

The Bakery Management System

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Master of Science in Management Information System.

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APPROVAL

This Project titled “**Bakery Management System**”, submitted by Md Mashiur Rahman to the Department of Management Information System, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of M.Sc. in Management Information System and approved as to its style and contents. The presentation has been held on 10th January 2021.

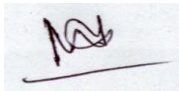
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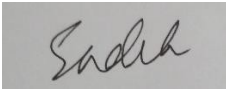
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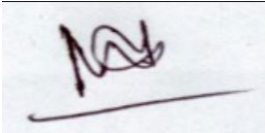
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DECLARATION

I hereby declare that, this project has been done by me under the supervision of **Dr. Md. Ismail Jabiullah, Professor, and Department of CSE** Daffodil International University.

I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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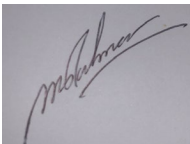
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Abstract

The **Bakery Management System** is developed to fully replace the existing traditional system and add some new convenient features. Users can track each and every raw material needed along with the quantity. It will help them to estimate the quantity of material they are using. So, no chance for misusing. They can store recipes for bakery items. It will help them to specify the quantity of raw material needed for each item. There will be standardization like: quantity per item. So, it will be easier for them to check the system and make that item.

In the traditional system there is no report generating feature as it is hand held recordkeeping system. But this new system will generate daily, weekly or monthly basis reports as preferred. It will help the company to track their sale and take measures to increase their business. They can buy raw materials or sell products according to system's result. So, no manpower will be needed in this case.

Additional feature developed for the system is "Employee's Salary". The system will also keep track of the salary of the workers. It will store how much a worker's salary is and when he/she was paid.

More or less, this system will help growing the bakery sector as it will produce accurate result.

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Chapter 1 – Introduction

1.1 Introduction

Bakery Management System is developed as a digitalized version of a traditional bakery management. Now a day's bakeries are growing along with the demand. So, if the hassle of maintaining a traditional system can be reduced, it will add a great value. Using this will ensure the stock management, prices of products, prices of raw materials, profit/loss and in addition the user will also get the employee management benefits.

1.2 Motivation

Foreign countries have plenty of sites like: leonellibakery.com, bunni cakes.com and etc. for bakery management. On the other hand, there are no well-established sites regarding bakery management in our country. So, it will be a new possibility if a well-established system is developed. Enhancing the bakery business will be the first priority of this system.

1.3 Scope Management

Main objective of this project will be ensuring a digitalized system that manages the business along with the employee. The whole bakery management can be done by maintaining the system. It will be much easier and less time consuming as calculations will be done by the computer. Users will not have to deal with the complexity of calculating everything system will do that on behalf of them. So, users will easily concentrate on their business.

1.4 The Problem

As it's discussed earlier that there is no existing site regarding bakery management, finding problems in an existing system will not be possible. So, establishing one is the main priority here. For creating an enhanced system, it is needed to be add or modify the existing foreign systems. Some problems that are found in foreign systems are:

1. Unattractive user interface.
2. Not easy to use.
3. Slow-loading.
4. Lack of information.

5. Boring.
6. Less user-friendly.
7. Complex Management.

1.5 The Solution

The bakery management system that will be developed will solve the problems (discussed in “The Problem” Section) and will add some new features. Benefits of the system are given below:

- Attractive user interface.
- Easy to use.
- Fast and Efficient.
- Balanced management.
- Optimized System.
- Web Based System.

Chapter 2 – State of The Art

In this section of the documentation, The Bakery Management System will be compared with other systems and both the advantages and disadvantages will be discussed here.

The bakery management system is developed focusing the bakery business in the country. Replacing their traditional system with the digital system is a bit challenging. As there is no existing system on the market each and every feature needs to be newly created, there is lesser option for enhancing the existing features.

There are some systems running on the foreign countries. Some of them are good and some of them are less good. So, keeping in pace with them, a versatile system needed to be developed, a system that can overtake workings as much as possible.

Some drawbacks of those systems are:

- Hard to use.
- Security.
- Database issue.
- Bad customer experience.
- Bugs.

The bakery management system is a web-based application. So, it will be a less complex to use. Users having internet connection can use this system very easily. Some features that were considered:

- **Availability:** As it is a web-based application and the business will rely on it so it needs to be available all the time.
- **User-Friendliness:** It is the most important aspects of a system. If the system is easy to use it will be accepted by all.
- **Security:** There is no use of a system if they are no secure. So, ensuring security is important.
- **Standardization:** In concern of edible items standardization play a vital role. So, it needs to be ensured.

There are a lot of foreign system on the internet. Some of them offer pretty decent features but lags in some. Some is best of its class and some ensures the users satisfaction. We are in the era of internet. So, it is easier for us to find what we need. Then, we can compare.

Some existing foreign systems:

- [GoFrugal.](#)
- [Korona.](#)
- [Wherefour.](#)
- [Mountain Stream.](#)

These are some of the software that are currently used by the foreign bakery management software. Now findings of these systems are given below.

2.1 GoFrugal

They are the provider of pos billing software that aids variety of retailers, groceries, restaurants, markets, groceries, lifestyle, pharmaceuticals, healthcare, footwear, sports, and etc. (Anon., 2020)

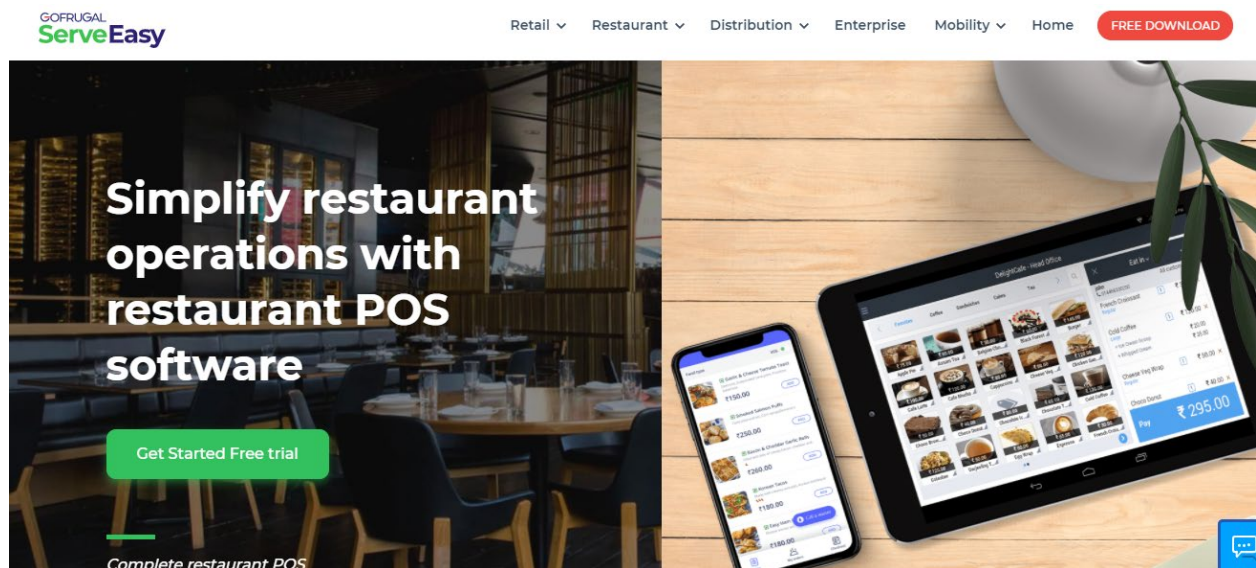


Figure: GoFrugal.

Advantages:

1. Stock management.
2. Managing recipes.
3. Ingredients and supply management.
4. Customization according to business.

Limitations:

1. Bad customer support.
2. No reward programs.
3. Bugs.
4. Account Security.

2.2 Korona

It is a cloud-based pos system that features all of the retailers. The experience can also be tailored according to the business. They support business types like, coffee shop, museum, bakeries and etc. (Anon., 2020)



Figure: Korona

Advantages:

1. Helps making decisions.
2. Detailed customization.
3. Great sales and support.
4. Easy to use.
5. Good features.

Limitations:

1. Quickbook integration problem.
2. Uncommon system.
3. Costly.
4. Difficult to configure.

2.3 Wherefour

It is a cloud-based enterprise resource planning solution developed to assist manufacturer for managing inventory, production and etc. Main purpose of wherefour is batch and recipe management, lot tracking. (Anon., 2020)



Figure: Wherefour

Advantages:

1. Easy to use.
2. Report Generation.
3. Filtered Search.
4. Easy to use.
5. Supports various platforms.

Limitations:

1. Lack of customization.
2. Need efficient scrap management.
3. Downloading data issue.

2.4 Mountain Stream

They aid bakeries by providing them with the support production, distribution, ordering, invoicing and etc. For eliminating human error this app connects technical team and customers in a single application. (Anon., 2020)



Figure: Mountain Stream.

Advantages:

1. Flexibility.
2. Great customer support.
3. Low cost.
4. Easy to use.

Limitations:

1. Difficult to use.
2. No options for customization.
3. Need smoother experience.

The aspects that are described above are needed to be covered in this project. If those limitations are overcome then this system will provide good user experience. Things that include for this are:

- User-friendly and attractive design.
- Detailed customization.
- Well planned database management.
- Ease of usage.
- Cheap pricing.
- Effective customer support.

Chapter 3 – Feasibility Study

Feasibility study is the most important part of a project as it shows how the project is technically, economically and operationally feasible enough. It helps the investors to find out that the project is worth investing or not. Many parts are included in this study. Every part describes how the resources and other important things to be put for the achievement of a successful product. It slacks the possibility of the products failure and establishes an equal distribution of the resources.

Ingredients of Feasibility Study:

- Technical feasibility.
- Operational feasibility.
- Schedule feasibility.
- Legal/Ethical feasibility.
- Economic feasibility.

3.1 Technical Feasibility:

It gives the assumptions of the capacity of the project and the technical resources that are provided along with the well-suited team for building the project.

For business solutions web application are popular nowadays. Accessing the data are much easier and it can be done from anywhere around the world. Bakery business are not done in the digital way. It is a bit challenging for them to implement a digital system. This system will use some well-compatible yet sophisticated techs which will ensure that anyone can access through the web browser and with an internet connection. When it comes to access the web, it arises the question about the security. So, it needs to be ensured. Aside from personal computer users, mobile users are rising day by day which means the system needs to be versatile. And the system needs to be platform independent. Not only pc or mobile users, every device should be supported and gets access to the information pretty easily. Required technical resources are listed below:

Hardware:

- Desktop Computer.
- Internet router.

Application:

- Development Environment - Php Storm.
- Development Language - Php.
- Front End – Html5, CSS, jQuery, JavaScript.
- Back End – Web API.
- Database – MySQL.

3.2 Operational Feasibility:

This section focuses on the project scope and whether the system blends with the business areas, aim and objectives. Bakeries following the tedious and manual process for day to day record keeping and managing their work and this process is paper-based. The new system will replace this entirely. The system will ensure automation, storing and dealing with information will be much easier as everything will be stored in centralized database. This will help distributing information and launching marketing agenda to generate effective reports. Defining a project's success, some parameters are considered: productivity, reliability, maintainability and usability. Basically, these are the focused area of a project's success.

3.3 Schedule Feasibility:

This part of feasibility determines whether the project timeline is adequate for the project and if it is properly aligned with the various parts of the project. The time duration of this project is approximately 70 days. The DSDM methodology is selected for this project along with the agile principles. By choosing DSDM, it will ensure the main requirements are developed in the first or primary stage to check the best possible software can be developed within the time duration.

3.4 Legal/Ethical Feasibility:

There are some professional standards that needs to be followed when conducting businesses. In this case, the LSEPI and BCS code needs to be followed as this is a web-based system. This is mandatory, as the system may have to handle sensitive client information. It is must to ensure that the development stages and the proposed system matches with the legal and ethical requirements earlier the project is started. Also, some changes must be done in case it contradicts with the legal issue.

