Project Report

on

Laundry Booking Management System

Submitted as partial fulfillment for the award of

BACHELOR OF TECHNOLOGY

DEGREE

Session 2022-23
in

Computer Engineering & Information Technology

By

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STUDENT’S DECLARATION

We hereby declare that the work being presented in this report entitled “LAUNDRY BOOKING MANAGEMENT SYSTEM” is an authentic record of our own work carried out under the supervision of Mr. “ANKIT KUMAR”

The matter embodied in this report has not been submitted by us for the award of any other degree.

Dated: 10/05/2023

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This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

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CERTIFICATE

This is to certify that project report entitled “Laundry Booking Management System ” which is submitted by Ansh Tyagi , Aradhy Tripathi and Ashok Singh in partial fulfillment of the requirement for the award of degree B. Tech. in Department of Computer Engineering & Information Technology of Dr. A.P.J. Abdul Kalam Technical University, formerly Uttar Pradesh Technical University is a record of the candidate own work carried out by him/them under my supervision. The matter embodied in this thesis is original and has not been submitted for the award of any other degree.

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ACKNOWLEDGEMENT

It gives us a great sense of pleasure to present the report of the B. Tech Project undertaken during B. Tech. Final Year. We owe special debt of gratitude to Mr. Ankit Kumar , Department of Computer Science , ABESEC Ghaziabad for his constant support and guidance throughout the course of our work. His sincerity, thoroughness and perseverance have been a constant source of inspiration for us. It is only his cognizant efforts that our endeavors have seen light of the day.

We also take the opportunity to acknowledge the contribution of Professor (Dr.) Pankaj Kumar Sharma , Head, Department of Computer Science, ABESEC Ghaziabad for his full support and assistance during the development of the project.

We also do not like to miss the opportunity to acknowledge the contribution of all faculty members of the department for their kind assistance and cooperation during the development of our project. Last but not the least, we acknowledge our friends for their contribution in the completion of the project.

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ABSTRACT

The laundry-specific Laundry Reservation Management System (LBMS) was created to ensure the security of your laundry information, this software was created for laundry management. It offers automatic backup and recovery. Only three main users can access the client-server system. We have database staff, supervisors, and administrators. Logging in and viewing LBMS applications requires authorization. Users that need to back up, restore, or view the system can do so with the help of a database administrator. Store owners are also in charge of keeping track of payment history, client information and laundry data. Additionally, laundromats must display their services and consumer information. The laundry's managers can then access and modify all of the documents keptthere. However, this LBMS tool prioritizes laundry database maintenance over backup and restoration of database records.

The system development life cycle serves as the foundational paradigm for the methodology for this system (SDLC). To determine all problems and demands, an analytical research based on the current manual system was carried out. LBMS also has a client tier and an application server tier with a database, making it a two-tier system design.The needs and demands of the current market were taken into consideration when designing the LBMS interface. This appointment scheduling tool will assist you in enhancing your performance in the present circumstance and resolving the issues.

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LIST OF ABBREVIATIONS

LBMS	Laundry Booking Management System

CHAPTER 1

INTRODUCTION

The majority of laundry businesses in India are still handle their customer service and financial data manually or somewhat automatically. As a result, the data is being maintained improperly, and manual data administration is typically time-consuming and fraught with difficulties. The slowness of manual methods and partial automation, as well as the repetitive work of capturing and recording client records, over time lead to system redundancy. Other issues that come up while using this manual approach include consumer clothes loss, the inability to account for misplacement, customer confusions, late deliveries as a result of employees' missed delivery reminders, and the absence of a secured backup in the event of file or information loss. Thus, the reason for an online system to facilitate laundry management system.

Laundry Booking management system (LBMS) is new system that replaced the file system which most of laundry shop used. LBMS is developed in order to ease the management in the laundry shop and to change the manual business process to the systematic business process.It includes the various steps and phases that are important for doing laundry. This will help reduce labour and paper consumption and much more.

1. **Time consuming**: Entrepreneurs who use manual systems must invest a lot oftime in tracking their daily laundry and manually updating the system at the end of theday.

2. **Poor Communication:** Every time the laundry is serviced, the laundry system demands a record from the workers and management. If an employee forgets, they should observe that the manager is waiting there without a washcloth and that the most recent laundry has been taken to the laundry area. technical comparison guide for laundry systems, The laundry system does not improve workplace communication.

3. **Physical Counts:** Since all laundry numbers are obtained by physically counting the laundry, manual laundry systems do not offer any data. The frequent

requirement to do a physical laundry count in order to regulate the service inside the laundry is one of the challenges in setting up a manual laundry system. It can be time- consuming and expensive for company.

1.1. Motivation For The Study

The purpose of the proposed system is to address issues with the current manual system. It is intended to computerize laundry information, reducing the burden that the manual approach caused for both customers and services.

It will employ a computerized system for gathering the information and will analyze and save the information either automatically or interactively.

The suggested system will have some more functions as well.

- The payment is automatically calculated by the above system.
- The system offers tools for modifying client information.
- It includes details about the features of editing services.

1.2. Project Objective

The objectives of this project are :

1. Computer system

The proposed system implements a computerized system that can perform better laundry management processes. Laundromat and customer details are stored in a secure manner without the problem of data leakage.

2. System and User permissions

Each system user's suggested startup system user level is where system and user permissions are implemented. This function is designed to offer a system restriction.

3.Increase time performance

For a laundry business to operate more efficiently and on time, time management is essential. Additionally, the business process will be quicker and more efficient withthe use of a computer system.

1.3. Scope of the Project

The new system is designed to address issues that affect existing manual systems. He suggests computerizing laundry information to facilitate customers and services and avoid the high stress of manual systems.

The proposed system has several features including:

1. This system provides automatic payment calculation.
2. There is an important feature that allows you to maintain employee information.
3. The system provides functionality to edit customer details.
4. It provides the function of editing service details.

1.4. Organization of the Report

The project has been broken down into many chapters for easy comprehension, as follows:

- Chapter One is the general introduction that consists of Introduction, statement ofthe problem, Objectives of the project,Motivation for the Study.
- Chapter Two The Literature review comprises Introduction, Analysis of the Existing System and Proposed New System Solution.
- Chapter Three of Comprises of System Design , Class Design , Data Flow Diagram , Database Design and Entity Relationship Diagram.
- Chapter Four focuses on Hardware and Software Requirements , Implementation ,Results .
- Chapter Five comprises Summary , Conclusion , References of the various sources

CHAPTER 2

LITERATURE SURVEY

2.1. Existing System

The existing system uses a manual laundry management system that manages client records, services, and other information that is entered in a book. Errors, incompleteness, and inadequate data for analysis are issues with this. Laundry services are still described in black and white, which is improperly organized and handled. Receipts for services, including those from employees and client invoices, are entered in a book, but subsequent activities are not effectively managed. It is therefore challenging to process, update, and manage.

2.2. Proposed System

Any laundry business may use the Laundry Booking Management method to replace their current manual, paper-based method. The new system controls client information, items, services, users, carts, and receipts using a computerized system. The objective is to reduce the time and resources now needed for operations like limiting clothing information to a certain consumer with a given ID by providing these services in an efficient, cost-effective manner. Since the current system relies on time-consuming administrative chores, a lot of paperwork, and laborious procedures, complete information cannot be obtained from busy clients.

