

E-Catering Sales and Ordering Application in Web-Based Raden Catering Business Using the Prototype Method

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ABSTRACT

The E-Catering application is a means that allows people to sell and buy their catering services. This application is designed to be used through smartphone devices, making it easier for users to order food. Raden Catering, which is located at Jalan Cideng Barat Dalam 12 No.1, RT 06/RW 10 Cideng Village, Gambir District, Central Jakarta, 10150, is an example of a catering business that has been operating for 20 years. Even though it has many customers, the catering ordering process so far is still carried out conventionally through direct communication or telephone, which can be less efficient compared to the use of the internet. Therefore, researchers developed this application so that people can order catering more easily and flexibly through an internet connection. The app consists of two parts, namely an app for customers and an app for admins. The results of the study show that application development can be done iteratively, allowing stakeholders to provide input throughout the development process. Customers can easily browse the menu, choose catering packages, and place orders without the need to visit the office in person or contact directly.

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1. INTRODUCTION

The development of information technology is going very rapidly [1]. It is undeniable that all sectors, including the business world, take advantage of technological advances to make their work easier [2]. With the sophistication of technology, all the limitations of distance and time facilities have become a very easy problem. In the business world, both

companies and other sectors are required to innovate in attracting buyers [3]. Because the reason is, in terms of ordering, the seller always experiences service constraints such as limited coverage of the order area and product promotion, which is quite difficult to get many buyers [4]. The business sector is increasingly triggered to use advanced technology as a tool or medium to survive and win the increasingly fierce competition [5]. With business competition in the same field, to be able to keep up with technological developments such as utilizing the internet to create a site that can serve online bookings [7].

Catering services are included in the *Commercial Catering* industry, namely the purpose and purpose of the company is to earn profits through *catering services* that aim to meet and satisfy consumer needs through the products (services) provided [8];[9]. Catering products, namely food, are a benchmark for consumer satisfaction that is adjusted to the habits and experiences of the consumers who enjoy the product [10].

The *catering* business is a popular business in the culinary or culinary world, on every occasion and moment of the event, we often encounter a variety of delicious food offered by *catering* entrepreneurs. *Catering* can be defined as one of the services in the field of ready-made food delivered directly to the place of booking at an event. Events such as weddings often require *catering* services, seminars, religious events, birthdays, etc. These activities often require the organizer to hire this *catering* service to prepare food as needed.

Raden *Catering* is a form of business in the field of catering sales. Raden *catering's* business now has many transactions with consumers, but so far the process of delivering information is still from word of mouth and the order is still via phone which will be narrower than today's internet media. Although there are still few consumers compared to other *catering businesses* that already have a lot of customers because of the progress of managing the sales system. And according to the admission of the catering business owner, it is indeed because of the difficulty of the process of delivering information and in ordering *catering*, it feels like they do not get additional customers and profits. Consumers have to call and sometimes consumers also have to come to Raden *catering* themselves due to limited information. This method is certainly very ineffective and efficient for consumers who come from outside the Raden *catering location*.

In accordance with the description of the problem above, the caterer solution will be provided, namely by creating a web-based application that can help customers in terms of ordering catering in a structured manner from choosing menus, ordering, payment, transaction recording, to ordering reports for customers. As well as assisting the catering in terms of making bills through a *web-based* system, recording customer transactions in detail, recording customer payments, reminding *catering admins* if there are customers who have not paid off payments, to the process of making monthly transaction reports such as catering sales reports on Raden *Catering*.

2. RESEARCH METHOD

2.1. Research Object

The research object is the focus of the research area. Furthermore, from this object, the author will explore various literature studies, theories, data, and analyses of the research object to obtain results that are in accordance with the objectives of the research output [11]. So, this research was carried out in a catering food business called Raden Catering which is located on Jl. Cideng Barat Dalam 12 No.1, RT 06/RW 10 Cideng Village, Gambir District, Central Jakarta City. This business is engaged in the field of food sales, in order to conduct research as needed to complete the information requested.

2.2. Data Collection Methods

The following are the data collection techniques carried out in this study:

2.2.1. Interview

This interview or interview technique is conducted face-to-face through questions and answers between researchers or data collectors and resource persons or informants or data sources. The data collection technique through interviews is usually carried out as a preliminary study because this technique is impossible if the number of respondents is large.

