Accounting and Stock Management in Oil Production

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***Abstract*---** The old Stock management software used in oil production companies will have a lot of manual work and they have to be maintained properly and are not economically friendly. The Stock management software can maintain both accounting and software and needs less manual work. More than 36,000 fast-growing organisations across the globe utilise this inventory management software (NetSuite) as a cloud-based business management platform. Businesses may get all the tools they need to manage operations and foster growth with NetSuite's cloud-based ERP system. Financial, supply chain, human resources, e-commerce, professional services, and customer relationship management (CRM) applications are just a few of the many that NetSuite powers. Its users span dozens of industries and organisations of all sizes.

***Keyword*---** Accounting, Stock Management, Inventory, Customer Relationship Management.

I. INTRODUCTION

Discovering new oil and gas deposits, extracting them, refining them, and then selling the finished goods is the goal of the oil and gas industry. Discovering and extracting hydrocarbons in difficult environmental conditions with unpredictable consequences needs a large initial investment and lengthy lead times [1]. Businesses can't afford to lose margins or fall behind in the market if they can't optimise the whole value chain. Achieving enterprise-wide efficiency requires careful planning and execution of the supply chain, as is true across all industries [2]. Nevertheless, due to the fragmented nature of the operations, inventory management poses a significant difficulty in the downstream supply chain. Suboptimal decision making, which reduces enterprise value, is a common consequence of having many entities handling inventory and their competing KPIs.

Refinery inventory planning is distinct from depot inventory planning in the supply chain [3]. Because refineries are asset demanding and run at maximum efficiency to decrease unit cost and cost of downtime, the presence of the push-pull border at the site is to blame. The commodity nature of the product and the daily price fluctuations further complicate the planning procedure [4]. The company's bottom line might take a major hit if market prices suddenly rise or fall, which affects the value of inventories. Businesses should not depend on push models but rather try to integrate inventory models with demand estimates. Rather than having set goals throughout the year, it is more efficient to trade off inventory holding costs, transportation costs, and demand in order to arrive at rolling targets. As a result, transportation costs will be reduced and logistics operations will be optimised, both of which will impact the final product price. The system can also be designed to dispose of any excess produce in a scheduled manner. In addition, knowing what the system's intended inventory is might aid with trading instrument risk mitigation for price exposure. The "new oil"—data and data-enabled decision-making—must be considered by oil and gas corporations if they are to effectively plan and implement this strategy. Although O&G firms' downstream businesses have been slow to embrace digital technology in the past, they are now making investments to build the platforms needed to gain a strategic advantage, as seen in Figure 1.

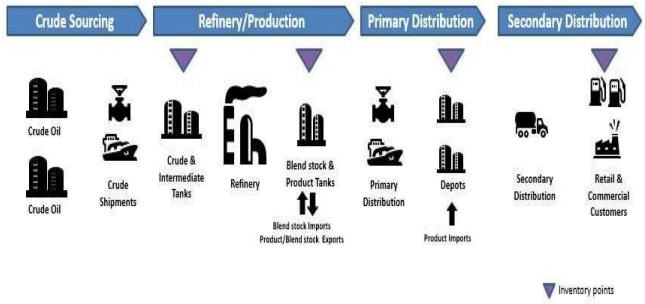

Figure 1 - Platform for Production

Sector-wide challenges:

- Lack of information visibility.
- Incorporate available data and information into an analytics model.
- Need to incorporate automation in their process.
- Risk mitigation measures are one of the important strategies.
- "What if" analysis should be integrated into the analytics model