2.3. Existing System over Proposed System

The suggested system aims to make user operation simpler. If the registration procedure is to be quicker and more convenient, the number of steps must be cut down to the absolute minimum. Customers can buy clothes with confidence, knowing that their information is safeguarded by a unique ID and willbe available when needed.

Increased client volume will inevitably result in additional paperwork and decreased efficiency of the current system. As a result, many laundry businesses consider the suggested approach to be a better and more practical solution to the drawbacks and inefficiencies of the current registration system. The suggested system for washing companies is crucial to the transition and, if it is successfully put into place, should be able to:

Reduce the amount of paperwork and duplication, which will increase productivity andbring down the cost of printing and acquiring registration materials each year. By enabling the user to quickly search for any client, it helps the administrative team manage customer data.

2.4. Literature Review

Cecilia [1] is in charge, and Dobi Sincere This laundry is situated in Petaling Jaya's neighbourhood. According to Ms. Cecil, she has been running Dobi Sincere for about three years and it is a family company. Without using contractors, the laundry shop is run by family members. They conduct business manually, meaning they give customers a receipt, and the consumers must return the receipt when they come to pick up their clothes. After the customer has made the purchase, the store assistant will distribute the clothing to the consumers in accordance with the receipt number and then record this transaction in a book.This store offers laundry, dry cleaning,hand washing, ironing, and other services, but not pick-up and delivery. Students, working individuals, and some families make up the majority of Dobi clients. Uncollected clothing is one issue Ms. Cecilia is dealing with. Some of the clotheshave been worn for more than two years. There are a few other issues as well, such as losing the receipt.

Katsina [2] is the leading retailer across Nigeria and is the brand of choice for many consumers across the African continent. Due to its capacity to provide the broadest selection of products and the highest standards of goods and services—both essential elements in establishing a strong laundry service—Katsina has amassed a large base of devoted consumers. Working together with several neighborhood Nigerian laundries, Katsina processes services in bulk so that you, the client, may benefit from the cost reductions. In this manner, you may continue to receive top- notch washing services while saving money. A number of pricing comparisons between Katsina and other local government laundries demonstrate the massive standard the laundry has set.

Kedai Pencucian Layan Diri [3] Electro-Clean is situated in Section 17. Ms. Lim is the store's proprietor. About 20 years into the company, this laundromat now hires a worker to assist the owner with day-to-day operations.Self-service laundry is available at this establishment. What does "self-service" mean? A self-service method of service is one in which patrons take what they need and then pay for it at a restaurant,store, etc. Consequently, in Kedai Pencu.Electrician Layan Diri Clean. Customers must place their clothing in a machine to wash it, then transport it to another machine to dry it themselves.Sadly, despite being a self-service business, those events did not occur at Kedai Pencucian Layan Diri ElectroClean. Why did this happen? This is because the "related to the Malaysian culture," claims Ms. Lim. In most cases, the consumer will just hand the clothes to the store clerk and let them handle it. Some people might wait there, but they usually return later to pick up their clothes. is therefore not very different from full-service washing facilities.The issue of the missing receipt and the uncollected clothing are additional issues that Ms. Lim is dealing with. Madam Lim would also ask the customer for a private number, such as a motorbike number or a residence number, to write down on the plastic bag that is used to store the clothes as a way to prevent situations of losing receipts. The consumer may still claim the clothes by providing the private number should they lose their receipt. There is currently no solution on how to deal with the uncollected clothing.

LondonLaundry.com [4] offers online laundry services, including pick-up and delivery options around the London metropolis. The information module, registration module, booking module, email module, and contact information module may all be classified as categories 1 through 4 for this website. The information module includes details on the services offered, a price list for each laundry fee, the areas covered by the pick-upand delivery services, and more. The user must fill out all of the fields in the register module, some of which are pre-filled, such as the city. This is so because London's laundries solely provide their services there. By completing the booking form, the user may make a service reservation. There are fields in the booking form for things like the member number, the sort of service needed, the time needed, etc. The email and contact information module comes last. This module includes a list of all the phone numbers and email addresses to contact for various issues, such as further information, general contact, and site-related issues. brief commentary, etc. Because of their ability to quickly diagnose issues and discriminate between them, management will benefit from this. In addition, this website has a nice user-friendly interface and various animations that make it more appealing from the perspective of the interface. Other than that, all of the pages are organized effectively, and if the content is very lengthy, it is divided over many pages. This is a positive feature of the website since it eliminates the need for users to scroll down the vertical bar in order toaccess the content. Additionally, each page has a link button on the left side to makeit simpler for the user to access the information.

REX Laundry and Dry Cleaning [5] is situated in Petaling Jaya's SEA Park. Ms. Liew, the lady in charge of REX, reportedly said that REX has been running for more than 32 years under her direction and that REX is also a family-run enterprise. Since REX is a family-run business system that has been in operation for 32 years with little alteration, the company has always operated manually.REX offers a variety of services, including dry cleaning, ironing, and others. The self-service system is an extra service offered by REX, whereby customers wash and dry their own clothes after inserting money into the machine or paying the fee to the store clerk.Customers seldom ever utilize this self-service technology, according to Ms. Liew. The shop assistant will typically assist the customer if they choose to use the self-service option.Families and employees make up the majority of REX's clientele. Nearby inhabitants of SEA Park make up the majority of them.Usually, family members assist Ms. Liew in running the REX company. The majority of REX's issues stem from customers misplacing their receipts. Three to four examples of customers losing their receipts every month, according to Ms. Liew. This poses a significant difficulty for RE because they must note the customer's name, contact information, and identification number before giving them a collection the attire. These steps were taken to ensure that they could either recover the clothes or, in the event that the client refused to do so after they had unintentionally been removed, report the incident to the police.

Speedwash washing Sdn. Bbd [6] was established to offer expert and specialized washing services to commercial organizations including hotels and social clubs. Sincethis website essentially serves as the company's home page, it simply offers information about the company's profile, services offered, clients, financial situation, staffing, equipment, etc. Additionally, this website doesn't have any animations that might draw visitors' attention to certain information like forthcoming events, recently added deals, and others.One positive aspect of the website's design is that the interface is kept simple by using a limited number of great, appropriately-sized graphics and photographs. This makes the web pages' download times seem attractive and lovely. In overall, this website offers a strong main page and a pleasing array of backgrounds. Its web page interface is designed without the use of photos or other visual elements in favour of beautiful text styles, logos, and color schemes. However, because this website only had a static page and all the information was published on a single page, it was not comparable to the system that was presented.

9-laundry [7] Another top-notch online laundry and dry-cleaning solution worth checking out and studying is 9-laundry.com. The laundry and dry cleaning website 9- laundry is situated in Singapore [4]. This website has a highly user-friendly layout withstraightforward functions. The three primary modules of this website are the information module, the email module, and the request for collection module. These three sections as a whole are straightforward, condensed, and contain all the information that users often need. The user may quickly examine the firm profile, pricing list, types of services offered, and FAQs in the information module. The user only needs to click the symbol on the home page and on the left side of every other page.Additionally, the material is organized neatly on these pages, and each page on this website is brief. The fact that the visitor does not need to scroll down the screento access the content is a positive aspect of this website.The administrator of the 9- laundry can be contacted by email using the email module if you have any questions regarding the 9-laundry services. In addition to the email address, there is a phone number provided for users to contact the 9- laundry.The user may place an order at the request for collection module and sign up as a member to take advantage of the promotions. But this module's flaw is that the user must submit all the information even though they joined as a member.Furthermore, this module basically lacks a cancellation or reset button. Although this website is fantastic and has a pleasant interface, consumers who have signed up as members cannot log in. Additionally, it lacks functionality in that the user can view the status of your orders; all you have is a request form for pickup. The website does not offer a cancellation module either.