3.5 Economic Feasibility:

This feasibility study is the most significant one in the section. Economic feasibility determines the financial assets or resources needed to aid the project. If the project exceeds the budget or the boundary then there might be a chance of not completing the project. This study also determines the financial benefits that can be earned by the system. So, it helps the investors to go through and decide whether to invest in this project. The project will fail if the company faces a financial niche. The advanced part of the economic feasibility is cost-benefit analysis, where each and every budget is broken down in details. Approx. cost of some essential components that will help us provide an of the cost.

Hardware Cost:

Serial	i	ii
Hardware Name	Desktop	Internet Router
Quantity	1	1
Net Cost (BDT)	50,000/-	4000/-
Total Cost (BDT)	50,000/-	4000/-
Total	54,000/-	

Table: Hardware Cost.

Software Cost:

Serial	i	ii	iii
Software Name	Xampp	Php Storm	Other Software
Quantity	1	1	N/A
Net Cost (BDT)	Free	16,878/-	Free
Total Cost (BDT)	Free	16,878/-	Free
Total	16,878/-		

Table: Software Cost.**Hosting Cost:**

Serial	i	ii
Service	Hosting	Domain
Package	Business	-
Rent Per Year (BDT)	18,000/-	2000/-
Total	20,000/-	

Table: Hosting cost.**Other Costs:**

Serial	i	ii
Service	Internet	Electricity
Rent Per Year (BDT)	24,000/-	35,000/-
Total	59,000/-	

Table: Other Costs.

3.6 Cost Benefit Analysis

Cost benefit analysis is the must have item for and proposed business system. It helps to clear the idea of ROI (Return Over Investment). This is just a simple procedure of the benefits against the expenditure for the capital. Details analysis are given below:

Serial	Service Cost	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
i	Hardware	54,000/-	-	-	-	-
ii	Software	16,878/-	-	-	-	-
iii	Hosting	20,000/-	18,000/-	18,000/-	18,000/-	18,000/-
iv	Internet	24,000/-	24,000/-	24,000/-	24,000/-	24,000/-
v	Electricity	35,000/-	37,000/-	39,000/-	41,000/-	43,000/-
vi	Salary	45,000/-	30,000/-	30,000/-	30,000/-	30,000/-
vii	Training	6000/-	-	-	-	-
viii	Maintenance	N/A	5000/-	6000/-	7000/-	8000/-
ix	Devices	80,000/-	50,000/-	-	-	-
x	Rent	1,50,000/-	1,55,000/-	1,60,000/-	1,65,000/-	1,70,000/-
xi	Tax	10,000/-	25,000/-	45,000/-	60,000/-	75,000/-
xii	Others	20,000/-	10,000/-	5000/-	3500/-	2000/-
Total		4,60,878/-	3,54,000/-	3,27,000/-	3,48,500/-	3,70,000/-

Table: Costings (All Represented in BDT)

3.7 General Profit Structure:

As a bakery management system, the main goal is organizing the products, managing inventory, storing recipe, pricings, revenue and etc. So, for earning revenue they sell edible

products such as, cake, muffins, donuts, cookies and all that. After implementing the system, they will achieve great advantage. They will not generate direct profit by selling through this system as there is no feature regarding online selling. The benefits they will get are:

- **Eliminate misuse of raw material:** As every detail and amount of raw material will be listed in the system so there will be no misuse of materials.
- **Maintaining quality:** Making perfect food requires perfect mixture of ingredients. This will be ensured as the system will store recipes.
- **Reduction of operational cost:** Operational cost will reduce as the system will handle this smoothly.
- **Increased Productivity:** Automated system increases productivity as there is no chance of human error.
- **Reports:** Sales, profit/loss, growth of company and many other reports can be generated as all data will be stored in the system.
- **Selling Information:** Each and every sales information will be stored by products, quantity, and buyer.

By summarizing the above section, it can be said that the bakery will not directly generate profit by selling products via the system. But in the long run the company will be benefited from those points described above.

Chapter 4 – Requirement Analysis

4.1 introduction

This chapter contains the details discussion about the requirement analysis. Basically, this is the study about the user expectations and system functionalities of the proposed system. The different software requirements gathering, analysis and prioritizing techniques will be discussed in this chapter.

4.2 Information Gathering Techniques

The first step of requirement analysis is information gathering. Information helps to identify the problems associated with the current solution. There are some standard information gathering techniques frequently used for this purpose. For this project **Interview, Questionaries, and Observation** techniques were used for gathering information.

4.2.1 Interview

For the purpose of gathering required information about the bakery I have interviewed the various persons about their responsibilities and expectation about the new system. I have interviewed the owner, manager, supervisor, and some staffs. Owner is interviewed to know the root level of the workforce of the company, manager and supervisor were interviewed to know how the company operate its operations. Staffs were interviewed to know how actually production in the company made.

4.2.2 Questionaries

- What are the responsibilities of different roles?
- How to determine which elements need to make an item in bakery.
- How standard is maintained in baking process.
- How purchase is made off?
- What is the salary structure for the employees? Etc.

4.2.3 Observation

One of the most powerful tools for gathering fruitful information about the user expectation is observation. For this project some points to observe are:

- Observe the daily activities of the employees.
- Observe the various physical operations like purchasing, production, employee management, selling etc. processes.
- Observing the manual records and files for finding patterns, relationships and reduce the redundancy.

4.3 Software Requirement Specification (SRS)

This section contains the detailed information about the objective and environment of the development process. This chapter will cover some areas like, specific problem area identification, possible solution and overall requirements List.

4.3.1 Specific Problem Area Identification

During the information gathering some problem areas of the manual system were identified, which are-

- No computer based automated system for the bakery.
- No standard enforcement system for production.
- Don't have any employee scheduling or salary structure.
- No centralized purchase department.
- Manual way for calculating reports.

4.3.2 Possible Solutions

- A new web-based bakery management system.
- Incorporating the scheduling and salary structure for the company.
- Developed automation for enforcing of the maintaining of the standard

4.3.3 Overall Requirements List

The final overall requirements are divided into two different list.

Functional Requirements

- System user manipulation.
- Employee manipulation and salary structure implementation.
- Various expenses manipulation system.
- Production standards maintaining system.
- Product processing management system.
- Selling manipulation and tracking.
- Product and Elements stock management system.

Non-Functional Requirements

- Ease of use and user friendliness.
- Strong data and system backup.
- Eye catchy User interface design.
- Secure authentication.
- Information security and privacy.
- Input validation.

4. 4 Use Case Diagram

Use case diagram used for visualizing the system functionalities to the developer. It provides the inside view of the system.

4.4.1 Use case Legends

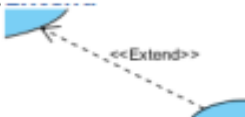
Name	Icon
Use Case	
Association	
Actor	
System	
Include	
Extend	
Dependency	

Figure: Use Case Legends

4.4.2 Diagram

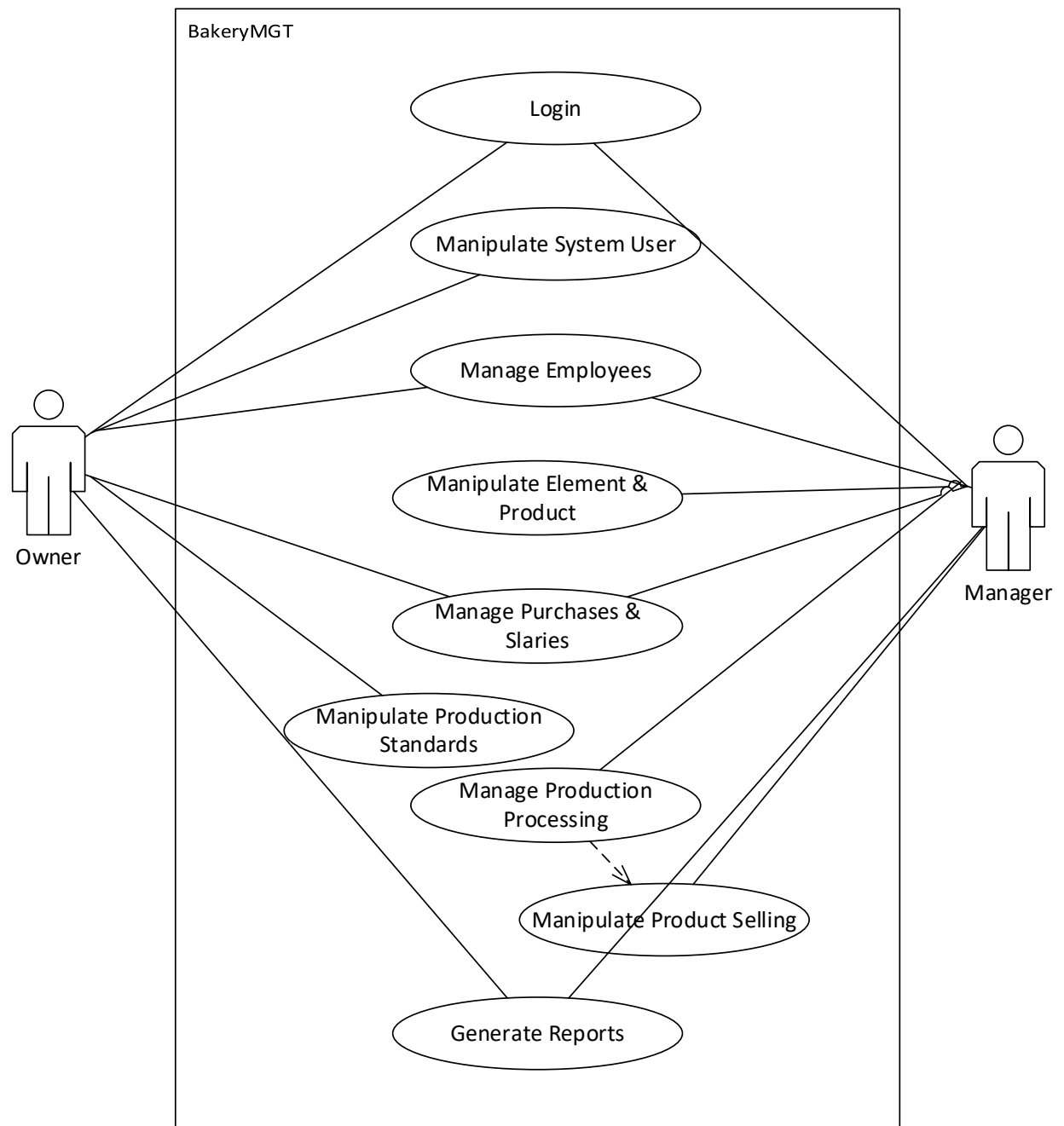


Figure: BakeryMGT Use Case Diagram

4.4.3 Use Case Description

Use Case Id	UC1
Use Case Name	Login
Primary Actor	Owner, Manager
Secondary Actor	
Dependency	
Pre-condition	User must Exist in the system database.
Success Scenario	1. User go to the website using URL and redirect to login page. 2. Input the required authentic credential (email, password) 3. The system will validate inputs. 4. If inputs are valid then the authentication system incorporated. 5. If inputs are invalid user will be redirected to the login form and ask for valid email address. 6. If given credential does not match with any stored credential user will be shown an error message.
Post Condition	A successful message will be shown.

Use Case Id	UC2
Use Case Name	Manipulating System User
Primary Actor	Owner
Secondary Actor	

Dependency	
Pre-condition	User must be logged in as owner
Success Scenario	1. Owner clicked on the add new system user menu. 2. Provide all required information and press create button. 3. Inputted data will be validated. 4. If any invalid input found redirected to previous page with error message. 5. If inputs are valid then new user will be created and stored into the system.
Post Condition	A message will be shown and newly created user will be listed in system users list.

Use Case Id	UC3
Use Case Name	Manage Product and or element.
Primary Actor	Manager
Secondary Actor	Owner
Dependency	
Pre-condition	User need to logged in as owner or manager.
Success Scenario	1. Clicked on the product or elements menu & provide required information. 2. If all inputs are valid then new product or element created. 3. For invalid entry error message will be displayed.
Post Condition	Newly created product/element will be shown in the list.

