

**RUSIAH TEXTILE INVENTORY
MANAGEMENT SYSTEM**

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ABSTRACT

Inventory management system is widely use in most industries. These project is specifically focusing on replace a current approaches method that had been used by small-medium company. These company specially provides varies textile products such as scarf, women clothing and accessories that matched with outfits. This Inventory Management System help the company to ensure the business run smoothly with function register, manage, product category. The most common problems in previous method is the person in charge doing mistakes while write down the details of data in the file records. This system is able to help the company to manage the inventory more effectively. For this enhancement, Rapid Application Development (RAD) methodology is applied. This enhancement proposed to make sure deliver the project in better condition.

ABSTRAK

Sistem pengurusan inventori digunakan secara meluas dalam kebanyakan industri. Projek ini secara khusus memberi tumpuan kepada menggantikan kaedah pendekatan semasa yang telah digunakan oleh syarikat kecil. Syarikat ini secara khusus menyediakan pelbagai produk tekstil seperti selendang, pakaian wanita dan aksesori yang dipadankan dengan pakaian. Sistem Pengurusan Inventori digunakan untuk membantu syarikat bagi memastikan perniagaan berjalan lancar dan berfungsi untuk mendaftar, menurus perubahan , kategori produk. Masalah yang paling biasa dalam kaedah terdahulu adalah, melakukan kesilapan semasa menulis data barangan dalam rekod fail. Sistem ini dapat membantu syarikat untuk menguruskan inventori dengan lebih berkesan. Untuk peningkatan ini, metodologi Pembangunan Rapid Application (RAD) digunakan. Peningkatan ini dicadangkan untuk memastikan penyediaan projek dalam keadaan yang lebih baik.

TABLE OF CONTENT

DECLARATION	
TITLE PAGE	
ACKNOWLEDGEMENTS	ii
ABSTRAK	iii
ABSTRACT	iii
TABLE OF CONTENT	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	ix
CHAPTER 1 INTRODUCTION	1
1.1 Developer Tab	1
1.2 Problem Statement	2
1.3 Objective	2
1.4 Scope	4
1.5 Report Organization	4
CHAPTER 1 INTRODUCTION	5
2.1 Introduction	5
2.2 Rusiah Textile	5
2.3 Software Application System	6
2.4 Inventory System	9
2.5 Related Work	10

2.5.1	Existing System : Farisha Boutique	10
2.5.2	Existing System : Zoho Inventory	10
2.5.3	Existing System : EZ Office Inventory	11
2.5.4	Existing System : MarketMan	12
2.5.5	Comparison Features existing system	13
2.6	Conclusion	14

CHAPTER 3 METHODOLOGY 15

3.1	Introduction	15
3.2	Methodology	16
3.2.1	Requirement Planning	16
3.2.2	System Design	17
3.2.3	Development Phase	18
3.2.4	Cut Over	18
3.3	Hardware and Software Requirement	18
3.3.1	Hardware	18
3.3.2	Software	18
3.4	Gantt Chart	20
3.5	Conclusion	20

CHAPTER 4 IMPLEMENTATION, TESTING RESULTS AND DISCUSSION 21

4.1	Introduction	21
4.2	Implementation	21
4.2.1	Rusiah Textile Management System	21
4.3	Testing	21

4.3.1	Validation Testing	28
4.4	User Acceptance Test	28
4.5	Result	29
4.6	Conclusion	30
CHAPTER 5 CONCLUSION		31
5.1	Introduction	31
5.2	Constraints	32
5.3	Future Work	32
5.4	Conclusion	32
REFERENCES		33
APPENDICES		35
APPENDIX A		35
APPENDIX B		51
APPENDIX C		62
APPENDIX D		63

LIST OF TABLES

Table 4.1	Comparison Features	21
Table 3.1	Hardware	18
Table 3.2	Software	18
Table 4.1	Validation test for user	29

LIST OF FIGURES

Figure 2.2	Current Manual Record	10
Figure 2.2	Interface Zoho Inventory	10
Figure 2.3	Interface EZ Office	11
Figure 2.4	Interface Marketman	12
Figure 3.1	Rapid Application Model	16
Figure 3.2	Step of requirement planning	17
Figure 4.1	Login interface	21
Figure 4.2	Code for login	22
Figure 4.3	Code for login process	22
Figure 4.4	Register Interface	22
Figure 4.5	Dashboard interface	23
Figure 4.6	Add categories interface	23
Figure 4.7	Manage Categories interface	24
Figure 4.8	Code for Add categories	24
Figure 4.9	Code for categories	25
Figure 4.10	Add brand interface	25
Figure 4.11	Manage brand interface	25
Figure 4.12	Code for Add Brand	26
Figure 4.13	Code for brand	26
Figure 4.14	Add new product interface	26
Figure 4.15	Manage product interface	27
Figure 4.16	code for add new product	27
Figure 4.17	Code for manage product	27

LIST OF ABBREVIATIONS

RTIMS	Rusiah Textile Inventory Management System
SD	System Design

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Inventory is an idle stock of physical goods that contain values and being held in various type of form in company or organization. It also refers as goods or products that available for sale and raw materials been used to make it available for sale.

Inventory is important to assets of a business because it is the primary sources of the earnings for the company's stakeholder such as employees. The purpose of this project to develop Inventory Management System which all information regarding the products of the company will be presented. The person in charge will manage the system.

Rusiah Textile Inventory Management System (RTIMS) based on the management stock of the company. The system will contain profile user, orders details, manage products and remaining stock in the company. There is also needing to update the inventory. This system also provides the customer's invoice including their details for company's references.

Each new product is created and entitled with the name, brand and categories of the products including the quantity. It also can be update any time when required.

1.2 Problem Statements

The Small and Medium-sized Enterprise (SME) manually record their everyday transaction. Sometimes employees do mistakes when they forget to record their sales and leading miscount the quantity of product sold and the payment received.

The manual process is not systematic because the organization used traditional method approaches. For example, they use file usage to write down all sales transaction and others activities such as customer detail. When the store getting busier with the customer request and probability of employee forget to record the outgoing stocks is high and can lead to the losing money and assets.

Stocks means any unused goods that are stores for sale or maintenance purposes. If employees misplaced or mislabeling the products will have disturbed the sales flow because it will take times to find the products that has been requested by the customer. The failure to track the goods will contribute products surplus instability and make the customer not satisfy with the services provided.

If the organizations focus on control the inventory management, it is will avoid the product shortages and met all the customer's requirements. In addition, the owner will not use money more than they should use.

Not fulling customer's order because of unorganized stock will decrease the customer satisfaction. For example, customer need to wait longer in order to get their goods and this will give bad impression toward company's reputation. It will affect the company sales and profits. Peoples will give negatives feedback based on the services that has been offer.

In conclusion, ineffective decision-making can lead to worst scenario because without having resources to analyses inventory trends do not provide the greatest return. Without the correct or updated information will influence to the process transaction.

1.3 Objective

The aim of this project is to propose Inventory Management System by using QR Technology as an alternative to the traditional inventory management. This proposed system is expecting to improve the management of inventory system. The objectives need to achieve in this proposed project are listed as follows:

- i. To propose a design of Rusiah Textile Inventory Management System
- ii. To develop a prototype of the proposed system.
- iii. To test the functionality of the propose Rusiah Textile Inventory Management System to ensure the system free from errors.

1.4 Scope

This Inventory Management System is targeted to the small or medium company such as Rusiah Textile to organize and manage their inventory efficiently. This system implement for a web based platform.

1.5 Report Organization

The report of the project comprises of five chapter where Chapter 1 will discuss on the introduction of the whole idea of the project, which included the problem statement, objectives, and scope of the project.

Chapter 2 where the literature reviews about this Rusiah Textile Inventory Management System will be discuss in this chapter thoroughly. It will cover overview for the current system that are needed for the completion of this project, existing inventory management system, comparison between existing systems.

Chapter 3 will discuss on methodology and the overall approach of the project. This chapter will cover method, technique or approach to be used in the project. This chapter contains information about how the project going to done, activities, methodology, hardware and software considers using during development.

Chapter 4 describe about implementation that have been done for RTIMS. It consists the function to add the brand, the categories, quantity and also make new orders.

Chapter 5 give a conclusion for the process of developing RTIMS. The objective achieved are proved in this chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

A literature review will focus about the problem and solution in inventory management system and do the comparison with the related system. In addition, this chapter also discuss the hardware, software, technology or tools which are suitable to be employed into this project. The topic that will covered in this chapter including the case study (Rusiah Textile), existing system that related to the proposed project and the relevant topic that directly involved in this project

2.2 Rusiah Textile

Rusiah Textile is a small medium- sized and sole proprietorship company based on the sale of women clothing and apparel through online or offline. Rusiah Textile enterprise was established in Malaysia since 2015 in the field of textile industry and formally registered at the Companies Commission of Malaysia (SSM). The company aim to offer the best quality service, best quality clothing and apparel products with the affordable price to maximize the customer's satisfaction.

Rusiah Textile manually record their sales transaction in every single day. This process not systematic and open to possibility of human errors. For example, person in charge write down the price of product wrongly in a manual record. With manual record keeping, adding a date and time will be difficult when they tend to forget to record their sales transaction of the day. This situation become critical when there are probability of unauthorized peoples handling or even changing the data in the records. Mishandling the records will lead to confusion and corruption of data. This will turn a problem with simple solution into administrative difficulties. Records can easily be missing and when that happens, there will problems occur. Without the right data readily available, a number of consequences follow. Tracking the inventory become the top priority and will wasting lot

of time and money. It's undeniable it is possible to maintain accurate records vial pencil, paper, clipboard and for sure the data integrity will be inevitably diminishing by aging, potential unauthorized changes or simply human errors.

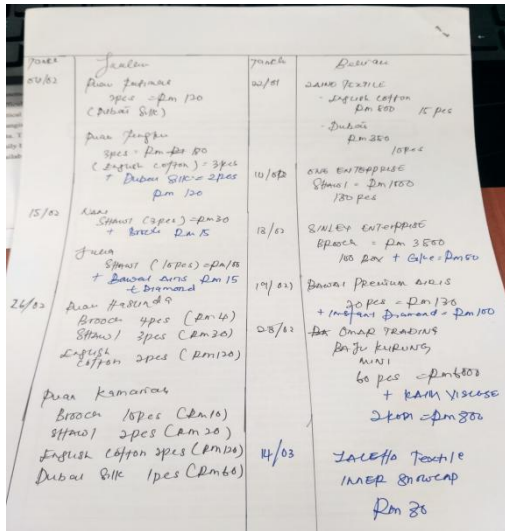


Figure 2.1 : Current Manual Record

2.3 Software System Application

The term 'software' refers to the set of electronic program instruction or data a computer processor read to perform a task or operation (Curley). System software includes program that can manage computer by itself such as operating system (OS). The OS manage the hardware resources. Application software is a group of program that design for the end user that include such things as database programs, word processors, web browser and spreadsheets(Beal)

a) Web Based Application

The platform that will be used in proposed system is web-based application. The web app is a client server computer program which user runs in web browser. The websites most referred as web application because they have similar functionality to a desktop software application or mobile app(Web Application, 2018).

