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# **INDIVIDUAL ASSIGNMENT**

**LEVEL 5**

**COMP50016-2**

**Server Side Programming 2**

**IF2321SE**

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**CB010454**

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## **INSTRUCTION TO CANDIDATES**

- 1. Late submission will be awarded zero (0) unless extenuating circumstances (EC) are upheld.**
- 2. Cases of plagiarism will be penalized.**
- 3. The assignment should be submitted as softcopy via LMS**

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## **Introduction**

A Salon was chosen as the business to develop a CRM + Booking system. The initial steps in building the application was done in the previous semester.

This semester improved and build upon the previous semester work provide the cart flow and Appointment Booking functionality, Multiple categories, locations for the salon, use of Email notifications, using queued jobs in sending emails and capturing the views of the users, appointment management, analytics data display.

The system was built using the **TALL stack - Tailwind, Alpine.js, Laravel, and Livewire**  
To demonstrate the emails a service called Mailtrap was used.

**The project has been hosted on GitHub.**

<https://github.com/sachintha-lk/CRM-laravel>

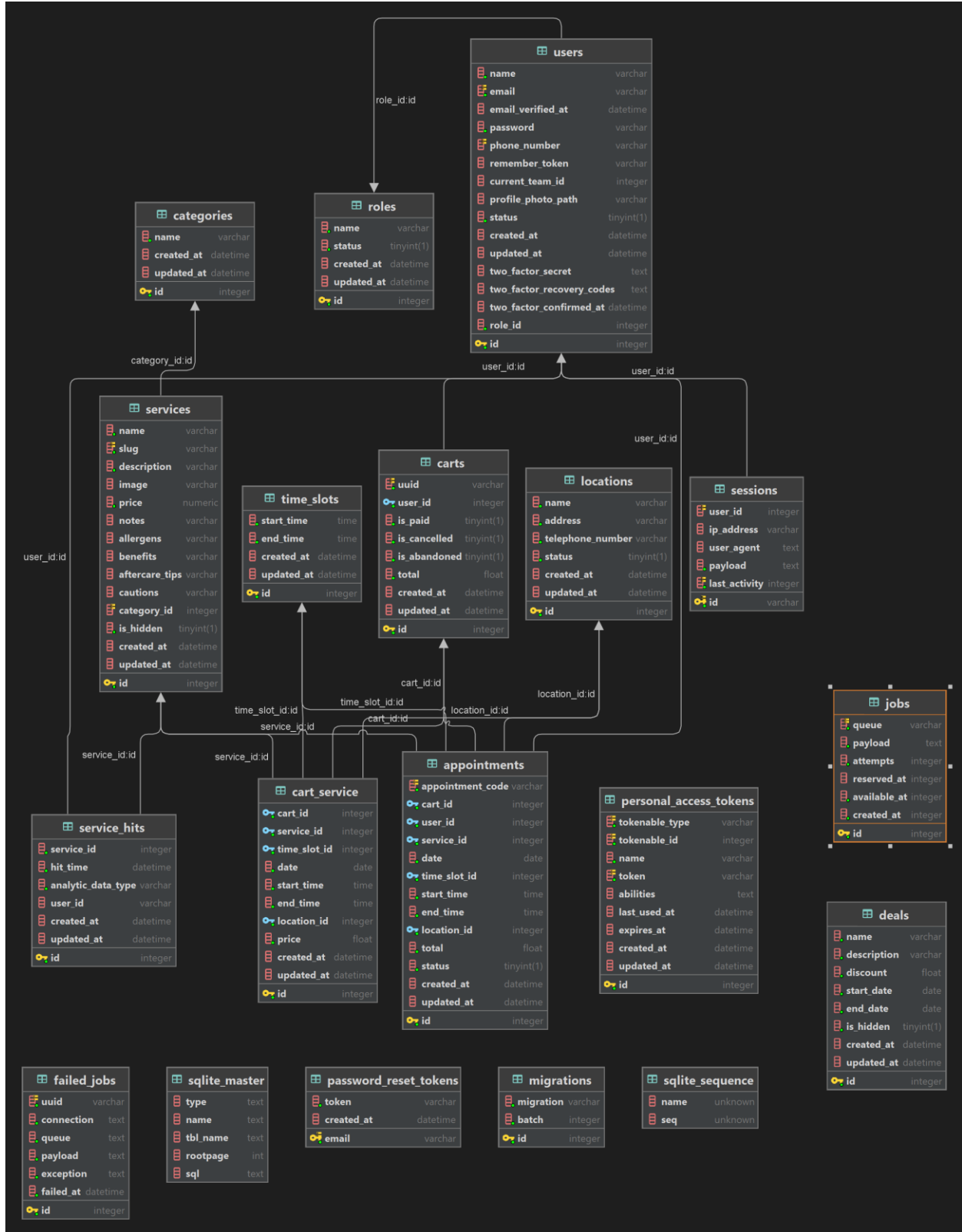
**The link to the mind map that was submitted in the previous assignment**

<https://gitmind.com/app/docs/mktle1ou>

## **Assumptions**

Only one customer can be served per location for a given time slot.

# Database Diagram Export



## **Features**

The system development included, building of the system on top of the functionality that was completed during the semester 1. The development included the creation of locations for salon and categories for the services. The cart system, and the appointment management was also done. The analytical details of the purchase are and services, customers are also displayed.

### **Booking an appointment**

The appointment booking is done by first adding to the cart, the user selects the location of the booking, and the date. The system then checks for availability and disables the timeslots that are not available.

### **Cart**

A cart system was created for the user to add the services to the cart. It also included creation of a pivot table called cart\_services. The system checks if there are any booking for that time slot before creation of the appointment at Checkout

### **Appointment creation**

At checkout the appointment is created. Then an email is sent to the customer as a confirmation of the booking.

### **Appointment management**

The staff can manage appointments of all customers, a customer can manage their appointments.

### **Page view hit analytics**


The views of the pages is recorded using a queued job

### **View analytics of customer and services**

The staff can view the information related to the services such as the views, appointments, and revenue.

# User Interfaces

## Services view

Home Services Deals Login Register


### Services

SearchMost Popular ▾

Category + -

- Skin
- Makeup
- Hair
- Nails

Size + -




**Nail Extensions**

Get beautiful nail extensions for a stylish look.

**LKR 1250**  
LKR 4,000.00 10% off

BOOK NOW




**Hair Coloring - Highlights**

Add vibrant highlights to your hair for a stunning effect.



**LKR 3000**  
LKR 4,000.00 10% off

BOOK NOW

## Cart View

Home Services Deals Dashboard **C1** Customer 1 ▾

### Cart

Service	Price	Date	Time Slot	Location	
 <b>Nail Extensions</b>	LKR 1,250.00	2023-10-19	10:00 am - 11:00 am	Location 1 z	<a href="#">Remove</a>
 <b>Hair Coloring - Highlights</b>	LKR 3,000.00	2023-10-25	11:00 am - 12:00 pm	Location 3 z	<a href="#">Remove</a>

#### Summary

Subtotal **LKR 4,250.00**

**Total LKR 4,250.00**

Checkout



# Appointments Customer view



Menu  
Dashboard

## Upcoming Appointments

Search Appointments...  Upcoming

Code	Service	Date	Time Slot	Location	Address	Contact No	Actions
APP-12	Hair Treatment - Scalp Massage	2023-10-01	12:00:00 - 13:00:00	Location 1	Address 1	1234567890	<input type="button" value="CANCEL"/>
APP-3	Hair Treatment - Deep Conditioning	2023-10-04	16:00:00 - 17:00:00	Location 1	Address 1	1234567890	<input type="button" value="CANCEL"/>
APP-4	Hair Treatment - Deep Conditioning	2023-10-09	13:00:00 - 14:00:00	Location 2	Address 2	1234567890	<input type="button" value="CANCEL"/>
APP-11	Nail Extensions	2023-10-17	13:00:00 - 14:00:00	Location 2	Address 2	1234567890	<input type="button" value="CANCEL"/>
APP-8	Nail Extensions	2023-10-18	13:00:00 - 14:00:00	Location 1	Address 1	1234567890	<input type="button" value="CANCEL"/>
APP-5	Nail Extensions	2023-10-18	14:00:00 - 15:00:00	Location 3	Address 3	1234567890	<input type="button" value="CANCEL"/>
APP-9	Nail Extensions	2023-10-20	13:00:00 - 14:00:00	Location 3	Address 3	1234567890	<input type="button" value="CANCEL"/>
APP-7	Nail Extensions	2023-10-24	13:00:00 - 14:00:00	Location 2	Address 2	1234567890	<input type="button" value="CANCEL"/>