1.1 Organization Behaviour

Crizol Lubricants Pvt Ltd has been a frontrunner in the production, distribution, and purchase of industrial lubricant oil since its founding in 2010. Engine Oil, Lubricant Oil, Mineral Base Oil, Synthetic Base Oil, Brake Oil, Screw Compressor Oil and Automotive Grease are all part of our product line that is highly regarded for its ideal viscosity, outstanding effectiveness, durability and high performance. Under the watchful eye of experts, we manufacture our wares in accordance with the quality requirements and norms established by the market, using only the highest-grade basic materials and state-of-the-art gear. Also, before we ship out any of our products, we examine them on a variety of criteria. In addition to this, we are a popular choice in the market because of our capacity to provide rich and quality assured packaging. Our company has a large and well-established infrastructure that allows us to run all of our operations smoothly. This infrastructure is equipped with the latest machines and is organised into several departments to ensure efficiency. Manufacturing, warehousing and packaging, sales and marketing, quality control, and logistics are the divisions that make up our organisation. Each of these departments is efficiently run by a manager who ensures that work is done in a timely and organised fashion. As an added bonus, the staff we've recruited works hard to meet the varied and often complex demands of our clients. Because of these things, we have a lot of customers.

We rely heavily on crude oil and petrol in our everyday lives. Vehicles and aeroplanes can be powered by it, and it can also drive machinery. Plastics, detergents, paints, and even medications rely on its components in their production. It is a complex process for refineries to distribute products to retail and commercial consumers at the conclusion of the downstream oil value chain [5]. Maintaining stock management and ensuring the supply chain runs smoothly can be achieved with the use of digital technology and a Business 4.0 framework. In order to maintain competitiveness and safeguard profits, it is crucial to optimise the entire value chain. But one of the biggest problems with the downstream supply chain is managing inventories.

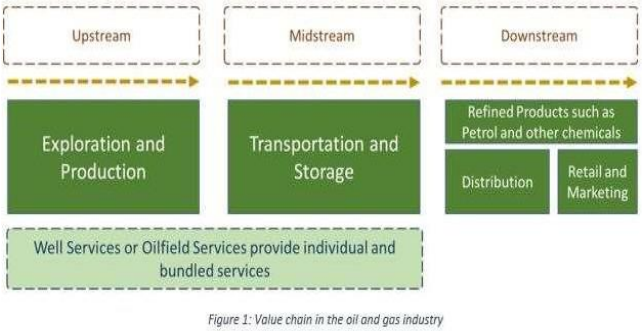

Figure 2 - Value Chain in the Oil and Gas Industry

II. LITERATURE REVIEW

Newstyle et al [6] This study looked into the connection between listed oil and gas companies in Nigeria's financial performance and their inventory management strategies. The precise goals were to find out how inventory turnover and profit after taxation relate to each other, how operating cycle and profit after taxation relate to each other, how inventory conversion period and profit after taxation relate to each other, how firm size modifies the relationship between inventory management techniques and financial performance, and how operational efficiency modifies the relationship between inventory management techniques and financial performance of Nigerian listed oil and gas companies.

Shah et al [7] This article examines an emerging trend in the oil and gas industry: the use of big data analytics in both the upstream and downstream sectors. The term "big data" or "big data analytics" describes a new wave of technology that may be used to manage massive datasets with the six key attributes of complexity, value, volume, diversity, velocity, and veracity. The oil and gas sector has grown significantly in terms of data intensity with the introduction of data recording devices in exploration, drilling, and production activities. Big Data applications include analyzing seismic and microseismic data, enhancing reservoir characterization and simulation, decreasing drilling time and enhancing drilling safety, optimizing production pump performance, enhancing petrochemical asset management, enhancing shipping and transportation, and enhancing occupational safety.

Opoku et al [8] A random sample of 152 managers and officials in charge of procurement and operations from 246 manufacturing companies registered with the Association of Ghana Industries was used in the study. The metropolises of Accra, Tema, and Kumasi are home to the manufacturing companies. The study used structured questionnaires to collect primary data, which were then analyzed using a variety of descriptive and inferential statistical techniques, such as ordinary least square regression, mean, and standard deviation.