This platform can easily access by users from any computer that been connected to the internet using a standard browser. It is very convenient for use because system are

accessible at anytime, anywhere via mobile or pc with an internet connection for 24 hours a day and 365 days a year(Advantages of Web Applications,2018). Interface of the web-based application is easier to customise and the interface's look can be update (Lofberg & Molin, 2005). The web based installation and maintenance are not complicated. It also deployed on dedicated servers that monitored and maintained by the server administrators. The security for the record data increasing. As compared to the desktop application, the web-based application is cost effective and they do not waste any space on the computer as the software are run from a server.

b) Client Server

A client server network involves multiple clients or workstation, connecting at least on central server. The data and application are installed on the server. User access the data or resources from server and they often have private user directories(Waters, n.d.). A server host run one or more server program that share their recourse clients. The user interaction through user interface of application on the client side (Manasa, 2017). This application always installed in a client's computer and it only have two users which is client and server.

Client server networks tend to have faster access speeds because of the large number of clients they are designed to support. It is easier to upgrade the application and files because they are held in one single computer(Waters, n.d.). . The server handles the security so the user no need to feel insecure about their data. Client-server also easy to do maintenance.

c) Mobile Application

Mobile application referred as an app, it is a type of application software that had been designed to run on mobile devices such as smart phones or tablets. It is frequently serve users with provided services that similar on PCs.

The advantage of mobile application is users do not have to wait too long because it has provided much faster services than others which mean less waiting and more browsing. It also can be accessed at any places, at any time.

d) Cloud based Application / Cloud Computing

Cloud based is a term that refers to the application, services or resources made available to users on demand via the internet from cloud-computing provider's server. The cloud enable data centre to operate like the internet and computing resources to be accessed and shared as virtual resources in a secure and scalable manner(Beal, 2010).

The advantages of cloud computing, the companies can reduce the size of their own data centres(Coles, 2017). The cost also much more flexible than previous method. Employee can access the data or application no matter where they are in this world. The can also work via smartphones and tablet. For small business, company that lack the required cash and expertise, it is recommend for use cloud based system because it is important to company to have backup and recovery solution that save time.

e) Database

Database is a data structure that keep organized information or data. Mostly database contain many tables, which may each include several different field. For example, the company database may have tables for product category, employee information details and report of goods. These tables have different fields that relevant to information stored in database. User who in charge with the database have ability to control access of data record. The can edit, delete and update the data. For relational database, more restrictive because it contain collection of schema, tales, queries, views and report(Database, 2018).

A relational database is a collection of data items organized based on tables that the data can be access. It is a common database system, which includes databases like SQL Server, Oracle Database and MySQL. This system better for managing data over desktop database program.

Desktop database program are another type of database such as Microsoft Access. These programs allow users to keep data and retrieved it when needed.

2.4 Inventory System

Inventory or stocks are the goods or materials that a business hold for the ultimate goal of resale. Inventory management is all about discipline primarily about specifying the shape and placement of goods. Inventory System need to know where all the inventory or assets are and ensuring is accounted for any given time. This system is a process for managing and locating the products. Inventory management system is the outgoing process of moving products in and out from company (What is an Inventory Management System,n.d.).

The inventory use First-In-First-Out (FIFO) (8 Inventory Management Techniques, 2018). It is mean that the first stock that come into company will be the first one that will be going out from company. This is important to perishable products so that the products do not end up with unsellable spoilage. It is also good suggestion to practise FIFO for non-perishable products because if the goods always sitting at the back it will be worn out.

They are lot of advantages using inventory system such as lead to more organized company. A good inventory management support an organized company. If the product are not organized, it will get hard to manage(Top five benefits of good inventory management Strategy). It also can improve the efficiency and productivity while using the system because will cut off the manual process.

2.5 Related Work

In this topic will be discussed these four existing system that using Inventory Management System. These four existing system will be a base for our proposed system. Furthermore, we also discuss the features that each system has. Lastly, we will show the comparison of features that each existing system have in the tables.

2.5.1 Existing system: Farisha Boutique

Farisha Boutique is a small medium-sized company that been operate in Jerteh, Terengganu. They have been sold various types of scarf, jeans, blouses and also makeup. Unfortunately, they still rely on keeping records manually. Every day, the employees need to record their sales in a specific book. Employees write down the items that have been sold to the customer. In the end of the day, person in charge of the store will calculate the income that they get from their sales and compared with the data that have been write in the book.

2.5.2 Existing system: Zoho Inventory

Zoho Inventory is a cloud- based inventory control system that help users to creates sales strategies, manage reorder point developed and produced by Zoho Corporation. This system also helps to update inventory quantities across all the selling channels automatically when there's a sale that have been made. Zoho Inventory also keep the stocks in organized including details like prices, cost, and availability. They only scan the barcodes of the items every time they make sales. Zoho also provide services the update the quantities across the selling channel automatically whenever sale had been made. Zoho inventory also keep the product's detail organized such price, cost and availability. It's also can keep tracking different batches expiry date so that, the product will be sold do not have damage.

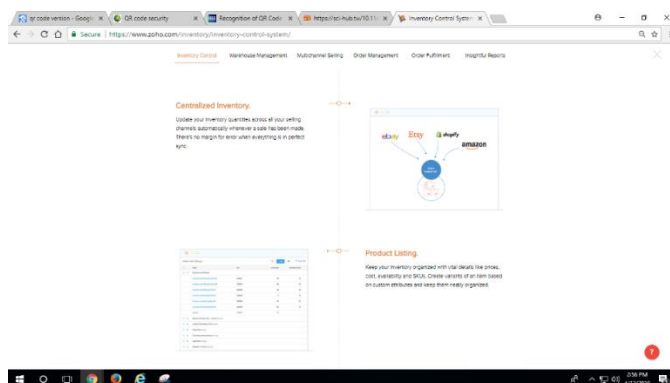


Figure 2.2: Interface Zoho Inventory

2.5.3 Existing system: EZ Office Inventory

Ez Office Inventory is a web based inventory tracking software that allowed users to access the information from any device at different places and any time and been launched by TechCrunch in 2011. This system helps to track the goods or inventory by location. EZ Office Inventory allows user to use android, iOS and windows apps to scan QR Codes instantly. For purchasing large quantities of items by scan with the external RFID reader using iOS and Android app. This system also allows users to check assets in and out effortlessly and keep the information up to date.

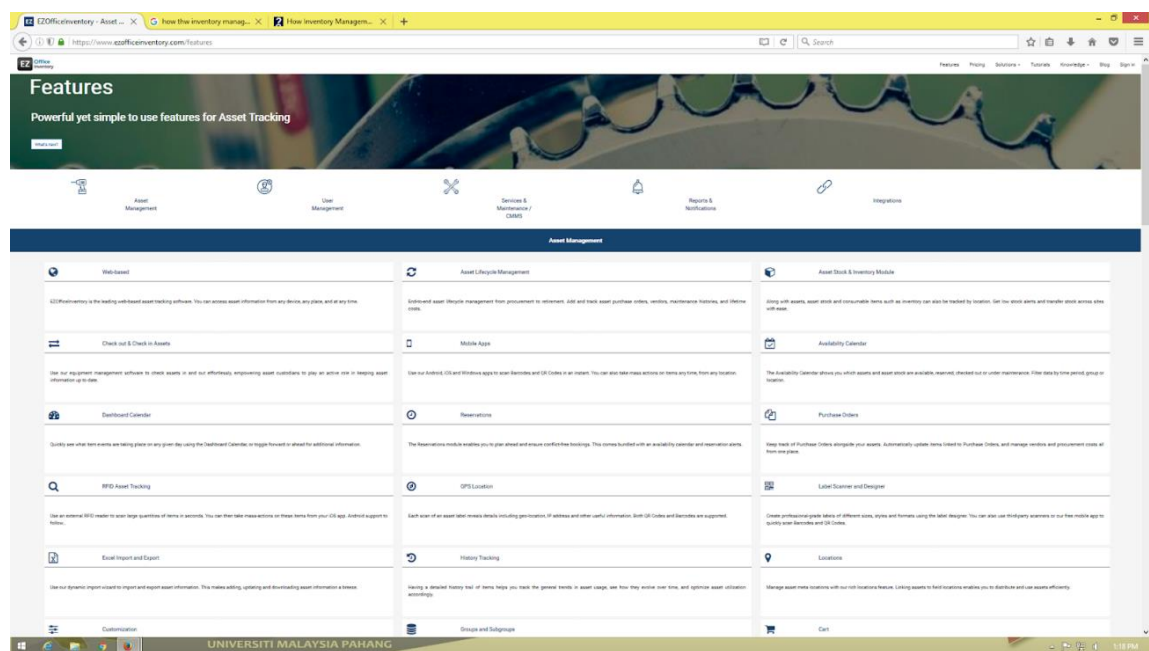


Figure 2.3: Interface Ez Office

2.5.4 Existing system: MarketMan

MarketMan is an Inventory manager in the system..This system help to keeps track of all inventory movements and gives real time, accurate status and alerts. MarketMan allows user to know which product most or least profitable. The users also can know the inventory quantity and value in a real time even though the using mobile device. The system also notify the users when the stock reach the minimum point and need immediate action besides it's also can give suggestion for ordering . Users get report about what happened in their business. It is also help the user to plan the budget that they need to spend. User also can know the inventory quantity and value in real time only via mobile devices.