CHAPTER 3

SYSTEM ANALYSIS & DESIGN

3.1. Analysis of Existing System

The existing system uses a manual laundry management system that manages client records, services, and other information that is entered in a book. Errors, incompleteness, and inadequate data for analysis are issues with this. Laundry services are still described in black and white, which is improperly organized and handled. Receipts for services, including those from employees and client invoices, are entered in a book, but subsequent activities are not effectively managed. It is therefore challenging to process, update, and manage.

These are the causes of these difficulties:

Labor-Intensive

One drawback of laundry management systems is that they might require a lot of manual labour to run. They need constant supervision to make sure that every transaction is recorded and that services are kept up in the proper module. Sharing service-related information throughout the company is even more challenging due to the difficulty of accessing service records due to a lack of computerization. The time spent monitoring the service application may be better spent on tasks that would benefit the company more.

Human Error

A manual laundry management system has a great deal of reliance on human activity, which raises the risk of human error. People may fail to document a transaction or just count the number of things incorrectly. This leads to unnecessary extra orders, which drive up the cost of carrying inventory for the business and take up valuable storage space. Accurate physical counts might potentially lead to ordering insufficient quantities of clothing, which would cause the company to run out of a necessary item at the wrong moment.

3.2. Analysis of the New System

It is necessary to create a new system that might improve the status of the present system, which is manual and sluggish, to the system that will be automatic and quick in order to lessen the flaws of the current system. The new system should be concerned with meeting the needs of both customers and employees, and it shouldbe dependable, simple, quick, and informative.

The following characteristics should be included in the new system.

- Reduction in processing cost.
- Error reduction.
- Automatic calculation.
- Automatic production of the documents and Reports.
- Faster response time.
- Reduced dependency.
- Improves resource uses.
- Reduction in use of the paper.
- Reduction in Man Power.

3.3. System Design

System Design is one of the tasking sections of Programming. We will see a lot more previews in this phase of the project as we inch closer to the new system. System design is the change from a user-oriented document to a document targeted at database administrators or programmers.

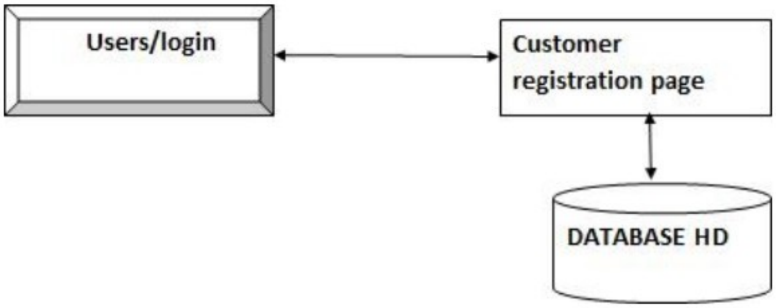


Figure 3.3 Laundry System Model

3.4. Class Diagram

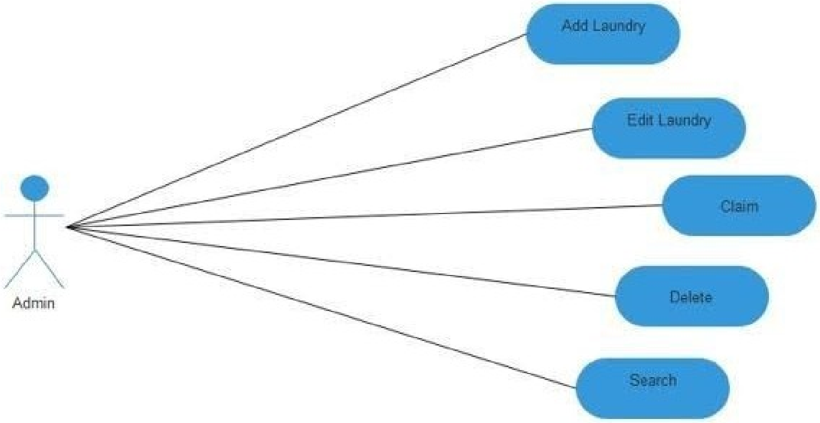


Figure 3.4 Class Diagram

3.5. Data Flow Diagram

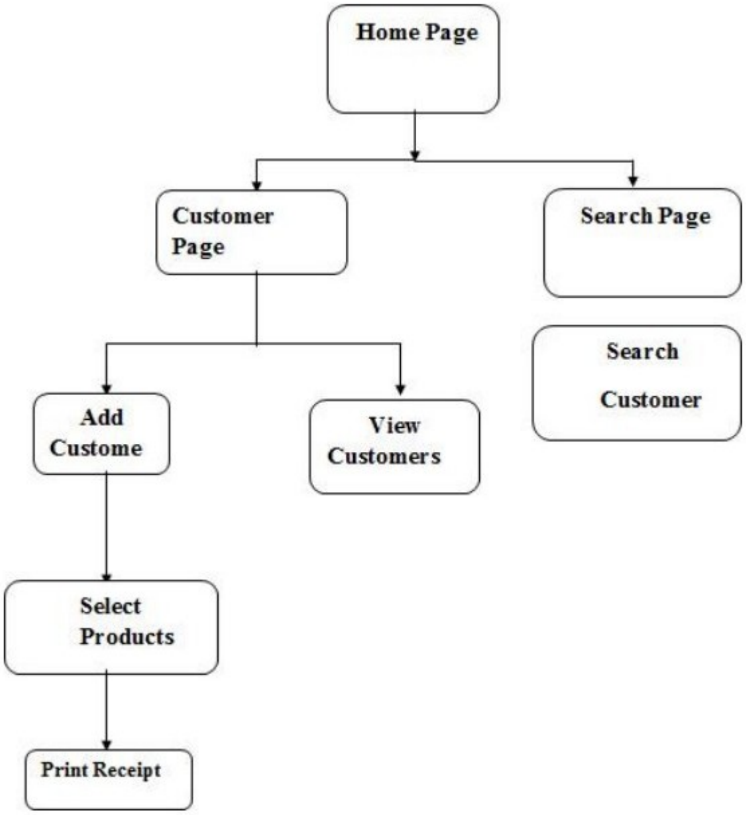


Figure 3.5 Data Flow Diagram

3.6. Entity Relationship Diagram

It is described as the conceptual structure of a system that demonstrates how tables or data are connected. This logical structure serves as the blueprint for the proposed system.

The following system flow chart serves as a diagrammatic representation of the process design.