2.2.2. Observation

The observation technique refers to the systematic observation and recording of the symptoms of the research subject. Classified as the simplest data collection technique, this type of observation is also widely used in statistical surveys, such as studying the attitudes and behaviors of a group of people. Using observation techniques, researchers often travel to locations to determine the right measuring instrument to use.

2.2.3. Documentation

The documentation method is one of the data collection methods used in social research methods. Basically, the documentation method is used to trace historical materials or historical data. Documents can be text, images, or monumental works of a person. Documentary research complements the observation and interview methods used in qualitative research. This method comes in the form of information that comes from important records of institutions or organizations or individuals. The use of this documentation method can strengthen and support the information obtained, judging from the results of observations and interviews.

3. RESULTS AND DISCUSSION

3.1. Research Results Data

3.1.1. Quick Design & Quick Plan

3.1.1.1. Designing Diagram Design

At this stage, the results obtained from the proposed business process are translated into the form of UML (*Unified Modeling Language*) [12], in this study 3 types of diagrams are used, including *Usecase Diagram*, *Activity Diagram*, and *Class Diagram*, The following are the results of the system design:

3.1.1.1.1 Usecase Diagram

A *usecase diagram* is a diagram that illustrates the relationship between actors and the system [13]. A *usecase diagram* can describe an interaction between one or more actors with the system to be created. *Usecase diagrams* can also be used to find out what functions exist in a system and can also present an actor's interaction with the system. The proposed *Usecase diagram* has 2 actors, namely admins, customers, among others:

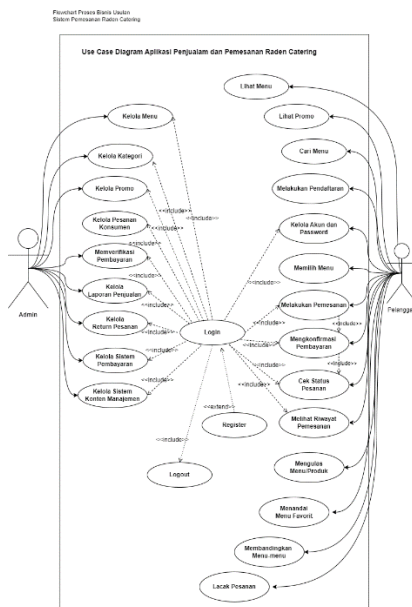


Figure 1. Diagram Use Case

3.1.1.1.2 Activity Diagram

Activity Diagram is the design of an activity flow or workflow in a system that will be executed [14]. *Activity Diagrams* are also used to define or group the display flow of the

system. An Activity Diagram has a component with a specific shape that is connected by an arrow. The arrow points to the sequence of activities that occur from beginning to end. The proposed Activity Diagram includes:

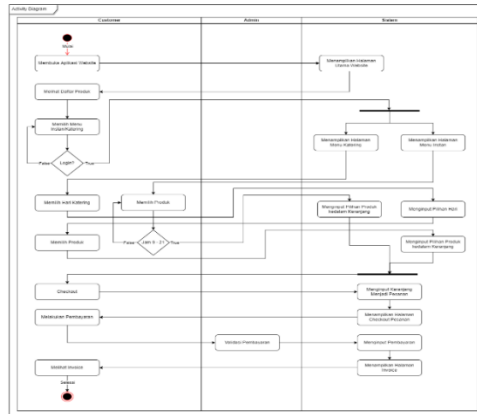


Figure 2. Diagram Activity

3.1.1.1.2.1 Activity Diagram Login

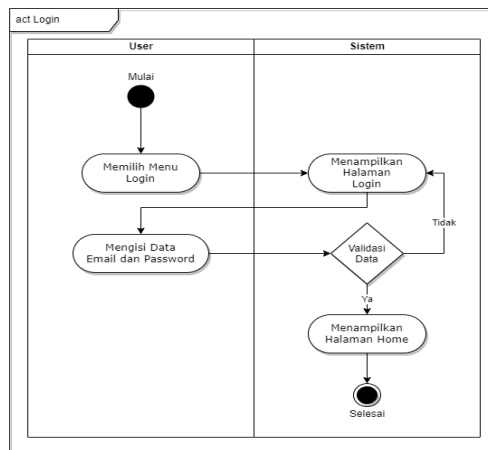


Figure 3. Activity Diagram Login

3.1.1.1.2.2. Activity Diagram Register

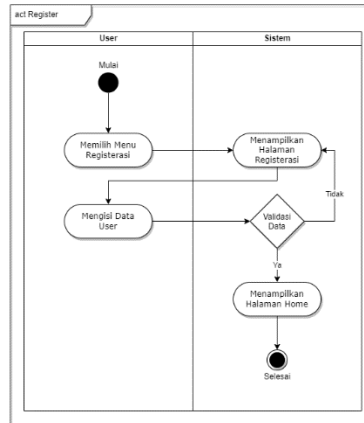


Figure 4. Activity Diagram Register

3.1.1.1.2.3. Activity Diagram Logout

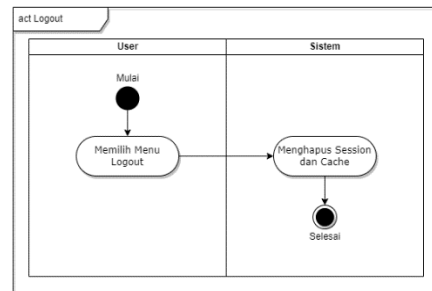


Figure 5. Activity Diagram Logout

3.1.1.1.2.4. Activity Diagram Profile

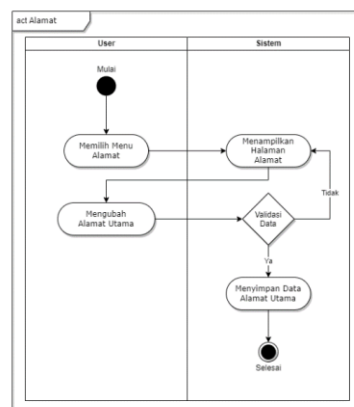


Figure 6. Activity Diagram Profile

3.1.1.1.2.5. Address Activity Diagram

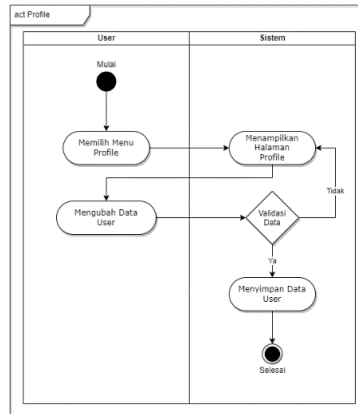


Figure 7. Address Activity Diagram

3.1.1.1.3. Class Diagram

Class Diagram is a type of structure diagram in UML that clearly illustrates the structure and description of classes, attributes, methods, and relationships of each object [15]. It is static, in the sense that the Class Diagram does not explain what happens if the classes are related, but explains what relationships occur. This Class Diagram is appropriate if implemented to a project that uses the concept of Object-Oriented Programming (OOP) because the outline of the Class Diagram is quite easy to use. The model design of the Class Diagram itself is divided into two parts. The first part is an elaboration of the database. The second part is part of the MVC module, which has a class interface, a control class, and a class entity. The proposed Class Diagram includes:

3.1.1.1.3.1. Implementation and Coding Stage (Build or Revise Prototype)

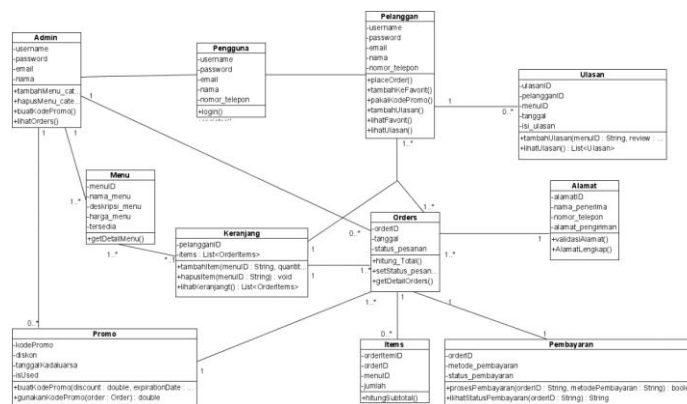


Figure 8. Class Diagram of Raden Catering Sales & Ordering System

3.1.1.2. Library Object Oriented (Package OOP)

The framework has a wide selection of *object-oriented libraries* that other frameworks don't, making it very useful for building complex applications [16]. Here are *the libraries or packages* used in application development:

3.1.1.2.1. Laravel Permission

Laravel *Permission* is a *package or package* to create restrictions on user access rights on an application [16]. Laravel *Permissions* have 2 types of restrictions, namely: *Role* and *Permission*. *Role* can be interpreted as the level or position owned while *Permission* can be interpreted as a restriction of the user on each page. Users can be limited to their access rights individually on each page using *permissions* or can be grouped according to their *roles*. In this application, the restrictions used are *Role* and *Permission*, there are 2 roles that have been set, namely: *Admin*, and *Customer*, while for *the Permission* of each *Role*, namely:

3.1.1.2.2. Admins

Admins have all the access rights in the application.

3.1.1.2.3. Customers

Customers have access rights to go to the main page, order page, transaction history page, profile, and more

```
<?php
namespace Webkul\User;
class Bouncer
{
    /**
     * Cek apakah pengguna ditizinkan atau tidak
     * melakukan tindakan tertentu
     * @param string $permission
     * @return void
     */
    public function hasPermission($permission)
    {
        if (
            auth()->guard('admin')->check()
            && auth()->guard('admin')->user()->role->permission_type == 'all'
        ){
            return true;
        } else {
            if (
                ! auth()->guard('admin')->check()
                || ! auth()->guard('admin')->user()->hasPermission($permission)
            ){
                return false;
            }
        }
        return true;
    }
}
```

Figure 9. User Permission Coding in Laravel

3.1.1.3. Tool Artisan

The Artisan tool has functions for Laravel's interaction with other frameworks with the help of *the command line*. The existence of artisans makes *it easy for developers* to carry out various activities across frameworks without fear of problems. Some of the artisan writing and its functions, namely:

3.1.1.3.1. php artisan serve

This tool serves to turn on and run the Laravel server so that the application can be accessed during the creation and development process, usually the default url provided for developers to access is <http://127.0.0.1:8000>. The url can be changed with an additional command, i.e.: `php artisan serve --host=192.0.0.1 --port=8001`. The `--host` function is to change the main domain and `--port` to change the port, host and port are useful for opening multiple Laravel applications at the same time without fear of errors caused by url access that is being used by more than 1 application, using the same url but Different route lists at the same time can cause errors due to irregular data accumulation.

3.1.1.3.2. php artisan migrate

This tool functions to create a database through Laravel, in the *tables, fields, and attributes* in the database will be automatically created according to the design of the structure using *the code* inserted in the *migrations folder*. This command can be changed with additional commands, such as: `php artisan migrate:fresh --seed`. The *fresh* function retrieves all the data that has been populated in the *database* and `--seed` will call *the seeders folder* to send *the fields* in the table whose attributes have been adjusted following *the code* in the *migrations folder*.

3.1.1.3.3. php artisan make

This tool works to automatically create OOP or MVC files, here is an example of writing:

- a. `PHP artisan make:controller` (filename), which serves to create *a controller file*.
- b. `PHP artisan make:model` (filename), works to create *model files*.
- c. `PHP artisan make:migration` (filename), works to create *a migration file*.
- d. `PHP artisan make:seeder` (filename), which works to create *a seeder file*.
- e. `php artisan route:list`. This tool functions to view and display a list of *urls or links* that can be accessed by application users.

3.1.1.6. Controller

Controller, its function is to create logic and commands that will be the link between the data and the display, usually the data from the model will be processed first by the logic contained in the *controller* before the data is displayed and will set which display to display on the *browser*, *script*:

```
1 <?php
2
3 namespace Webku\Admin\Http\Controllers\Settings;
4
5 use Illuminate\Http\JsonResponse;
6 use Illuminate\Support\Facades\Redis;
7 use Illuminate\Support\Facades\Storage;
8 use Illuminate\Support\Str;
9 use Webku\Admin\DataGrids\Settings\UserDataGrid;
10 use Webku\Admin\Http\Controllers\Controller;
11 use Webku\Admin\Http\Requests\UserForm;
12 use Webku\User\Repositories\AdminRepository;
13 use Webku\User\Repositories\RoleRepository;
14
15 class UserController extends Controller
16 {
17     /**
18      * Buat Controller Pengguna.
19      *
20      * @return void
21      */
22     public function __construct(
23         protected AdminRepository $adminRepository,
24         protected RoleRepository $roleRepository
25     ) {}
26
27     /**
28      * Menampilkan daftar resource.
29      *
30      * @return \Illuminate\View\View
31      */
32     public function index()
33     {
34         if (request()->ajax()) {
35             return app(UserDataGrid::class)->toJson();
36         }
37
38         $roles = $this->roleRepository->all();
39
40         return view('admin:settings.users.index', compact('roles'));
41     }
42 }
```