Use Case Id	UC4
Use Case Name	Manage Production Standard
Primary Actor	Owner
Secondary Actor	Manager
Dependency	Product, Element
Pre-condition	User need to logged in as owner and Product and relevant elements must be in system.
Success Scenario	1. Clicked on the production standard and chose a product. 2. Input all elements standard weight per kg for producing the selected product. 3. System will validate the credential and if invalid appropriate message will be shown. 4. For valid input all standards will be stored successfully.
Post Condition	Success message will be shown and production processing will be based on that.

Use Case Id	UC5
Use Case Name	Manage Reports
Primary Actor	Owner, Manager
Secondary Actor	
Dependency	Employee, salary, product, elements, purchase
Pre-condition	All required data needs to be loaded.

Success Scenario	1. Clicked on the generate report and select daily or monthly report. 2. If daily report selected then select date and report type and click on the button. 3. Input will be validated by the system and requested if valid then requested report will be generated and displayed. 4. If monthly report is selected then user need to select for which month and which year, they want to generate the report. 5. After submitting the request will validated and if everything is fine the system will calculate necessary calculation and generate the requested report.
Post Condition	For every successful report generation request, requested report will be displayed to the user.

4.5 Entity Relationship Diagram (ERD)

Entity relationship Diagram is a diagrammatic representation or relationship between database entities. It describes what data fields are in each entity and how each entity related with other entities. An ER diagram illustrate the meta data of a relational database.

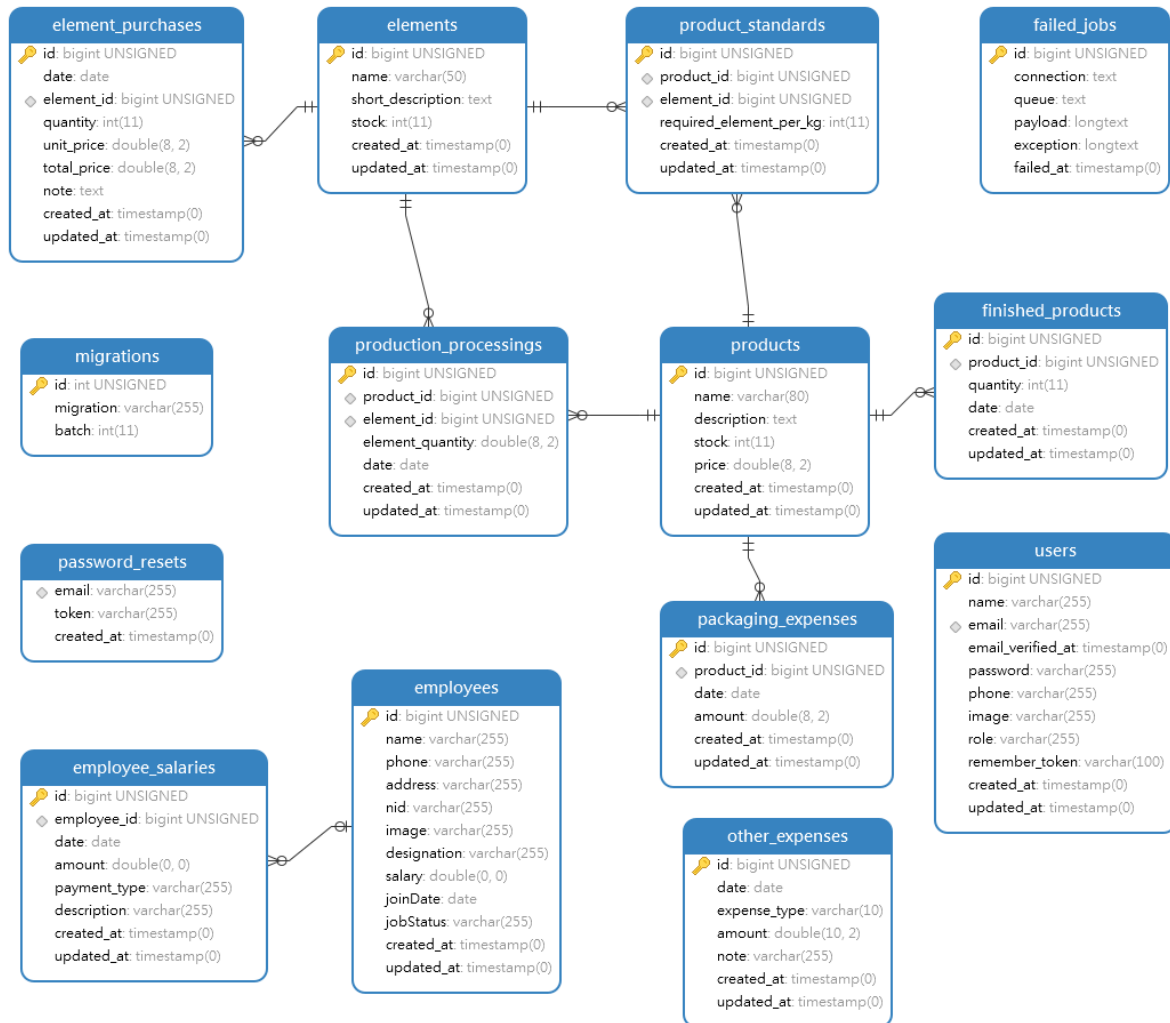


Figure: ER Diagram

4.6 Flow Chart

A flow chart is used to represent system workflow, or process flow. Rectangle used for defining processes, diamond shape used for representing logical expression, arrow used for representing data and process flow.

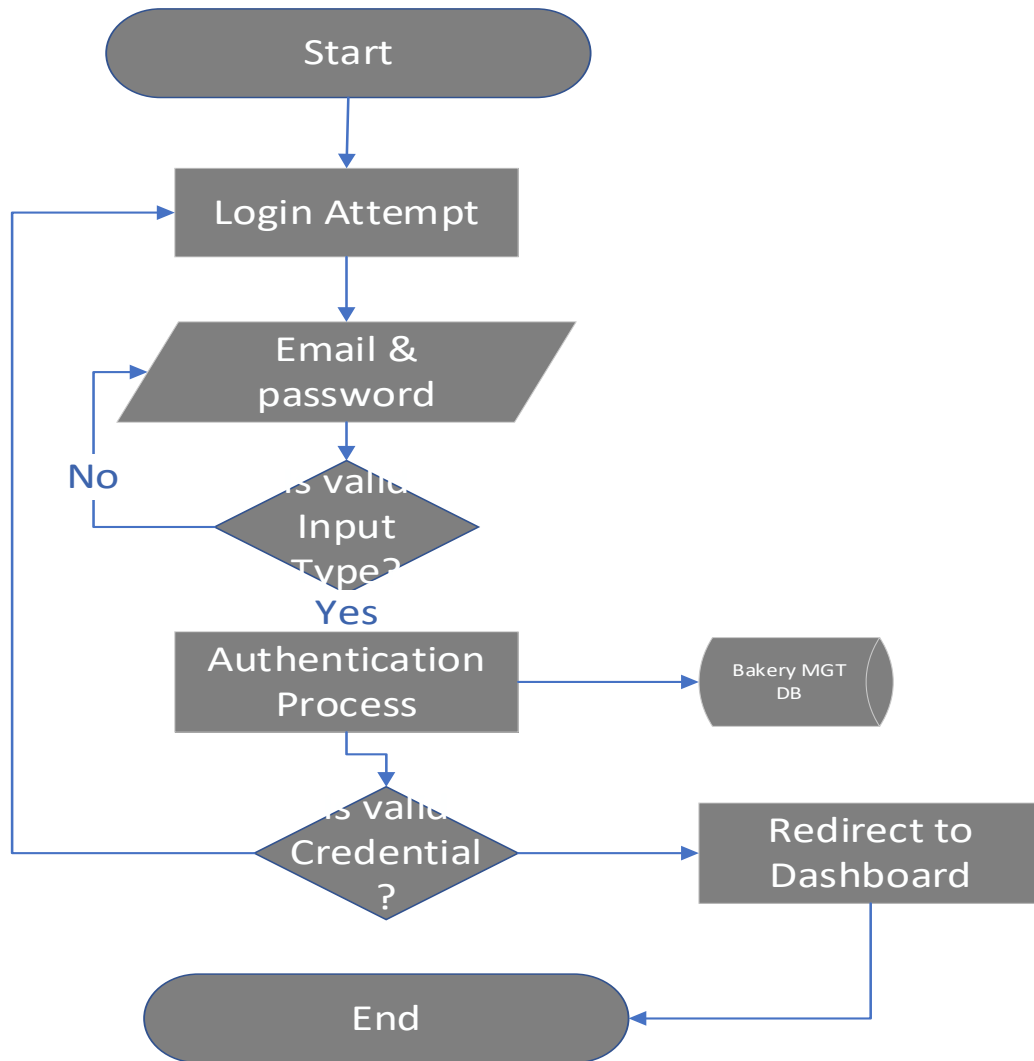


Figure: Flow chart for login process.

4.7 Class Diagram:

Class diagram illustrate the data and operation of each class and also describe the relationship between classes. The class diagram for the bakery management system is given below:

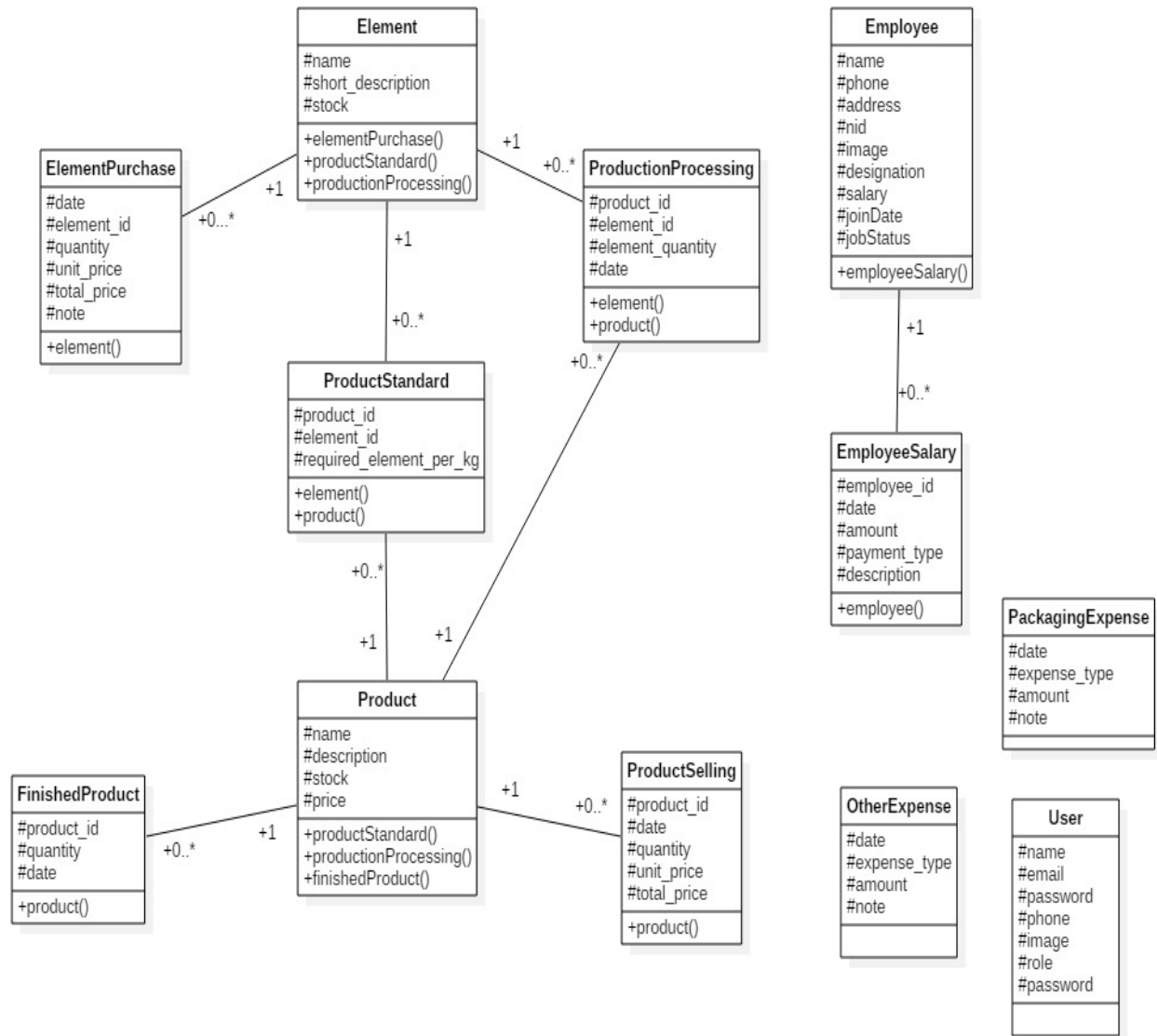


Figure: Class Diagram of Bakery MGT

Chapter 5 – Technology Used

5.1 Introduction:

This project is developed on web technology. Web based systems are mainly client-server-based solution. To implement the solution, I have used various programming and scripting languages. For the front-end development I have used HTML5, CSS3, Bootstrap 4, JavaScript, jQuery and material design elements. On the other hand, for server-side scripting, I have used the Laravel 7.10 which is a framework of PHP, and also used the ajax, json for on page data transmission. For database support I have used MySQL because it is free, easy to use and incorporative with PHP and Laravel.