Menu  
Dashboard

## Dashboard

## Previous Appointments

Search Appointments...  Previous

Code	Service	Date	Time Slot	Location	Address	Contact No	Actions
APP-2	Hair Treatment - Scalp Massage	2023-09-29	10:00:00 - 11:00:00	Location 2	Address 2	1234567890	



Menu  
Dashboard

## Dashboard

## Cancelled Appointments

Search Appointments...  Cancelled

Code	Service	Date	Time Slot	Location	Address	Contact No	Actions
APP-1	Nail Extensions	2023-09-29	10:00:00 - 11:00:00	Location 1	Address 1	1234567890	







# User profile view with stats and appointment history



Menu

- Dashboard
- CRM Manage
  - Manage Users
  - Manage Locations
  - Manage Appointments
  - Manage Services
  - Manage Categories
  - Manage Deals

**C1**  
**Customer 1**  
Customer

Phone No. 1299567890      Email cust1@gmail.com

Status Active

Joined Date 2023-09-29

Last Appointment Hair Treatment - Scalp Massage

Last Appointment Date 2023-10-25

[Show Full Information](#)

## Upcoming Appointments

Search Appointments... Search Upcoming

Code	Service	Date	Time Slot	Location	Customer	Contact No	Email	Actions
APP-3	Hair Treatment - Deep Conditioning	2023-10-04	16:00:00 - 17:00:00	Location 1	Customer 1	1299567890	cust1@gmail.com	CANCEL
APP-4	Hair Treatment - Deep Conditioning	2023-10-09	13:00:00 - 14:00:00	Location 2	Customer 1	1299567890	cust1@gmail.com	CANCEL
APP-8	Nail Extensions	2023-10-18	13:00:00 - 14:00:00	Location 1	Customer 1	1299567890	cust1@gmail.com	CANCEL
APP-5	Nail Extensions	2023-10-18	14:00:00 - 15:00:00	Location 3	Customer 1	1299567890	cust1@gmail.com	CANCEL
APP-9	Nail Extensions	2023-10-20	13:00:00 - 14:00:00	Location 3	Customer 1	1299567890	cust1@gmail.com	CANCEL
APP-7	Nail Extensions	2023-10-24	13:00:00 - 14:00:00	Location 2	Customer 1	1299567890	cust1@gmail.com	CANCEL
APP-6	Hair Coloring - Highlights	2023-10-25	10:00:00 - 11:00:00	Location 3	Customer 1	1299567890	cust1@gmail.com	CANCEL

# Manage Appointments view emp/admin

**Salon Bliss** Home Services Deals Dashboard Admin

Menu

- Dashboard
- CRM Manage
- Manage Users
- Manage Locations
- Manage Appointments**
- Manage Services
- Manage Categories
- Manage Deals

### Upcoming Appointments

Search Appointments... Search Upcoming

Code	Service	Date	Time Slot	Location	Customer	Contact No	Email	Actions
APP-12	Hair Treatment - Scalp Massage	2023-10-01	12:00:00 - 13:00:00	Location 1	Kim Hammond	0121212425	bofaboka@mailinator.com	CANCEL
APP-3	Hair Treatment - Deep Conditioning	2023-10-04	16:00:00 - 17:00:00	Location 1	Customer 1	1299567890	cust1@gmail.com	CANCEL
APP-4	Hair Treatment - Deep Conditioning	2023-10-09	13:00:00 - 14:00:00	Location 2	Customer 1	1299567890	cust1@gmail.com	CANCEL
APP-11	Nail Extensions	2023-10-17	13:00:00 - 14:00:00	Location 2	Kim Hammond	0121212425	bofaboka@mailinator.com	CANCEL
APP-8	Nail Extensions	2023-10-18	13:00:00 - 14:00:00	Location 1	Customer 1	1299567890	cust1@gmail.com	CANCEL
APP-5	Nail Extensions	2023-10-18	14:00:00 - 15:00:00	Location 3	Customer 1	1299567890	cust1@gmail.com	CANCEL

**Salon Bliss** Home Services Deals Dashboard Admin

Menu

- Dashboard
- CRM Manage
- Manage Users
- Manage Locations
- Manage Appointments**
- Manage Services
- Manage Categories
- Manage Deals

### Previous Appointments

Search Appointments... Search Previous

Code	Service	Date	Time Slot	Location	Customer	Contact No	Email	Actions
APP-1	Nail Extensions	2023-09-29	10:00:00 - 11:00:00	Location 1	Customer 1	1299567890	cust1@gmail.com	
APP-2	Hair Treatment - Scalp Massage	2023-09-29	10:00:00 - 11:00:00	Location 2	Customer 1	1299567890	cust1@gmail.com	

**Salon Bliss** Home Services Deals Dashboard Employee 1

Menu

- Dashboard
- CRM Manage
- Manage Appointments**
- Manage Services
- Manage Categories
- Manage Deals

### Cancelled Appointments

Search Appointments... Search Cancelled

Code	Service	Date	Time Slot	Location	Customer	Contact No	Email	Actions
APP-1	Nail Extensions	2023-09-29	10:00:00 - 11:00:00	Location 1	Customer 1	1299567890	cust1@gmail.com	

Menu

- [Dashboard](#)
- [CRM Manage](#)
- [Manage Users](#)
- [Manage Locations](#)
- [Manage Appointments](#)
- [Manage Services](#)
- [Manage Categories](#)
- [Manage Deals](#)

### Upcoming Appointments

Search
Upcoming ▼

Code	Service	Date	Time Slot	Location	Customer	Contact No	Email	Actions
APP-12	Hair Treatment - Scalp Massage	2023-10-01	12:00:00 - 13:00:00	Location 1	Kim Hammond	0121212425	bofaboka@mailinator.com	<a href="#" style="background-color: #e91e63; color: white; padding: 5px 10px; border-radius: 5px;">CANCEL</a>
APP-11	Nail Extensions	2023-10-17	13:00:00 - 14:00:00	Location 2	Kim Hammond	0121212425	bofaboka@mailinator.com	<a href="#" style="background-color: #e91e63; color: white; padding: 5px 10px; border-radius: 5px;">CANCEL</a>
APP-10	Nail Extensions	2023-10-25	14:00:00 - 15:00:00	Location 2	Kim Hammond	0121212425	bofaboka@mailinator.com	<a href="#" style="background-color: #e91e63; color: white; padding: 5px 10px; border-radius: 5px;">CANCEL</a>

100%

Menu

- [Dashboard](#)
- [CRM Manage](#)
- [Manage Users](#)
- [Manage Locations](#)
- [Manage Appointments](#)
- [Manage Services](#)
- [Manage Categories](#)
- [Manage Deals](#)