Hegazy et al [9] Establishing a framework and associated metrics for the creation of a balanced scorecard (BSC) for auditing firms is the aim of this article. Five essential components were included in the development of a BSC that included specific criteria for performance evaluation: learning and growth, clients, internal business processes, financials, and audit-related viewpoints on corporate ethics. To find out what the external auditors thought of the suggested BSC measures, a survey was conducted at four auditing firms, accompanied by confirmatory factor analysis and descriptive statistics. The findings imply that improving the BSC measures and putting them into practice will improve audit companies' performance. Audit companies would gain a competitive edge if they had a deeper comprehension of the numerous performance determinants and tactics.

Hashmi et al [10] This study employed a multistage cluster sampling technique for quantitative research, with a sample size of 200 participants. The structural equation modeling model was validated by exploratory and

confirmatory factor analyses. The results of this study show that inventory control procedures fully mediate and have a strong positive impact on the variables under investigation. Additionally, the significance showed that knowledgeable and skilled employees successfully manage inventories for enhanced organizational performance through higher-quality services at lower costs. The healthcare sector as a whole, public hospitals, companies in charge of maintaining giant structured inventory, and the body of knowledge will all gain from an integrated second-order model of this study.

III. PROPOSED METHODOLOGY

The goal of systems design is to define the data, architecture, components, and their interfaces as well as the system's modules in accordance with the requirements. Business process management refers to the steps taken by a company or organisation to identify, analyse, and create a system that meets their unique requirements. For a system to function smoothly and coherently, a systemic approach is necessary. We need to consider all the linked system factors, whether it's a bottom-up or top-down strategy.

3.1 Inventory Management System

In order to better satisfy consumer demand, minimise the cost of overstocking or losing revenue due to stock outs, organisations can benefit from an inventory management system that tracks all incoming and exiting goods. All of the core company processes are affected by the system. These include production, accounting, purchasing, sales, and customer service.

Major Specification of Inventory Management System

The key inventory management system specifications involve providing a way to store, organize, manage and analyse inventory data. Systems requirements include:

- An easy-to-use interface that doesn't require advanced training, support or documentation.
- Automation for eliminating manual processes of business functions related to inventory management.
- A reliable, secure database that provides accurate, real-time data.
- Performance that enables fast, actionable inventory monitoring and control.
- The ability for administrators to easily add software modules with minimal configuration so that the system is scalable.
- Software integrations and automated features that minimize manual inventory updates or inputs.

Features of Inventory Management System

Inventory management systems have features that help manage, control, track and plan inventory. Here's what to expect from those features:

- **Inventory Control:** A crucial part of supply chain management, inventory control deals with products that are currently housed in the warehouse. It is possible to search, filter, and examine products using inventory control systems; they can also audit data, create reports in real-time, and categorise products by kind, location, and SKU (or serial number).
- **Inventory Management:** Data from other areas of the system, such as inventory control, is governed by inventory management features. Not only that, but inventory management also takes care of the commercial operations that take place both before and after merchandise arrives at a warehouse. Some of these features include the ability to generate electronic invoices and purchase orders, as well as facilities for managing warehouses in more than one place.
- **Inventory Tracking:** Keeping tabs on where goods and components are in the supply chain is essential for implementing inventory controls. Automating manual processes is made easier with perpetual inventory tracking tools. When you generate a receipt or invoice, for instance, the system will automatically assign a tracking number. By integrating tracking with 3PL providers and using an email service, organisations can improve customer relationship management by communicating stock levels and shipping timeframes.
- **Inventory Barcoding:** Barcoding software automates business processes that include communication with other components of the system and helps to eliminate data entry errors. Inventory processes are streamlined and improved with the use of digital data collection, storage, and organisation. Features like paperless invoicing and touchscreen signatures are just two examples of how barcoding software may connect with digital documentation and reporting. The use of mobile barcode scanning equipment allows for paperless documentation, expedites stock replenishment and back-office procedures, and improves inventory accuracy.
- **Inventory Optimization:** Optimise your inventory to take inventory planning to the next level. Elevate a simple inventory strategy. Tools that give automatic reports, inventory trends, and a perspective of changes across the entire supply chain are a great alternative to typical ordering formulas and a simple ordering process. With this data, you can optimise your inventory by bringing supply and demand closer together. Further information can be found in the inventory forecasting handbook.
- **Inventory Alerts:** To better manage client expectations, optimise inventory financials, and cut down on waste, a number of modules set off inventory alarms. Automated email or text message