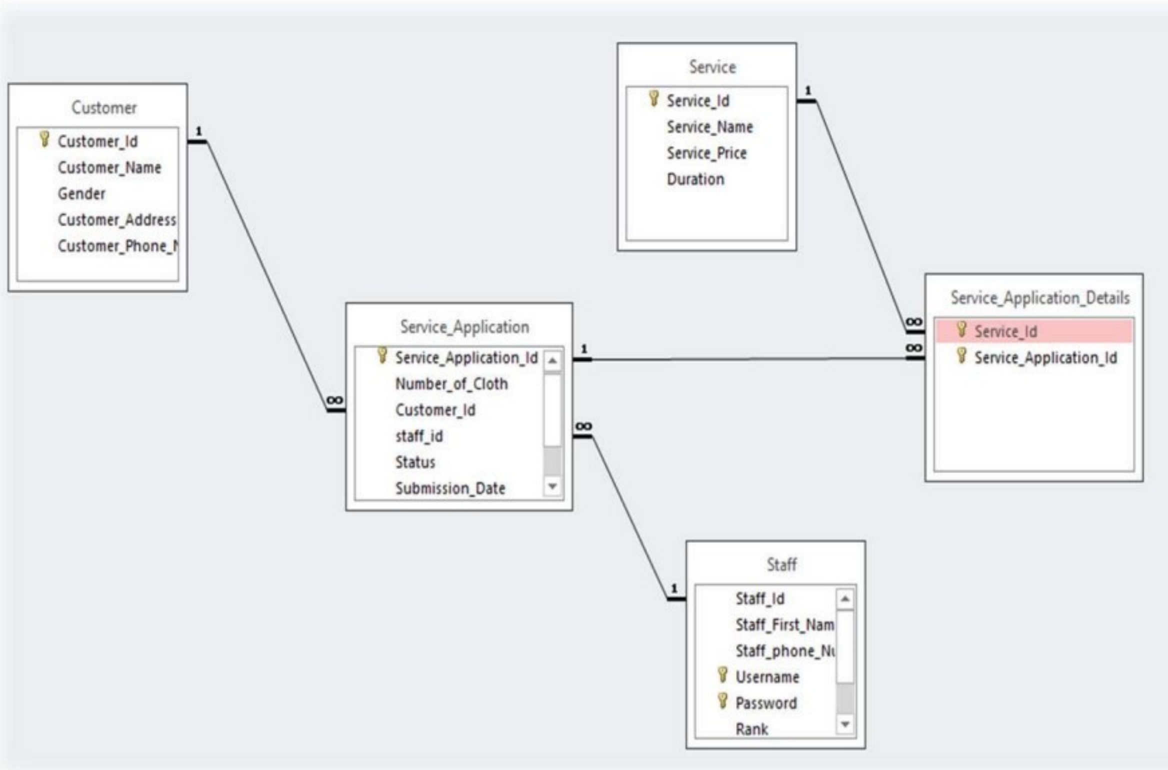
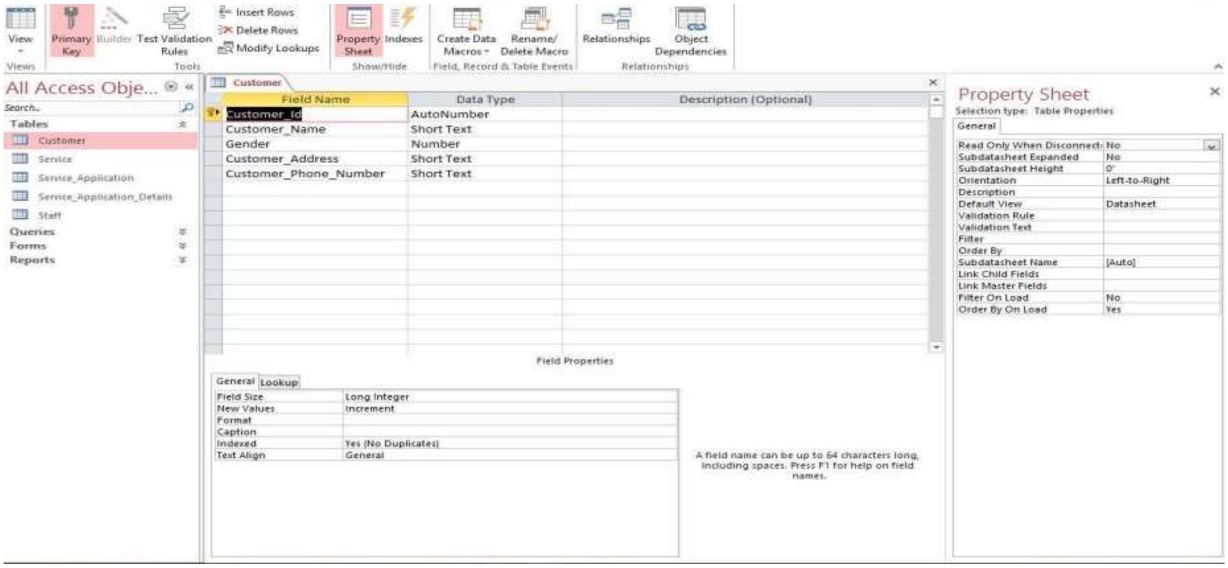


Fig 3.6 E-R Diagram

3.7. Database Design

A database is a collection of records that each contain fields and a set of actions. It aids in the logical ordering of data for referencing.

Databases include connected data that is grouped into objects, tables, and files. It could take the shape of a node. A relational database idea will be employed in this project's evaluation, and relevant data will be stored or organized in separate tables.



Field Name	Data Type	Description (Optional)
Customer_Id	AutoNumber	
Customer_Name	Short Text	
Gender	Number	
Customer_Address	Short Text	
Customer_Phone_Number	Short Text	

Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

Property Sheet

Selection type: Table Properties

General

Read Only When Disconnect	No
Subdatasheet Expanded	No
Subdatasheet Height	0"
Orientation	Left-to-Right
Description	
Default View	Datasheet
Validation Rule	
Validation Text	
Filter	
Order By	
Subdatasheet Name	[Auto]
Link Child Fields	
Link Master Fields	
Filter On Load	No
Order By On Load	Yes

Fig 3.7 Database Design

CHAPTER 4

IMPLEMENTATION AND RESULTS

4.1. System Implementation

This chapter implements a planned system and goes in-depth on the analysis and design of the laundry management system. The current chapter covers the system's implementation, showcasing the testing process and outlining some of the key elements of the system's graphical user interface. It will produce results from the programming language and other tools that were utilized to create our system. This plan outlines the actions that must be completed, the resource and equipment conversations that must take place, and the additional equipment that must be purchased in order to deploy the new system.

4.2. Hardware Requirements

All computer software requires specific hardware components or other software resources to be present on a computer in order for a system to be operated properly and efficiently. These requirements, sometimes known as (computer hardware standard), are frequently employed as a guideline rather than as an unbreakable law. The majority of software specifies minimal and recommended sets of system requirements. System requirements tend to rise over time due to the rising need for more processing power and resources in newer versions of software. According to industry observers, this tendency more than technological improvements is what is pushing changes to current computer systems.

A generalization of the previous concept, known as "system requirements," refers to the specifications that must be satisfied while designing a system or subsystem. Usually, an organization starts with a list of business needs and works its way down to a list of system requirements. The physical computer resources, usually referred to as hardware, are the most prevalent set of specifications set out by any operating system or software programme. A hardware compatibility list (HCL) is frequently included with a list of the necessary hardware, especially when operating systems are involved. An HCL describes hardware components that have been evaluated, are compatible, and occasionally are not compatible with a certain operating system or application. The many features of the hardware needed for this application software are covered in the following subsections.