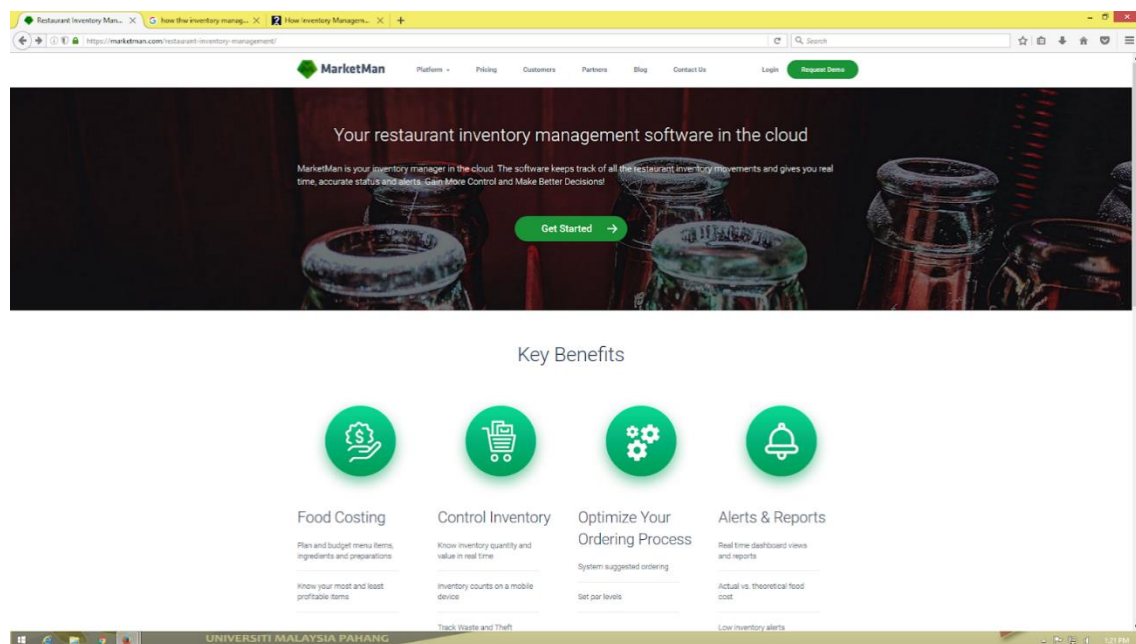


Figure 2.4: Interface MarketMan

2.5.5 Comparison Feature of the existing system

TABLE 2.1 Comparison Feature

MarketMan	EZ Office	Zoho	Farisha Boutique	Existing
Barcode	RFID Barcode	Barcode	Manual	Input Data
Cloud-based	Web-based	Cloud-based		Platform
Yes	Yes	Yes	No	Scan
Yes	Yes	Yes	Yes	Manage Product Information
Yes	Yes	Yes	No	Asset Tracking
Yes	Yes	Yes	No	Insight report
No	No	No	Yes	Logbook
PC, Mobile	Smartphone, Computer	Mobile Computer	None	Device
Yes	Yes	Yes	No	Realtime transaction

2.6 Conclusion

In this chapter, we have been discussed a related technology and information that we required to develop the propose system. As conclusion, in developing our proposed system, we choose to develop the proposed system which is Rusiah Textile Inventory Management System and have been decide to use Rapid Application Development (RAD) as our software development life cycle.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter describe about the methodology that will used for the proposed system during the development process. Methodology is a system development life cycle that defines a few project management phases.

There are many type of the methodology that can be used during the development process such as agile development, Rapid Application development, Waterfall development and Spiral development. But, each of the method has their own advantages and disadvantages. The chosen methodology must be suitable with the criteria that are needed to develop the proposed system.

This chapter describe about the software and hardware that are used during develop the system. Software and hardware are important tools that needed to develop the system and making the documentation about the project.

3.2 Methodology

The development of this project are using Rapid Application Development (RAD) methodology. This method been chosen because it is fit the approaches for compressing the analysis, design, build and test phases.

RAD is a software development methodology that are focuses on developing the system in short amount of time. It is development life cycle that designed to give much faster development and higher quality of the result. Figure shows the RAD model process in the proposed system.

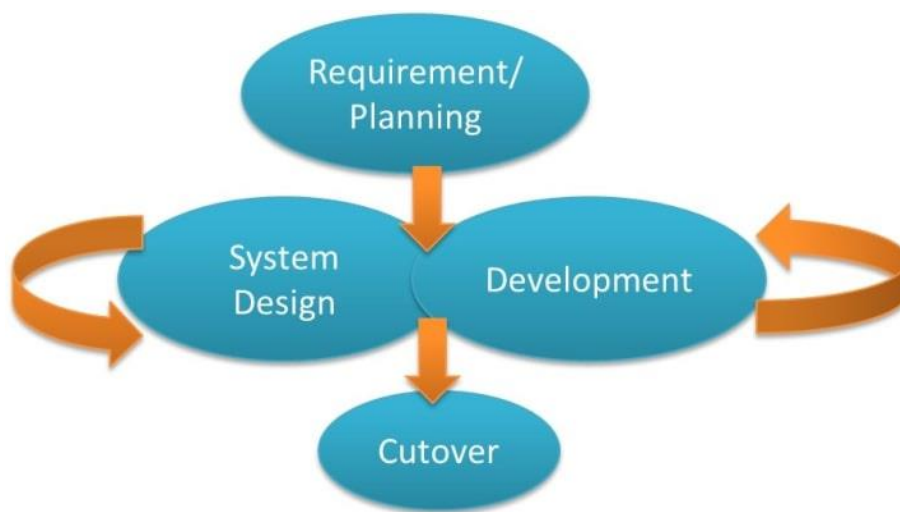


FIGURE 3.1: Rapid Application Model

Source: https://www.buzzfeed.com/michaelmg/how-rapid-application-development-makes-building-a-2xd2p?utm_term=.fcenG6NNAQ#.ssqNWvrrb3

3.2.1 Requirement Planning Phase

The objective of this stage is to establish a general understanding of the company problem that occur surrounding the development and operation

The requirement planning stages begins by meeting with the client and discuss their needed in the system. These meeting initiate the development process by establishing an understanding of the objectives of the proposed system.

This phase is required that both parties to get involve with the development process. The orientation in this phased is to solved the problems that had been faced by the client. The focus will always to reaching the objectives. This phase is done when they reached the agreement and proceed to next phase. During this stage, an outline of the step is develop.

Define requirement used to develop the scope of the system in order to expressed the system functionality, business flow and data that will be support by the system. For finalize requirement, the scope of the RTIMS finally will be documented and the function and also method will be implemented. Approval to proceed with the implementation is obtained. The flow shows in Figure 3.2

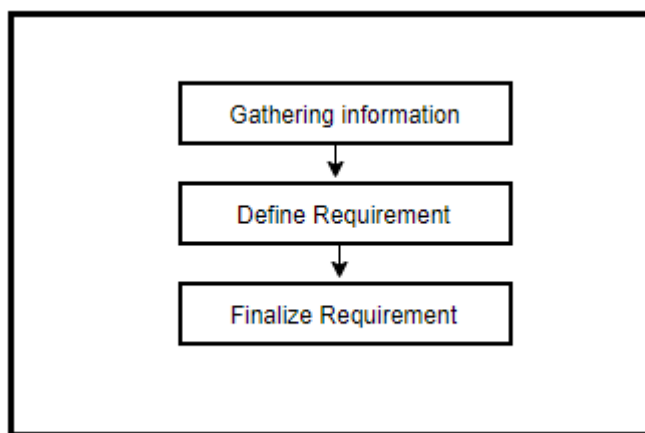


Figure 3.2: Step of Requirement Planning.

3.2.2 System Design Phase

The purpose of the System Design(SD) is to develop the proposed screen layout for RTIMS, to select the appropriate construction approach for the RTIMS and prepare the work plan defining the step transition of the system. It is required to perform step by step till completed. During this phase, the person who involve with the development will communicate with system, develop models and prototypes that represent all system processes. The list of requirement from the client can be used to make design based on that request.

This phase produces clearer system model, outline of the design and implementation plan. System design is the main source of implementation information for how the system should work. It also can be referring as the document that link the gap between management function and implementation.

System Design Document is attached as Appendix B

3.2.3 Development Phase

This objective of the phases is to complete the detailed design of the system in order to create and test the proposed system. The development phase is finalized including workstations for the developers. The based has been designed based on the data in the system design phase. The system will be test and be documented to explaining how the system is to be operated by users. The system need to be tested to ensure each function of the system perform according to the client's request.

Functionality of the system including codes and interfaces are implemented using HTML, CSS, PHP and JavaScript. The developer makes the prototype of the system and tested by the user or developer in order to make sure the system is free form error. They can participate and suggest changes or improvements.

3.2.4 Cut over Phase

This is the phases which resembles the final task in the SDLC implementation where all the necessary things like testing, changeover to the new system or their functionality of the system. Compare the previous method or traditional approaches, this entire process is compressed. As a result, the proposed system which Rusiah Textile Inventory Management System exist.

3.3 Hardware and Software

3.3.1 Hardware Requirement

This table 3.1 show the list of the hardware required to develop the system.

Table 3.1 Hardware

NO	ITEM	QUANTITY	SPECIFICATION	PURPOSE
1	Laptop ASUS X540S	1	Intel Quad Core CPU @ 2.08GHz Memory 2GB	For development and documentation
2	HP Deskjet 1510 series	1	- printing type: Color/Black - Function: Print, Scan	Used to print out the report of project's documentation
3	Mouse, keyboard	1	-Multi-gesture touchpad - Usb optical mouse	Used as the input device

3.3.2 Software Requirement

This table show the list of the software that required to develop the system.

Table 3.2 Software

1.	Microsoft Word Project	Purpose: Documentation To Develop the Gantt Chart
2	Draw.io	To design the Use Case diagram
3	Google Chrome	Search the information
4	XAMPP	Create local host server
5	Sublime Text 3	To generate coding

3.4 Gantt chart

Gantt chart is important because it will show process of phases starting requirement planning until cut-over phase including activities in every phase stated together with the time duration.

Gantt chart is attached as appendix C

3.5 Conclusion

As a conclusion, RAD methodology been used in this project contain four main phases which are requirement planning, system design, development and cut over. This project uses specific hardware and software for development process. Using RAD methodology help to complete the schedule smoothly.

CHAPTER 4

IMPLEMENTATION, TESTING AND RESULT DISCUSSION

4.1 Introduction

In RTIMS there are only admin and employee. For admin, they have ability to monitor transaction data, manage data and update, delete list data. For employee, user can use it to enter data of the new order. The data use in the system synchronize by a phpMyAdmin database called “rusiahtextile

4.2 Implementation

Rusiah Textile Inventory Management System is implemented in different stages like Rusiah Textile Inventory Management System Database, then the function for the proposed system

4.2.1 Rusiah Textile Management System

Each user has a profile which was created by entering the details on register page. Figure 4.1 show the RTIMS login register for the users.