### Upcoming Appointments

Search
Upcoming ▼

Code	Service	Date	Time Slot	Location	Customer	Contact No	Email	Actions
APP-1	Nail Extensions	2023-09-29	10:00:00 - 11:00:00	Location 1	Customer 1	1299567890	cust1@gmail.com	<a href="#" style="background-color: #e91e63; color: white; padding: 5px 10px; border-radius: 5px;">CANCEL</a>
APP-11	Nail Extensions	2023-10-17	13:00:00 - 14:00:00	Location 2	Kim Hammond	0121212425	bofaboka@mailinator.com	<a href="#" style="background-color: #e91e63; color: white; padding: 5px 10px; border-radius: 5px;">CANCEL</a>
APP-8	Nail Extensions	2023-10-18	13:00:00 - 14:00:00	Location 1	Customer 1	1299567890	cust1@gmail.com	<a href="#" style="background-color: #e91e63; color: white; padding: 5px 10px; border-radius: 5px;">CANCEL</a>
APP-5	Nail Extensions	2023-10-18	14:00:00 - 15:00:00	Location 3	Customer 1	1299567890	cust1@gmail.com	<a href="#" style="background-color: #e91e63; color: white; padding: 5px 10px; border-radius: 5px;">CANCEL</a>
APP-9	Nail Extensions	2023-10-20	13:00:00 - 14:00:00	Location 3	Customer 1	1299567890	cust1@gmail.com	<a href="#" style="background-color: #e91e63; color: white; padding: 5px 10px; border-radius: 5px;">CANCEL</a>
APP-7	Nail Extensions	2023-10-24	13:00:00 - 14:00:00	Location 2	Customer 1	1299567890	cust1@gmail.com	<a href="#" style="background-color: #e91e63; color: white; padding: 5px 10px; border-radius: 5px;">CANCEL</a>
	Nail		14:00:00 -	Location	Kim			

100%

## Service View Customer

If there is a booking at a time slot it is grayed and disabled as shown in the screen shot below

**Salon Bliss** Home Services Deals Login Register

Add vibrant highlights to your hair for a stunning effect.

**Benefits**  
Transform your look with beautifully colored highlights.

**Cautions**  
Patch test required for new clients with allergies.

**After Care Tips**  
Use color-safe shampoos and conditioners to preserve color.

**Book Your Appointment**

Select Location

LOCATION 1 LOCATION 2 **LOCATION 3** LOCATION 4

Select a date  
10 / 25 / 2023

Time Slots

9:00 AM - 10:00 AM 10:00 AM - 11:00 AM 11:00 AM - 12:00 PM  
12:00 PM - 1:00 PM 1:00 PM - 2:00 PM 2:00 PM - 3:00 PM  
3:00 PM - 4:00 PM 4:00 PM - 5:00 PM 5:00 PM - 6:00 PM

Add to cart

## Service Analytics view

As an employee or admin, a user can see the view analytics of a service, revenue, revenue comparisons, most popular time slots for the service.

**Salon Bliss** Home Services Deals Dashboard Admin

**Nail Extensions**  
Category : Makeup  
LKR 1,250.00  
MANAGE

**Analytics insights**





Metric	Last Week	Change Last Week	Total
Views	6	N/A	6
Appointments	5	N/A	5
Appointments (Last Month)	5	N/A Monthly	
Revenue	LKR 6,250.00	N/A	LKR 6,250.00
Revenue (Last Month)	LKR 6,250.00	N/A Monthly	

**Most Popular Time Slots Last Week**

Time Slot	Count
1:00 pm - 2:00 pm	3
10:00 am - 11:00 am	1

## Manage Services

The screenshot shows the 'Manage Services' page in the Salon Bliss admin dashboard. The page features a sidebar menu on the left with options like Dashboard, CRM Manage, Manage Users, Manage Locations, Manage Appointments, Manage Services (highlighted), Manage Categories, and Manage Deals. The main content area is titled 'Services' and includes a 'CREATE' button in the top right. Below the title is a search bar labeled 'Search Services...' with a 'Search' button. A table lists four services with columns for Id, Service, Photo, Description, Price, Category, Visibility, and Actions. Each service row has 'VIEW', 'EDIT', and 'DELETE' buttons. A '9:00' clock icon is visible in the bottom left corner.

Id	Service	Photo	Description	Price	Category	Visibility	Actions
1	Nail Extensions		Get beautiful nail extensions for a stylish look.	1250	Makeup	Visible	<a href="#">VIEW</a> <a href="#">EDIT</a> <a href="#">DELETE</a>
2	Hair Coloring - Highlights		Add vibrant highlights to your hair for a stunning effect.	3000	Hair	Visible	<a href="#">VIEW</a> <a href="#">EDIT</a> <a href="#">DELETE</a>
4	Hair Treatment - Scalp Massage		Relaxing scalp massage to rejuvenate your hair and mind.	3500	Hair	Visible	<a href="#">VIEW</a> <a href="#">EDIT</a> <a href="#">DELETE</a>
3	Hair Treatment - Deep Conditioning		Revitalize your hair with deep conditioning treatment.	4000	Hair	Visible	<a href="#">VIEW</a> <a href="#">EDIT</a> <a href="#">DELETE</a>

## Manage Categories

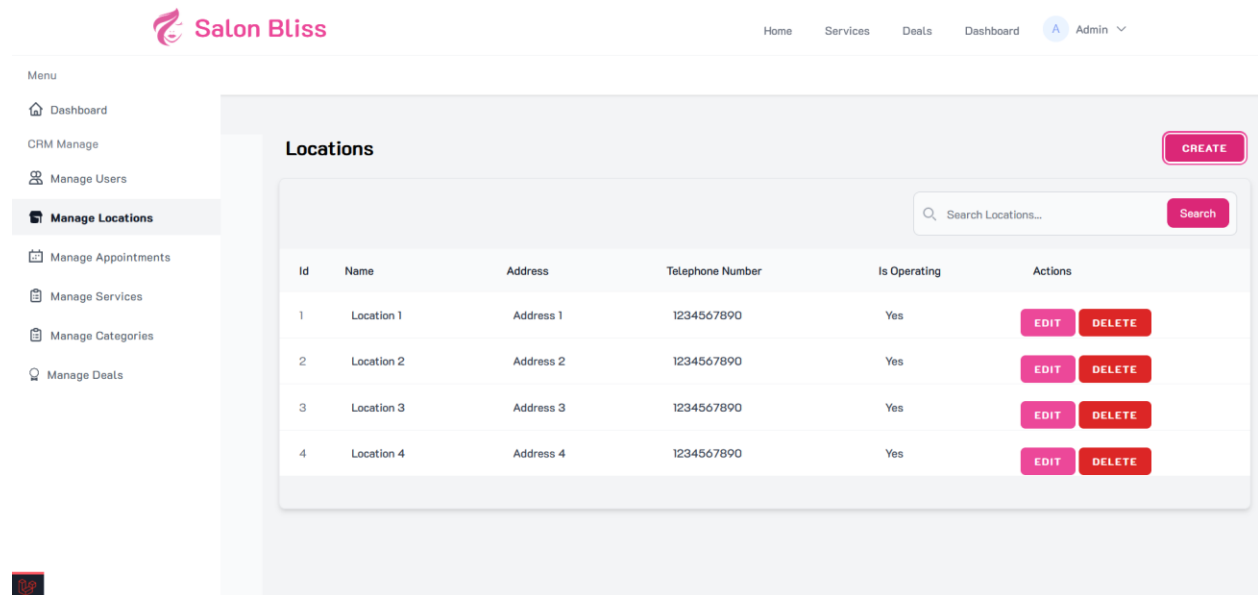
The administrator can add new categories for the services.

The screenshot shows the 'Manage Categories' page in the Salon Bliss admin dashboard. The page features a sidebar menu on the left with options like Dashboard, CRM Manage, Manage Users, Manage Locations, Manage Appointments, Manage Services, Manage Categories (highlighted), and Manage Deals. The main content area is titled 'Categories' and includes a 'CREATE' button in the top right. Below the title is a search bar labeled 'Search Categories...' with a 'Search' button. A table lists four categories with columns for Id, Name, and Actions. Each category row has 'EDIT' and 'DELETE' buttons. A '9:00' clock icon is visible in the bottom left corner.

Id	Name	Actions
1	Skin	<a href="#">EDIT</a> <a href="#">DELETE</a>
2	Makeup	<a href="#">EDIT</a> <a href="#">DELETE</a>
3	Hair	<a href="#">EDIT</a> <a href="#">DELETE</a>
4	Nails	<a href="#">EDIT</a> <a href="#">DELETE</a>

## Manage Locations

The administrator can add new locations for the business.