5.2 Why web technology?

I have developed the system using web technology because, it is most popular, cost effective, 24/7 availability, no installation need for use and many other reasons.

5.3 Why PHP & Laravel?

5.3.1 Why PHP?

PHP is the most common and traditional server-side scripting language mainly used for server-side scripting, command line scripting and also for desktop application writing as well as it is able to do form data collection, maintain browser cookies, use dynamic contents in pages (Php.net, 2020). According Angela Bradley, php should be used because it is,

- Have interactive features.
- Learnability.
- Front-end friendly (like html).
- Free and open source programming language.
- A wide range of database language support.
- Top-notch Online documentation.

(Bradley, 2020)

5.3.2 Why Laravel

Laravel is the most used PHP framework by the web developers. I Have chosen this framework for some reasons which are:

- Its ready features which are quick to implement and also scalable.
- Easy and strong routing feature.
- Easy and effective and secure Object Relationship Mapper technology.
- Largely available third-party libraries and packages.
- Ready secure authentication tools.
- Supports testing and background jobs with queue.

(Rytov, 2015)

5.3.3 Why MySQL?

I have selected MySQL as database language because of its computability with the chosen server-side programming language and some other reasons are-

- It is free and open source.
- Supported by both php and Laravel.
- It based on the Structured Query Language.
- Have great community support.

5.3.4 Why Apache?

Apache web server is used for implementing the system. I have used it because –

- Opensource and free of cost and licensing.
- Editable features of apache webserver project.
- Easy installation process.
- Huge community support if you get stacked.
- It uses virtual host to run the web applications.
- Easy, effective and detailed online documentation as well as always ready technical support team.

for the above-mentioned reasons, I have used the mentioned technologies to implement my project Bakery MGT.

6 - User Manual

6.1 Introduction:

User manual helps user to understand the system. Through the user-manual, users able to understand the usage of the system. In this section I represent the graphical view of the system. User manual is the primary user guide and training for the system users. In this section I will demonstrate the details user manual on how to use the new system.

6.2 Application required:

Firefox 70.0.1+, Internet Explorer 7.0+, Safari 1.0+, Google Chrome, Microsoft Edge or Opera mini web browser.

6.3 Hardware Required:

Platform: Windows 7 or higher, Mac OS X 10.3 or higher

Processor: Core i3 or latest, Ryzen 3 or latest version and or Mackintosh MC6800 or greater.

RAM: 2 GB or Higher.

6.4 User manual

1. User Login

User need to provide valid login credential to enter the website.

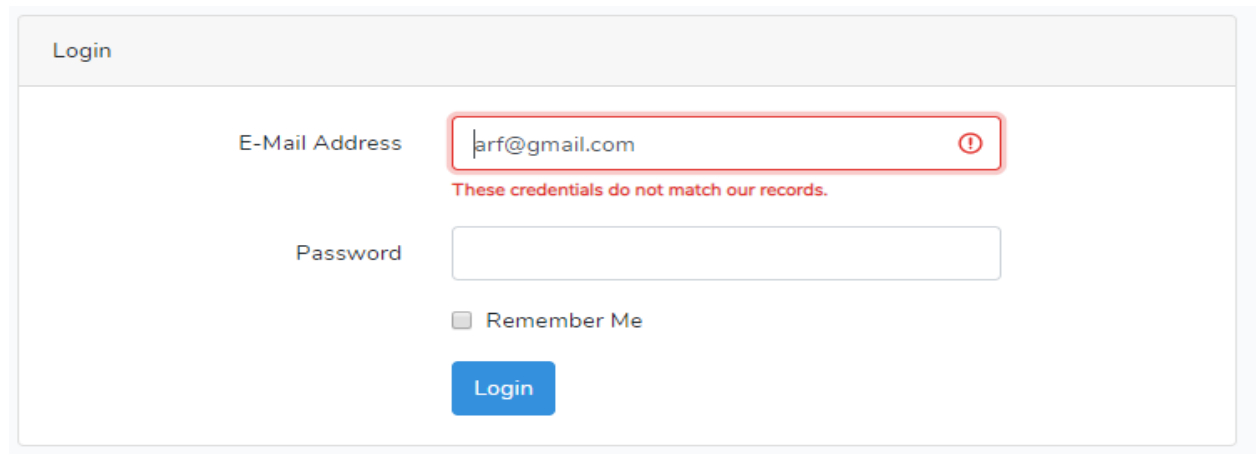
A screenshot of a web application's login page. The page has a light gray header with the word "Login" in a small, dark font. Below the header, the form is white. It contains two main input fields: "E-Mail Address" and "Password". The "E-Mail Address" field contains the text "arf@gmail.com" and is highlighted with a red border and a red information icon (i) in the top right corner. Below this field, a red error message reads "These credentials do not match our records." The "Password" field is empty. Below the password field is a checkbox labeled "Remember Me". At the bottom of the form is a blue button with the text "Login" in white.

Figure: User Login

2. System Dashboard/ Home Page

This is the dashboard of the new system. User can navigate to their necessary page from here. It is the site home.

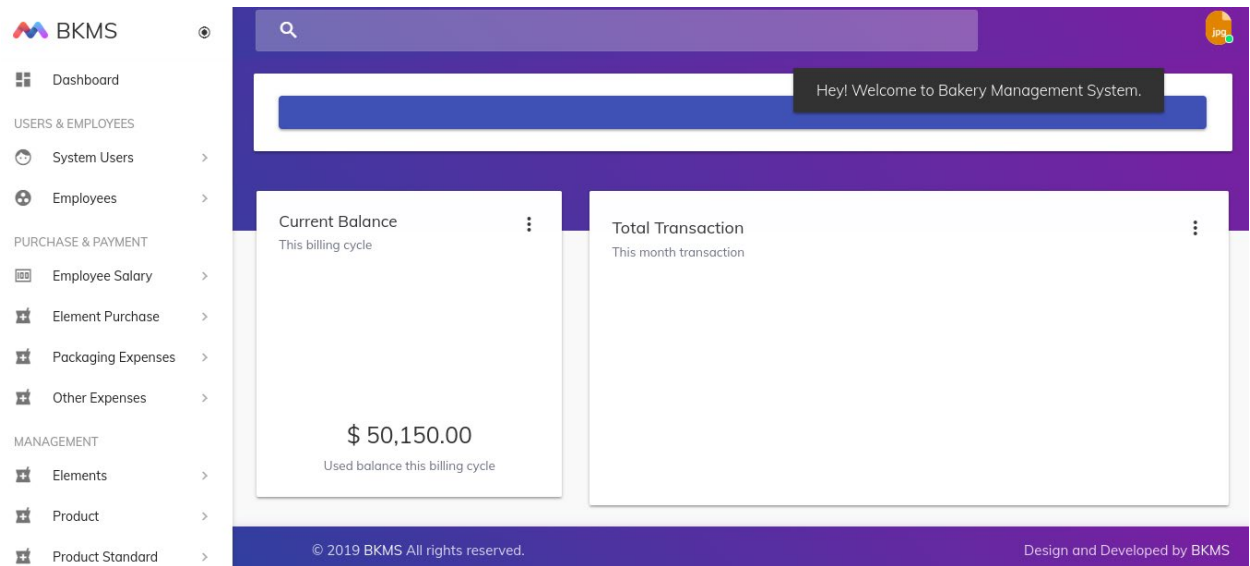


Figure: System Home

3. Add new user into system

This form is used for adding a new user to the system and define his/her role/.

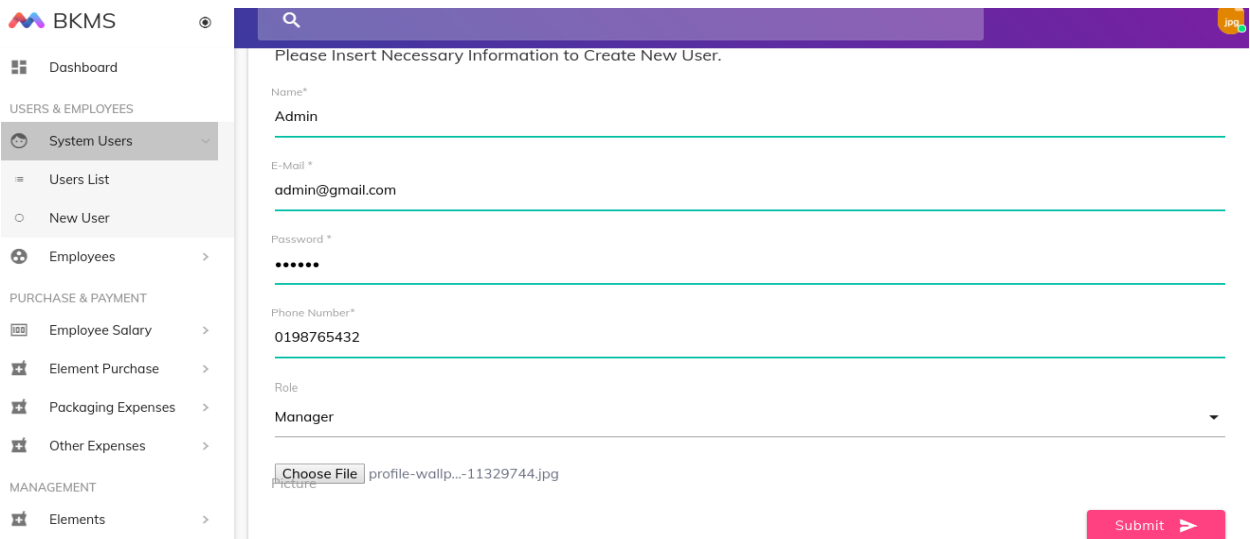
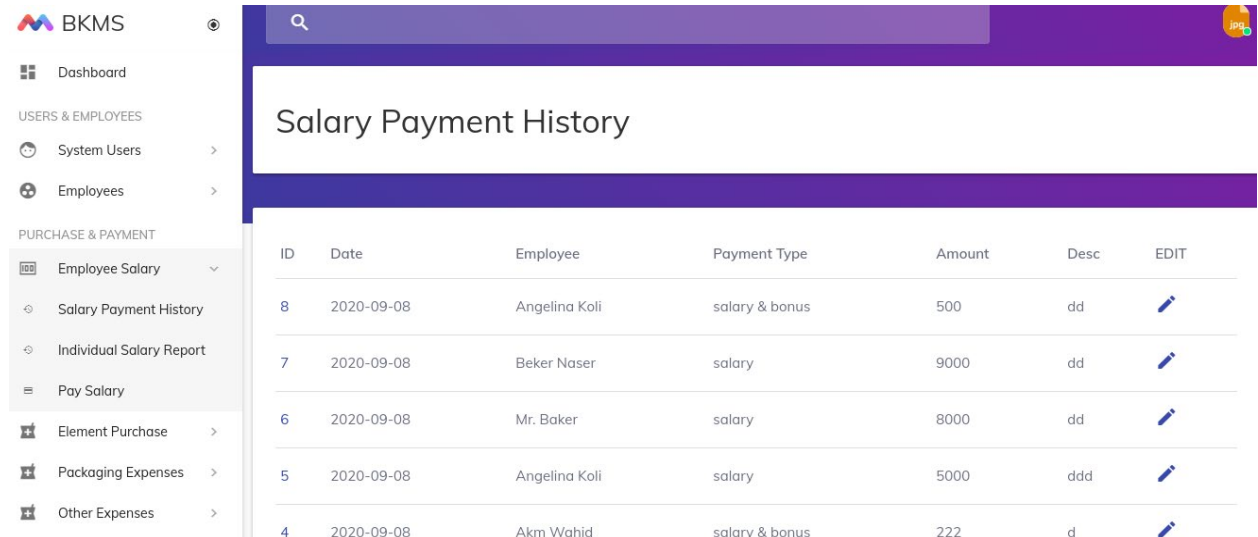


Figure: Add new user

4. View given Salary History

Here the user can see the latest salary and allowance given to the employees of the company.