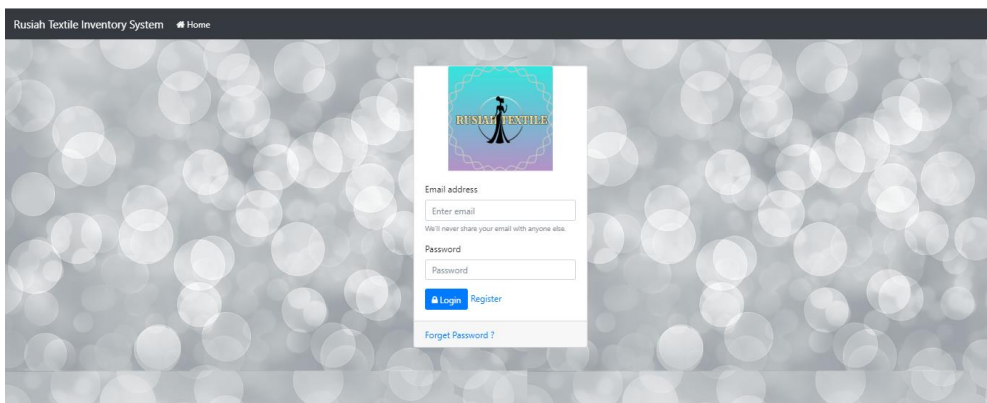


Figure 4.1: Login page interface

Figure 4.2 and 4.3 shows the code of database connection between the client and the server side. User will login and “SELECT” statement was used to take record from specific table in database while the password also encrypted.

```
public function userLogin($email,$password){
    $pre_stmt = $this->con->prepare("SELECT id,username,password,last_login FROM user WHERE email = ?");
    $pre_stmt->bind_param("s",$email);
    $pre_stmt->execute() or die($this->con->error);
    $result = $pre_stmt->get_result();

    if ($result->num_rows < 1) {
        return "NOT_REGISTERD";
    }
}
```

Figure 4.2: Code of the login

```
if (isset($_POST["log_email"]) AND isset($_POST["log_password
    "])) {
    $user = new User();
    $result = $user->userLogin($_POST["log_email"],$_POST["
        log_password"]);
    echo $result;
    exit();
}
```

Figure 4.3: Code of the login process

For the new user, they have to register by entering the information in the form. If the data required are not fill, an error message will be display. Figure 4.4 shows register page RTIMS.

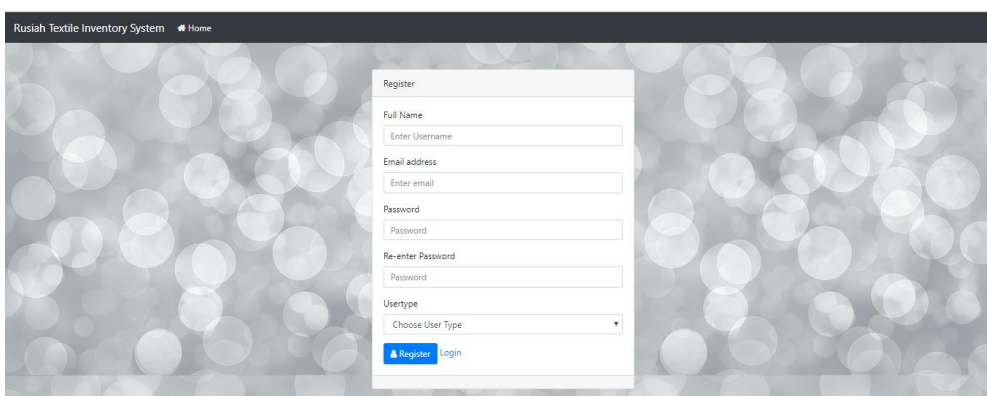


Figure 4.4 : Register page interface

Once uses login in to system, the dashboard page will be display. There is navigation provided to allow user to logout from the system. User can choose to manage, add categories, add brand, add product or to make customer order as shown as Figure 4.5.

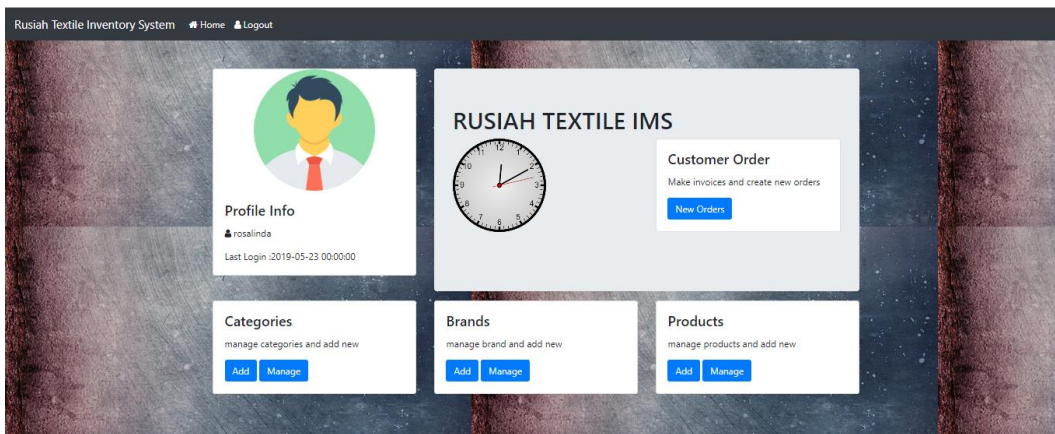


Figure 4.5: Dashboard page interface

If user want to update, they can click on button manage in order to proceed the next step. It also will display the list of the category. Figure 4.6 and figure 4.7 shows the add and manage categories interface.

Figure 4.6: Add categories interface

#	Category	Parent	Status	Action
1	Tudung		Active	Delete Edit
2	Kain		Active	Delete Edit
3	Baju		Active	Delete Edit

Figure 4.7: Manage categories interface

```
//Add Category
$("#category_form").on("submit",function(){
    if ($("#category_name").val() == "") {
        $("#category_name").addClass("border-danger");
        $("#cat_error").html("<span class='text-danger'>Please Enter Category Name</span>");
    }else{
        $.ajax({
            url : DOMAIN+"/includes/process.php",
            method : "POST",
            data : $("#category_form").serialize(),
            success : function(data){
                if (data == "CATEGORY_ADDED") {
                    $("#category_name").removeClass("border-danger");
                    $("#cat_error").html("<span class='text-success'>New Category Added Successfully..!</span>");
                    $("#category_name").val("");
                    fetch_category();
                }else{
                    alert(data);
                }
            }
        });
    }
});
```

```
if (isset($_POST["category_name"]) AND isset($_POST["parent_cat"])) {
    $obj = new DBOperation();
    $result = $obj->addCategory($_POST["parent_cat"],$_POST["category_name"]);
    echo $result;
    exit();
}
```

Figure 4.8: Code for add categories

```
if (isset($_POST["getCategory"])) {
    $obj = new DBOperation();
    $rows = $obj->getAllRecord("categories");
    foreach ($rows as $row) {
        echo "<option value='".$row["cid"]."'>".$row["category_name"]."</option>";
    }
    exit();
}
```

```
manageCategory(1);
function manageCategory(pn){
  $.ajax({
    url : DOMAIN+"/includes/process.php",
    method : "POST",
    data : {manageCategory:1,pageno:pn},
    success : function(data){
      $("#get_category").html(data);
    }
  })
}
```

Figure 4.9: Code for categories

User can add brand by clicking the button and the form will be appear asking to fill the data needed. If the user want view the list of the brand they can click on button manage where the list will be display and also can take action for delete or update. Figure 4.10 and 4.11 will shows the interface.

Figure 4.10: Add brand interface

#	Brand	Status	Action
1	Airis	Active	Delete Edit
2	Valentino	Active	Delete Edit

Figure 4.11: Manage brand interface

```
if (isset($_POST["brand_name"])) {
    $obj = new DBOperation();
    $result = $obj->addBrand($_POST["brand_name"]);
    echo $result;
    exit();
}
```

Figure 4.12: Code add brand

```
if (isset($_POST["getBrand"])) {
    $obj = new DBOperation();
    $rows = $obj->getAllRecord("brands");
    foreach ($rows as $row) {
        echo "<option value='". $row["bid"]. "'>". $row["brand_name"]. "</option>";
    }
    exit();
}
```

Figure 4.13: Code for brand

User can add product and manage product by click on the button. If user click button add, they need to fill the form as required. If user click button manage the details of the product will be display and they also can update and delete. Figure 4.14 and figure 4.15 shows the interface.

A screenshot of a web application window titled "Add new products". The window contains a form with several input fields and dropdown menus. The fields are: "Date" with the value "2019-05-02", "Product Name" with the placeholder "Enter Product Name", "Category" with a dropdown menu showing "Choose Category", "Brand" with a dropdown menu showing "Choose Brand", "Product Price" with the placeholder "Enter Price of Product", and "Quantity" with the placeholder "Enter Quantity". At the bottom left of the form is a green "Add Product" button, and at the bottom right is a grey "Close" button.

Figure 4.14: Add new products interface

#	Product	Category	Brand	Price	Stock	Added Date	Status	Action
1	Bawal	Tudung	Airis	10	86	2019-04-29	Active	Delete Edit
2	4D Digital	Kain	Valentino	50	17	2019-04-29	Active	Delete Edit

Figure 4.15: Manage products interface

```
public function addProduct($cid,$bid,$pro_name,$price,$stock,$date){
    $pre_stmt = $this->con->prepare("INSERT INTO `products`
    (`cid`, `bid`, `product_name`, `product_price`,
    `product_stock`, `added_date`, `p_status`)
    VALUES (?, ?, ?, ?, ?, ?, ?)");
    $status = 1;
    $pre_stmt->bind_param("iisdisi",$cid,$bid,$pro_name,$price,$stock,$date,$status);
    $result = $pre_stmt->execute() or die($this->con->error);
    if ($result) {
        return "NEW_PRODUCT_ADDED";
    }else{
        return 0;
    }
}
```

Figure 4.16: Code add new products

```
if (isset($_POST["manageProduct"])) {
    $m = new Manage();
    $result = $m->manageRecordWithPagination("products",$_POST["pageno"]);
    $rows = $result["rows"];
    $pagination = $result["pagination"];
    if (count($rows) > 0) {
        $n = (($_POST["pageno"] - 1) * 5)+1;
        foreach ($rows as $row) {
            <tr>
                <td><?php echo $n; ?></td>
                <td><?php echo $row["product_name"]; ?></td>
                <td><?php echo $row["category_name"]; ?></td>
                <td><?php echo $row["brand_name"]; ?></td>
                <td><?php echo $row["product_price"]; ?></td>
                <td><?php echo $row["product_stock"]; ?></td>
                <td><?php echo $row["added_date"]; ?></td>
                <td><a href="#" class="btn btn-success btn-sm">Active</a></td>
                <td>
                    <a href="#" did="<?php echo $row['pid']; ?>" class="btn btn-danger btn-sm del_product">Delete</a>
                    <a href="#" eid="<?php echo $row['pid']; ?>" data-toggle="modal" data-target="#form_products" class="
                    = "btn btn-info btn-sm edit_product">Edit</a>
                </td>
            </tr>
        <?php
        $n++;
    }
    <tr><td colspan="5"><?php echo $pagination; ?></td></tr>
    <?php
    exit();
}
```

Figure 4.17: Code manage products

4.3 Testing

Generally, testing is defined as a process of executing a process that intends to find the errors. Through testing, it can analyse the performance of the system and its working behaviour. The performance on a particular level can be measured by finding the limitations through testing the system.