The screenshot shows the 'Salon Bliss' CRM interface. The top navigation bar includes 'Home', 'Services', 'Deals', 'Dashboard', and 'Admin'. The left sidebar menu lists 'Dashboard', 'CRM Manage', 'Manage Users', 'Manage Locations' (highlighted), 'Manage Appointments', 'Manage Services', 'Manage Categories', and 'Manage Deals'. The main content area is titled 'Locations' and features a 'CREATE' button, a search bar, and a table with the following data:

Id	Name	Address	Telephone Number	Is Operating	Actions
1	Location 1	Address 1	1234567890	Yes	<a href="#">EDIT</a> <a href="#">DELETE</a>
2	Location 2	Address 2	1234567890	Yes	<a href="#">EDIT</a> <a href="#">DELETE</a>
3	Location 3	Address 3	1234567890	Yes	<a href="#">EDIT</a> <a href="#">DELETE</a>
4	Location 4	Address 4	1234567890	Yes	<a href="#">EDIT</a> <a href="#">DELETE</a>

## Special Technical Considerations in Code

The Day Schedule was made into a livewire component to allow reusability.

```
<div class="grid md:grid-cols-2">
  <div class="m-3">
    <h2 class="font-medium text-gray-800 text-xl mb-2">Today's Schedule</h2>
    <x-day-schedule :date="\Carbon\Carbon::today()" :location-id="$location->id" />
  </div>

  <div class="m-3">
    <h2 class="font-medium text-gray-800 text-xl mb-2">Tomorrow's Schedule</h2>
    <x-day-schedule :date="\Carbon\Carbon::today()-addDay()" :location-id="$location->id"/>
  </div>
</div>
endforeach
```

## Manage Appointment Table was also a reusable livewire component

```
</div>
<div class="w-full">
    <livewire:manage-appointments :user-id="$user->id" :select-filter="'upcoming'" />
</div>
</div>
```

## A singleton was used in analytic hits

```
<?php

namespace App\Singletons;

use App\Models\Service;
use Carbon\Carbon;

2 usages Sachintha Lakmin *
class AnalyticsSingleton
{
    1 usage Sachintha Lakmin
    public function makeHit(
        string $modelName,
        int $modelId,
        string $analyticDataType,
        ?int $userId = null
    ): void
    {
        // dd('make hit', $modelName, $modelId, $analyticDataType, $userId);
        // if model name is service and is a view
        if ($modelName === 'Service' && $analyticDataType === 'view') {
            // make a service hit
            $this->makeServiceHit($modelId, $userId);
        }
    }

    1 usage Sachintha Lakmin *
    private function makeServiceHit(int $serviceId, int $userId = null): void
    {
```

```

1 usage Sachintha Lakmin *
private function makeServiceHit(int $serviceId, int $userId = null): void
{
    // dd('make service hit', $serviceId, $userId);
    $serviceHit = new \App\Models\ServiceHit();
    $serviceHit->service_id = $serviceId;
    $serviceHit->hit_time = Carbon::now();
    $serviceHit->analytic_data_type = 'view';
    $serviceHit->user_id = $userId;
    $serviceHit->save();
}

```

## The Page View Hit is a queued job

```

class AnalyticsJob implements ShouldQueue
{
    use Dispatchable, InteractsWithQueue, Queueable, SerializesModels;

    no usages Sachintha Lakmin
    public function __construct(
        public string $model,
        public int $id,
        public string $analytic_type
    )
    {
    }

    Sachintha Lakmin *
    public function handle(): void
    {
        resolve( name: \App\Singletons\AnalyticsSingleton::class)->makeHit(
            $this->model,
            $this->id,
            $this->analytic_type,
            auth()->user()->id()
        );
    }
}

```



## Sending Emails is a queued job

```
17
18 3 usages new *
19 class SendAppointmentConfirmationMailJob implements ShouldQueue
20 {
21     use Dispatchable, InteractsWithQueue, Queueable, SerializesModels;
22
23     no usages new *
24     public function __construct(
25         public User $customer,
26         public Appointment $appointment
27     )
28     {
29     }
30
31     new *
32     public function handle(): void
33     {
34         $notification = new AppointmentConfirmationNotification(
35             $this->appointment
36         );
37         Notification::send($this->customer, $notification);
38     }
39 }
```

## Sending Emails using a queue when service is created using model events

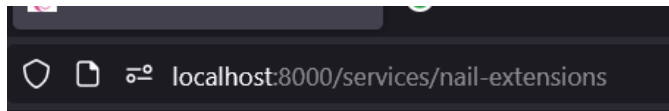
```
protected static function booted()
{
    // static::creating(function ($service) {
    //     $service->uuid = (string) \Illuminate\Support\Str::uuid();
    // });

    static::created(function ($service) {
        // if service is hidden, don't send email
        if ($service->is_hidden) {
            return;
        }

        $customers = User::where('role_id', UserRolesEnum::Customer->value)->where('status', 'operator: true)->get();

        foreach ($customers as $customer) {
            dispatch(new SendNewServicePromoMailJob($customer, $service));
        }
    });
}
```

## Use of slugs for service url



## Using Enums for the Roles

```
Kernel.php x fortify.php x jetstrea
<?php

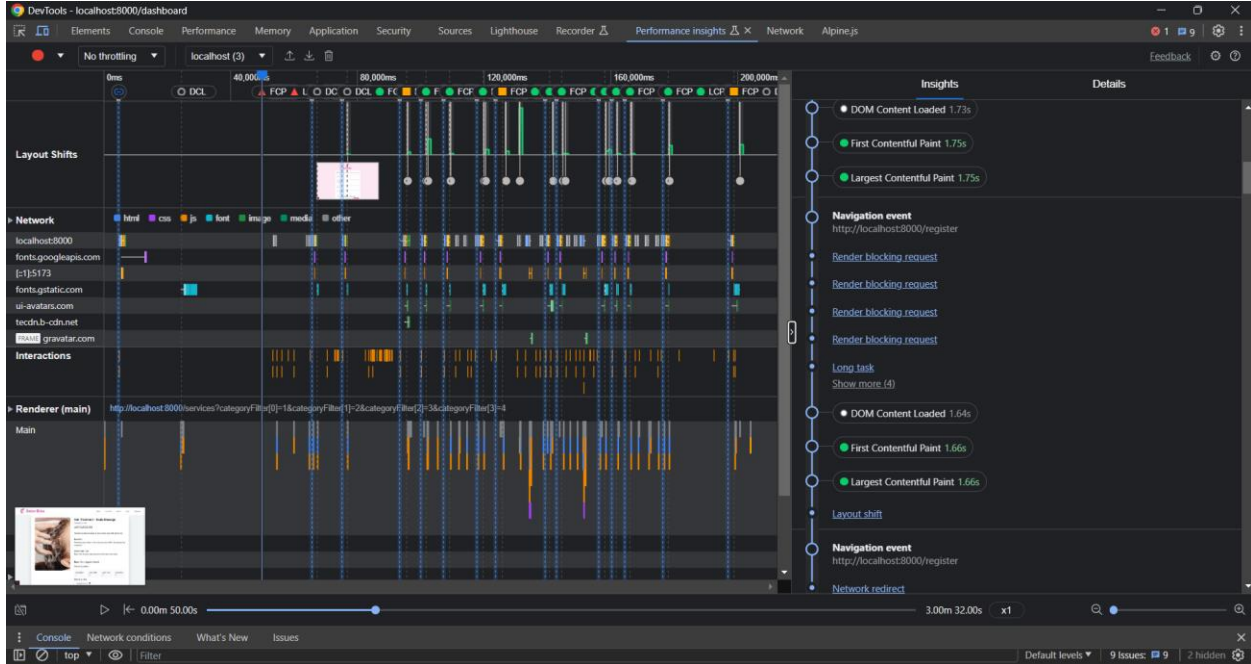
namespace App\Enums;

enum UserRolesEnum: int
{
    case Customer = 3;
    case Employee = 2;
    case Admin = 1;
}
```

```
public function index()
{
    // get all customers
    $customers = User::where('column: 'role_id', UserRolesEnum::Customer->value)->get();
    return response()->json($customers, status: 200);
}
```