Figure 12. Controller Coding in Laravel

3.1.1.7. Views

View, its function to create a design or view that will be seen by the application user, *View* in Laravel has a file type named *.blade.php*, *script*:

```
1 @php
2     $channel = core()->getCurrentChannel();
3 @endphp
4
5 @section('meta')
6     @if ($channel->home_seo['meta_title'] ?? '')
7         <meta name="title" content="{{ $channel->home_seo['meta_title'] }}" />
8     @endif
9     @if ($channel->home_seo['meta_description'] ?? '')
10        <meta name="description" content="{{ $channel->home_seo['meta_description'] }}" />
11    @endif
12    @if ($channel->home_seo['meta_keywords'] ?? '')
13        <meta name="keywords" content="{{ $channel->home_seo['meta_keywords'] }}" />
14    @endif
15 @endSection
16
17 @section('layouts')
18     @if ($channel->home_seo['meta_title'] ?? '')
19         <title>{{ $channel->home_seo['meta_title'] }}</title>
20     @endif
21
22     @if ($channel->home_seo['meta_title'] ?? '')
23         <meta name="description" content="{{ $channel->home_seo['meta_description'] }}" />
24     @endif
25
26     @if ($channel->home_seo['meta_title'] ?? '')
27         <meta name="keywords" content="{{ $channel->home_seo['meta_keywords'] }}" />
28     @endif
29
30 @endSection
31
32 @section('content')
33     @if ($channel->home_seo['meta_title'] ?? '')
34         <h1>{{ $channel->home_seo['meta_title'] }}</h1>
35     @endif
36
37     @if ($channel->home_seo['meta_title'] ?? '')
38         <h2>{{ $channel->home_seo['meta_title'] }}</h2>
39     @endif
40
41     @if ($channel->home_seo['meta_title'] ?? '')
42         <h3>{{ $channel->home_seo['meta_title'] }}</h3>
43     @endif
44
45     @if ($channel->home_seo['meta_title'] ?? '')
46         <h4>{{ $channel->home_seo['meta_title'] }}</h4>
47     @endif
48
49 @endSection
```

Figure 13. Encoding views in Laravel

3.1.1.8. Blade Template Engine

The *Blade Template* will make the application look lightweight and allow developers to create *powerful websites*. Where the available *template blades* can be added CSS, *images*, and text according to your needs [18]. *Blade Template* makes it easy for developers to set script structures in *folders* that don't have to be repeated many times, such as: *Meta, Heading, Footer, Sidebar, Title, Css, Js*, etc. *Blade* provides several features, such as:

- 1) `@extends()`, which serves to retrieve and use *the base script template*.
- 2) `@yield()` and `@section()`, `@yield` serves to empty and provide space that the existing HTML script can fill in different files, `@section()` functions to fill in the blank HTML *script* in `@yield()`.
- 3) `@include()`, functions to retrieve the html script on the file in the Views folder.
- 4) `@stack()` and `@push()`, the function is the same as `@yield()` and `@section()`, the difference is that the content in `@stack()` and `@push()` is usually *a script* in the form of CSS and JS.
- 5) `asset()`, which functions to retrieve files that are in the *public folder*, usually used to capture images, videos, *scripts*, etc.

3.1.1.9. Routing

Laravel routing can be used to create structured and neatly organized applications with ease. Where all *requests* are mapped with the help of *routes*. Developers can group, name, apply *filters*, and retrieve data from models within the *route*. Some examples of Routing implementations in Laravel are:

- 1) `Auth::routes()`, works to use *authentication-related routes*.
- 2) `Route::group()`, which serves to group multiple *urls*.
- 3) `Route::middleware()`, which serves to group permissions on *the url*.
- 4) `Route::prefix()`, which serves to group and give names to *existing subdomains* in url.
- 5) `Route::name()`, which serves to group and give a name to the route list.
- 6) `Route::controller()`, works to group multiple urls that use *the same* controller file.
- 7) `Route::get()`, works to display logic, data, pages.
- 8) `Route::post()`, which serves to send data into the *database*.
- 9) `Route::put()` or `Route::patch()`, works to modify and transmit data to the *database*.
- 10) `Route::delete()`, which deletes the data that exists in the *database*.
- 11) `Route::resource()`, which allows you to group `get()`, `post()`, `put()`, and `delete()` routes into a single script line.