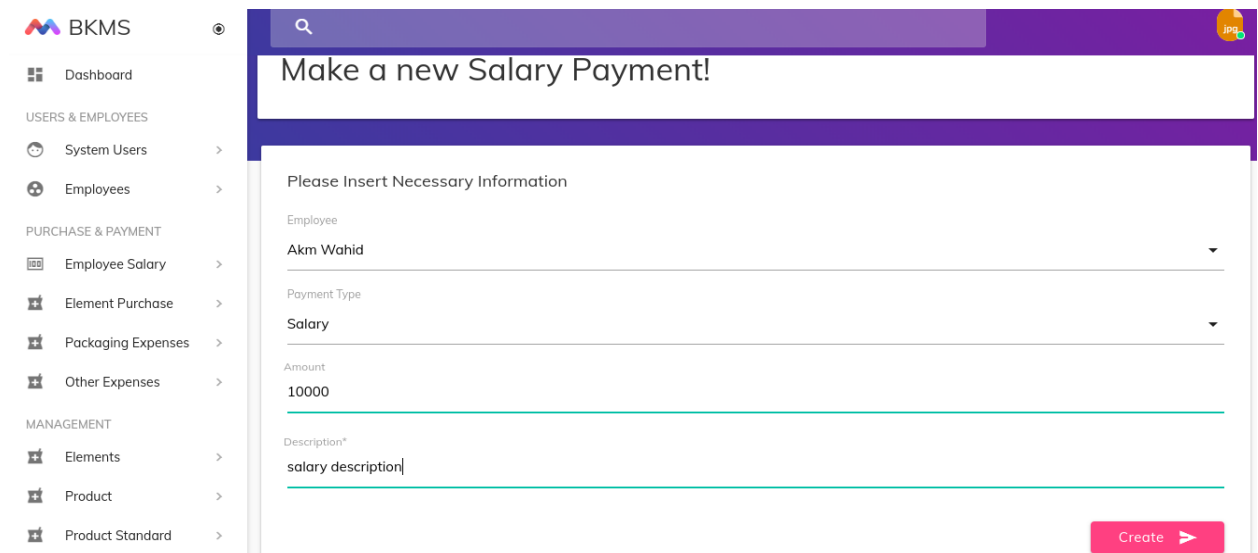


ID	Date	Employee	Payment Type	Amount	Desc	EDIT
8	2020-09-08	Angelina Koli	salary & bonus	500	dd	
7	2020-09-08	Beker Naser	salary	9000	dd	
6	2020-09-08	Mr. Baker	salary	8000	dd	
5	2020-09-08	Angelina Koli	salary	5000	ddd	
4	2020-09-08	Akm Wahid	salary & bonus	222	d	

Figure: View Salary history

5. Make New Salary

User can input new salary payment information to the system.



Make a new Salary Payment!

Please Insert Necessary Information

Employee
Akm Wahid

Payment Type
Salary

Amount
10000

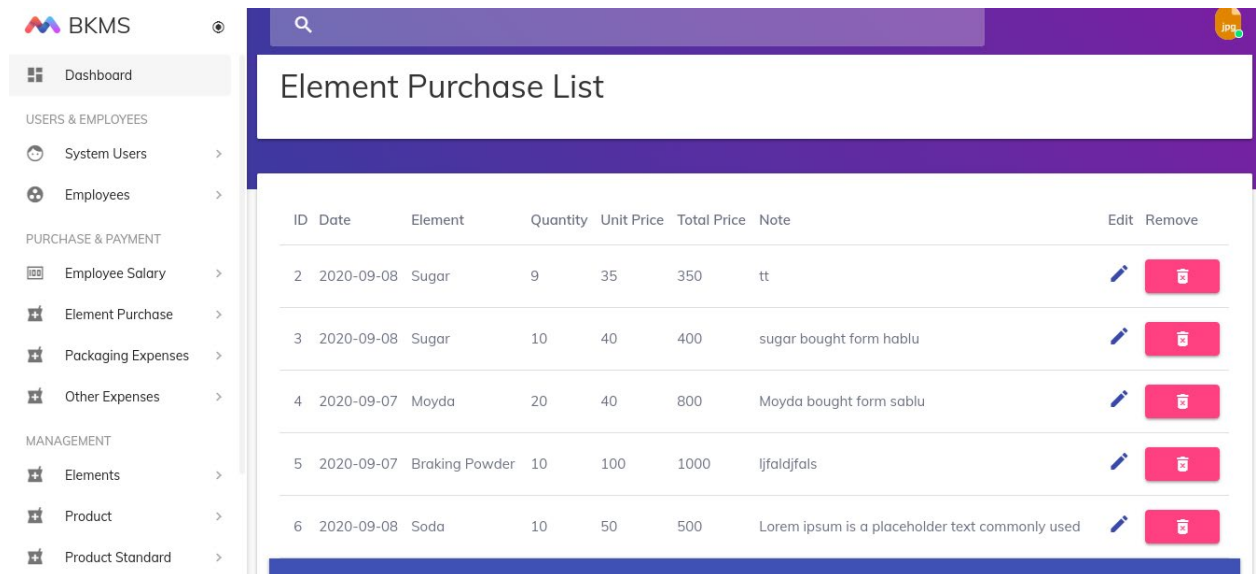
Description*
salary description

Create

Figure: Make new salary

6. Element purchase List

User can find the purchase history of the company here.

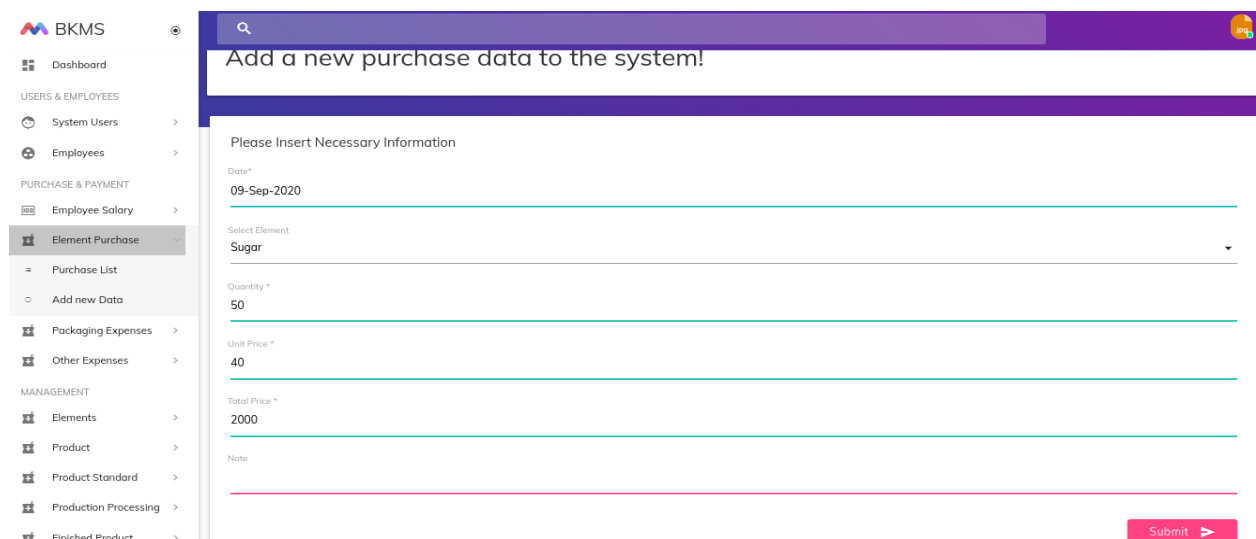


ID	Date	Element	Quantity	Unit Price	Total Price	Note	Edit	Remove
2	2020-09-08	Sugar	9	35	350	tt		
3	2020-09-08	Sugar	10	40	400	sugar bought form hablu		
4	2020-09-07	Moyda	20	40	800	Moyda bought form sablu		
5	2020-09-07	Braking Powder	10	100	1000	ljfaldjfal		
6	2020-09-08	Soda	10	50	500	Lorem ipsum is a placeholder text commonly used		

Figure: Element purchase list

7. Add new element purchase

This form is used for entering new purchase records for elemetns.



Add a new purchase data to the system!

Please Insert Necessary Information

Date*
09-Sep-2020

Select Element
Sugar

Quantity *
50

Unit Price *
40

Total Price *
2000

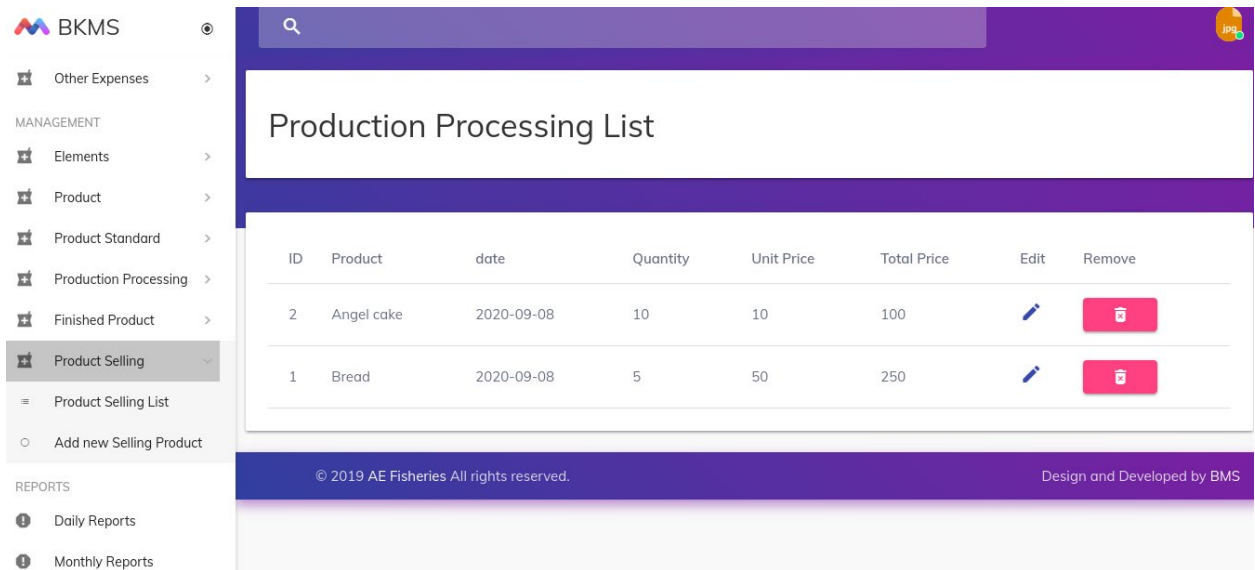
Note

Submit

Figure: new element purchase form

8. Product selling list

This list provides the selling history of the bakery. Owner can check the selling details of products here.