# Testing performance and usability

## Chrome performance insights



# Testing the functionality of the system

## Analytics recording using jobs and queue.

```
2023-10-01 09:55:43 App\Jobs\AnalyticsJob ..... RUNNING
2023-10-01 09:55:43 App\Jobs\AnalyticsJob ..... 29.79ms DONE
2023-10-01 09:56:11 App\Jobs\AnalyticsJob ..... RUNNING
2023-10-01 09:56:11 App\Jobs\AnalyticsJob ..... 18.47ms DONE
2023-10-01 09:56:26 App\Jobs\AnalyticsJob ..... RUNNING
2023-10-01 09:56:26 App\Jobs\AnalyticsJob ..... 31.36ms DONE
```

id	service_id	hit_time	analytic_data_type	user_id	created_at
1	3	2023-09-29 18:08:59	view	<null>	2023-10-01 09:35:13
2	1	2023-09-29 18:08:59	view	<null>	2023-10-01 09:46:10
3	2	2023-09-29 18:08:59	view	<null>	2023-10-01 09:48:34
4	1	2023-09-29 18:08:59	view	<null>	2023-10-01 09:55:43
5	1	2023-09-29 18:08:59	view	<null>	2023-10-01 09:56:11
6	1	2023-09-29 18:08:59	view	<null>	2023-10-01 09:56:26
7	3	2023-09-29 18:08:59	view	<null>	2023-10-01 12:51:40
8	2	2023-09-29 18:08:59	view	<null>	2023-10-01 12:51:40
9	1	2023-09-29 18:08:59	view	<null>	2023-10-01 12:52:03
10	1	2023-09-29 18:08:59	view	<null>	2023-10-01 12:53:38
11	4	2023-09-29 18:08:59	view	<null>	2023-10-01 12:53:50
12	4	2023-09-29 18:08:59	view	<null>	2023-10-01 12:58:20

## Testing of email sending using queued jobs.

```
2023-10-01 09:48:59 App\Jobs\SendAppointmentConfirmationMailJob ..... RUNNING
2023-10-01 09:48:59 App\Jobs\SendAppointmentConfirmationMailJob ..... 44.96ms DONE
2023-10-01 09:49:00 App\Notifications\AppointmentConfirmationNotification ..... RUNNING
2023-10-01 09:49:05 App\Notifications\AppointmentConfirmationNotification ..... 5s DONE
2023-10-01 09:55:43 App\Jobs\AnalyticsJob ..... RUNNING
```

```
[INFO] Processing jobs from the [default] queue.
2023-10-01 09:20:32 App\Jobs\SendNewServicePromoMailJob ..... RUNNING
2023-10-01 09:20:32 App\Jobs\SendNewServicePromoMailJob ..... 72.88ms DONE
2023-10-01 09:20:32 App\Jobs\SendNewServicePromoMailJob ..... RUNNING
2023-10-01 09:20:32 App\Jobs\SendNewServicePromoMailJob ..... 29.01ms DONE
2023-10-01 09:20:33 App\Jobs\SendNewServicePromoMailJob ..... RUNNING
2023-10-01 09:20:33 App\Jobs\SendNewServicePromoMailJob ..... 27.28ms DONE
PS C:\APIIT\Level_5\Sem2\SSP2\assignment\CRM-laravel> ^C
```

### Appointment Confirmation - Salon Bliss 🌸 Nail Extensions

📧 🗑️ ⋮


From: <noreply@salonbliss.com>  
To: <cust1@gmail.com>

2023-10-01 09:58, 15 KB

Show Headers

HTML HTML Source Text Raw Spam Analysis HTML Check 17 Tech Info










**Salon Bliss**

**Hello Customer 1!**

Your appointment for Nail Extensions has been confirmed!

Your payment of \$1250 has been processed.

-  Appointment Code: APP-9
-  Date: 2023-10-20
-  Time: 13:00:00 - 14:00:00
-  Location: Location 3
-  Contact: 1234567890

[View Your Appointment](#)

Thank you for using Salon Bliss! We hope to see you again soon.

Regards,  
Salon Bliss

---

If you're having trouble clicking the "View Your Appointment" button, copy and paste the URL below into your web browser: <http://127.0.0.1:8000/dashboard?search=APP-9>

## Exciting New Service Alert: Selma Rodgersadsfas

From: <info@salonbliss.com>  
To: <cust3@gmail.com>

2023-09-26 18:08, 14 KB

Show Headers

HTML HTML Source Text Raw Spam Analysis HTML Check 17 Tech Info



### Hello Customer 3!

Big News! 🎉

Introducing Selma Rodgersadsfas - our latest service!

🌟 Priced at LKR 73,111.00 🌟

👉 The benefits: Mollit ad illo exerc

[Book Now](#)

Thank you for choosing Salon Bliss!

Regards,  
Salon Bliss

If you're having trouble clicking the "Book Now" button, copy and paste the URL below into your web browser: <http://127.0.0.1:8000/services/selma-rodgersadsfas>

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## Add Location

Name

The location.name field is required.

Address

The location.address field is required.

Telephone Number

The location.telephone number field is required.

Is Operating

The location.status field is required.

CANCEL

SAVE

Location 4

Address 4

1234567890

Yes

# Testing of the API Cruds

## Services

The screenshot shows a REST client interface for a project named "Salon Bliss" with the endpoint "All services". The request is a GET method to "localhost:8000/api/services". The response is a JSON object with a status of 200 OK, a time of 599 ms, and a size of 4.01 KB. The response body is displayed in "Pretty" format, showing a JSON array with one service object.

```
1  {
2    "current_page": 1,
3    "data": [
4      {
5        "id": 5,
6        "name": "Service 1",
7        "slug": "service-1",
8        "description": "Service 1 description",
9        "image": null,
10       "price": 100,
11       "notes": "Service 1 notes",
12       "allergens": "Service 1 allergens",
13       "benefits": "Service 1 benefits",
14       "aftercare_tips": "Service 1 aftercare tips",
15       "cautions": "Service 1 cautions",
```

Figure 1 : Get all services

The screenshot shows a REST client interface for a GET request to `localhost:8000/api/services/5`. The response status is 200 OK, with a time of 611 ms and a size of 704 B. The response body is displayed in JSON format, showing the details of a service.

Key	Value	Description
Key	Value	Description

```
1  {
2    "id": 5,
3    "name": "Service 1",
4    "slug": "service-1",
5    "description": "Service 1 description",
6    "image": null,
7    "price": 100,
8    "notes": "Service 1 notes",
9    "allergens": "Service 1 allergens",
10   "benefits": "Service 1 benefits",
11   "aftercare_tips": "Service 1 aftercare tips",
12   "cautions": "Service 1 cautions",
13   "category_id": 1,
14   "is_hidden": false,
15   "created_at": "2023-10-01T16:04:39.000000Z",
16   "updated_at": "2023-10-01T16:04:39.000000Z"
17 }
```

Figure 2 : Get one service (API)



HTTP Salon Bliss / **New Request**

**POST** localhost:8000/api/services/

Params Authorization Headers (11) **Body** Pre-request Script Tests Settings

none form-data x-www-form-urlencoded raw binary GraphQL **JSON**

```
1  {
2    "name": "Service 1",
3    "description": "Service 1 description",
4    "price": 100,
5    "notes": "Service 1 notes",
6    "allergens": "Service 1 allergens",
7    "benefits": "Service 1 benefits",
8    "aftercare_tips": "Service 1 aftercare tips",
9    "cautions": "Service 1 cautions",
10   "category_id": 1,
11   "is_hidden": false
12 }
```

Body Cookies (2) Headers (10) Test Results Status: 201 Created

Pretty Raw Preview Visualize **JSON**

```
5    "price": 100,
6    "notes": "Service 1 notes",
7    "allergens": "Service 1 allergens",
8    "benefits": "Service 1 benefits",
9    "aftercare_tips": "Service 1 aftercare tips",
10   "cautions": "Service 1 cautions",
11   "category_id": 1,
12   "is_hidden": false,
13   "updated_at": "2023-10-01T16:17:06.000000Z",
14   "created_at": "2023-10-01T16:17:06.000000Z",
15   "id": 6
16 }
```

Pos

Figure 3 : Create a service from API

The screenshot shows a REST client interface for a PUT request to `localhost:8000/api/services/5`. The request is configured with a Bearer Token authorization header. The response body is displayed in JSON format, showing the updated service details.