After the designing phase, the next step is to develop and execute the code to find any error and progress to the developing phase. Without test and execute, the system cannot proceed to the next phase. The errors in the coding will be noticed during execution if there are any errors. The code tuning helps in optimizing the project to perform at its best.

The purpose of testing is to analyse the performance, identify and find as many errors as possible in the tested system when it is executed.

4.3.1 Validation Testing

Validation is one of the processes evaluating a system during the end of the development process to check whether it fulfils the specified requirements for the client. The system should meet the requirements and reach the expectation.

In this project, it has been tested by the admin and employee. The user checked on the validation of their functions such as register, login, manage products, add products, new order. The test is made by following the flow of the process.

4.4 User Acceptance Test

The user acceptance test is done in order to verify whether a system meets the client requirements or not. The client usually does this type of testing on a system that has been developed. It is a final stage of the project, where the user performs the various tests during the system and makes further modifications according to the requirements to achieve the final results.

4.5 Result

The functionality of the system was tested out and the result been recorded. Table shows the result of functionality for user system.

Table 4.1: The validation test for user

ACTIVITY	FUNCTION	NOT FUNCTION
Register in the form	/	
Click button register to submit data into database	/	
Login in to the system	/	
Click button login to submit data into database	/	
Click logout on navigation to exit.	/	
Edit the profile user		/
Click button add categories	/	
Form to insert the data appear	/	
Click button manage to manage the categories	/	
Categories list displayed	/	
Click button Add brand	/	
Display form add brand	/	

Table 4.1 The validation test for user (cont..)

Click button manage brand	/	
Display list of brand	/	
Click button Add new products	/	
Display form add new products	/	
Click button manage product	/	
Display list products	/	
Time at profile info		/

4.6 Conclusion

As conclusion, implementation for RTIMS have two users which are admin and employee. This project been developed to manage the inventory of the company. Furthermore, this project used validation testing to analyse the functionality of the system.

CHAPTER 5

CONCLUSION

5.1 Introduction

As a conclusion, Rusiah Textile Inventory Management System (RTIMS) is purposely made to control and manage their products in the company. This system can be used by small and medium size company or organization because it will improve the work flow.

In this thesis, all three main objective stated in the early of the project development is achieved successfully. The first objective is to proposed a design of Rusiah Textile Inventory Management System for work efficiency. This objective achieves with a literature review of the few existing inventory managements that give guides on the process. The second objective is to develop a prototype of the proposed system. This objective achieved by follows the specified requirement that both parties agree. The third objective is to test the functionality of the propose Rusiah Textile Inventory Management System to ensure the system free from errors. This objective countered with a function in the system that have been develop and tested by the user to check either this system meets the requirement.

By using this system, process in company become more smooth and systematic. It will reduce the human error where the user doesn't need to use traditional method which is a paper - based that have to record and submit it manually. The person in charge have to do is login into the system and insert all the necessary data regarding the company's products.

The purpose of this project to develop a inventory management system that provides good data management to avoid inventory discrepancy.

5.2 Constraints

Constraints for this project are:

I. Getting the right idea

Hard to be on the right path. To get the right thing by never assuming any ideas or opinions or suggestion without any proper plans or proof. Need to be professional when dealing with the ideas because they always required to prove which are the best things. Make a wrong choice will ruin the project.

II. Consistency and self-explorative

Need to be consistent in order to ensure the project never exceed their estimate time. Always stick with schedule. Be self-explorative in order to understand the project clearly and get any advice from expertise.

5.3 Future Work

There are several enhancements of this project that can be carried out in the future for a better RTIMS.

- The system be able to view the history record of the transaction.
- Use barcode or QR code for sorting and categorized the item and also highly protected because of security and have large data capability.

5.4 Conclusion

As conclusion, this project is success and proved by achievement of the project objective. During development there are constraints that lead to a limited progress. This system can be improving and upgraded into a better version for Rusiah Textile inventory management system in the future.

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APPENDIX A



**RUSIAH TEXTILE INVENTORY MANAGEMENT
SYSTEM (RTIMS)**

**Faculty Computer Systems & Software Engineering
(FSKKP)**

**SOFTWARE REQUIREMENT
SPECIFICATION (SRS)**

TABLE OF CONTENT

1.0	FUNCTIONS	1
2.0	DATA FLOW DIAGRAM LEVEL 0 (DFD LEVEL- 0)	22
3.0	DATA FLOW DIAGRAM LEVEL 1 ... LEVEL N (DFD LEVEL- 1...LEVEL N)	23
4.0	ALGORIITHM OR STRUCTURED ENGLISH	24
5.0	REQUIREMENTS TRACEABILITY	27
6.0	SYSTEM REQUIREMENTS APPROVAL	28
	APPENDIX B-1	

1.0 FUNCTION

Table 1.0 shows the overall function on the Rusiah Textile Inventory Management System.

TABLE 1.0: Function of the system

FUNCTION	DESCRIPTION
REGISTER	<ul style="list-style-type: none">- This function allows user to register in their account.- They need to have an account before entering the system.
LOGIN	<ul style="list-style-type: none">- This function allows users to log in into Rusiah Textile Inventory Management System.- They need to log in into the system in order to do their task.
MANAGE PRODUCT	<ul style="list-style-type: none">- This function allows to view their list of product including the detail of the products.- User can update the detail of the products.- They also can add the new item or products into the system via PCs.- The user also can delete the items information that no longer been sold in the company.
MANAGE PRODUCT CATEGORY	<ul style="list-style-type: none">- This function user to alter their product's details based on the company rules.- They have to organize the product based on their category.

ADD BRAND	<ul style="list-style-type: none"> - User can add new brand based on the product's information in add the new data into database. - User need to enter the name of the r=brand and their parent category.
MANAGE BRAND	<ul style="list-style-type: none"> - User can display the list of the brand that have been added by the user. - User also can update or delete the details according to the company procedures.
CUSTOMER ORDER	<ul style="list-style-type: none"> - User need to fill up the provided form in order to make sure that the details is correct based on the customer request. - User also can print the invoice to make as a reference.
INVOICE	<ul style="list-style-type: none"> - The system will display notification message asking either to print the invoice or save it - Company will refer the invoice number in order to know the details.

Functional requirement

Use case: Login

Diagram:

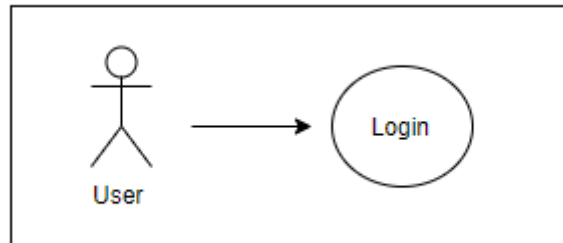


Figure 1.0 *Login use case diagram*

Table 2.0 Use case Login

Use Case ID	01_login_SRSRTIMS
Brief Description	User login into the system and can use the RTIMS.
Actor	User, RTIMS system, Database
Precondition	Open the application to login into the system.
Basic Flow	<ol style="list-style-type: none">1. This use case begins when user click on RTIMS2. User inserts their email, password.3. The dashboard page is displayed.4. The use case ends.
Alternative Flow	A.1 Cancel to login <ol style="list-style-type: none">1. Admin clicks on close button.2. The use case ends
Exception Flow	E.1 Invalid login <ol style="list-style-type: none">1. RTIMS displays the error message “Wrong User ID or Password!”.2. RTIMS waits for correct value.3. The use case continues.
Post-condition	Information modified entered by the registered user

	appropriately stored in the system.
Rules	User must enter the username, password and choose the role to login the system.
Constraints	Only recognized user can login into the system and select the function.

**Use case:
Dashboard
Diagram:**

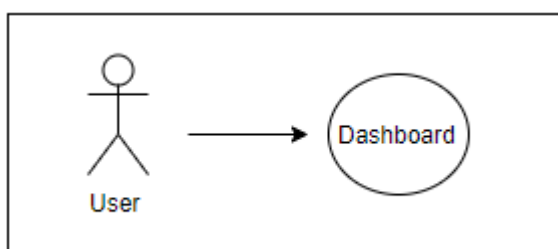


Figure 2.0 dashboard use case diagram

Table 3.0 Use case Login

Use Case ID	02_dashboard_SRSRTIMS
Brief Description	User choose the specific things in the dashboard page for further action.
Actor	User, RTIMS system
Precondition	Need to login first in order to use the function in the system.
Basic Flow	<ol style="list-style-type: none"> 5. This use case begins when user click on RTIMS. 6. User inserts their email, password. 7. The dashboard page is displayed. 8. The use case ends.