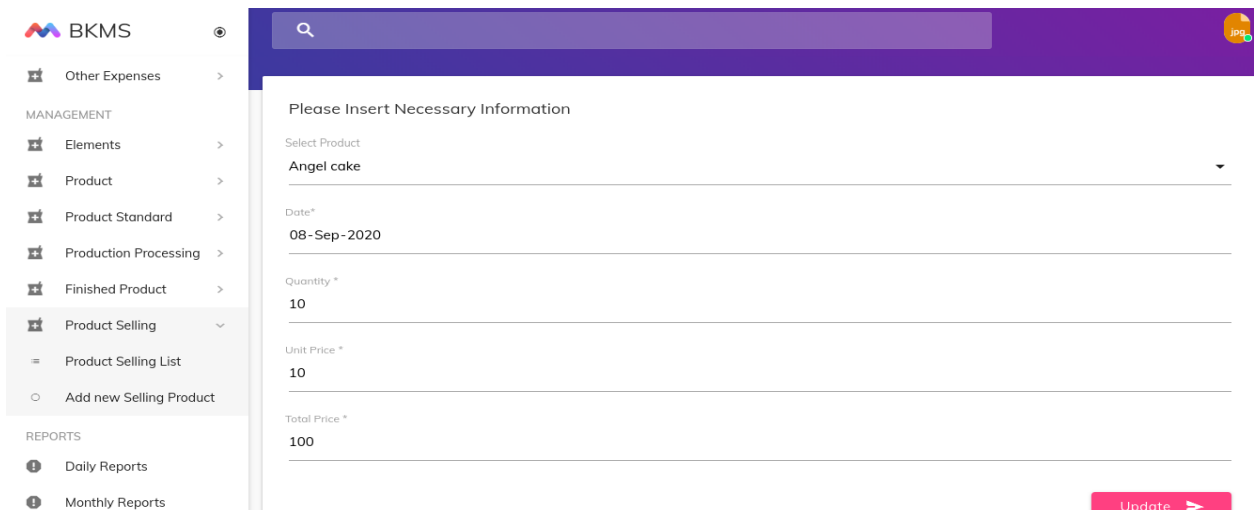
ID	Product	date	Quantity	Unit Price	Total Price	Edit	Remove
2	Angel cake	2020-09-08	10	10	100		
1	Bread	2020-09-08	5	50	250		

© 2019 AE Fisheries All rights reserved. Design and Developed by BMS

Figure: Product selling list

9. Product selling record Update

If any modification is required for a selling entry user can update it on here.



Please Insert Necessary Information

Select Product
Angel cake

Date*
08-Sep-2020

Quantity *
10

Unit Price *
10

Total Price *
100

Update

Figure: Product selling update form

10. Daily report home page

This page helps user to generate various daily reports of the bakery by selecting a date and report type to generate.

Figure: Daily report home page

11. Daily report – summary

This is the summary of the daily activities of the company.

Today's Expenses	
Salary & Allowance Expense:	₹32722
Purchasing Expense:	₹3500
Other Expenses:	₹23000
Packaging Expenses:	₹26000
Total Daily Expense:	₹85222

Total Daily Product Selling	
Total Sales:	₹350

Figure: Daily report – summary

12. Daily expense report

In this page user can view the daily expense report, like daily salary & allowance expense, purchase expense, packaging expense and other expenses.

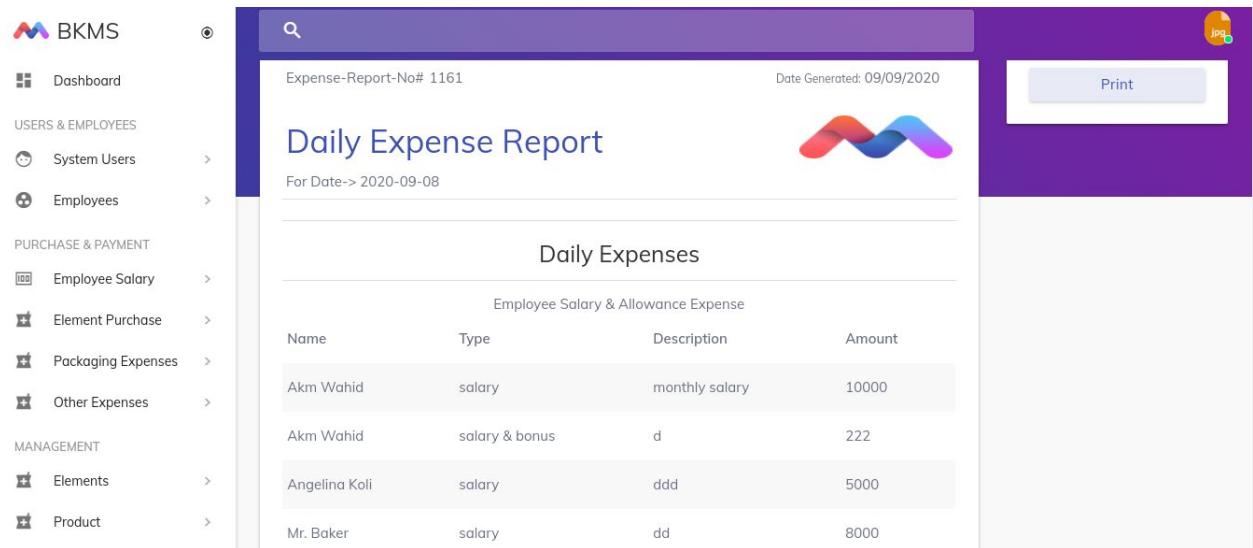


Figure: Daily expense report

13. Daily sales report

This report contains the daily selling history.

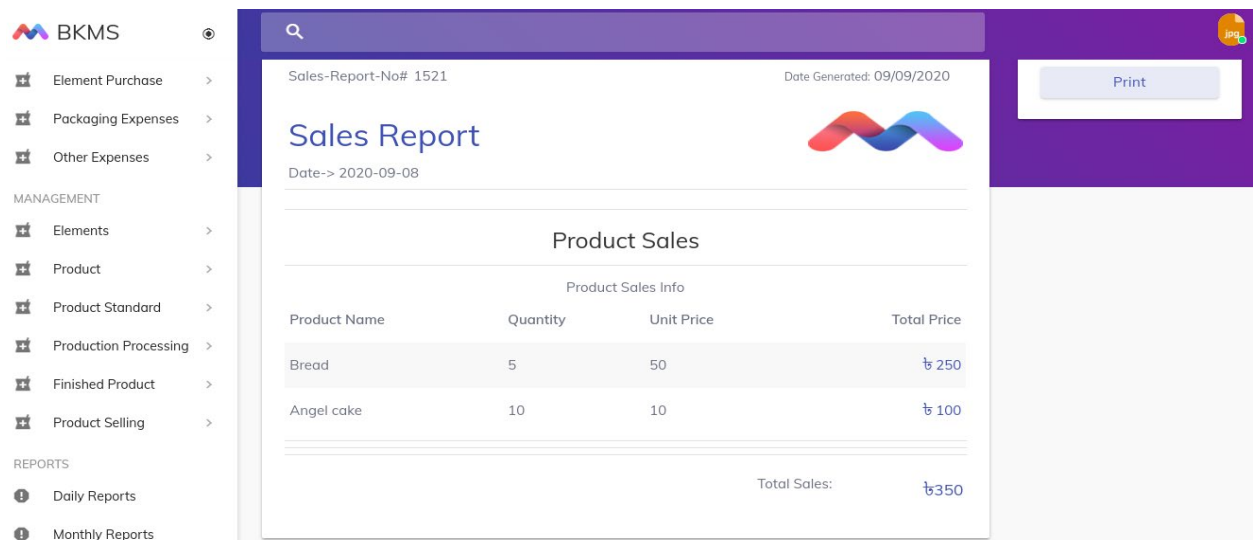


Figure: daily sales report

14. Daily production report

This report shows the daily finished product information.

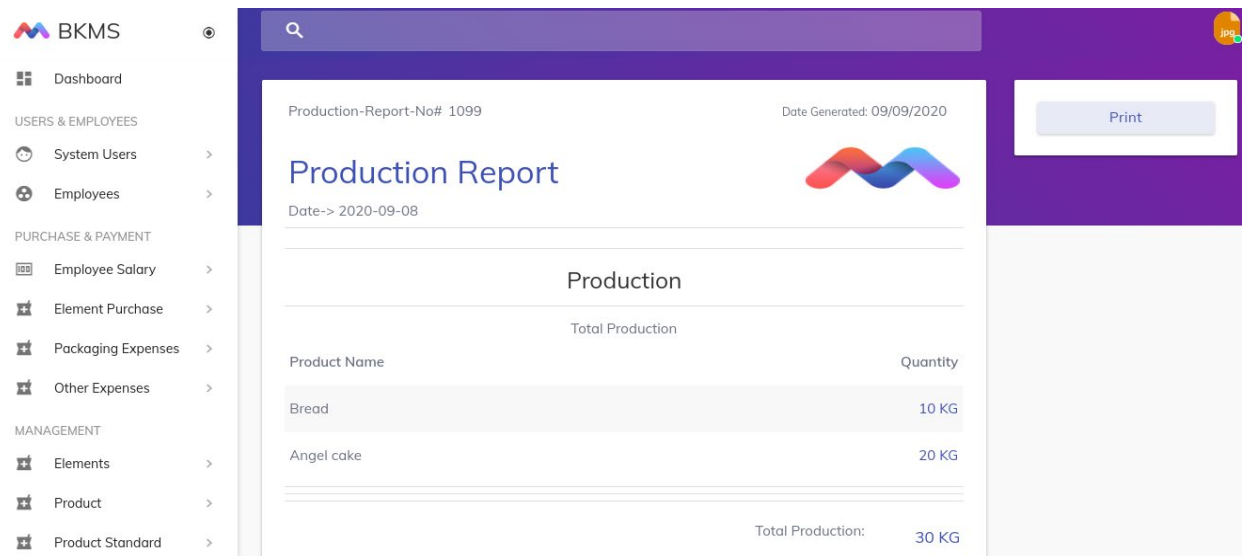


Figure: Daily production report

15. Monthly report home page

This is the home page of monthly report generation. Here user can select a month and year to generate various types of reports for that particular month.

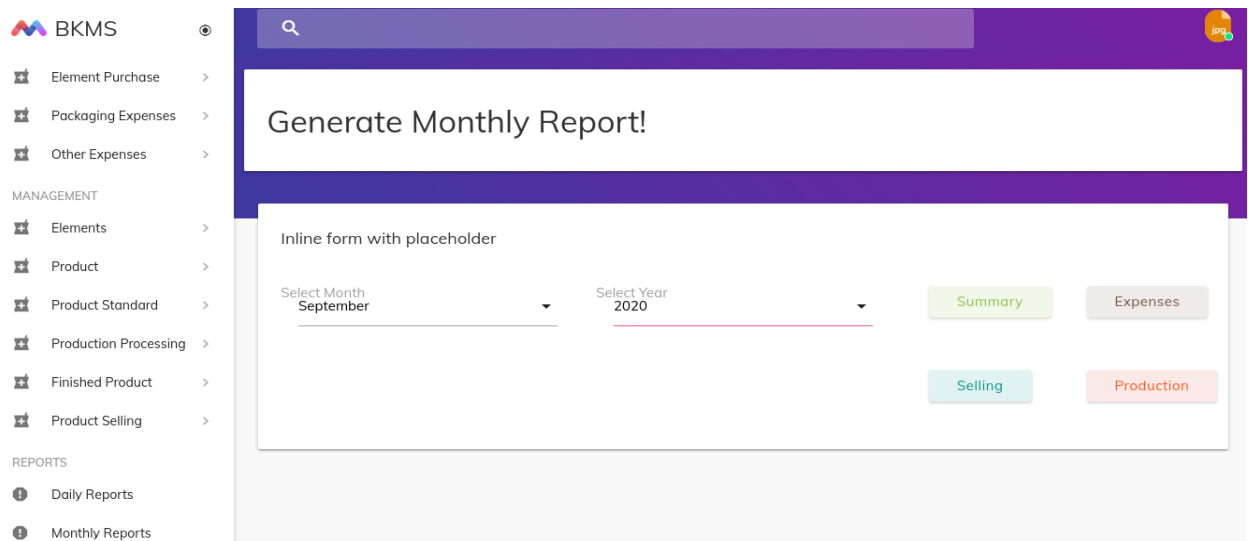


Figure: Monthly report home page

16. Monthly report – summary

Monthly summary report contains the summary of monthly activities of the company.