**Request Configuration:**

- Method: PUT
- URL: localhost:8000/api/services/5
- Authorization: Bearer Token

**Response Body (JSON):**

```
1 {
2   "id": 5,
3   "name": "Updated 1 updated",
4   "slug": "service-1",
5   "description": "Updated 1 description",
6   "image": null,
7   "price": 10230,
8   "notes": "Updated 1 notes",
9   "allergens": "Updated 1 allergens",
10  "benefits": "Updated 1 benefits",
11  "aftercare_tips": "Updated 1 aftercare tips",
12  "cautions": "Updated 1 cautions",
```

Figure 4 : Update Service

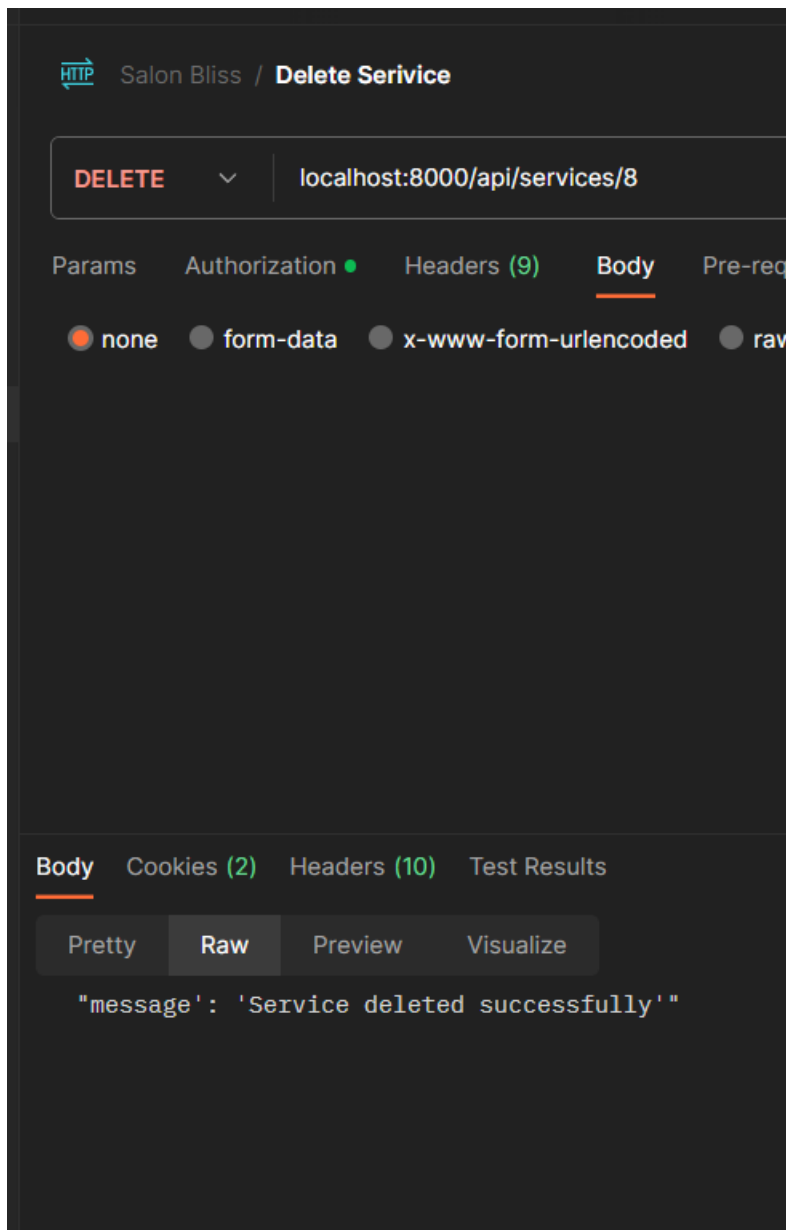


Figure 5 : Delete Service

# Customer CRUD

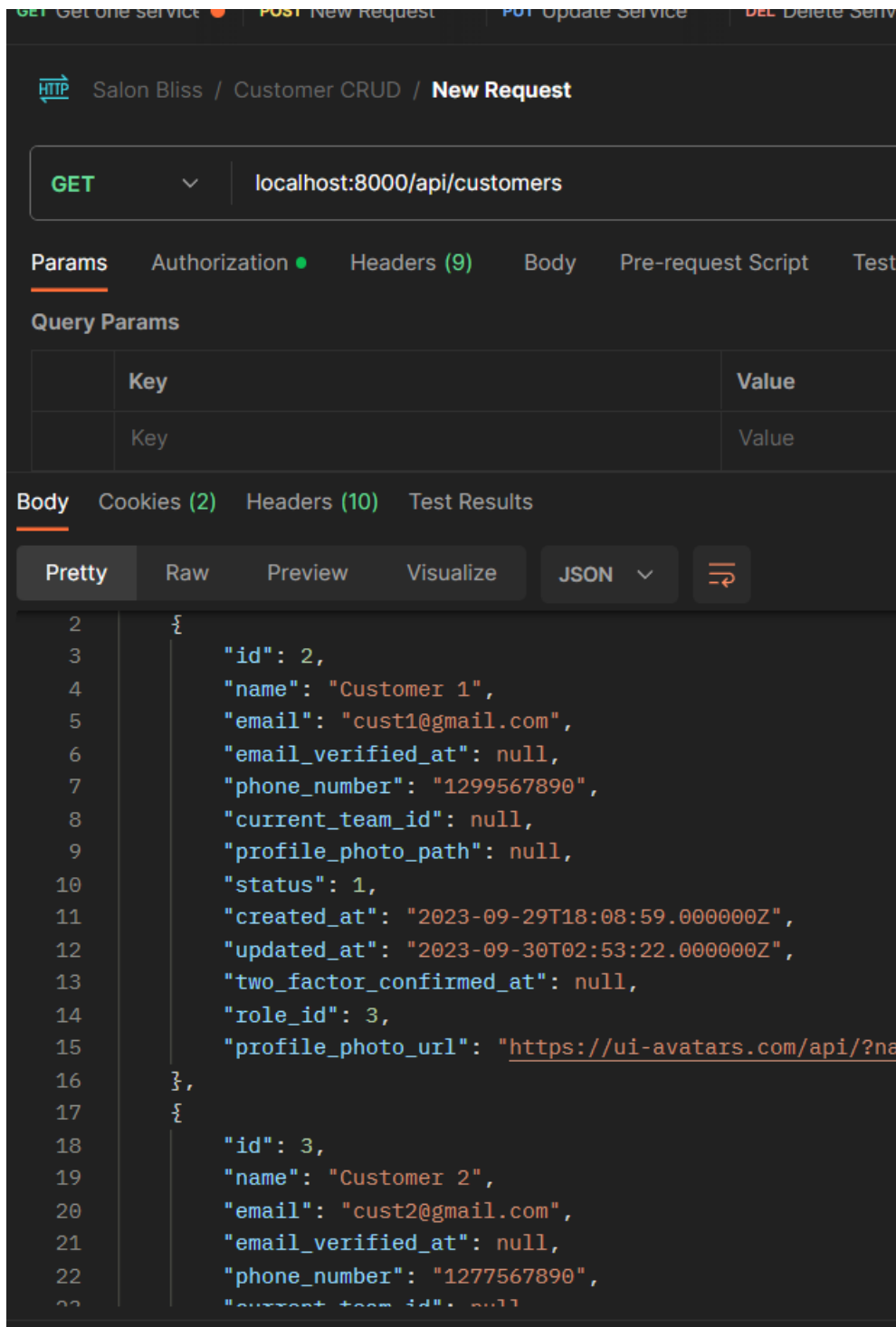


Figure 6 : Get all customers

HTTP Salon Bliss / Customer CRUD / **Get one customer**

GET localhost:8000/api/customers/3

Params **Authorization** Headers (9) Body Pre-request Script Tests Settings

Type Bearer Token

Heads up! These parameters hold sensitive data. To keep this data secure while working, we recommend using variables. [Learn more about variables](#)

