

**Sri Lanka Institute of Information Technology**

**Information Technology Project (IT2080)**

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Project Proposal

Web App/Centralized Platform for Dean Apparels

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# Background

One of The largest apparel and technology company on the island, Dean Apparels, offers concept-to-apparel solutions for the top clothing brands in the nation.

In order to develop novel solutions that exceed human capacity, they foresee future trends. While dedication to the environment has made Dean Apparels the industry standard for ethical and sustainable production, innovative partnerships have resulted in ground-breaking advancement.

They mostly employ jeans, shirts, trousers, and t-shirts as their primary industry-based method in the market approach.

In order for clients to be happy with the value they receive for their money, the primary objective is to maximize product output.

Every staff member and every worker in this community is valued.

# Problems

**“Dean Apparels” faces challenges in its business operations where the majority of work is done in a manuall based approach**

* The method currently used to inform customers of their order statuses via SMS or phone calls may cause significant hassles. Such alerts might not be seen, which prevents orders from being processed or delivered at the planned time..
* Manual information handling involves a number of difficulties and delays.
  + Procedures like order management, payroll management, and leave management show this (where an employee is required to fill in a form that may take several weeks or months to be approved)
  + Managing paperwork Some of these procedures are susceptible to human mistake; documents could end up in the wrong hands or get lost.
  + Report creation is quite time-consuming and costly.
  + Poor user experience
  + It can be challenging to keep backups for a lengthy period of time (storing and safety), and is exceedingly challenging to retrieve and track data from the relevant inventory.
* Because the current systems do not support employee self-service, employees cannot access and manage their personal information without going through managers or HR departments
* Another issue is that the corporation stores all employee data at its corporate headquarters, making it impossible to immediately access employee data from distant locations.
* Additionaly, order tracking is inefficient and it's very impossible to save customer and order-specific credentials.

# Motivations

* The association's operational manual approach will be replaced by a centralized management system that allows for more timely and effective operations. Anyone with a rudimentary understanding of computers may operate it with ease because it enables a user-friendly environment.

(The management of information pertaining to goods, sales, customers, salaries, suppliers, and delivery is the responsibility of the new system.Use the computerized system for place your orders.)

* The system makes calculations and report generation easier.
* Customers and employees can simply communicate among themselves thanks to the new technology..
* In comparison to manual payment methods, using the system's payment interface is more simpler.
* With Enhanced gateways Like SMS,Email and Voice Call the Notifying Process Gets More accurate and Less Time Consuming.
* A automation dramatically reduces paperwork, makes it simple to get data, and prevents duplicate work.

(Aids in maintaining computerized records that contain data about workers, suppliers, customers, raw materials, products, and factories, etc.)

# Aim

To consolidate business operations on a completely responsive web platform that can be viewed from any device, in order to increase efficiency and communication

# Objectives

The objective of this project is to provide a comprehensive strategy for overseeing business operations. This will be done by developing and using a centralized, web-based platform that will cause a significant paradigm shift in the way management responsibilities are carried out.

In the age of rapid developments, everything has been computerized. Because there are so many job opportunities, the human workforce has increased. As a result, it's necessary to have a system that can manage the data from such a large amount of data. This project simplifies the task of managing records because of the user-friendly it is.

* Define the user requirements through observations, meetings, and discussions
* Possible improvements shortcomings of the current system and how the new system addresses them.
* Create wireframes and deliver them to the customer for input, then make any necessary modifications.
* Gather the relevant client information, such as that relating to employees, suppliers, etc.
* Create E.R. diagrams to identify the database's conceptual high-level model before creating its relational schema.
* Create the system's database.
* Build distinct components and periodically solicit input from clients to make any required adjustments. Unit testing should be done at the end to make sure the components function as planned. Integration testing could be done after the components have been combined to make sure the entire system works as it should.
* Provide the client a fully operational product.

