 146-153, DOI: 10.1109/CLOUD.2018.00026.
[4] A. Sharma and P. Kaur, "A Multitenant Data Store Using a Column Based NoSQL Database," 2019 Twelfth International Conference on Contemporary Computing (IC3), 2019, pp. 1-5, DOI: 10.1109/IC3.2019.8844906.
[5] C. -P. Chang, H. -T. Chiao, Y. -S. Chang, C. -T. Tsai, K. -K. Yuen and S. -M. Yuan, "UCS — A Unified Cloud Storage Integration Service," 2017 IEEE 7th International Symposium on Cloud and Service Computing (SC2), 2017, pp. 245-248, DOI: 10.1109/SC2.2017.45.
[6] K. Al Nuaimi, N. Mohamed, M. Al Nuaimi and J. Al-Jaroodi, "ssCloud: A Smart Storage for Distributed DaaS on the Cloud," 2015 IEEE 8th International Conference on Cloud Computing, 2015, pp. 1049-1052, DOI: 10.1109/CLOUD.2015.149.

[7] S. Muthurajkumar, M. Vijayalakshmi, and A. Kannan, "An effective data storage model for cloud databases using temporal data de-duplication approach," 2016 Eighth International Conference on Advanced Computing (ICoAC), 2017, pp. 42-45, DOI: 10.1109/ICoAC.2017.7951742.

[8] Z. Qiao, S. Liang, N. Damera, S. Fu, H. Chen and M. Lang, "ACTOR: Active Cloud Storage with Energy-Efficient On-Drive Data Processing," 2018 IEEE International Conference on Big Data (Big Data), 2018, pp. 3350-3358, DOI: 10.1109/BigData.2018.8621864.

[9] S. Manjula, M. Indra, and R. Swathiya, "Division of data in a cloud environment for secure data storage," 2016 International Conference on Computing Technologies and Intelligent Data Engineering (ICCTIDE'16), 2016, pp. 1-5, DOI: 10.1109/ICCTIDE.2016.7725365.

[10] S. Ramamoorthy and B. Baranidharan, "CloudBC-A Secure Cloud Data access Management system," 2019 3rd International Conference on Computing and Communications Technologies (ICCCT), 2019, pp. 217-220, DOI: 10.1109/ICCCT2.2019.8824828.

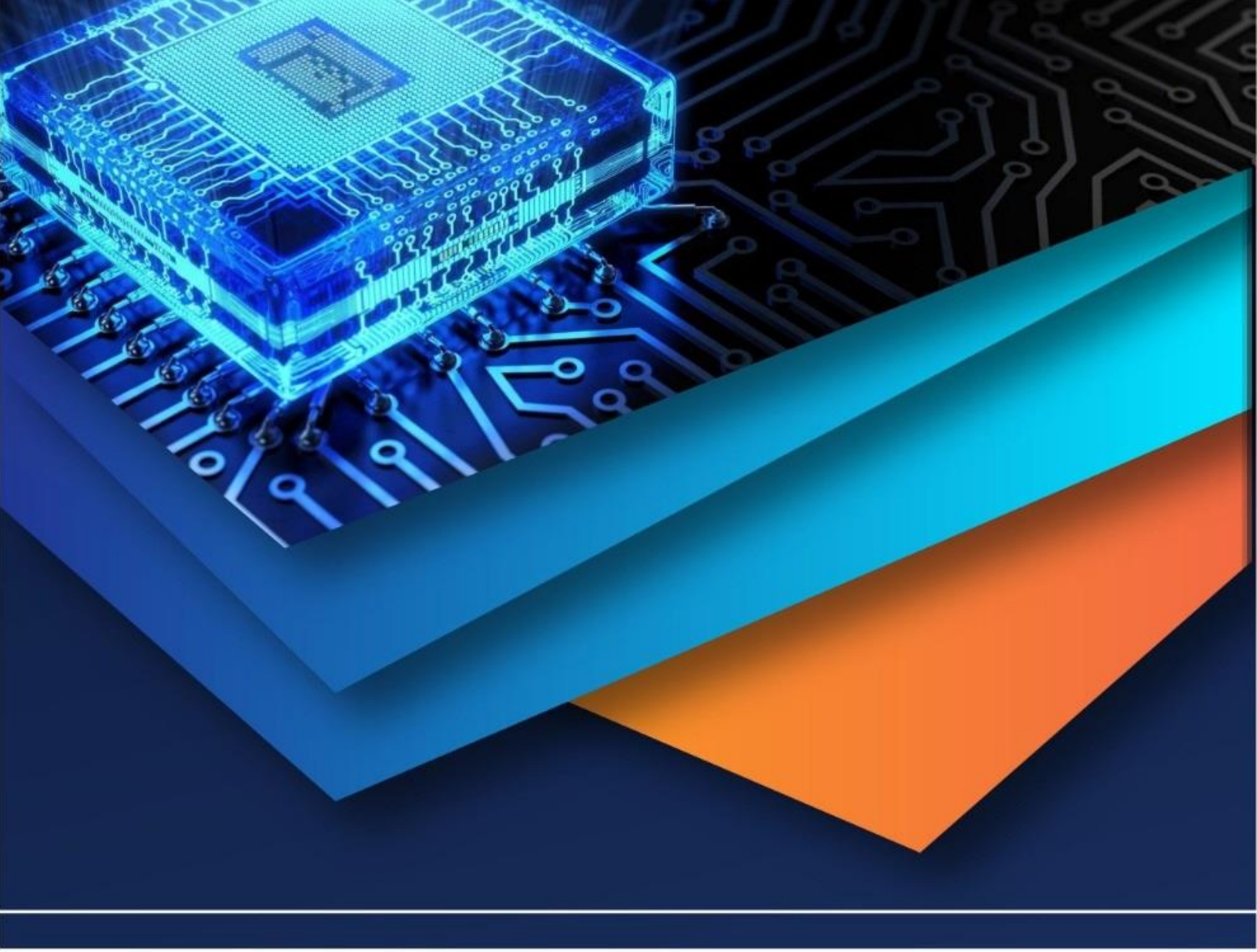
[11] B. Hu, L. -J. Zhang, D. Liu, Y. -F. Xie and L. -h. Luo, "A Cloud Oriented Account Service Mechanism for SME SaaS Ecosystem," 2012 IEEE Ninth International Conference on Services Computing, 2012, pp. 336-343, DOI: 10.1109/SCC.2012.54.

[12] S. Luo, G. Zhang, C. Wu, S. U. Khan, and K. Li, "Boafft: Distributed Deduplication for Big Data Storage in the Cloud," in IEEE Transactions on Cloud Computing, vol. 8, no. 4, pp. 1199-1211, 1 Oct.-Dec. 2020, DOI: 10.1109/TCC.2015.2511752.

[13] H. Zhong, "Database management system accounting software," Proceedings of 2011 International Conference on Electronic & Mechanical Engineering and Information Technology, 2011, pp. 474-476, DOI: 10.1109/EMEIT.2011.6022922.

[14] Account + GST Inventory Management ERP System (Using Cloud Storage) by Harshvardhan R Patil1 , Sourabh R Kotgire2 , Nikhil S Madhekar3 , Priyanka N Shelke4 , Mrs. Ishwari Raskar5 1, 2, 3, 4BE Students, Dept. of Information Technology ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538 Volume 10 Issue IV Apr 2022- Available at www.ijraset.com

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