The authorization header will be automatically generated when you send the request. Learn more about [authorization](#)

Token r8PznCLuIHvcSGpiV3yJYSBJExZel

Body Cookies (2) Headers (10) Test Results Status: 200 OK Time

Pretty Raw Preview Visualize JSON

```
1  {
2    "id": 3,
3    "name": "Customer 2",
4    "email": "cust2@gmail.com",
5    "email_verified_at": null,
6    "phone_number": "1277567890",
7    "current_team_id": null,
8    "profile_photo_path": null,
9    "status": 1,
10   "created_at": "2023-09-29T18:09:00.000000Z",
11   "updated_at": "2023-09-30T02:53:19.000000Z",
12   "two_factor_confirmed_at": null,
13   "role_id": 3,
14   "profile_photo_url": "https://ui-avatars.com/api/?name=C+2&color=7F9CF5&background=EBF4FF"
15 }
```

Figure 7 : Get one customer

Salon Bliss / Customer CRUD / **Create Customer**

**POST** localhost:8000/api/customers

Params Authorization Headers (11) **Body** Pre-request Script Tests Settings

none form-data x-www-form-urlencoded **raw** binary GraphQL **JSON**

```
1 {
2   "name": "APICustomer 1",
3   "email": "APICustomer1@gmail",
4   "phone_number": "1234567890",
5   "password": "custpassword"
6 }
```

Body Cookies (2) Headers (10) Test Results Status: 200 OK Tim

Pretty Raw Preview Visualize **JSON**

```
1 {
2   "name": "APICustomer 1",
3   "email": "APICustomer1@gmail",
4   "phone_number": "11234567890",
5   "role_id": 3,
6   "updated_at": "2023-10-01T16:53:28.000000Z",
7   "created_at": "2023-10-01T16:53:28.000000Z",
8   "id": 10,
9   "profile_photo_url": "https://ui-avatars.com/api/?name=A+1&color=7F9CF5&background=EBF4FF"
10 }
```