Alternative Flow	A.1 Exit system 3. Admin clicks on logout button. 4. The use case ends
Exception Flow	E.1 Invalid login 4. RTIMS displays the error message “Wrong User ID or Password!”. 5. RTIMS waits for correct value. 6. The use case continues.
Post -condition	Information modified entered by the registered user appropriately stored in the system.
Rules	User must enter the email, password to login the system
Constraints	Only recognized user can login into the system

**Use case: Update
Diagram:**

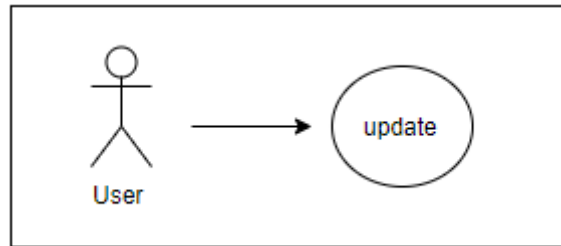


Figure 3.0 Update use case diagram

Table 4.0 Use case manage update

Use Case ID	03_Update_SRSRTIMS
Brief Description	User will choose the menu from Update Picking List page.
Actor	User, RTIMS system
Precondition	Login first in order to select in the dashboard page which part user want to update.
Basic Flow	<ol style="list-style-type: none"> 1. This use case begins when user choose manage button in the dashboard page. 2. User click button manage t. 3. List of update is displayed. 4. The use case continues.
Alternative Flow	<p>A.1 Cancel to enter the manage</p> <ol style="list-style-type: none"> 1. Admin clicks on the home button. 2. Dashboard page is displayed. 3. The use case continues.
Exception Flow	<p>E.1 Update Failed</p> <ol style="list-style-type: none"> 1. RTIMS displays the error message 2. RTIMS waits for correct file. 3. The use case continues.
Post-Conditions	<ol style="list-style-type: none"> 1. The list is save in database
Rules	User need to fill the provided form.
Constraints	Only recognized user can update into the system

**Use case: Register
Diagram:**

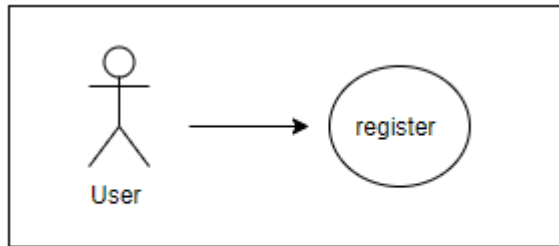


Figure 4.0 Register use case diagram

Table 5.0 Use case Register

Use Case ID	04_Register_SRSRTIMS
Brief Description	User need to have an account before using the system therefore they need to register by entering personal data into provided form.
Actor	User, RTIMS system, database
Precondition	Login into system
Basic Flow	<ol style="list-style-type: none"> 1. This use case begins when user want login into the system. 2. The user click register in order to save the data in database 3. The use case continues.
Alternative Flow	<p>A.1 Cancel to enter register page</p> <ol style="list-style-type: none"> 1. User clicks on back button. 2. The use case continues.
Exception Flow	<p>E.1 invalid data</p> <ol style="list-style-type: none"> 1. RTIMS displays the error message to fill up the provided form.
Post-Conditions	.1. The list is submit to database.
Rules	User need to register in order to login in to the system
Constraints	User that have registered can login into the system.

**Use case: Register
Diagram:**

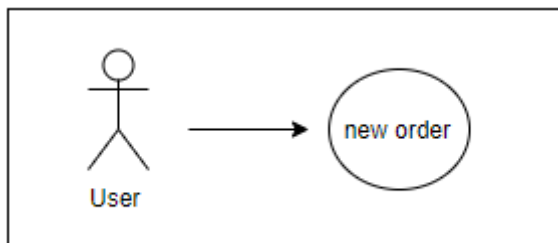


Figure 5.0 new order use case diagram

Table 6.0 Use case New order

Use Case ID	05_newOrder_SRSRTIMS
Brief Description	User need to have an account before using the system
Actor	User, RTIMS system, database
Precondition	Login into RTIMS
Basic Flow	<ol style="list-style-type: none"> 1. This use case begins when user want user want to fill up the customer order 2. The user clicks new order button in order to entering the necessary information. 3. The use case continues.
Alternative Flow	<p>A.1 Cancel to enter new order form</p> <ol style="list-style-type: none"> 1. User clicks on back button. 2. The use case continues.
Exception Flow	<p>E.1 invalid data</p> <ol style="list-style-type: none"> 1. RTIMS displays the error message to fill up the provided form.
Post-Conditions	.1. The list is submit to database.

Rules	User need to fill the necessary data in order to record in to the system
Constraints	User that have registered can login into the system.

2.0 DATA FLOW DIAGRAM LEVEL 0 (DFD LEVEL-0)

‘DFD level 0’ is the highest level view of the system, contains only one process which represents whole function of the system. It doesn’t contain any data stores and the data is stored within the process. DFD level 0 is the basic data flow process.

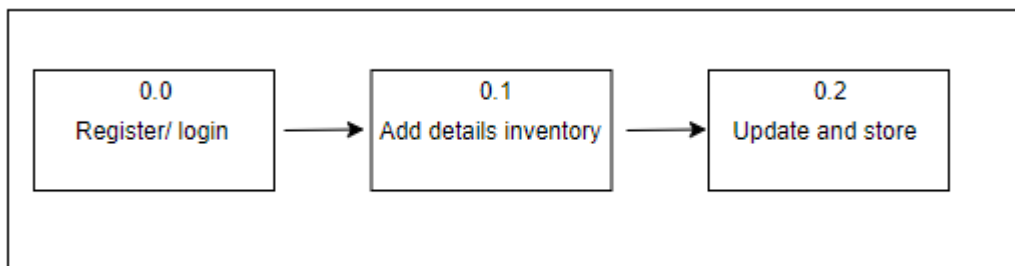


Figure 6.0: RTIMS DFD LEVEL-0

3.0 DATA FLOW DIAGRAM LEVEL 1...LEVEL N (DFD LEVEL 1 ...LEVEL N)

For constructing 'DFD LEVEL 1', we need to identify and draw the process that make the level 0 process. In this project for transferring the personal data from source to destination, the information data is check and stored in database.

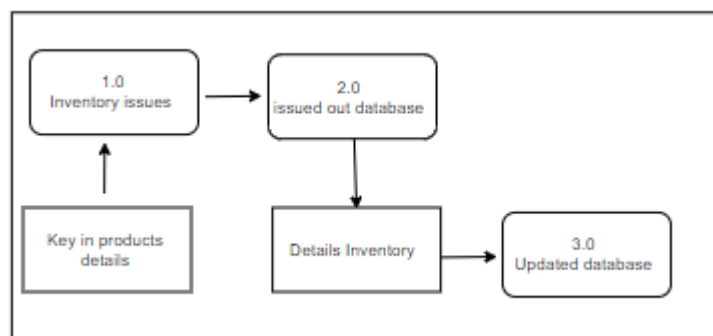


Figure 7.0: WMS DFD LEVEL-1

Data will be collect based on issue out data stored in the database. For the result the data must parallel with the key in data.

4.0 ALGORITHM OR STRUCTURED ENGLISH

- **Actor**

- i. User:

- **Login process:**

- a. **Use case title:** Login

- 1. **Level:** User level

- 2. **Primary actor:** Admin and Employee

- 3. **Context of use:** The user chooses open the application and clicks login button which by default the first page on the start-up of the application.

- 4. **Preconditions:** The user must have email and password for login process.

- 5. **Success guarantee:** Only recognized user can used this system

- 6. **Main success scenario:**

- I. User enters the email and password to login the system.

- II. The system responds appropriately by allowing the user to enter into the system.

Step 3 and 4 are actions that the system performs, and step 1 and 2 are interaction between system and user.

- **Dashboard Page process:**

Use case title: dashboard page

1. **Level:** User level
2. **Actor:** User
3. **Context of use:** The user selects to add brand, categories, products, new order button.
4. **Preconditions:** The user must login
5. **Success guarantee:** navigation provides home and logout for user
6. **Main success scenario:**
 - I. User click any button option to use.

- **Register process:**

a. **Use case title:** Register page

1. **Level:** User level
2. **Primary actor:** user
3. **Context of use:** The user need to fill up the form of registration.
4. **Preconditions:** The user must login
5. **Success guarantee:** The issue out data save into RTIMS database.
6. **Main success scenario :**
 - User can explore the dashboard page after register and login into the system

5.0 REQUIREMENTS TRACEABILITY

Table 7.0: *Requirement traceability for Rusiah Textile Inventory Management System (RTIMS)*

NO.	Requirement No.	Description	Source
1.	SRS-01-01	System provide login functionality	-
2.	SRS-01-02	System provide dashboard functionality	SRS-01-02

6.0 SYSTEM REQUIREMENT APPROVAL

	Name	Date
Authenticated by: _____ Developer		
Approved by: _____ Client		

APPENDIX B



RUSIAH TEXTILE INVENTORY MANAGEMENT
SYSTEM (RTIMS)

Faculty Computer Systems & Software
Engineering (FSKKP)

SOFTWARE DESIGN
DOCUMENTATION (SDD)

Table of Contents

1.0	ENTITY RELATION DATA MODEL	1
2.0	DATA DICTIONARY	2
3.0	USER INTERFACE	4
4.0	SYSTEM DESIGN APPROVAL	14

1.0 ENTITY RELATION DATA MODEL

An entity-relationship model is a systematic way of describing and defining a business process. The process is modelled as components that are linked with each other by relationships that express the dependencies and requirements between them. Diagrams created to represent these entities, attributes, and relationships graphically are called entity-relationship diagram.

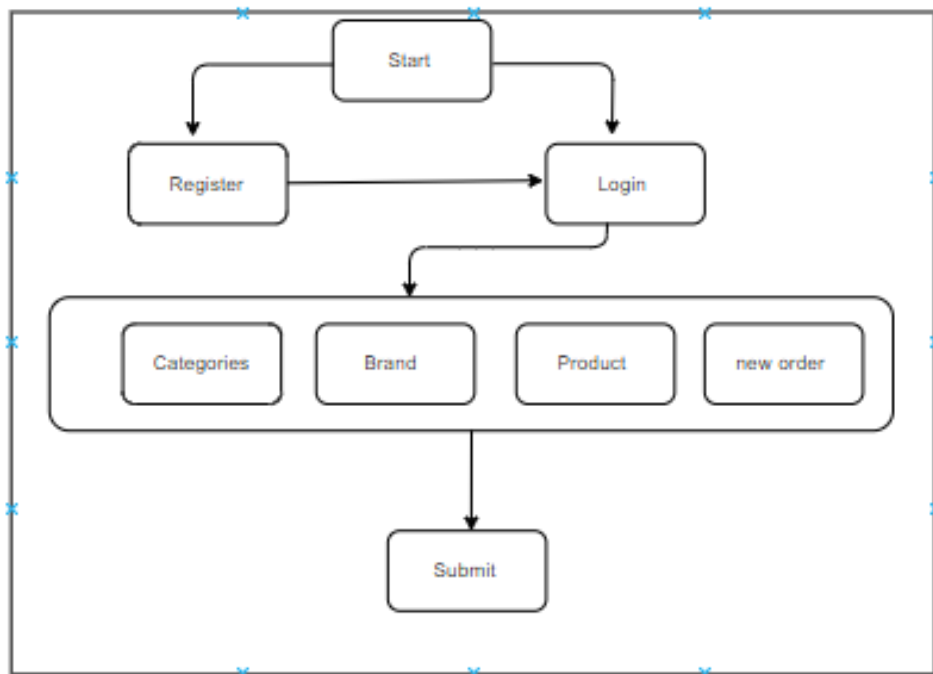


Figure 1.0: ERD model of RTIMS

2.0 DATA DICTIONARY

Data dictionary function as to define set of tables that provide information about the database.