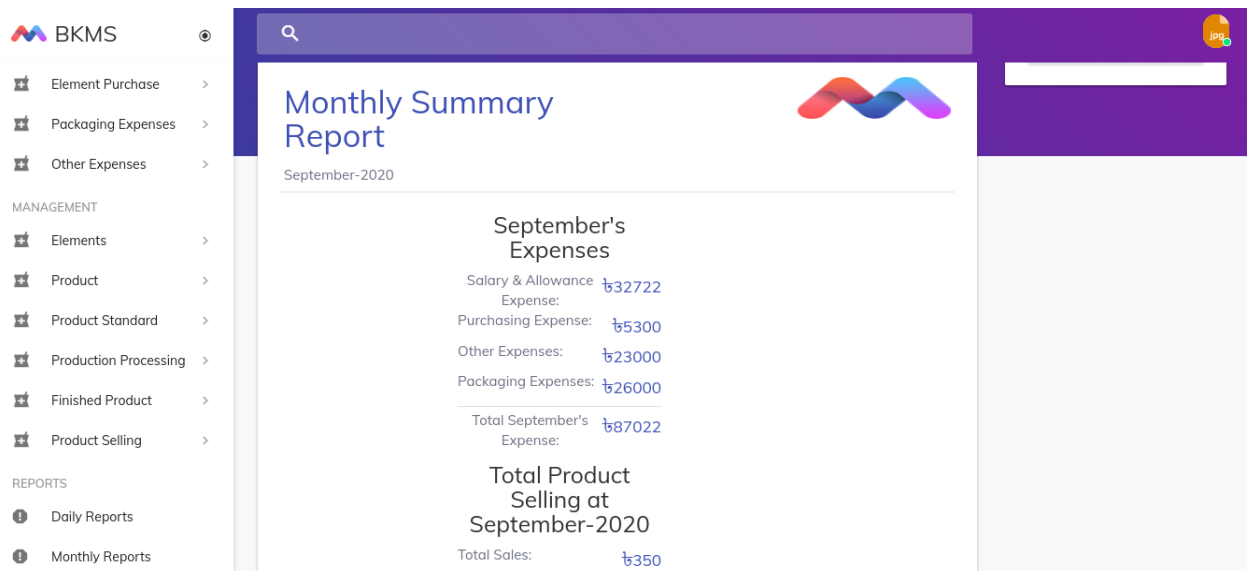


Figure: monthly report – summary

17. Monthly expense report

This report contains the detailed expense history of the month.

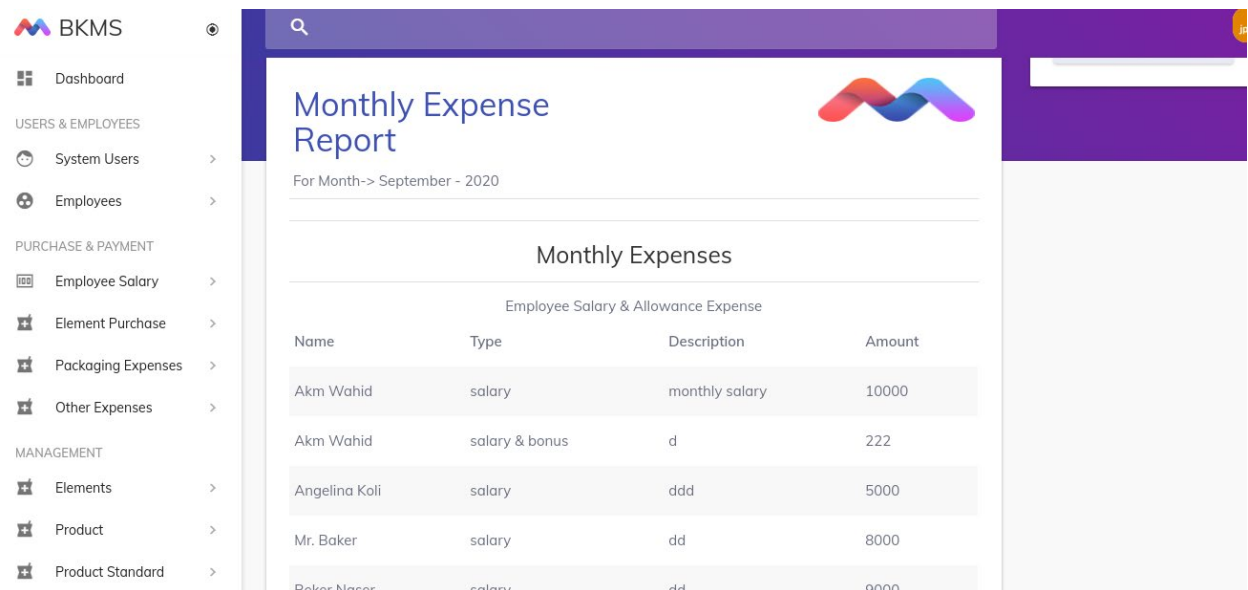


Figure: monthly expense report

18. Monthly sales report

This report contains the product selling info for the given month of given year.

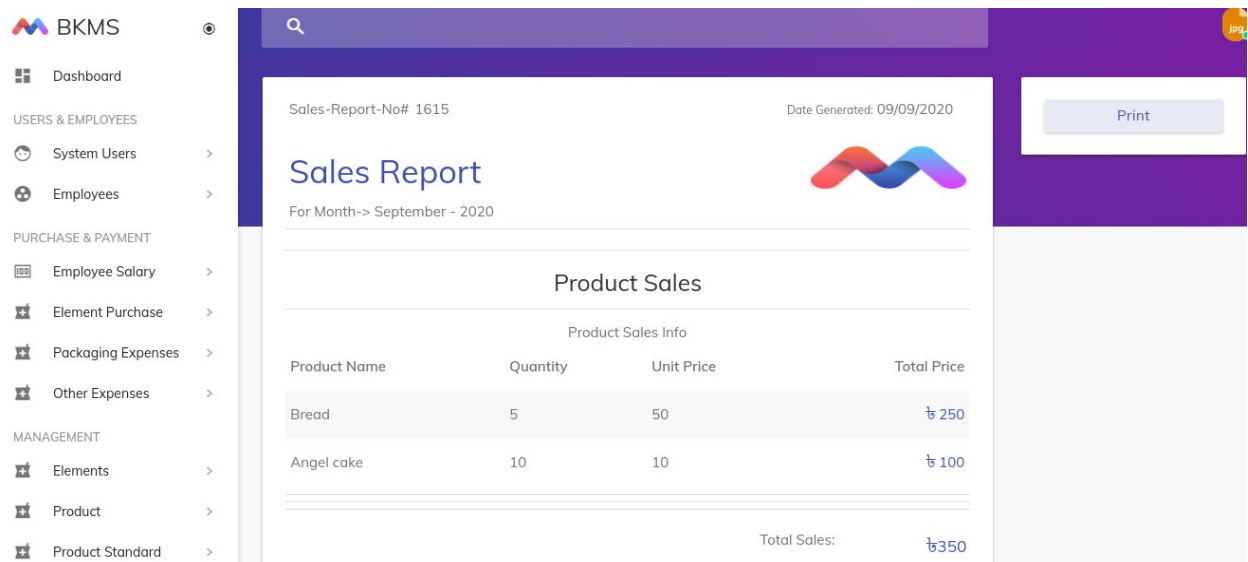


Figure: Monthly sales report

19. Monthly production report

This report contains the total production details of the month by the product. Means which product produced which quantity.

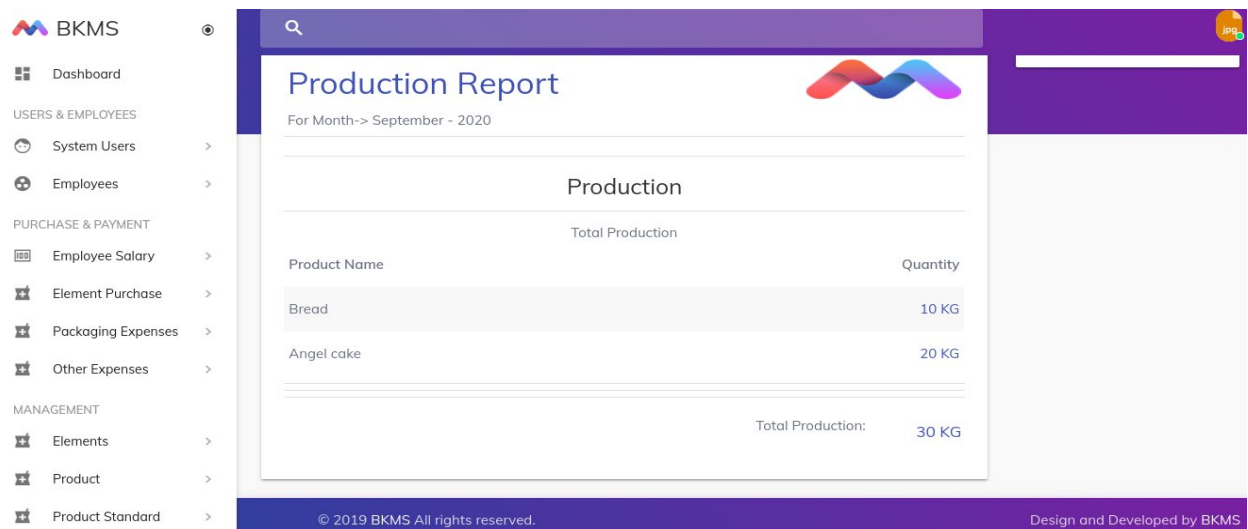


Figure: Monthly production report

Chapter 7 – Implementation and Testing

7.1 Introduction:

System implementation refers to moving the system from development phase to actual production phase. This conversion depends on the system. Different types of installation we have but we need to choose a suitable one. Along with the install the system at new environment, it is important to test the system properly and training needs to be arranged for new users.

7.2 Training

Training is required to make users familiar with the new system. It is necessary to ensure the users of the system are able to use the system accurately. Users should understand their role. The success of a system depends on how the users operate and use the system. (System Implementation and Maintenance) The required procedure for training the user of the bakery management system is given below:

SL.	User	Training	Required Time	Comment
1	Owner	Manage system user, product, production standard, Selling information, Report	2 hours	User understand the system properly
2	Manager	Manage product, production, element, all type of purchasing, all type of report	2 hours	User able to manage the required tasks.

7.3 Implementation:

Big Bang

Big bang installation method involves turning off the existing system and transferring all the users to the new system at once. Since there was no existing system and managed all procedures manually, that's why here we follow the big bang method for the bakery management system.

Implementation is faster with big bang than the other methods. Moreover, no chance to loss the data since there is no existing system. Furthermore there is least chance to arise issue during implement the system follow the big bang. Big bang is least expensive than the others.

(big bang adoption) (Joseph, 2018)

7.4 Testing

Testing is an important level of declaring the success rate of a software or system. System testing refers test the system properly. The purpose of the system testing to verify is the system working as accepted or not? It ensures the system meet the user's requirements as accepted. (What Is System Testing, 2020)

7.4.1 Unit Testing

Unit test – 1

Test name	Unit test		
Class	Auth/LoginController		
Information Source	User input		
Testing purpose	Credentials need to match with database for login		
Test case	Task	Expected result	Actual result
	1. User input email and password for login 2. click submit button	Show error message "These credentials do not match our records."	Error message shown. Message: "These credentials do not match our records."

Login

E-Mail Address

arf@gmail.com

These credentials do not match our records.