The hardware required includes the following:

- Processor 1.66 GHZ processor speed.
- Disk space 80 GB (including 20 GB for database Management system).
- RAM 8gb ddr4.
- Flash drive for file transfer.

4.3. Software Requirements

This requirements specification for a software system is a description of how the system will behave after it is constructed. It may also include a number of use cases that illustrate how users will interact with the product. It also has non-functional needs in it.Design and execution are hampered by non-functional requirements such as performance engineering specifications and quality standards.The basis for agreement between clients and contractors (in market-driven projects, these roles may be handled by the marketing and development divisions) on what the software product is to accomplish as well as what it is not expected to do is established by the software requirements specification. Software requirements definition enables a thorough evaluation of needs prior to design and minimizes subsequent redesign.

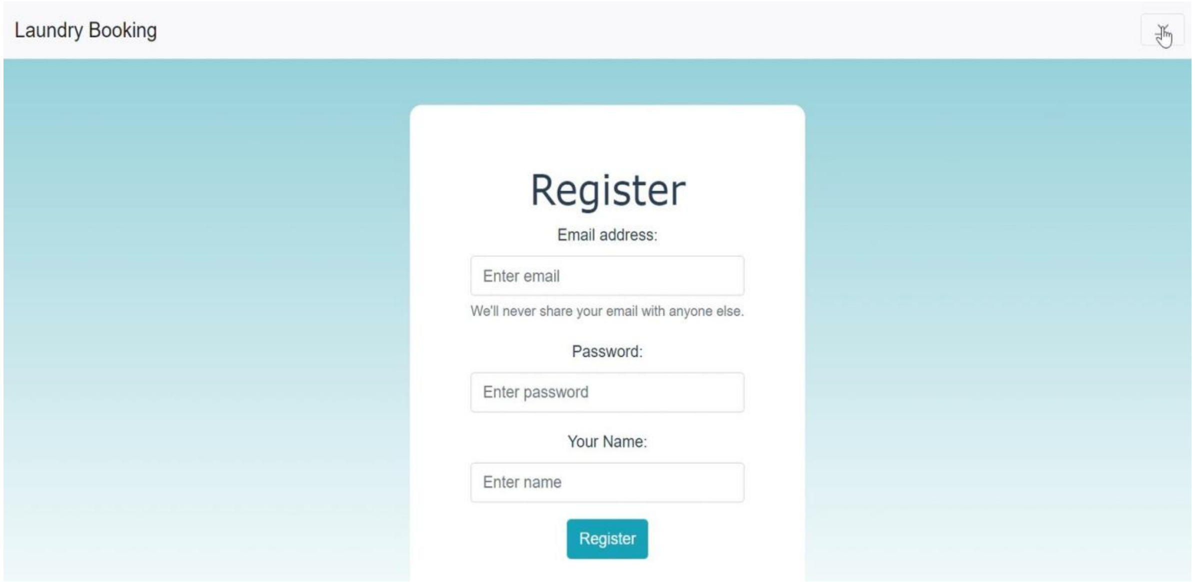
The software specifications document provides all of the essential and sufficient requirements needed to carry out the project. We need a comprehensive and in-depth understanding of the items that will be developed or that are already being developed in order to determine the needs. This is accomplished and improved upon by thorough and ongoing contact with the project team and client up until the program is finished.

The software components used for this project are listed below:

- Visual Studio Code as IDE
- Google Chrome as web browser
- Mongodb
- Postman
- Vue.js
- Node.js

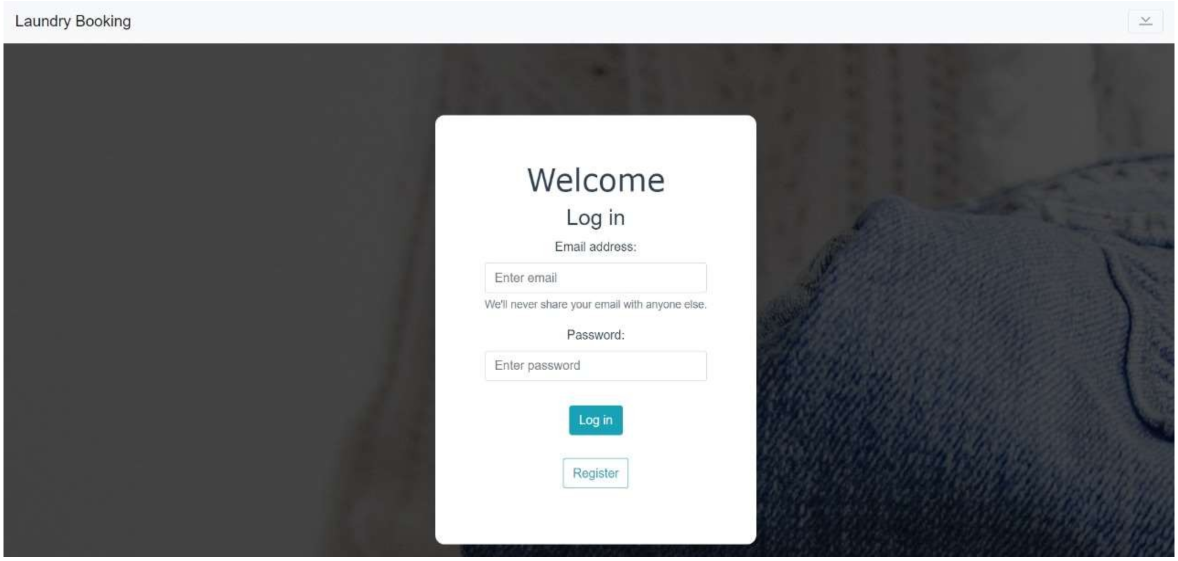
4.4. Implementation Details

4.4.1. Results



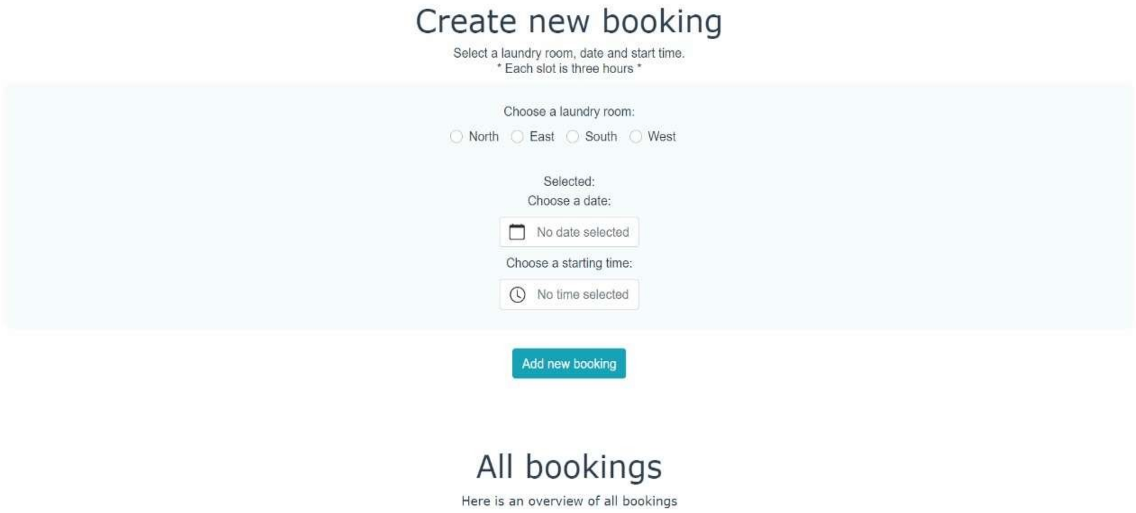
We'll never share your email with anyone else.