# System Overview

## Transaction Management

**Functional Requirements**

* Viewing the list of orders received by clients.
* Approve,Reject or change order status as pending .
* Both accepted and rejected orders are notified to the respective clients.
* Monitor the set of Orders and filter out them
* Updates to the order status can be made by the person in charge of managing orders.
* Creating reports as needed.
* The system computes the total amount owed and generates an electronic bill.
* The admin can manipulate(add payment types) the payment option from credit cards, or debit cards and enter the relevant information.

**Non-Functional Requirements**

* The data entered into the database for each order should be accurate, according to the web application system.
* There must be no lags in the transaction procedure.
* Transaction validation ought to take less time consuming

## Customer Management

**Functional Requirements**

* Customers can open new accounts.
* After gaining access to the necessary account (by supplying user credentials), the customer can view and manage account information, customer orders, and the accepted payment methods.
* The customer may receive notifications from the system regarding important account-related information.
* The site administrators and specific personnel positions have access to and can manage (update/deactivate) customer accounts
* Account usage reports can be generated by site administrators or certain employee positions, and they can take action against accounts that have not been used for a while.

**Non-Functional Requirements**

* Customers ought to be able to utilize the system without any prior knowledge with ease.
* Accounts for customers should be protected from unwanted access.
* The Client Payment System intergrated in the system should be reliable and secure

**Technical Requirements**

* NFC tag
* NFC Readers

## Inventory Management

**Functional Requirements**

* Determine the quantity of each item's available units (raw materials/finished goods).
* Check out each item's unit price.
* Adjust stock based on newly received or discarded goods.
* Check each item's reorder level.
* Search an item(by item name/item code)
* If a finished product is no longer required or created, delete it.
* Generate an item list for a recorded set of products
* Produce an inventory report (summary of the amount of inventory the company has on hand at a given time)

**Non-Functional Requirements**

* The inventory item quantity should be updated by the way quickly.
* Report creation ought should take less time.
* The system ought to be secure enough to guarantee that only authorized users are permitted to access the inventory.

**Technical Requirements**

* Bar code readers
* Bar code stickers

## Supplier Management

**Functional Requirements**

* Add new vendors to the system.
* Update the data on current suppliers and delete them if the company doesn't purchase raw materials from them.
* Find the suppliers using the supplied supplier ID or supplier name.
* Create supplier directories with important details and a list of the products offered by each provider.
* Enter the Good Reciept Note To the Sytem

**Non-Functional Requirements**

* Suppliers should be reachable by employees, and ordering should be simple.
* The Sytem Should Be Available For Any Supplier.

## Employee Management

**Functional Requirements**

* Show employee information. Clients with defined roles must be able to display database content.
* A user with the employee role has the ability to modify some personal information.
* generate a report about leave analysis.
* Add a new employee in the database.
* Delete an employee who has resigned.

**Non-Functional Requirements**

* This web application system should be able to handle 99.9% of employee inquiries right away.
* There is no restriction on the number of the employees to be added to the database.

## Delivery Management

**Functional Requirements**

* Inform the client and the delivery manager of the delivery status.
* Receive notifications regarding the delivery status.
* Ability to get feedback about delivery.
* Search bar option to find a delivery with delivery id in delivery manager's interface.
* Filter option for find delivered and pending deliveries in delivery manager's interface.
* Display delivery status history.
* Generate report about customer feedbacks.

**Non-Functional Requirements**

* Notifications should be sent no later than 10 minutes after changing the delivery status.
* Status update should be quickly.

## Factory Management

**Functional Requirement**

* Details of a new factory can be added, and details of existing factories can be viewed, modified, and deleted.
* Details of a new machines can be added, and details of existing machines can be viewed, modified, and deleted.
* A particular machine can be searched using the id and name given to the machine.
* Statistics regarding machines can be viewed.
* Reports are generated, including the information regarding raw materials used and productions done in each factory.
* The respective parties are also notified about the statistics of machines, raw materials used, and productions done.

**Non-Functional Requirements**

* Generated reports from the production and raw material data should have 99.9% accuracy.
* Monitoring machine status helps very much in maintaining machines without being damaged due to high usage.
* Manageability of factory and machine details must be easy.