Password

☐ Remember Me

Login

Figure: Unit test – User login

Unit test – 2

Test name	Unit test		
Class	ElementController		
Information Source	User input		
Testing purpose	Validation – field must be filled out		
Test case	Task	Expected result	Actual result
	1. User must field out all fields	Show error message.	Error message shown. Message
	2. click submit button		

BKMS

Dashboard

USERS & EMPLOYEES

- System Users >
- Employees >

PURCHASE & PAYMENT

- Employee Salary >
- Element Purchase >
- Packaging Expenses >
- Other Expenses >

MANAGEMENT

- Elements >
- Product >

Add a new element to the system!

Please Insert Necessary Information to Create New Element.

Name*

The name field is required.

Short Description *

The short description field is required.

Submit >

Figure: Unit test 2- element add validation

Unit test – 3

Test name	Unit test		
Class	DailyReportController		
Information Source	User input		
Testing purpose	User must input date for view a particular date report		
Test case	Task	Expected result	Actual result
	1. User miss to input date and 2. click submit button	Show error message “The date field is required”	Error message shown. Message - “The date field is required”

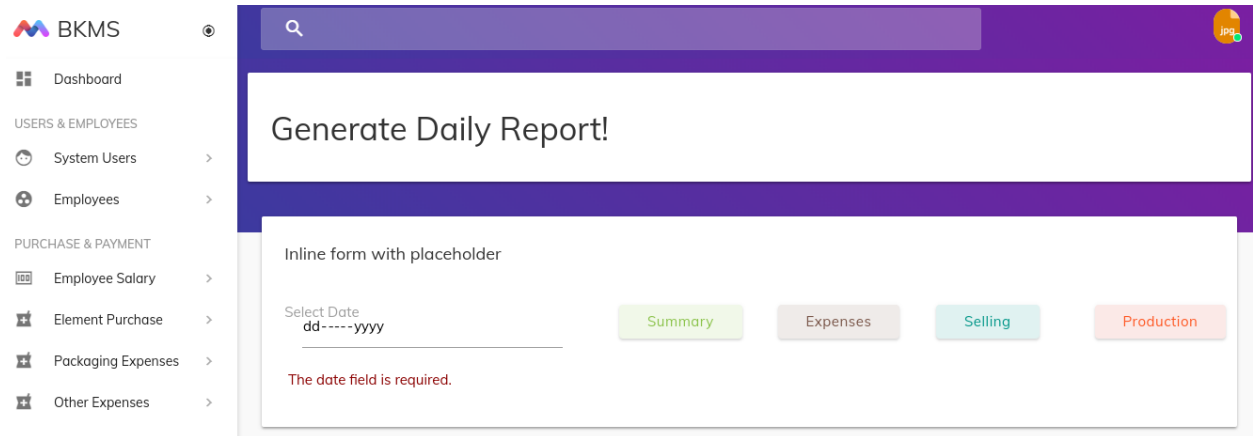


Figure: Unit test 3 check required input field

7.4.2 Integration Testing

Integration Test – 1

Test name	Integration test		
Class	ElementController ElementPurchaseController		
Information Source	User input, system		
Testing purpose	Elements show on element purchase form after adding elements		
Test case	Task	Expected result	Actual result
	1. User first need to create element to select element at element purchase form	User can't able to select element on element purchase page before create the element purchase.	User can able to select element on element purchase page after create the element.

	2. Then select element at element purchase page		
--	---	--	--

Figure: Integration test – 1 result – 1

Figure: Integration test – 1 result – 2

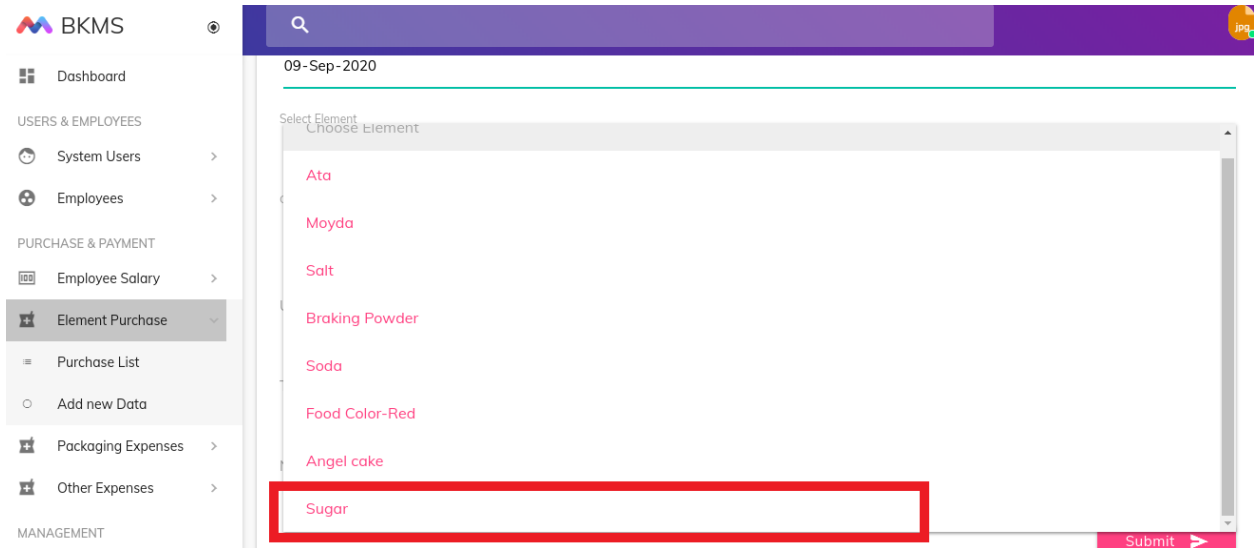


Figure: Integration test – 1 result – 3

Integration Test – 2

Test name	Integration test		
Class	ProductController ProductStandardController		
Information Source	User input, system		
Testing purpose	Products show at product standard form after adding products		
Test case	Task	Expected result	Actual result
	1. User first need to create product to select product at product standard form 2. Then select element at product standard page	User can't able to select product on product standard page before create the product standard.	User can able to select product on product standard page after create the product.

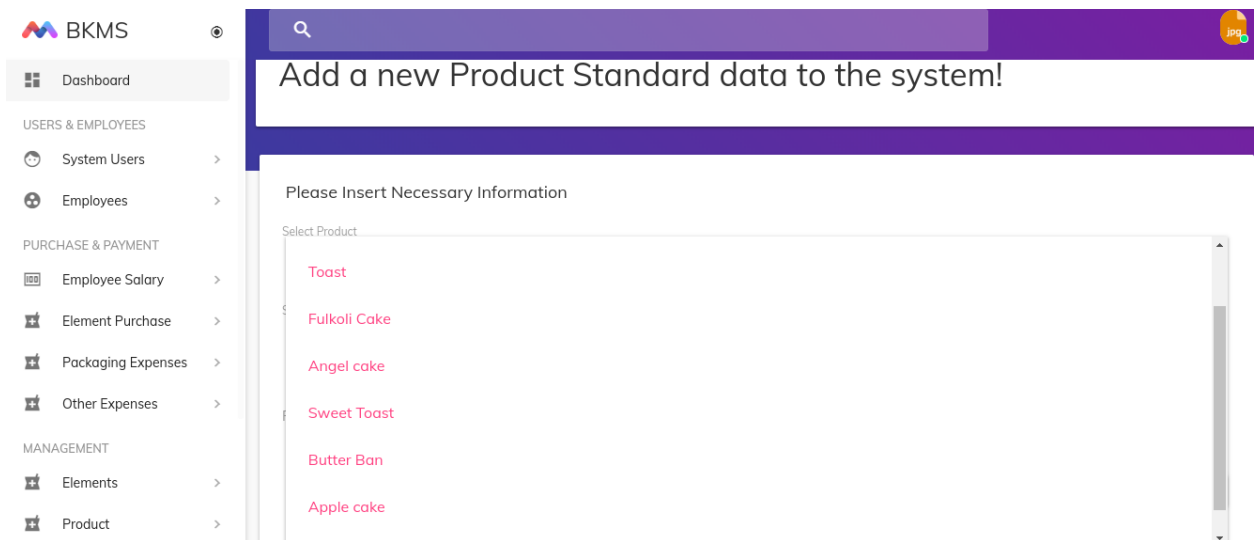


Figure: Integration test – 2 results – 1

BKMS

Dashboard

USERS & EMPLOYEES

- System Users
- Employees

PURCHASE & PAYMENT

- Employee Salary
- Element Purchase
- Packaging Expenses
- Other Expenses

MANAGEMENT

- Elements
- Product
- Product Standard

Add a new product to the system!

Please Insert Necessary Information to Create New Product.

Product Name *
Bagel

Description *
a bread product originating in Poland

Price *
30

Submit

Figure: Integration test – 2 results – 2

BKMS

Dashboard

USERS & EMPLOYEES

- System Users
- Employees

PURCHASE & PAYMENT

- Employee Salary
- Element Purchase
- Packaging Expenses
- Other Expenses

MANAGEMENT

- Elements
- Product
- Product Standard

Add a new purchase data to the system!

Please Insert Necessary Information

Select Product

- Bread
- Toast
- Fulkoli Cake
- Angel cake
- Sweet Toast
- Butter Ban
- Apple cake
- Bagel

Figure: Integration test – 2 results – 3

Chapter 8 – Conclusion

8.1 Critical Overview of The Objectives

This section contains the critical appraisal and evaluation of the developed system. this evaluation is based on the primary objectives determined for the project and achieved goals and objectives of the system.

8.1.1 Objective Could be Met

The initial objectives of the project were-

1. System user management
2. Employee profile & salary management
3. Product and elements management
4. Purchase management & production standard checking
5. Daily and Monthly reports generation.

Objective-1

Achievement rate and others

System user management includes the registration and login of the users into the system and also authorized access control over the system functionality. After login into the system owner can add, edit or remove a user to the or from the system. After successful login the user will be directed to the dashboard. Laravel official authentication is used for implementing the secure authentication system to the system. Since, it working properly so success rate is 100%.

Objective-2

Achievement rate and others

Employee management and employee salary management are fully implemented and working properly. Manager or owner can manipulate the employee information if necessary and manager can pay and manipulate salary information. It is clear that this objective is hundred percent successful.

Objective-3

Achievement rate and others

After login to the system manager can add new element or modify existing information and also manipulate the product details. Everything is working as intended. So objective is achieved successfully.

Objective-4

Achievement rate and others

Purchase management system and production standard are successfully implemented and working. Production standard can be set and manipulate by the owner only. Purchase information can be manipulated by only the manager and owner can only view the purchase.

Objective-5

Achievement rate and others

Periodic report generation for the both manager and owner successfully implemented. These features are working properly with no error. This objective is successfully achieved.

8.1.2 Objective don't meet or touched

The objective of developing mobile application for the developed system could not be meet, this objective is totally untouched. Another objective is integrating the payment system.

Reasons for not touching the objective

The main reason of not touching the mentioned objective is lack of time. Since, the time for the project is limited it would be very difficult to implement a mobile application alongside the web-based system. Payment could not be implemented due to short time and also for limited budget.

8.2 Weakness

Though I have tried my best to fulfill each and every requirement., but still there are some problems with the developed system. these are-

- Could not developed the employee attendance system.
- Could not developed product distribution and selling target for the representative.
- Could not implement the online selling system or electronic commerce.

8.3 Further Work

Every system needs continuous evolve and development. This system also needs to have future work plan. In near future the system needs to works on the below mentioned scopes-

- Developing employee attendance and scheduling system.
- Developing product selling and distribution system.
- Implement an ecommerce website for reaching more potential customer over the internet and all around the country.
- Designing and developing mobile application for the system.

To finish off, it can be said that, in this era of technology, everything is getting replaced with the digitalized version of them. So, this Bakery Management System will be removing the manual recordkeeping system. Hence, it will increase their productivity, reduce error, cut down operational cost any many more. If this implemented properly then it'll create a revolution in the bakery sector. Moreover, it will lessen the hassle of the workers so, they can easily concentrate on productivity.

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