Figure 4.4.1 Registration Page



We'll never share your email with anyone else.

Figure 4.4.2 Login Page



Create new booking

Select a laundry room, date and start time.
* Each slot is three hours *

Choose a laundry room:

○ North ○ East ○ South ○ West

Selected:
Choose a date:

No date selected

Choose a starting time:

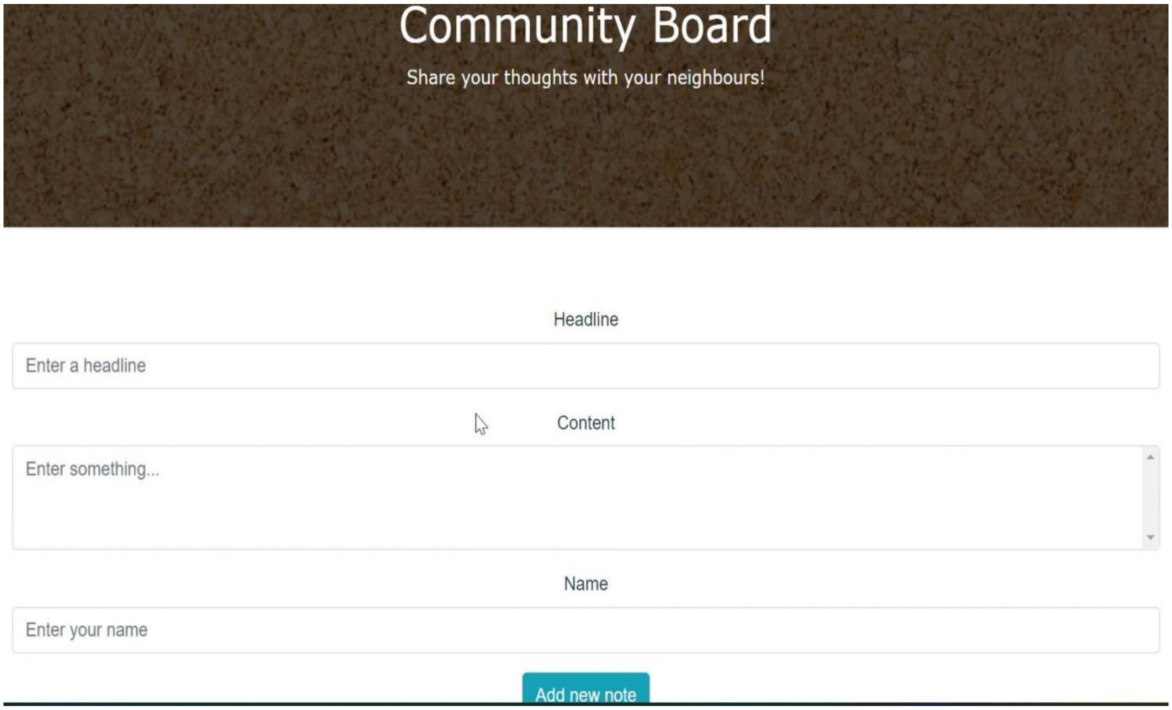
No time selected

Add new booking

All bookings

Here is an overview of all bookings

Figure 4.4.3 Booking Page



Community Board

Share your thoughts with your neighbours!

Headline

Enter a headline

Content

Enter something...

Name

Enter your name

Add new note

Figure 4.4.4 Community Page

CHAPTER 5

CONCLUSION

5.1. Summary

Computerizing the laundry management system will improve efficiency and decrease human error. The computerized management system for laundry that is being offered in this project was created to keep track of all the laundry's daily tasks. Systems for managing laundries are created to store all customer and service-related data. This project's main goal is to minimize human effort and promote effective record keeping.

5.2. Conclusion

The package has been developed in a way that makes future changes simple. The project's evolution allows us to draw the following conclusion:

- The effectiveness of the system is increased via automation.
- When compared to the current system, it offers a welcoming graphical user experience that is better.
- Depending on their permissions, it grants the authorized users the proper access.
- It successfully gets over the communication barrier.
- The unique features include dependability, system security, and data security.
- Information updating is much simpler.
- The System can be modified appropriately in the future if that becomes required.

5.3. Further Research

The following elements can be added to the existing system to increase its effectiveness and efficiency in the future when the mobile application of the laundry management system is built, including:

- All login pages will have an enhanced password system built in to boost system security.
- After regular servicing, a solid online backup should be automatically created.
- Online transactions ought to be permitted.
- Door to Door Services can be offered.
- Subscription Based Model can be imposed.

References

- A. Tarantola. “There's a Better Way to Dry Clean Your Clothes”, 2014.

- CSS Introduction. W3schools. Retrieved 16 March, 2015.

- E. J. Anacan, H. Merano, I. Noguchi, and C. A. Salvador. "Laundry Management System ", 2015.

- E. Oehnel. “Problems of laundry management”. Canadian hospital, Passim, 48(11), 1971, pp. 34.

- TML Elements. W3schools. Retrieved 16 March, 2015. Journals of science of technology.

- Ian Sommerville, "Software Engineering 5th ed", Addison-Wesley, 1998, UnitedStates of America.

- Kenneth E. Kendall and Julie E. Kendall, "Systems Analysis and Design 4th ed.",Prentice Hall, 1999.

- Lawrence, Corbitt, Fisher, and Tidwell. 2000. Internet Commerce: Digital Modelsfor Business. Wiley: Sidney, Australia.

- N. Norolazmi et. al. “The Effect of Electronic Record keeping Implementation in Information Intensive Agency.” International Journal of Engineering and Technology,7(3), 2018, 100.

- Pagh, J.D. and Cooper, M.C. (1998). "Supply chain postponement and speculation strategies: how to choose the right strategy", Journal of Business Logistics, Vol. 19.

- PerlScriptsJavaScripts.com. 2006. “SQL Tutorial, Database Commands, Beginners Guide, Perl, Program”. http://www.perlscriptsjavascripts.com/tutorials/sql/index.html, Accessed

- Ralph M.Stair "Principles of Information System, A managerial Approach". HighHolborn, London: International Thomson Publishing Europe, Second Edition, 1996.

- S. Barrett, L. Gu, and H. Yi. "Automated Laundry Processing System", 2006.

- Shari Lawrence Pfleeger, "Software engineering Theory and Practice", prentice Hall, 1998, New Jersey.

- Shoewu, O., Makanjuola, N.T., Phillips, D.A. and Emmanuel, A. (2016) 'Laundry Management System Design and Implementation'. Pacific Journal of Science and Technology. 17(2):197-204.

- Whitten, Bentley and Dittman. (2004). "Systems Analysis and Design Methods (5th Edition)",New York, NY.