Table 1.0 Data Dictionary for table category

Field Name	Description	Data Type	Constraint
cid	Category id	Int (11)	Primary key
Parent_cat	Parent category	Int (11)	None
Category_name	Category Name	Varchar (255/	None

Table 2.0 Data Dictionary for table brand

Field Name	Description	Data Type	Constraint
Bid	Brand id	Int (11)	Primary Key
Brand_name	Brand name	Varchar(255)	NONE

Table 3.0 Data Dictionary for table products

Field Name	Description	Data Type	Constraint
Pid	Product id	Int(11)	Primary Key
cid	Category id	Int(11)	NONE

Bid	Brand id	Int(11)	NONE
Product_name	Product name	Varchar(100)	NONE
Product_price	Product price	Double	NONE
Added_date	Date	Date	NONE

Table 4.0 Data Dictionary for table user

Field Name	Description	Data Type	Constraint
Id	User id	Int (11)	Primary Key
Username	User name	Varchar (255)	NONE
Email	User email	Varchar (255)	NONE
Password	User password	Varchar (255)	NONE
Usertype	User type	Enum	NONE
Register_date	Date	Date	NONE
Last_login	User login	Datetime	NONE

Table 5.0 Data Dictionary for table invoice

Field Name	Description	Data Type	Constraint
Invoice_no	Invoice no	Int(11)	Primary Key
Customer_no	Customer name	Varchar(100)	NONE
Order_date	Order date	Date	NONE
Sub_total	Sub total	Double	NONE
Gst	Gst	Double	NONE
Discount	Discount	Double	NONE
Net_total	Net_total	Double	NONE
Paid	Paid	Double	NONE

Due	Due	Double	NONE
Payment_type	Payment type	tinytext	NONE

3.0 USER INTERFACE

Interface design is most important part in developing RTIMS application because it is as intermediate medium between interior designer and RTIMS. Interface will help designer interact or used RTIMMS. RTIMS only used simple and user friendly interface

Login

In this system there is user involve manage the system. Figure 2.0 show login page of Rusiah Textile inventory management system homepage. In this page user have to enter email and password to log in.

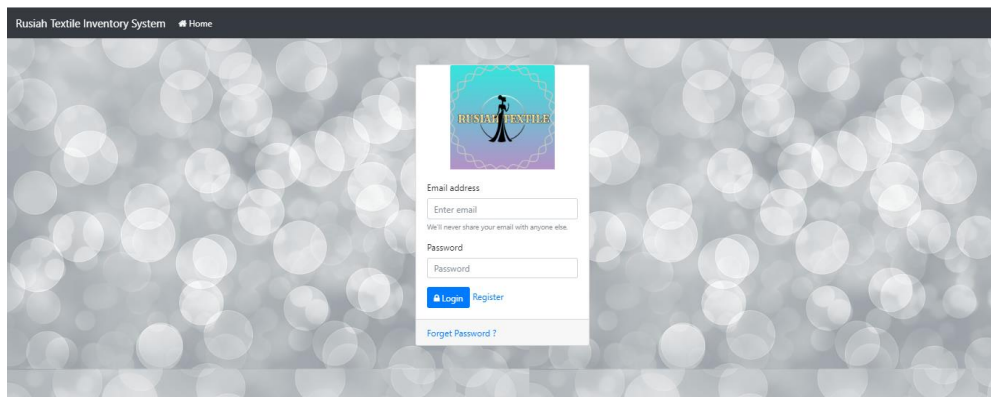
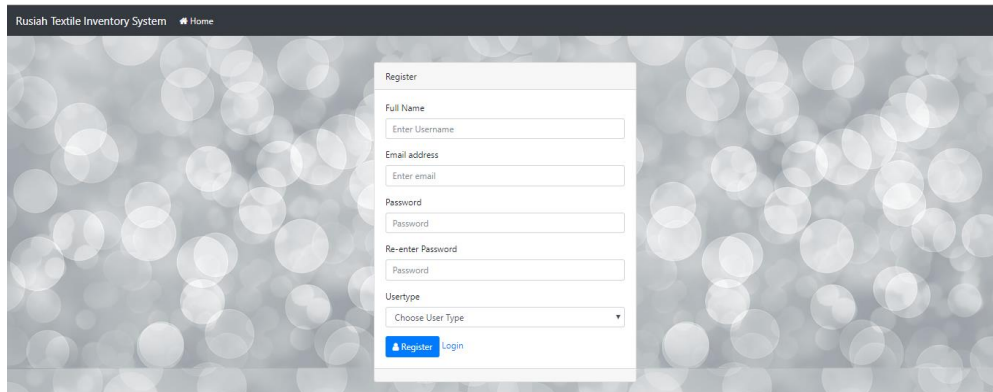


Figure 2.0: Interface Login page

Register

Figure 3.0 show register page of Rusiah extile inventory management system. In this page user have to enter necessary data in the provided form in order to avoid error.



The screenshot shows the 'Register' page of the 'Rusiah Textile Inventory System'. The page has a dark header with the system name and a 'Home' link. The main content area has a light gray background with a bokeh effect. A white registration form is centered on the page. The form includes the following fields and elements:

- Full Name:** A text input field with the placeholder 'Enter Username'.
- Email address:** A text input field with the placeholder 'Enter email'.
- Password:** A text input field with the placeholder 'Password'.
- Re-enter Password:** A text input field with the placeholder 'Password'.
- User type:** A dropdown menu with the placeholder 'Choose User Type'.
- Buttons:** Two buttons at the bottom: a blue 'Register' button with a small icon and a 'Login' button.

Figure 3.0: Interface Register page

Dashboard

Figure 4.0 show Dashboard page of Rusiah Textile inventory management system. In this page user can view the overall system.

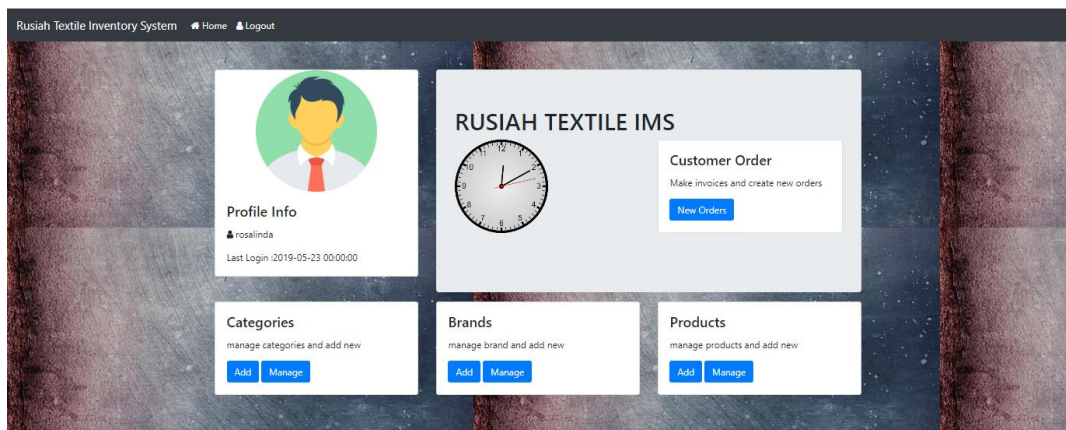
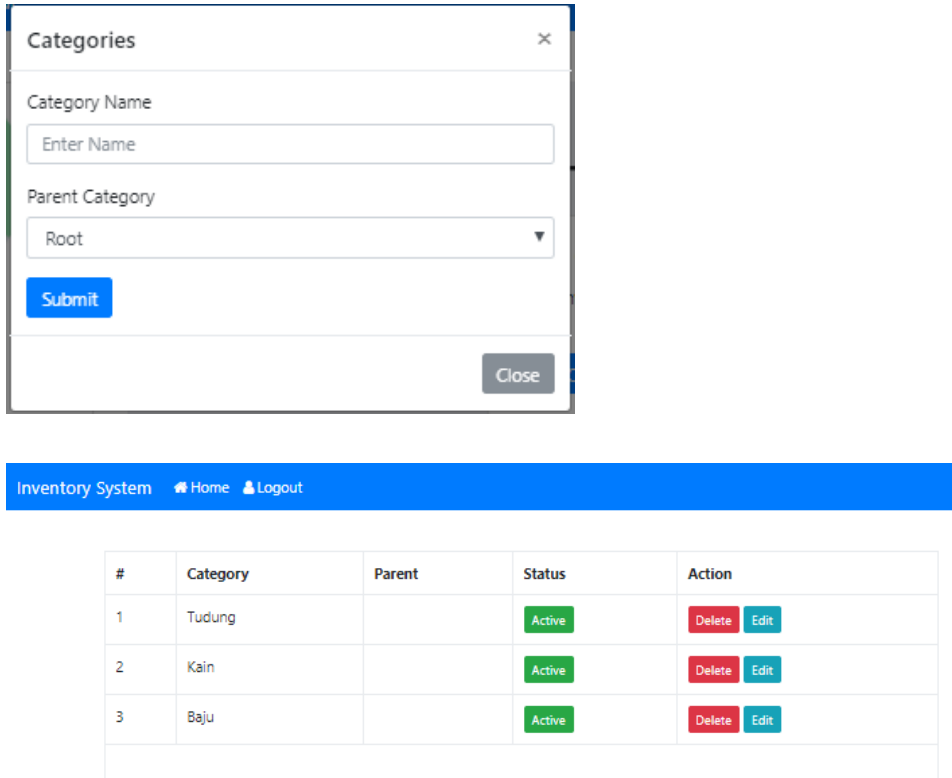


Figure 4.0: Interface Dashboard page

Categories

Figure 5.0 show categories form and details need to fill up and also display the view of manage categories of Rusiah textile inventory management system. In this page user can view the system.



The screenshot displays the 'Categories' management interface. At the top, there is a modal form titled 'Categories' with a close button. The form contains two input fields: 'Category Name' with a placeholder 'Enter Name' and 'Parent Category' with a dropdown menu currently set to 'Root'. Below these fields are 'Submit' and 'Close' buttons. Below the form is a blue navigation bar with 'Inventory System', 'Home', and 'Logout' links. The main content area features a table with the following data:

#	Category	Parent	Status	Action
1	Tudung		Active	Delete Edit
2	Kain		Active	Delete Edit
3	Baju		Active	Delete Edit

Figure 5.0: Interface Categories

Brand

Figure 6.0 show form that need to be fill in in order to add new brand and also display the view of manage brand of Rusiah Textile inventory management system. In this page user can view the system.

The image shows a web interface for managing brands. At the top, there is a blue navigation bar with the text 'Inventory System' and links for 'Home' and 'Logout'. Below the navigation bar, there are two main components: a modal form for adding a new brand and a table for managing existing brands.

The 'Add New Brand' modal form has a title bar with a close button. It contains a label 'Brand Name' above a text input field with the placeholder text 'Enter Brand Name'. Below the input field is a blue 'Add' button. At the bottom right of the modal is a grey 'Close' button.