3.1.1.10. Testing and Debugging

Laravel is built with a fairly complete checking process feature [19]. Where it supports the checking process with PHP *Units* and *phpunit.xml* files that can be adapted to the application being built [20]. Laravel is built using convenient helper methods, which allow you to test your application expressively. Testing is usually carried out before entering the production stage or publishing the application on the *web*. There are many ways that can be used for *testing* and *debugging*, some example *scripts* to create them, namely: `dd()` and `var_dump()`.



Figure 14. Testing and Debugging Images

3.2. Trial Phase (*Testing Prototype*)

3.2.1. User Interface

3.2.1.1. Login

The *Login Page* is the process of entry for users to access a system. *Login* aims to regulate the process of identifying users who have personal data on a *website*. The *login process* consists of a *username* or *email* account and a *password* to get access rights. After logging into the system that has been designed on an application, we can monitor user activities on a *log* owned by an application or *web*, thus the user is also limited by role access rights that have been set by the system, so that each user has different access rights adjusted from their level level.

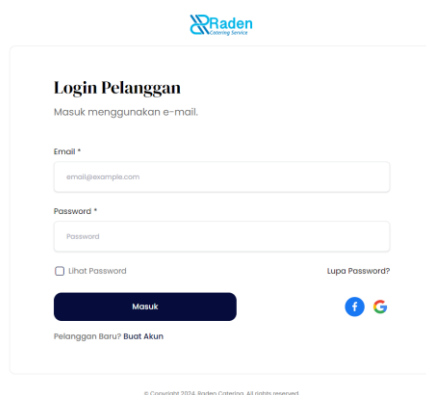


Figure 14. Customer Login Page

3.2.1.2. Register

The register form is used to add new user data, where the user data to be input is name, whatsapp number, email and password twice. Where for the user id and access rights column, we will create it automatically because this register form is intended for buyers or customers, so the access rights column will automatically contain the user and the system will validate the input data so that it cannot be filled in by the user. When creating the form, make sure that the maxlength must be the same length as what we created in the database and if the field has to be filled in don't forget to add the require.

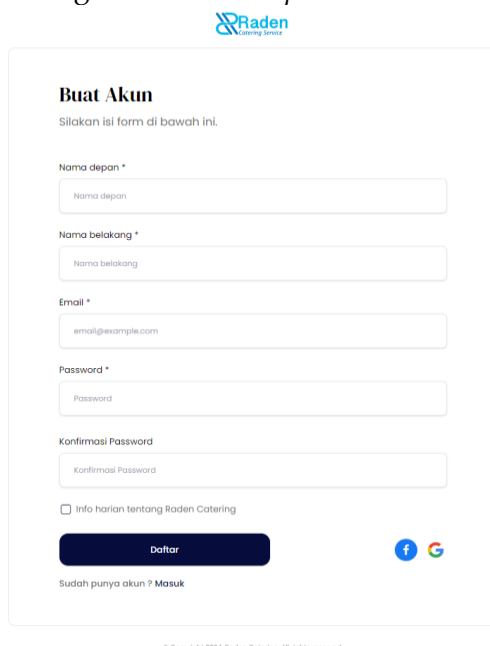


Figure 15. Image Create Account

3.2.1.3. Index Page

The *index* page or the main page when you first access *the web*, this page contains a purchase menu for the *catering* packages offered, categories and contents of the menu.

