

## Adaption RAD method in development ERIMS as guideline inventory software design

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**Abstract:** Etham Resources Inventory Management System (ERIMS) is a fully functional web-based application built with Sublime Text. The big goal of the project is to create Inventory Management System Model software that will display all the Etham Resources' inventory information. It's a web-based desktop application with an admin component for inventory management and inventory system maintenance. To build this project, Rapid Application Development (RAD) methodology will be employed. RAD is a software design methodology that aims to overcome the rigidity of other traditional software development models, which make it difficult to make modifications once the original development is finished.

**Keywords:** Inventory, Management, Online System, Rapid Application Development (RAD).

### 1. Introduction

Inventory management supports businesses in determining which goods to order and when to order them. It keeps track of inventory from purchase to sale. The practice monitors and reacts to trends to guarantee that there is always enough stock to satisfy client requests and that shortages are detected early. Inventory management is important to a business's success since it ensures that there is never too much or too little stock on hand, reducing the danger of stockouts and erroneous records.

Etham Resources was a private company that specialized in supplying plastics for industrial commercial, pharmaceutical, and also standard-made customer design. Over the past 21 years, Etham Resources has grown steadily with the Malaysian economy and has strongly positioned itself in the plastic industry. With years of expertise designing and manufacturing plastic household products, Etham Resources is committed to producing high-quality, long-lasting plastic ware.

Etham Resources Inventory Management System (ERIMS) is a fully functional web-based application built with Sublime Text. The big goal of the project is to create Inventory Management System Model software that will display all the Etham Resources' inventory information. It's a web-based desktop application with an admin component for inventory management and inventory system maintenance.

## 2. Literature Review

The **online system** is an online service, often known as Software as a Service (SaaS), is a service given by software application that runs online and makes its features available to users via an interface over the Internet (be the HTML presented by a web-API or by any other means) (W. Sun, K. Zhang, & S. Chen et al., 2007). Apart from the hazards, using the online system and the Internet provides countless chances to produce new products, new services, and new professions (Q. Zhang, A. Zeng, & M. Shang., 2013).

A **web-based application** is a type of program that runs on the internet. It performs a wide range of functions using web technologies including browsers. A web-based might be anything as basic as a contact form on a website or an online calculator. It employs server-side scripts in scripting languages like PHP and ASP to collect and store data, while client-side scripts in JavaScript and HTML5 display the data on the user interface. (O., 2021).

The process of ordering, storing, using, and selling a company's inventory is referred to as **inventory management**. This comprises the storage and processing of raw materials, components, and completed goods, as well as the administration of raw materials, components, and final products. Inventory management is crucial for companies of all sizes for these reasons. When to refill inventory, how much to buy or manufacture, what price to pay, when to sell, and at what price may all be difficult decisions (L. Toktay, L. Wein, S. Zenios., 2000).

Ordering and holding costs are the two types of **inventory costs**. Regardless of the real worth of the items, ordering, or purchase, cost arise. These costs include the salaries of individuals who purchase the product, as well as the price of expediting inventory (Muller, M., 2019). The holding cost rises in direct proportion to the amount of time spent in storage (H. Afares., 2007).

**Usability** is a property of a product or system that relates to how well it helps people to do their duties or achieve their goals quickly and effortlessly. To conduct usability testing on desktop applications, it is necessary to understand usability and existing usability testing is to find the major flaws in the user interface that can lead to human mistake, termination of the user's contact with the system, and irritation (NB. Fabil, A. Saleh, RB. Isamil., 2015).

## 3. Methodology

To build this project, Rapid Application Development (RAD) methodology will be employed. RAD is a software design methodology that aims to overcome the rigidity of other traditional software development models, which make it difficult to make modifications once the original development is finished. At every stage of the development process, the RAD methodology is designed to be adaptable to changes and to accept new inputs, such as features and functionalities. With the rise of smartphones and cloud services, the demand for solid approaches to create software fast and efficiently has increased exponentially. It helps small teams in the development of software that can swiftly adapt to market and customer needs.