Figure 8 : Create Customer

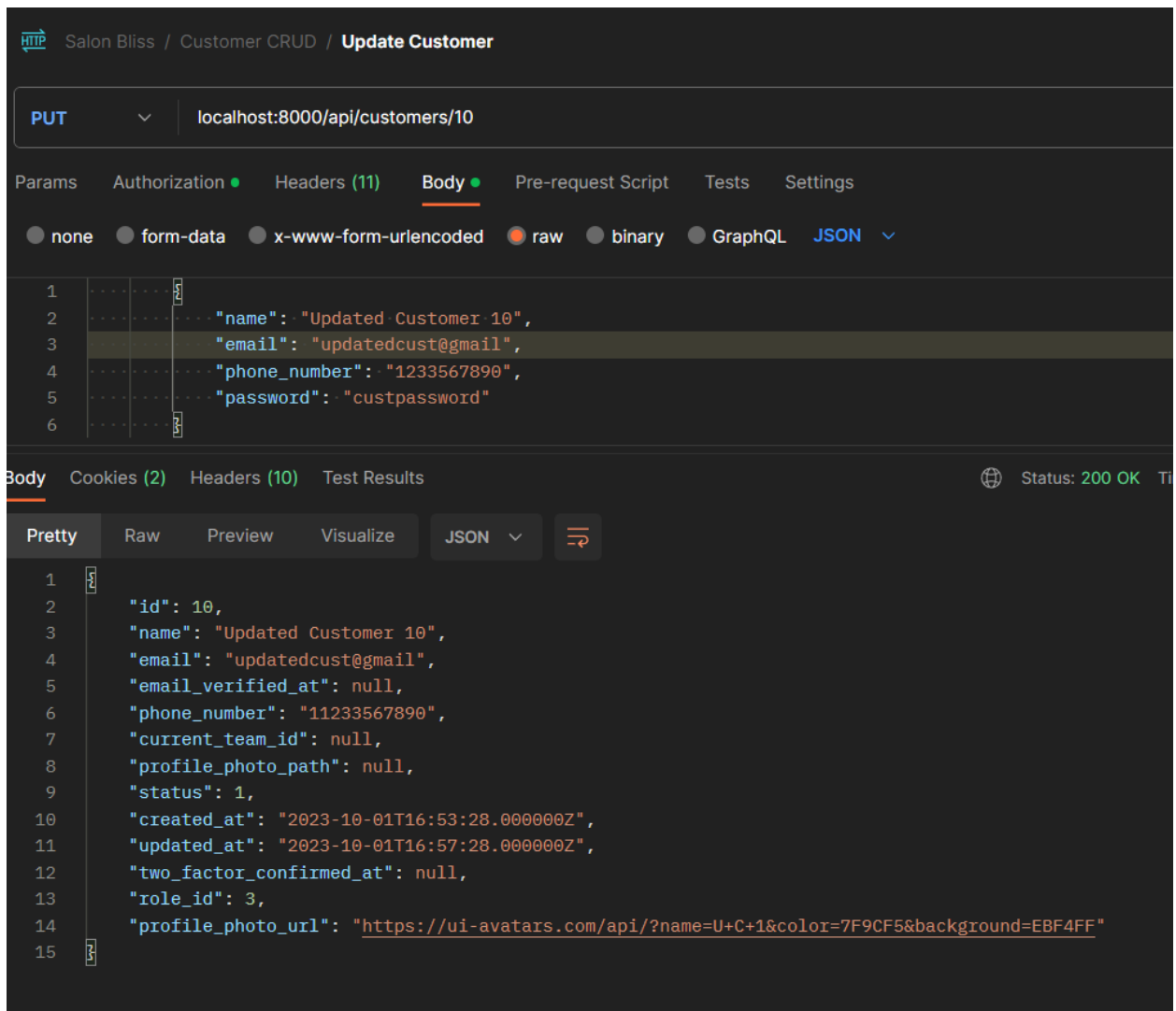


Figure 9 : Updated Customer

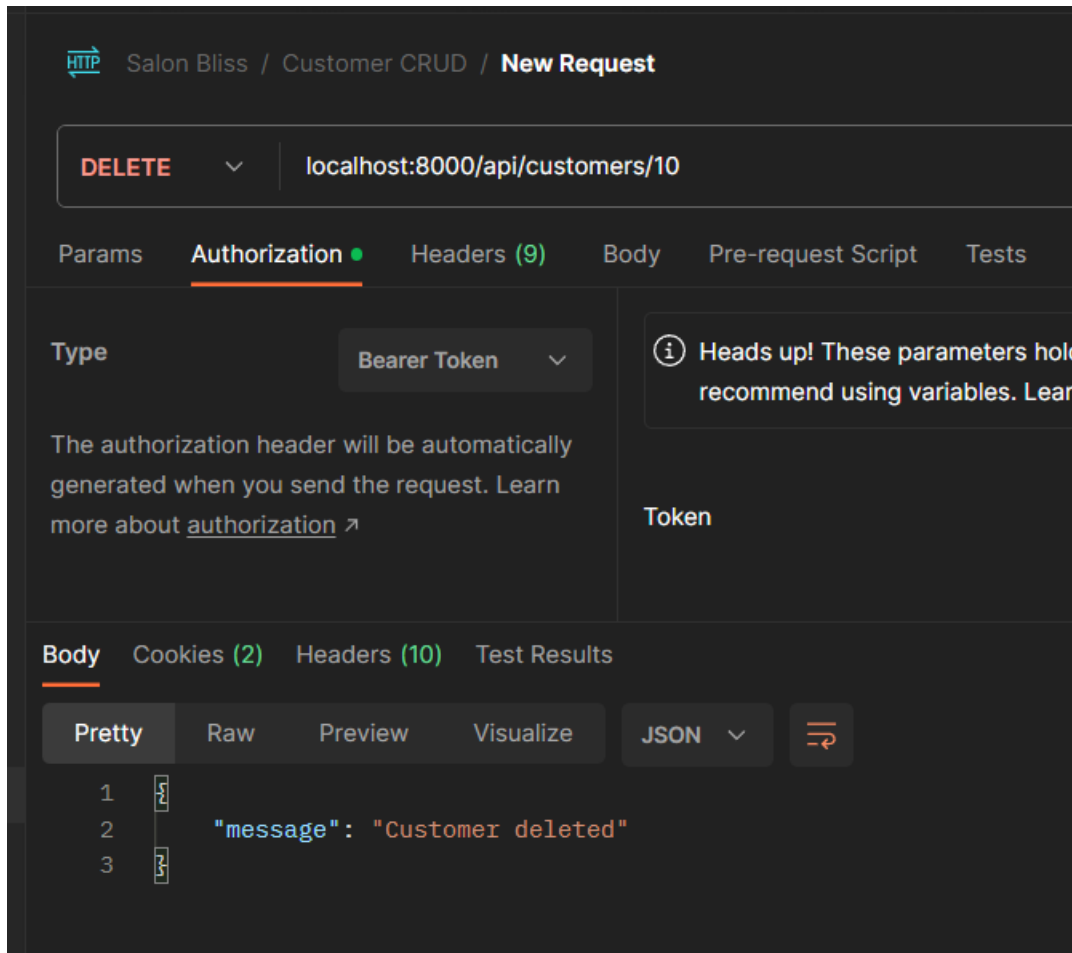


Figure 10 : Deleted Customer



## Test Cases

To complete the testing of some features more steps are required, they are omitted from the table to improve clarity they are,

For queued jobs such as sending emails and capturing analytics the queue should be run using the command “ php artisan queue:listen”

For the testing of emails, a service called Mailtrap.io was used

Test Case ID	Description	Input	Expected Output	Actual Output	Result
TC01	Verify that customers receive an email when a new service is created.	Create a new service in the system. Run the queue.	The customer should receive an email with the details of the new service.	The customer receive an email with the details of the new service.	Pass
TC02	Customers should receive an email when they checkout and confirm the appointment.	Schedule a service to the cart and complete the checkout	The customer should receive an email confirming the appointment.	Customer receives the email using .	Pass
TC03	Page view of a service page is recorded as analytics.	Visit a service page in the system without logging in or login as a customer	The page view should be recorded in the analytics tables.	The page view was recorded in the analytics.	Pass
TC04	Verify that employees are able to add categories to the system.	Log in as an employee and add a category	The employee should be able to add a new category	A new category was created	Pass
TC05	Customers can view their upcoming appointments.	Log in as a customer and visit the dashboard	The customer should be able to see their upcoming appointments.	The customer is able to see their upcoming appointments.	Pass
TC06	Verify that customers can view their past appointments.	Log in as a customer and visit the dashboard.	The customer should be able to see their past appointments.	The customer can see their past appointments.	Pass

		Select previous in the selection			
TC07	Verify that employees can see the appointments.	Log in as an employee and navigate to appointment management page	The employee should be able to see all of the appointments in the system.	The employee can see appointments in the system.	Pass
TC08	Verify that promo emails at service creation are handled using a queue.	Create a new service, monitor the queue in the terminal	The terminal should show the job being handled by the queue.	The terminal shows the job being handled by the queue.	Pass
TC09	Verify that page view analytics events are handled using a queue.	Visit a service page as a customer, monitor the queue.	The terminal should show the job being handled by the queue.	The terminal shows the job being handled by the queue.	Pass
TC10	Verify that the admin and employee can see the sales analytics	Log in as an admin or employee, view the analytics in dashboard	The admin and employee should be able to see the sales of the services.	Admin and employee can see the sales of the services	Pass
TC11	Verify that the admin and employee can see the page views and other analytics of the services.	Log in as an admin or employee and navigate to the page of the service	The admin or employee should be able to see the page view and other analytical data	The admin or employee should be able to see the page view and other analytical data	Pass
TC12	CRUD functions for the services through the API.	Make an API CRUD calls for the services using Postman	The API call should perform CRUDs for the services	The API perform CRUDs for the services	Pass
TC13	Verify the functionality of CRUD for the Customers using the API.	Make an API call to perform CRUDs using Postman	API call should perform CRUDs for the customers	API perform CRUDs for the customers	Pass
TC14	Details of the customer should be available in the customer profile page	Login as a employee or admin to view the customer	The appointments, last purchase date total sales should be visible	The appointments, last purchase date total sales are visible	Pass

## **Future Improvements**

The salon's CRM system will need to be maintained and improved in order to provide optimal service to the customers and staff. In the future to expand this application to be marketed as a SaaS solution, major improvements should be made. The following points have been identified.

### **Improving the user management**

Since the system will be moved from the single business model to a SaaS business model, major improvements. The system should provide more intuitive and improved interfaces to manage the users. This would also include creating new roles. The system should be improved by using policies instead of middleware that is currently used.

### **Using Cloudflare**

Use Cloudflare's content delivery network to serve static content, such as images, CSS, and JavaScript files, from servers of Cloudflare data centers that are closer to users. This will improve performance, reduce latency, and reduce the bandwidth cost associated with serving static content.

Cloudflare will act to protect the application from Denial-of-Service attacks which is important when running a SaaS that handles operations for many businesses to improve uptime.

### **Using Amazon's S3 bucket for uploading files**

The current solution to uploading the images using local storage. This will not be efficient in the long run as all the uploaded files are stored on the same server. Laravel can be easily configured to use Amazon S3 to store and serve files and product images. This can free up space on servers.

### **Improving the User Interface**

Improve the User Interface by following familiar design patterns and conventions. Accessibility features should also be included. The system should be responsive across multiple devices and should be thoroughly tested to identify issues.

### **Allow managers of the Salons to integrate into 3<sup>rd</sup> party services.**

If the system is to be sold as a SaaS, it should allow easy integration of 3<sup>rd</sup> party services such as payment gateways, stock management systems, ERP systems and analytics tools.

### **Improve data protection to improve privacy.**

To improve the privacy of the users, the user data should be handled very carefully and the system should be improved to avoid any data breaches. Goals should be set to make sure that the system is GDPR compliant to allow entering in to the European market.

### **Make the content more SEO friendly.**

The site wide, SEO optimizations should be done, use of slugs, use of microdata schemas (Schema.org) to give more data about the pages to search engines, will help the webpages to Search engine optimized.

### **Include a blog section to drive in traffic.**

A recent strategy that is seen in many SaaS businesses is having dedicated content writing teams to create blog posts, a good example is Digital Ocean's Blog. The Salon CRM SaaS can also follow those footsteps by blog posts about topics that are relevant to salon owners, such as marketing tips, business management advice, and industry trends. This will drive traffic to the website and promote the system.

### **Use Redis as a cache for frequently accessed content.**

Cache frequently accessed data in Redis, such as the list of services in the home page, in the search page. Using Redis as the cache would be very effective as it is an in-memory database, by avoiding calls to the actual database will improve performance.

### **Do A / B testing on user bases to identify areas of improvement.**

As the user base grows, A/B testing can be performed to identify the best UI for the users of the system, this can be done to improve overall sales.

### **Integrate the CRM system with social media platforms such as Facebook.**

Allow the CRM system to integrate with social media, such as Facebook. Facebook will be a main platform to attract more customers.

**Use Artificial Intelligence to automate tasks such as customer service.**

Include a Chat feature to the system, and also add a chat bot that can provide answers to the users of the system.