alerts for low inventory levels, shipment delays, and supply chain disruptions are among these services. Sales forecasting, material planning, shipping logistics, and supplier management all benefit from inventory alerts, which provide an extra layer of operational control.

3.2 Data Flow Diagram

System for Managing Stocks As a first step in creating a high-level overview of the stocks without getting into details, data flow diagrams are commonly utilised. In a typical scenario, it would include the stock process and the whole application dataflow.

Zero Level Data Flow Diagram

It's a basic overview of the Stock Management System or process being analysed or modelled represented in Figure 2. In Zero Level DFD we have to elaborate the high-level process of the Stock. Its purpose is to provide a quick overview. This DFD gives a bird's-eye perspective of the whole system and is the highest level of detail. Without delving into the inner workings of these processes, it only displays the system's primary data stores, data flows, and operations.

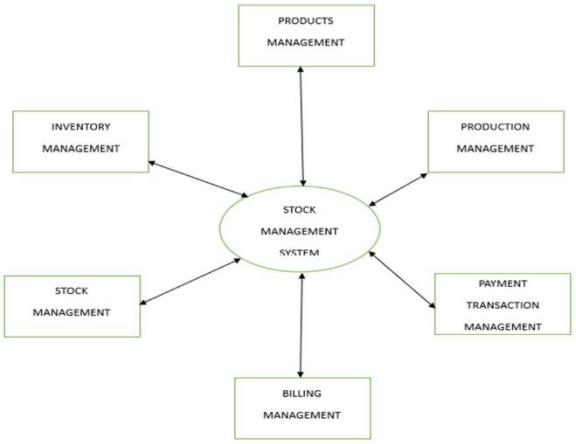

Figure 3 - Stock Management System

High Level Entities and Process Flow Stock Management System

- Managing all the Stock
- Managing all the Product.
- Managing all the Product Quality
- Managing all the Bills

First Level Data Flow Diagram

Figure 3 from the first level of the data flow diagram (DFD) for stock management demonstrates how the system is broken down into sub-systems (processes). These sub-systems handle data flows to and from external agents and, when combined, provide all the functionality of the stock management system.

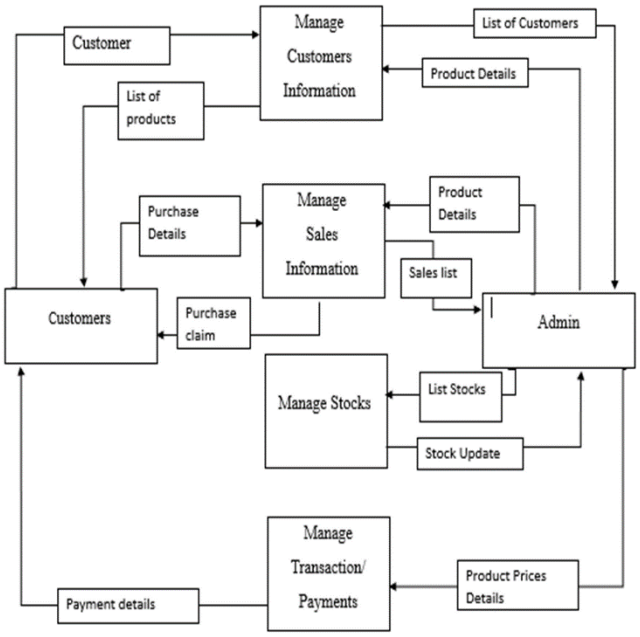

Figure 4 - First Level DFD of Stock Management

Main Entities and Output of First Level DFD

- Processing Stock records and generate report of all Stock
- Processing Product records and generate report of all product
- Processing Product Quality records and generate report of all Product Quality
- Processing Bill records and generate report of all Bill