- Zalilawati binti Ghazhali (2008) “Laundry Management System Design and Implementation” Universiti Teknical Malaysia Maleka, Malaysi

Appendix

- ## Coding for Customer Registration Form

```
<template>
  <div class="content-register background">
    <div class="register-form">
      <h1>Register</h1>
    <b-form @submit="registerUser">
      <b-form-group
        id="input-group-1"
        label="Email address:"
        label-for="input-1"
        description="We'll never share your email with anyone else."
      >
        <b-form-input
          id="input-1"
          v-model="form.email"
          type="email"
          placeholder="Enter email"
          required
        ></b-form-input>
      </b-form-group>
      <b-form-group id="input-group-3" label="Password:" label-for="input-3">

         <b-form-input
          id="input-3"
          v-model="form.password"
          type="password"
          placeholder="Enter password"
          required
        ></b-form-input>
      </b-form-group>

      <b-form-group id="input-group-2" label="Your Name:" label-for="input-2">

        <b-form-input
          id="input-2"
          v-model="form.name"
          placeholder="Enter name"
          required
        ></b-form-input>
      </b-form-group>
    <b-button type="register" variant="info">Register</b-button>
    </b-form>
    </div>
  </div>
</template>

<script>

// @ is an alias to /src
import { Api } from '@/Api'

export default
  { name: 'register',
  data() {
    return
      { form:
      { email: '',
        name: '',
        password: ''
      }
    }
  },
  methods: { registerUser(event)
    { event.preventDefault()
    Api.post('users', this.form)
        .then(() => {
          this.$bvToast.toast('You have successfully registered! Redirecting to login...', {title:
            'Success',
            variant: 'success',
            autoHideDelay: 5000,
            appendToast: true
          })
          setTimeout(() =>
            { this.$router.push('/login')
          }, 3000)
        })
        .catch(() => {
          this.$bvToast.toast('Something went wrong. Please try again.', {title:
            'Error',
            variant: 'danger',
            autoHideDelay: 5000,
            appendToast: true
          })
        })
    }
  }
}
```

```
</script>

<style>

.background{
  background: linear-gradient(#97d1da, #ffffff);
}

.content-
register{width:
100vw; height:
100vh; display:
flex;
justify-content: center;
align-items: center;
flex-direction: column;
}

.register-form{ background-
  color: white;padding: 56px;
  padding-left: 64px;
  padding-right: 64px;
  border-radius: 12px;
}

@media screen and (max-width: 600px) {
  .register-form
    { border-radius: 0;
  }
}
</style>
```

- **Coding for Customer Login Form**

```
<template>
  <div class="content-login">
    <div class="login-form">
      <h1>Welcome</h1>
      <h3>Log in</h3>
    <b-form @submit="login">
      <b-form-group
        id="input-group-1"
        label="Email address:"
        label-for="input-1"
        description="We'll never share your email with anyone else."
      >
        <b-form-input
          id="input-1"
          v-model="form.email"
          type="email"
          placeholder="Enter email"
          required
        ></b-form-input>
      </b-form-group>

      <b-form-group id="input-group-2" label="Password:" label-for="input-2">
        <b-form-input
          id="input-2"
          v-model="form.password"
          type="password"
          placeholder="Enter password"
          required
        ></b-form-input>
      </b-form-group>

     <div class ="button-container">
       <b-button type="login" variant="info">Log in</b-button>
       </div>
       <div class ="button-container">
      <router-link to="/register" >
    <b-button type="register" variant="outline-info">Register</b-button>
  </router-link>
  </div>
    </b-form>
    </div>
  </div>
</template>
```

```
<script>
import { Api } from '@/Api'

export default
  {name: 'login',
  data()
    { return
    {form: {
        email: '',
        password: ''
      }
    }
  },
  methods:
    { login(event)
    {
      event.preventDefault()
      Api.post('login', this.form)
        .then(response => {
          localStorage.token = response.data.token
          localStorage.userId = response.data.user._id
          localStorage.name = response.data.user.name
          setTimeout(() => {
            this.$router.push('/')
          }, 200)
        })
        .catch(() => {
          this.$bvToast.toast('Wrong username or password. Please try again.', {title:
            'Error',
            variant: 'danger',
            autoHideDelay: 3000,
            appendToast: true
          })
        })
    }
  }
}
</script>

<style>

.content-
login{     width:
100vw;  height:
100vh;  display:
flex;
justify-content: center;
align-items: center;
flex-direction: column;
background-image: linear-gradient(rgba(0, 0, 0, 0.7), rgba(0, 0, 0,
0.7)),url("../assets/img-3.jpg");
background-color: black;
background-repeat: no-repeat;

}

.button-
container{padding:
5%;
}

.login-form{
  background-color: white;
  padding: 56px;
  padding-left: 64px;
  padding-right: 64px;
  border-radius: 12px;
}

@media screen and (max-width: 400px) {
  .login-form
    { border-radius: 0;
  }
}
</style>
```

- **Coding for Home Page**

```
<template>
 <div class ="container-home">
  <div class="header">
   <div class="text-box">
    <h1>{{welcomeMessage}}</h1>
     <div class="button-header">
      <router-link to="/bookings"><b-button type="submit" variant="info">New
booking</b-button></router-link>
     </div>
   </div>
  </div>
  <div class="booking-box">
   <h2> Your bookings</h2>
   <p v-if="requestState === 'loading'">Loading...</p>
   <p v-else-if="bookings.length === 0">You have no current bookings</p>
   <b-card-group v-else deck v-for="booking in bookings" v-bind:key="booking._id">
      <div class="booking-card">
      <b-card border-variant="secondary"
           align="center">
      <booking-item v-bind:booking="booking" v-on:del-booking="deleteBooking"/>
      <div id="card-text">
      <h3>Booking Nr: {{bookings.indexOf(booking) + 1 }}</h3>
        <h5>Date:</h5>
        <p>{{new Date(booking.date).toUTCString()}} </p>
        <h5> Laundry room: </h5>
        <p> {{booking.laundryroom}}</p>
      </div>
    </b-card>
    </div>
   </b-card-group>
   </div>
   </div>
</template>

<script>

import BookingItem from '../components/BookingItem.vue'import
{ Api } from '@/Api'
import Vue from 'vue'
import { BCard, BNavbar } from 'bootstrap-vue'
Vue.component('b-card', BCard)
Vue.component('b-navbar', BNavbar)
```

```
export default
  { name: 'bookings',
  components: {
    'booking-item': BookingItem
  },
  mounted()  { this.requestState =
    'loading'setTimeout(() => {
      Api.get('users/' + localStorage.userId + '/bookings')
        .then(response => {
          this.bookings = response.data.bookings
          this.requestState = 'success'
        })
        .catch(() =>
          { this.requestState = 'error'
          this.bookings = []
          this.$bvToast.toast('Something went wrong. Please try again.', {title:
            'Error',
            variant: 'danger',
            autoHideDelay: 5000,
            appendToast: true
          })
        })
    }, 3000)
  },
  data()
    { return
    {
      requestState: '',
      bookings: [],
      name: localStorage.name,
      welcomeMessage: 'Hello, ' + localStorage.name + '!'
    }
  },
  methods:
    { deleteBooking(id)
    {
      console.log(`Delete booking with id ${id}`)
      Api.delete(`/bookings/${id}`)
        .then(response => {
          const index = this.bookings.findIndex(booking => booking._id === id)
          this.bookings.splice(index, 1)
        })
    },
    logout(event)
      { event.preventDefault()
        .then(response => {
          localStorage.token = null
        })
        .catch(() => {
          this.$bvToast.toast('Something went wrong. Please try again.', {title:
            'Error',
            variant: 'danger',
            autoHideDelay: 3000,
            appendToast: true
          })
        })
    }
  }
}
</script>

<style>
.container-
home{display:
flex;
justify-content: center;
flex-direction: column;
}

.header{
  background-image: linear-gradient(rgba(2, 2, 2, 0.7), rgba(3, 3, 3, 0.7)),
url(../assets/img-1.jpg);
  background-size: cover;
  background-position: center;
  height: 50vh;
  background-attachment: fixed;
  color: white;
}

@media screen and (max-width: 768px) {
  .header
    { height: 30vh;
  }
}


.text-
box{ height:
100%;display:
flex;
justify-content: center;
align-items: center;
flex-direction: column;
}
```

```
.booking-box{
margin: 64px 12px 64px 12px;
display: flex;
justify-content: center;
align-items: center;
flex-direction: column;

}

.booking-
card{width:
75vw; margin:
24px; text-align:
left;display:
flex;
flex-direction: column;
}

.card-
  body{ text-
  align: left;
  background-color: #fefefe;
  border-radius: 24px;
}

.button-
  header{ margin-
  top: 24px;
}

#card-text{
  color: rgb(53, 52, 52);
}

h1 {
 font-family: Verdana;
}
</style>
```