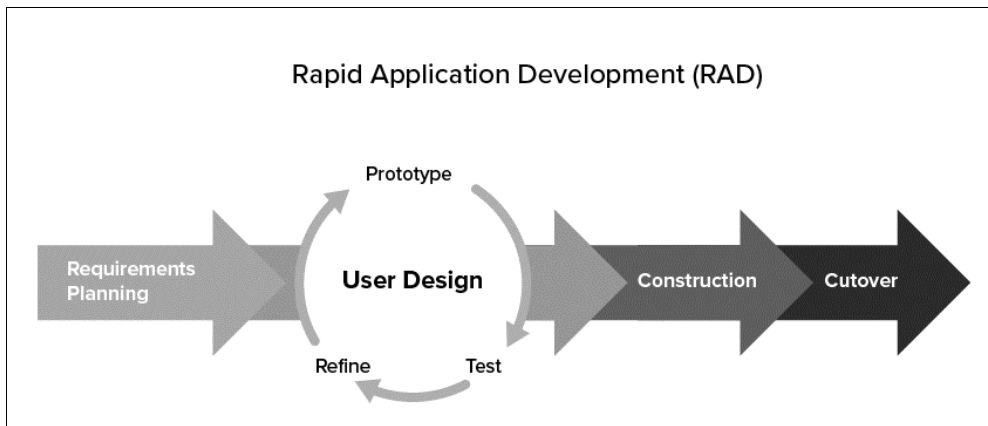


Figure 1: Rapid Application Development (RAD)

## 4. Result and Discussion

### 4.1 Analysis

By disseminating the questionnaire to a large number of related respondents, the approach is utilized to get the requirement for the planned implementation. The user requirement is essential for determining what the target respondents expect from certain products or projects. The product's developer may be able to provide a product that meets all the user's needs. Questionnaires and observation were among the methods employed. All respondents above the age of 18 who been worked at Etham Resources are invited to participate. This is the process of gathering the user's preferences, requirements, and expectations to establish how the user utilizes the web-based app.

### 4.2 Design

Design is a strategy for creating a draft of the project that has been developed to this point. The design of this web application project will be shown in form such as *System Architecture, System Design (Use Case), Sequence Diagram, Class Diagram, Activity Diagram, Database Design, Data Dictionary and Interface Design*. A project can be designed in a variety of ways. However, for this project, a storyboard is employed. The storyboard is the most basic tool for comprehending layout designs. From the user's login into the system, until the user logout of the system, the storyboard will be organized in sequential sequence.