## Common Technical Requirements

* Laptop/Desktop
* Web browser

# Literature Review

**Existing Solution**

A complete enterprise resource planning (ERP) software suite for finances and operations is called "Microsoft Dynamics A.X." It allows multinational corporations organize, automate, and improve their processes whether they are deployed on-premises, in the cloud, or using a hybrid approach. It relates to Microsoft Dynamics, a group of sophisticated business programs. [1]

Additionally, users of "SAP" Firm One may successfully manage every aspect of their business. It addresses operations, sales, project management, accounting and financial, customer service, and human resources. It is straightforward to use and expands to meet the demands of users' businesses. To encourage growth and profitability, processes are simplified, insights are offered, and smarter decisions are encouraged.

These have several advantages and disadvantages.

* *Advantages*
* By simplifying complicated silo data, the above two technologies, as an integrated ERP solution, help your firm advance. Using KPIs and reporting tools, enables a user to gain an extensive review. Making decisions is a quick and simple process with intuitive user interfaces.
* • Because the subscription options are monthly or yearly, the initial cost is lower.
* *Disadvantages*
* The mentioned systems provide multiple plans and subscriptions to a business looking to purchase them. These plans may be monthly or yearly. As a result, the corporation must pay for lifetime consumption over the long term when calculating cost.
* Because these software are general, they provide a wide range of advanced features and capabilities, some of which may not be essential for the company utilizing them. There may so be possible performance problems.
* With limited online and mobile add-on possibilities, these are mostly solitary desktop programs. As a result, cross-platform functionality is limited.

The mentioned disadvantages make a specially created web site advantageous. There would be very few performance difficulties because it is totally focused on the client. Despite the high initial cost of obtaining the web portal, there are no ongoing subscription charge, with the exception of minor improvements. Additionally, because the portal is web-based and cross-platform, consumers may access it even using a smartphone. Additionally, this increases reliability.

In conclusion, the online portal enables employees, managers, and other users to self-serve. Users, even workers, will no longer be able to collect information and engage with it in the same way because the business will be able to assign each user the responsibility of accessing and altering data.

# Methodology

* **Technology**
* Java EE

Java Enterprise Edition (Java EE) is a collection of Java technologies and specifications for building enterprise-level applications. It provides a set of standard APIs for creating and deploying multi-tier, distributed, and web-based applications. Java EE includes technologies such as JavaServer Faces (JSF), Enterprise JavaBeans (EJB), JavaServer Pages (JSP), and Java Servlets, among others. These technologies work together to provide a complete platform for building enterprise applications, including features such as security, scalability, and reliability.

* JavaScript

JavaScript (JS) is a client-side scripting language that is commonly used in web-based technologies to create interactive and dynamic web pages. It allows for real-time changes on the content and layout of a webpage without the need for page reloading. It is also used to create web applications and can be used with other front-end technologies such as HTML, CSS and JavaScript frameworks like React, Angular, and Vue.js. [XX]

* Boostrapt

Bootstrap is a free and open-source framework for building responsive, mobile-first websites and web applications. It is based on HTML, CSS, and JavaScript and provides a set of pre-designed components, such as buttons, forms, and navigation menus, that can be easily added to a web page. Bootstrap also includes a responsive grid system that allows developers to create layouts that automatically adapt to different screen sizes, making it easy to create websites that look good on both desktop and mobile devices.[XXX]

* J-Quarry

jQuery is a popular, open-source JavaScript library that makes it easy to work with HTML documents, handle events, create animations, and develop Ajax applications. It simplifies the way of manipulating and traversing the HTML DOM, with a simple and easy-to-use API that works across a variety of browsers. With jQuery, developers can write less code and achieve more functionality, making it a popular choice for web development.

jQuery provides a number of useful methods for selecting and manipulating elements on a web page, such as finding elements by their ID, class, or tag name, and then applying effects like hiding or showing, adding or removing classes, or even making an AJAX request. [XXXX]

* **Tools**
* *mySQL*

MySQL is a popular open-source relational database management system (RDBMS) that is often used in web-based projects. It is a powerful tool for storing and managing data in a structured format, and it can be easily integrated with programming languages such as PHP, Java, and Python.