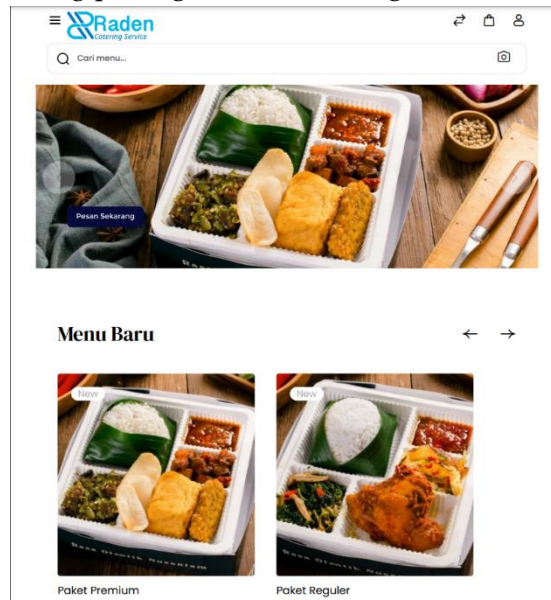


Figure 16. Index Page or Uatama Page



Gambar 17. Halaman Index atau Halaman Uatama

3.2.1.4. Catering Order

This page displays catering products or menus that can be ordered for *catering* needs.

Click on the message to add the product to the *catering cart*.

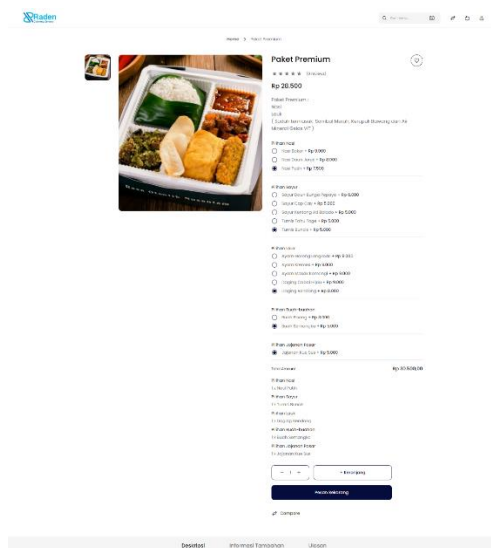


Figure 18. Catering Order Page

3.2.1.5. Catering Cart

This page is a catering cart page that displays the selected products, selects the delivery date, completes the address and notes before paying for the order.

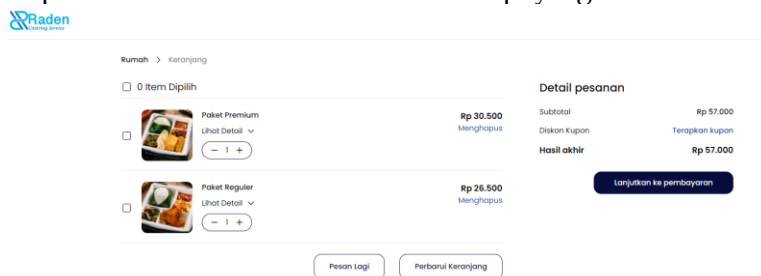


Figure 19. Halaman Catering Cart

3.2.1.6. Customer Profile Page

This page displays the user's biodata, users can change their biodata, profile photo, and password.

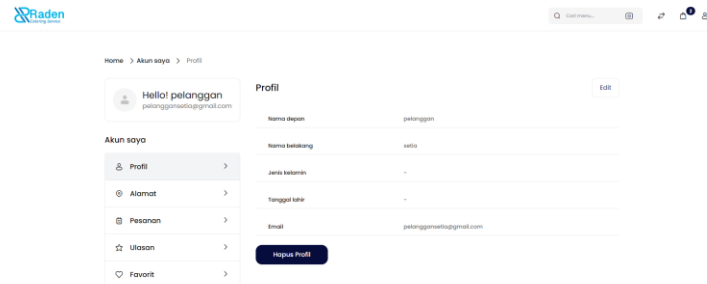


Figure 20. Customer Profile Page

3.2.1.7. History Order Customer

This page displays the history of all transactions by category, users can view the history of catering and instant transactions.

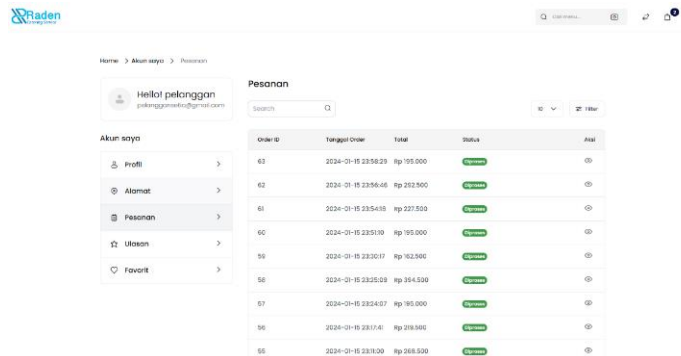


Figure 21. Customer Order History Page

3.2.1.8. Dashboard Admin

This page displays up-to-date data related to user data, transaction data, and order data status.