Second Level Data Flow Diagram

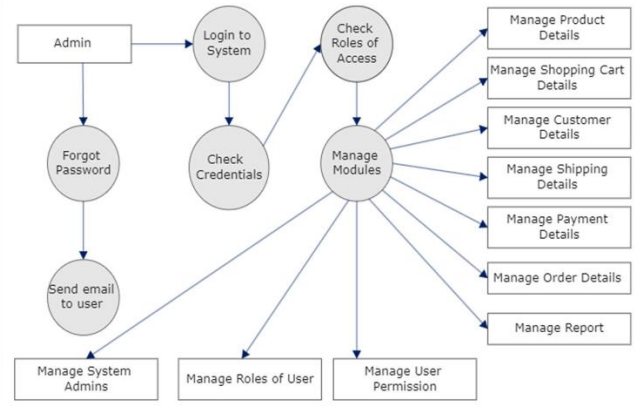

Figure 5 - Second Level of DFD

- DFD level 2 goes one step deeper into the parts of Level 1 of the Stock. It may
- require more functionalities of Stock to reach the necessary level of detail about Stock functioning. The 2 level DFD contains Admin Logins to the system and manage all the functionalities of the stock management system.

Low Level Functionalities of Stock Management

- Admin can add, edit, delete, view the records of the Stock, Product Quality.

- Admin can manage all the details of Product, Bill, Store
- Admin can search the details of Product, Customer, Store more details of Login, Store, Customer, Bill, Product Quality, Product, Stock.

IV. SOFTWARE SPECIFICATION

Hardware Requirements

Table 1: Hardware Specification of the System

Processor speed	3.2 GHz (4 cores 4 threads).
Processor type	Intel Dual-Core / Core i5 (or AMD equivalent)
RAM	At least 8 GB (16 GB recommended).
Solid state drive (SSD)	30 GB free space or above
Monitor type	15’ inch monitor

Table 2: Software Requirements

Operating system	Windows 10 (64 bit)
Frontend	Cloud business software
Backend	ECMA Script-standard JavaScript
Software	NetSuite (Oracle)

4.1 System Requirements

- Now, this method is intended in such a way that it takes fewer resources to figure out work properly.
- The system wants a minimum of 6GB of ram to run all the options sleek and unforeseen. 8GB of ram is recommended.
- It wants a minimum 3.2 gigahertz processor with 2 cores and 4 threads to run sleek as else which will produce issues.
- The system must be operated by some approved person as wrong hands will build it happy-go-lucky.
- Rest is all up to the user’s usage and can take care of hardware. For security opposing anti-virus is suggested.
- The system is made properly and all the testing is done as per the requirements. So, the rest of the things depend on the user and no one can harm the data or the software if the proper care is done.
- All the attributes are working perfectly and if any error is found then it can be removed easily.

4.2 Software Description

NetSuite

Evan Goldberg, who is also the chief executive officer of NetSuite, founded the company in 1998. In its early days, the firm went by the name Net Ledger, which reflected the concept of General Ledger on the web. In terms of web-hosted business management systems, it was the pioneer.

In addition, many consider NetSuite to be the pioneering software firm for cloud computing. The idea of building cloud-based accounting software was the basis for the company's maxim at that time. The system began to incorporate other features, such as CRM and inventory management, in 2003 and later years. The rebranding to NetSuite also took place around this time.

Figure 5 shows that since its inception, NetSuite has continued to expand its product offering by incorporating new modules and functionalities. With the launching of NetSuite One World in 2008, the worldwide business management software package, NetSuite was able to provide multinational organisations seamless global support.