In a web-based project, MySQL is used to store and retrieve data for the web application. This data can include information such as user account information, product catalogs, and website content. The web application interacts with the MySQL database using SQL (Structured Query Language) to insert, update, and retrieve data as needed. [X]

* *Eclipse*

Eclipse is a powerful and popular open-source IDE that is widely used for web-based projects. It provides a variety of tools and features for writing, editing, and debugging code and also allows you to extend its functionality with different plugins.

* *Visual Studio Code as a code editor*

Visual Studio Code is open-source, cross-platform, and free. This means that it is compatible with Windows, Linux, and macOS.

[7]

* *Jira as a project management tool*

Jira is a software application used for project management and issue tracking. We considered using Jira as a project management tool because Jira is widely used in the industry nowadays. 8]

* *Git as a version control system*

Git is a distributed version control system that is free and open source and made to manage projects of all sizes quickly and effectively. Git is easy to use, has a small footprint, and performs quickly. It performs better than S.C.M. solutions such as Subversion, CVS, Perforce, and ClearCase thanks to characteristics like affordable local branching, practical staging zones, and numerous processes.[9]

* **Requirements engineering methods**
* Feasibility study
  + A feasibility study evaluates how feasible a proposed plan or project is. The viability of a project is examined in a feasibility study to ascertain its likelihood of success.
* Requirement Elicitation and Analysis
  + In order to learn about the domain needs, the services the system should offer, and other limitations, it is necessary to communicate with clients and end users.
* Software Requirement Specification
  + A software requirements specification (S.R.S.) document outlines the functions and performance standards for the software. The functionality the product needs to provide for the demands of all stakeholders) is also described.
* Software Requirement Validation
  + Requirements validation ensures that the requirements listed in the software requirements specification (SRS) are accurate, consistent, and meet the client's demands.
* Software Requirement Management
  + Requirements management is used to guarantee that product development objectives are successfully attained.
* **Testing Methods**
  + Unit Testing
    - The smallest testable components of an application, known as units, are separately and independently tested for appropriate operation as part of the software development process is known as unit testing. Software engineers usually write and execute unit tests, which are automated. Unit testing's primary goal is to separate written code for testing to see if it functions as expected.[10]
  + Integration Testing
    - Integration testing is the second phase in software testing in which individual software modules are combined and tested as a group.  The main objective of integration testing is to determine whether a system or component fulfils a list of functional requirements. Integration testing is done before system testing and after unit testing. [11]
  + System Testing
    - System testing is a procedure where a quality assurance (QA) team assesses how the various parts of an application interact with one another.
  + Acceptance testing
    - determines how well end users receive an application. By the organization,

# Work Breakdown Structure

|  |  |  |
| --- | --- | --- |
| **Student ID Number** | **Name** | **Function** |
| IT21018596 | Thilakaratne S.P | Order Management |
| IT21013928 | Piyumantha W.U | Customer Management |
| IT21011870 | Gunasekara S.N.W | Transaction Management |
| IT21109126 | Maharanhindage V.A.R | Inventory Management |
| IT21012488 | Shavinda H.K.L | Supplier Management |
| IT21055362 | Kumari K.A.D.H | Employee Management |
| IT20611088 | Jayakody D.M.L.D | Delivery Management |
| IT21020230 | Siriwardana S.M.K.S | Factory Management |

# Gantt chart

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Activity | Start date:2022/07/11 | | | | | | | | | End date:2022/09/17 | | | | | |
| Week | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | 14 |
| Project charter |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
| Project proposal |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
| Wireframe designing |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
| E.R. and database creation |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
| Back-End development |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
| Front-End development |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
| Function Integration |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
| Optimize system |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
| Test and fix the vulnerabilities of the system |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
| Final report |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
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