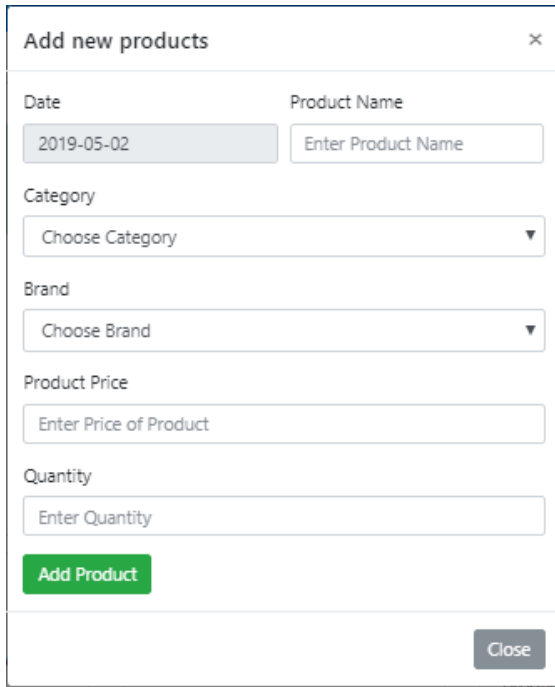
Below the modal form is a table with the following data:

#	Brand	Status	Action
1	Airis	Active	Delete Edit
2	Valentino	Active	Delete Edit

Figure 6.0: Interface Brand

Product

Figure 7.0 show new product form and manage products page of Rusiaah textile inventory management system. In this page user can view the system.



The screenshot shows a modal window titled "Add new products" with a close button (X) in the top right corner. The form contains the following fields and controls:

- Date:** A text input field containing "2019-05-02".
- Product Name:** A text input field with the placeholder "Enter Product Name".
- Category:** A dropdown menu with the selected option "Choose Category".
- Brand:** A dropdown menu with the selected option "Choose Brand".
- Product Price:** A text input field with the placeholder "Enter Price of Product".
- Quantity:** A text input field with the placeholder "Enter Quantity".
- Buttons:** A green "Add Product" button and a grey "Close" button.

Inventory System [Home](#) [Logout](#)

#	Product	Category	Brand	Price	Stock	Added Date	Status	Action
1	Bawal	Tudung	Airis	10	86	2019-04-29	Active	Delete Edit
2	4D Digital	Kain	Valentino	50	17	2019-04-29	Active	Delete Edit

Figure 7.0: Interface products

4.0 SYSTEM DESIGN APPROVAL

	Name	Date
<p>Authenticated by:</p> <p>_____</p> <p>Developer</p>		
<p>Approved by:</p> <p>_____</p> <p>Client</p>		

APPENDIX C

GANTT

CHART

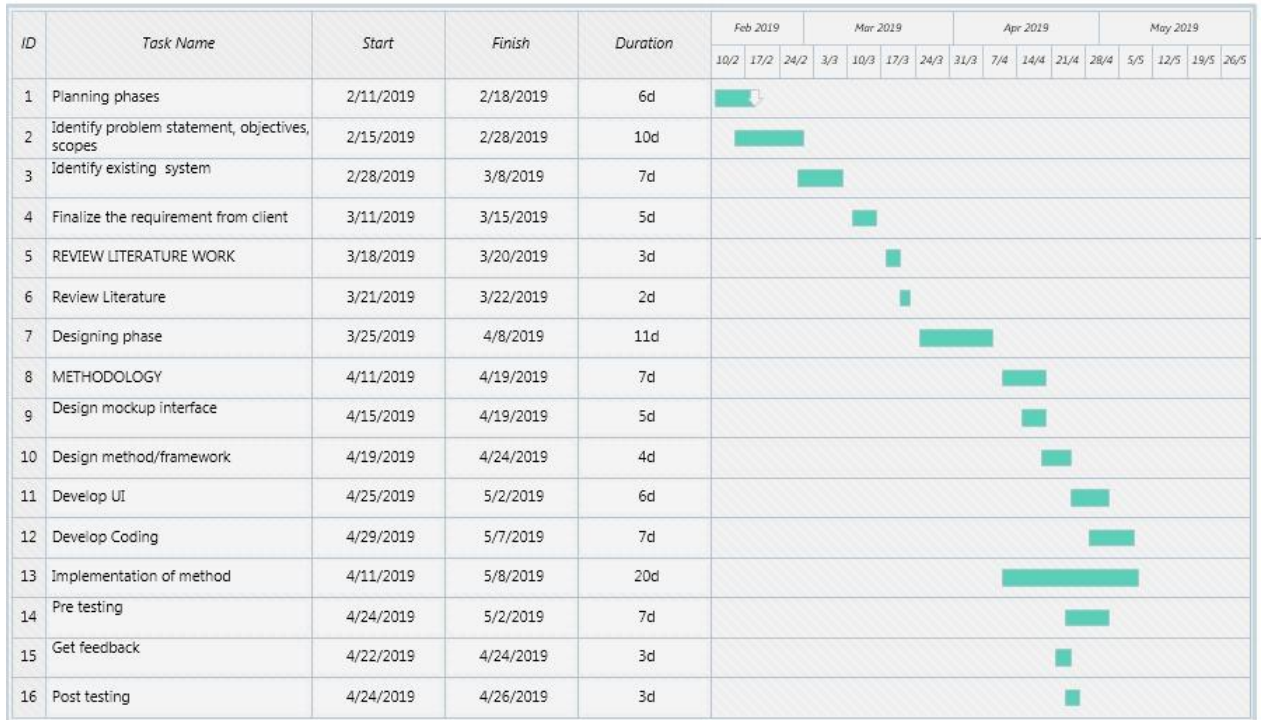


FIGURE 1: GANTT CHART

APPENDIX D



RUSIAH TEXTILE INVENTORY MANAGEMENT
SYSTEM (RTIMS)

Faculty Computer Systems & Software
Engineering (FSKKP)

USERACCEPTANCE

TEST(UAT)

Table of Contents

1.0	TESTING REPORT	1
2.0	SYSTEM TESTING APPROVAL	2

1.0 TESTING REPORT

The purpose of this section is to outline the User Acceptance Testing (UAT) process for the system. Approval of this testing implies that reviewers are confident that following the execution of the test plan, the resulting system will be considered fully- tested and eligible for implementation.

2.0 SYSTEM TESTING APPROVAL

	Name	Date
<p>Authenticated by:</p> <p>_____</p> <p>Developer</p>		
<p>Approved by:</p> <p>_____</p> <p>Client</p>		

APPENDIX E



**RUSIAH TEXTILE INVENTORY MANAGEMENT
SYSTEM (RTIMS)**

Faculty Computer Systems & Software
Engineering (FSKKP)

USER Manual

Table of Contents

1.0 GENERAL INFORMATION

1.1 System overview

2.0 GETTING STARTED

2.1 Opening the system

2.2 Registering /logging in

2.3 View dashboard

1.0 General Information

1.1 System Overview

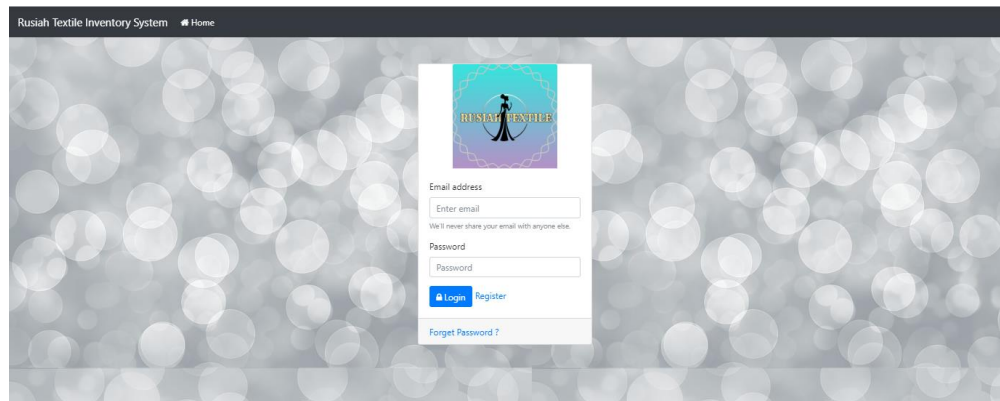
- Rusiah Textile Inventory Management system is a website that main build in order to help the small medium size company to ensure the management smooth and systematic.
- Register or login into Rusiah Textile Inventory Management System
- View dashboard
- Add the necessary information about the products
- Refer invoice for the more detail

2.0 Getting Started

2.1 Opening the system

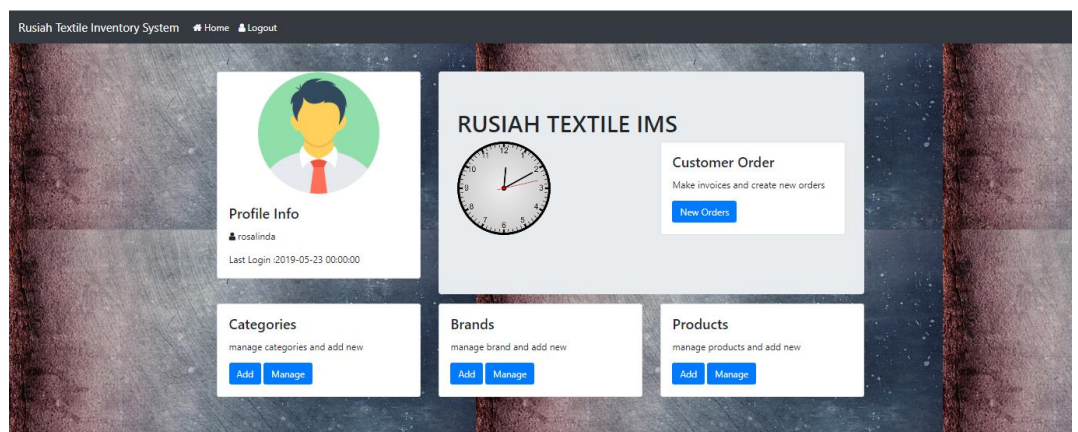
- Rusiah Textile Inventory Management System can be opened by registered user.
- If success, the user can enter the system which can display the dashboard of the system

2.2 Register/ logging in



- Once opened , any registered user can access the system. The user login by entering the email and password and will direct to the home page.
- If the user does not have an account, they can register by entering the necessary details in order to create new account.

2.3 Dashboard



- The page will display all the necessary menu in this page.

- If the user wants to add something they can choose from the dashboard