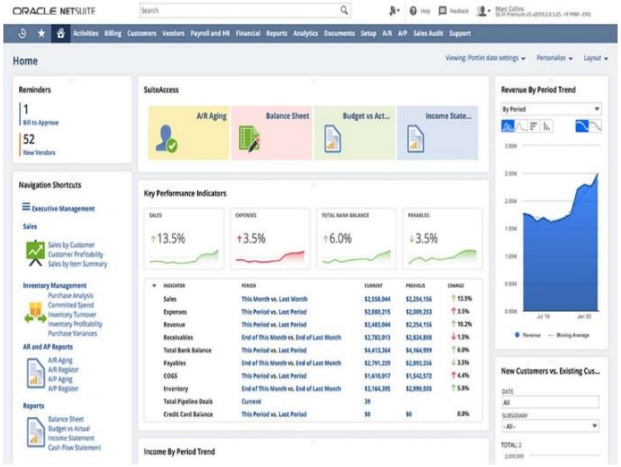

Figure 6 - NetSuite

Oracle revealed its $9.3 billion bid to acquire NetSuite on July 28, 2016. Since Oracle co-founder Larry Ellison controlled around 40% of NetSuite, the acquisition was subject to close examination. The use of JAVA Script in NetSuite is permissible for programmers.

Features and Advantages

The manufacturing industry is a critical component of the global economy. It is a complex and ever-changing landscape, where businesses must continuously adapt to remain competitive. This is why companies are always seeking new ways to improve operations, reduce costs, and streamline processes. One of the key solutions that can help manufacturers achieve these objectives is NetSuite.

1. **NetSuite CRM**

It transforms customer relationships with its all-encompassing customer lifecycle management.

From lead to opportunity, sales, fulfilment, renewal, and beyond, NetSuite streamlines the flow of information for a seamless customer experience.

Unlike other CRM solutions, NetSuite boasts powerful sales performance management, order management, and partner management features.

2. **Marketing got a lot easier with NetSuite**

Whether it's through trade shows or email campaigns, NetSuite has the tools you need to take your marketing game to the next level.

It easily manages every aspect of your marketing process and measures your campaigns' success with precision.

3. **Sell through any channel with NetSuite's innovative commerce capabilities**

Whether B2B or B2C, NetSuite empowers businesses to grow and expand sales across all channels.

With NetSuite, you can effortlessly publish your sales orders to your website, complete with a seamless control over pricing and promotions.

4. Order fulfilment has never been this easy

NetSuite Advanced Order Management makes sure that when your customers want it, they get it quickly and profitably. Fulfil orders from anywhere, delight your customers with a seamless shopping experience, and watch your business thrive.

5. Supply chain management just got a whole lot simpler with NetSuite

Location is no longer a factor NetSuite gives you the same control and real-time visibility over your global supply chain, no matter where your products are made or by whom.

6. Financial management has never been this effortless

Thousands of organizations trust NetSuite to manage their accounting needs. With a fast financial close, strong expense management, and real-time financial performance visibility, NetSuite's integrated solution will revolutionize the way you do business.

7. NetSuite's integrated customer service management

It offers a 360-degree view of your customers, helping you improve satisfaction, attract new customers and lower service costs.

Only NetSuite gives everyone in your business – sales, support, service, and fulfilment access to real-time customer data, empowering them to better serve your customers and drive upsell and cross-sell.

8. Going global just got a whole lot easier with NetSuite One World

Designed for multinational and multi-company organizations, One World enables businesses to adjust for currency, taxation, and legal compliance differences at a local level.

Get real-time visibility of your business worldwide, and ensure consistent, compliant management across your organization locally and globally.

9. NetSuite is the epitome of flexibility

No two businesses are alike, and with NetSuite's industry-leading platform, you have the power and agility to support the evolution of your business.

As your business grows and becomes more complex, NetSuite streamlines critical business processes from engineering and planning to procurement and supply chain management.

10. Say goodbye to error-prone spreadsheets and standalone applications

NetSuite's cloud business management solutions provide the foundation manufacturers need to streamline their business.