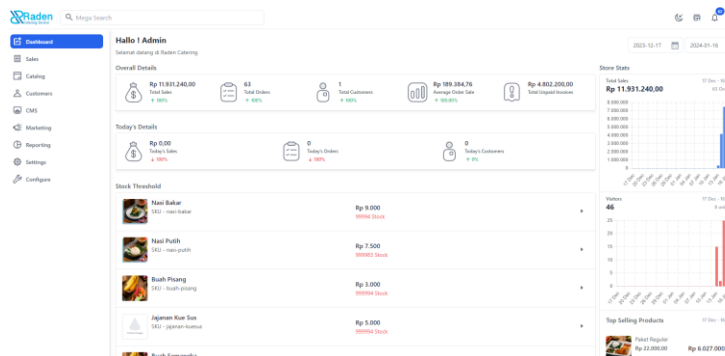
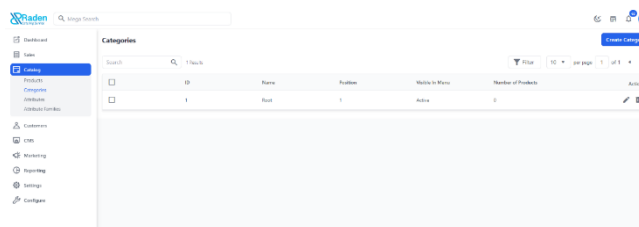


Figure 22. Admin Dashboard Page

3.2.1.9. Menu Category Admin

This page displays category data that can be added, changed and deleted.



Gambar 23. Menu Category Admin

3.2.1.10. Product Page in Admin

This page displays product data that can be added, changed and deleted.

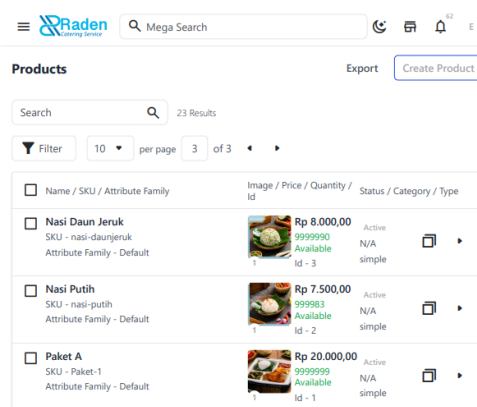


Figure 24. Product Admin Menu Page

3.2.1.11. Admin View of Catering Order List

This page displays data for all *catering* orders, data can be filtered to display monthly data, and data can be used as a report using *pdf* export.

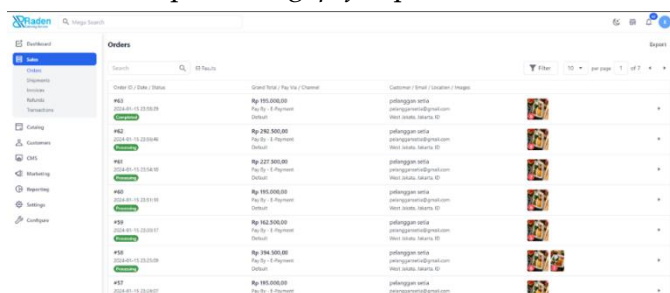


Figure 25. Catering Order Admin Display Page

4. CONCLUSION

The web-based sales and ordering application of Raden Catering business with the *prototype* method offers a number of significant benefits. By using a *prototype* approach, application development can be carried out iteratively, allowing stakeholders to provide input throughout the development process. Through the *prototype* phases, customer needs and preferences can be accommodated effectively, increasing customer satisfaction. This application provides convenience in the process of ordering and selling *e-catering* services. Customers can easily browse the menu, choose *catering* packages, and place orders without the need to visit the office in person or contact directly. This not only speeds up the process, but also improves customer convenience, providing a positive experience. Additionally, the order tracking feature and online payment integration provide transparency and administrative ease for both customers and service providers. This system can assist Raden Catering in managing orders efficiently, improving operational effectiveness, and reducing potential errors in administrative processes.

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