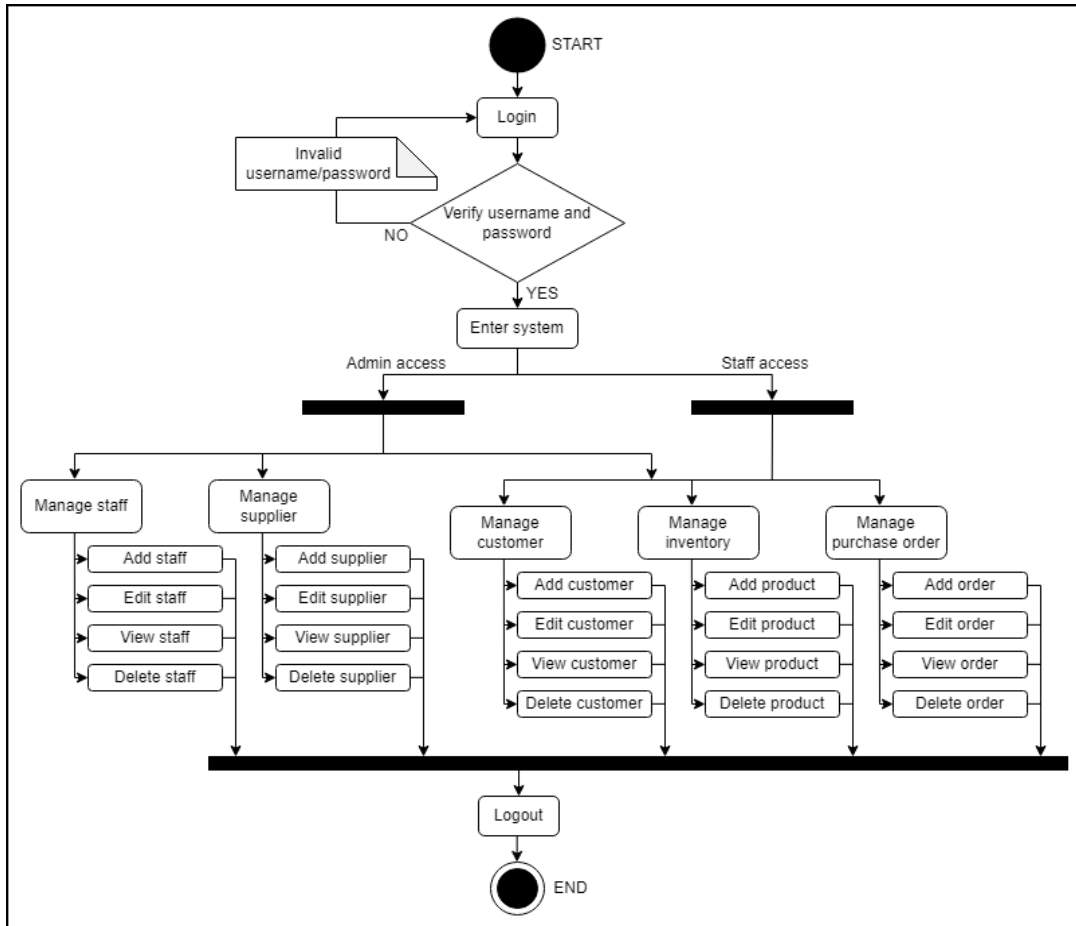


Figure 2: Activity Diagram for ERIMS

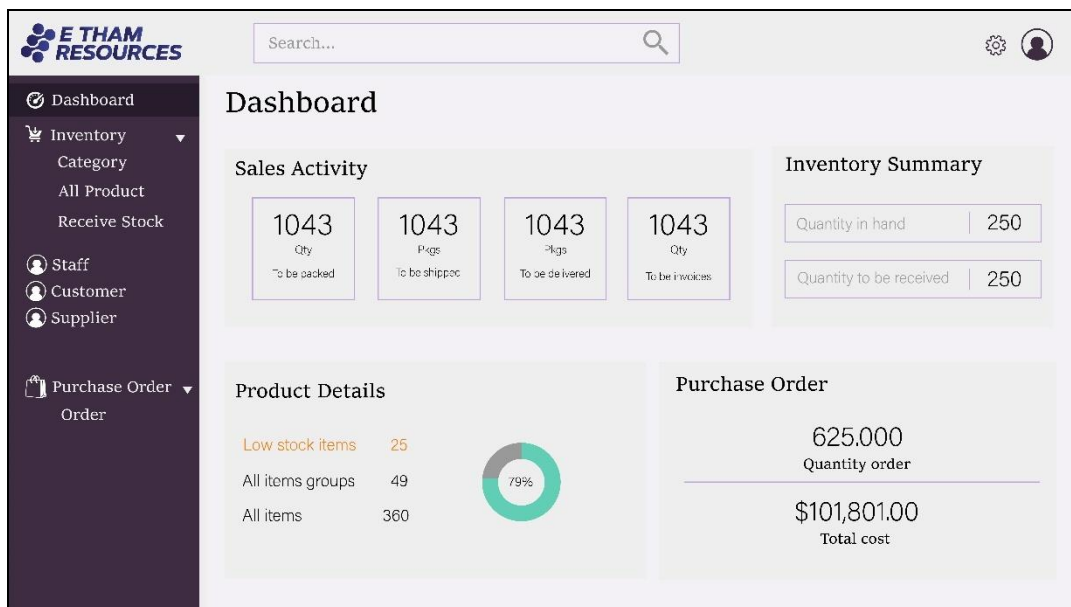


Figure 3: Dashboard for Admin Interface

### 4.3 Implementation and Testing

The final phase of the project is implementation and testing. The implementation process is the application's final work will be one where the entire design of each component will be put together to produce one full final product. A software implementation method is a

systematically organized methodology for efficiently integrating software-based service or feature into the workflow of an organizational structure or individual end-user. Software testing is the method of running a program or device to find mistakes. Testing to ensure the program runs bugs-free. The steps and process such as *Sublime Text, XAMPP Control Panel, phpMyAdmin, Test Module System, Validate Unit Testing and User Acceptance Testing*.

Implementation and testing are crucial throughout system development. Its goal is to ensure that the application functions properly and that the end-user has a favourable user experience. A successful system should be free of errors and faults throughout the testing process before being delivered to the end user.

## 5. Conclusion

This project is developed to ease employee of Etham Resources manage the inventory. All age of employee can use this method using this system. This project will be developed further and will be implemented for employee organize inventory systematically. Etham Resources Inventory Management System for Etham Resources company has been successfully built based on the functionalities desired by the users within the given time period. The system can keep track of company inventory form physical and an accounting perspective. Such a historical system captures inbound and outbound to document something that has previously occurred. Furthermore, exception lists highlight both existing and anticipated future concerns and rank them according to their impact on the firm. This helps Etham Resources to manage inventory proactively, lowering inventory expenses, inventory costs, and enhancing service level to the company's clients.

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