By automating the entire product lifecycle and Q2C and plan-to-report processes, NetSuite helps manufacturers reduce time to market, improve order processing efficiency, deliver better quality products, and more.

V. RESULT AND DISCUSSION

5.1 Table Design

A database environment makes shared data accessible to multiple authorised users. An integrated collection of data that offers centralised access to the program's data is the idea behind a database. It paves the way for data to be considered an independent resource.

Table 3: Administrator

Fields	Data type	Constraints	Description
a_name	varchar	Not null	Administrator name
a_password	varchar	Not null	Password information
a_contact	int	Not null	Administrator contact

The table 3.3.1 describes the login details. The table consists of the following attributes: username, password, contact.

Table 4: Supplier

Fields	Data type	Constraints	description
Sup_name	Varchar	Not null	Suppliers name
Sup_contact	Int	Not null	Supplier contact
Sup_address	Varchar	Not null	Supplier address

The table 3.3.2 describes the supplier details. The table consists of the following attributes: name, address, contact.

Table 5: Customer

Field	Data type	Constraints	Description
Cus_name	varchar	Not null	Name of the customer
Cus_address	varchar	Not null	Address of the customer
Cus_contact	Int	Not null	Contact of the customer

The table 3.3.3 describes the customer details. The table consists of the following attributes: name, address, contact.

Table 6: Product Details

Field	Data type	Constraints	Description
Product_name	Varchar	Not null	name of the products.
Product_quantity	Float	Not null	Quantity of the product in pieces.
Product_price	Float	Not null	Price of the product per piece.
Total _amount	Float	Not null	Total price of the product.

The table 3.3.4 describes the product details. The table consists of the following attributes: product name, quantity, price and total price.

Table 7: Stock Table

Field	Data type	Constraints	Description
Product_name	Varchar	Not null	Name of the product
Product_quantity	Float	Not null	Quantity of the product
Delivery_date	Date	Not null	Date when the product is delivered
Supplier_name	Varchar	Not null	Name of the supplier

The table 3.3.5 describes the stock. The table consists of the following attributes: product name, product quantity, delivery date, supplier name.

5.2 Input Screen

SuiteScript scripting language can be used to extend NetSuite and customize, search for, and process your NetSuite data. SuiteScript enables full-featured application-level scripting capabilities that support sophisticated procedural logic on both the client and server sides. A SuiteScript Debugger is also available for debugging server scripts.

There are two versions of SuiteScript that you can use:

- SuiteScript 2.0
- SuiteScript 2.1

To create a new module for storing phone call logs, the following Java Script is used.