- **Coding for Booking Window**

```
<template>
 <div class="fluid">
  <div class="header0"></div>
  <div class ="container-booking">
   <div class="booking-form">
    <section>
     <h1>Create new booking</h1>
     <h6>Select a laundry room, date and start time. <br> * Each slot is three hours
*</h6>
    </section>
   <b-form class="form" @submit="createBooking">
    <div class ="picker">
     <b-form-group label="Choose a laundry room: " v-slot="{ ariaDescribedby }">
      <b-form-radio-group
       id="radio-group-1"
       v-model="selectedLaundryRoom"
       :options="options"
       :aria-describedby="ariaDescribedby"
       name="radio-options"
      ></b-form-radio-group>
    </b-form-group>
    <div class="mt-3">Selected: <strong>{{ selectedLaundryRoom }}</strong></div>
    <div class ="date-picker">
     <label for="example-datepicker">Choose a date:</label>
     <b-form-datepicker id="example-datepicker" v-model="date_picker.value"
class="mb-2"></b-form-datepicker>
    </div>
    <div class="time-picker">
     <label for="example-timepicker">Choose a starting time:</label>
     <b-form-timepicker v-bind:hour12="false" v-model="time_picker.value"
locale="en"></b-form-timepicker>
    </div>
    </div>
    <div class="booking-button">
     <b-button type="submit" variant="info">Add new booking</b-button>
    </div>
   </b-form>
  </div>
  <div class="calendar-box">
   <h1> All bookings</h1>
   <p>Here is an overview of all bookings</p>
  <kalendar :configuration="calendar_settings" :events.sync="events" />
 </div>
```

```
  </div>
  </div>
</template>

<script>
// @ is an alias to /src
import { Api } from '@/Api'
import Vue from 'vue'
import PortalVue from 'portal-vue' import
{ Kalendar } from 'kalendar-vue'import
{ BNavbar } from 'bootstrap-vue'
Vue.use(PortalVue)
Vue.component('b-navbar', BNavbar)

export      default
  { name:  'home',
  components:
  {Kalendar
  },
  data()
    { return
    {
      selectedLaundryRoom: '',
      options: [
        { text: 'North', value: 'North' },
        { text: 'East', value: 'East' },
        { text: 'South', value: 'South' },
        { text: 'West', value: 'West' }
      ],
      date_picker:
        {value: ''
      },
      time_picker:
        {value: ''
      },
      calendar_settings: { style:
        'material_design',
        view_type: this.$isMobile() ? 'day' : 'week',
        cell_height: 10,
        scrollToNow: false,
        start_day: new Date().toISOString(),
        read_only: true,
        overlap: true,
        hide_days: [7],
        past_event_creation: true
```

```
   },
   events: []
  }
 },
 mounted() { setTimeout(()
  =>
  { this.getAllBookings()
  }, 1000)
 },
 methods:
  { getAllBookings()
  { Api.get('/bookings')
    .then(response => {
     response.data.bookings.forEach(booking => { // Loop through all bookings from
response from server
      const to = new Date(booking.date) to.setHours(to.getHours() + 3)
      // The slot becomes 3 hoursthis.$kalendar.addNewEvent(
       {
        from: new Date(booking.date).toISOString(),to:
        to.toISOString(),
        data: booking.laundryroom + ' not available'
       }
      )
     })
    })
    .catch(() => {
     this.$bvToast.toast('Something went wrong. Please try again.', {title:
      'Error',
      variant: 'danger',
      autoHideDelay: 5000,
      appendToast: true
     })
    })
  },

  createBooking(event)
   { event.preventDefault()
   Api.post('users/' + localStorage.userId + '/bookings', {
    date: this.date_picker.value + 'T' + this.time_picker.value + 'Z',
    laundryroom: this.selectedLaundryRoom
   })
    .then(response =>
     { this.createNotification()
     window.location.reload()
    })
```

```
        .catch(() => {
          this.$bvToast.toast('Something went wrong. Please try again.', {title:
            'Error',
            variant: 'danger',
            autoHideDelay: 5000,
            appendToast: true
          })
        })
    },
    createNotification(event) {
      Api.post('users/' + localStorage.userId + '/notifications', { content:
        'This is a reminder of your booked laundry time slot: ' +
this.date_picker.value + ' ' + this.time_picker.value,laundryroom:
        this.selectedLaundryRoom
      })
    }
  }
}
</script>

<style>

.header0{
  background-image: linear-gradient(rgba(3, 3, 3, 0.7), rgba(3, 3, 3, 0.7)),
url(../assets/img-15.jpg);
    background-size: cover;
    background-position: center;
    height: 50vh;
    background-attachment: fixed;
    color: white;
}

@media screen and (max-width: 768px) {
  .header0
    { display: none;
  }
}


.container-
booking{      display:
flex;
justify-content:    center;
flex-direction:   column;
margin: 24px auto;
}
.booking-
  form{ width:
```

```
  100%; padding:
  24px;
  background-color: rgb(254, 254, 254);
  align-items: center;
  display: flex;
  justify-content: center;
  flex-direction: column;
}

 @media screen and (max-width: 768px) {
  .booking-
    form{ padding:
    24px 0;
  }
}


.booking-
  button{margin:
  24px;
}

.form{
  width: 100%;
  display: flex;
  flex-direction: column;
  align-items: center;
  }

.date-picker{
  max-width: 185px;
}
.picker{
  width: 100%;
  display: flex;
  padding: 24px;
  justify-content: center;
  align-items: center;
  flex-direction: column;
  background-color: #f6fbfc;
  border-radius: 12px;
}

.calendar-box{ margin:
  36px auto 0;width:
  90vw;
}
p {
```

```
font-family: Verdana;
}

</style>
```

LBMS report

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