Figure 7 - Client Suite Script

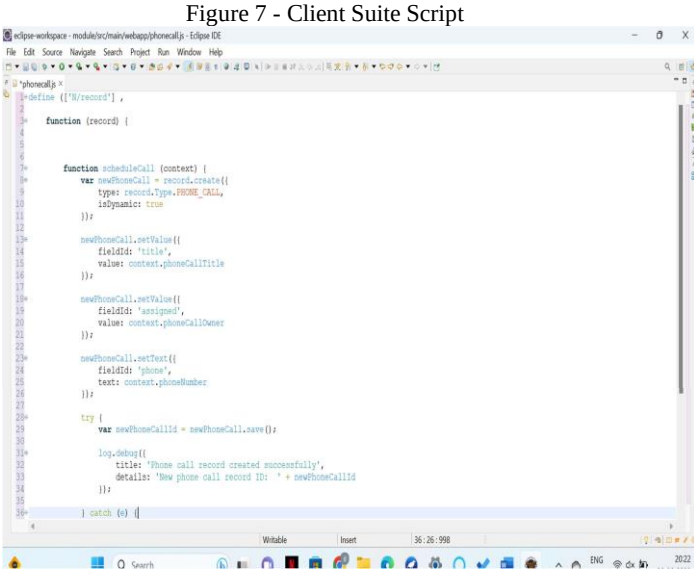

Figure 8 - Suite Script Page

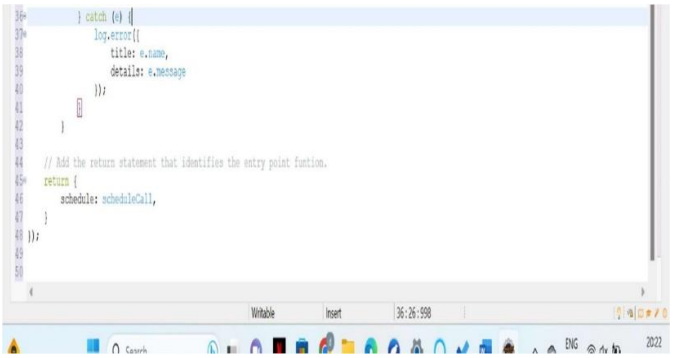

Figure 9 - Suite Script Page

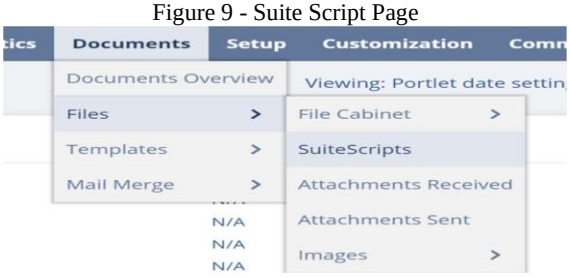

Figure 10 - Suite Scripts Documents

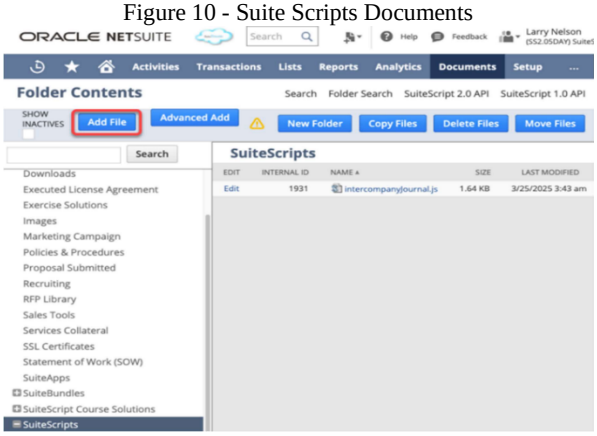

Figure 11 - Suite Scripts File Added

Upload the Custom Module Script File to NetSuite

After you create your custom module script file, upload it to your NetSuite File Cabinet.

To Upload the Script File

In the NetSuite UI, go to Documents > File > SuiteScripts

In the left pane, select the SuiteScripts folder and click Add File.

Follow the prompts to locate the phoneCall.js file in your local environment and upload it to the SuiteScripts folder.

Output Screen

Figure 12 - Phone Call Recorder Modules

Here, the phone call record module has been added additionally.

VI. CONCLUSION

Having the proper quantity of goods on hand at all times is essential for every organisation, which is why inventory management is such an important procedure. The success or failure of a firm is greatly affected by inventory management, which includes forecasting, ordering, receiving, storing, and tracking levels. Businesses can better manage their stock and order just enough to satisfy client requests when they implement efficient inventory methods and techniques. Managing inventory entails maintaining precise records of completed items that are prepared for dispatch. This often entails adding the production of recently finished goods to the inventory totals and deducting the most recent shipments of finished goods to purchasers. Finished products inventory typically includes a sub-category for reclassified or second-grade returned goods when a company has a return policy. Keeping precise records of the completed goods inventory allows for the rapid dissemination of information to sales staff regarding what is available and ready for shipment at any given moment. For cost-effective compliance with regulations, inventory management is crucial. The goal of inventory management is to keep the delicate equilibrium between supply and demand from being upset. Achieving success with inventory management requires both highly skilled staff and top-notch software.

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