

VIETNAM INTERNATIONAL UNIVERSITY – HO CHI MINH CITY

INTERNATIONAL UNIVERSITY

WEB APPLICATION DEVELOPMENT PROJECT

ONLINE CLEANING SERVICE

By

Hoàng Đình Phi - Student ID: ITITIU21276

Phạm Minh Quân - Student ID: ITITIU21289

Nguyễn Trọng Nguyên - Student ID: ITITIU21263

Advisor: Dr. Nguyen Van Sinh

A report submitted to the School of Computer Science and Engineering
in partial fulfillment of the requirements for the Final Project
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I. INTRODUCTION

1. Objective

- **Explain the purpose of the project — creating a web application for commercial cleaning services. Highlight the motivation for developing the system, such as improving booking efficiency, ensuring transparency in service delivery, and streamlining contracts and payments.**

2. Scope

- **List the system's features:**
 - **Booking cleaning services online.**
 - **Selecting service options (Basic, Pro, Deluxe).**
 - **Managing contracts with examiner oversight.**
 - **Tracking task progress and statuses.**
 - **Processing online and cash payments.**
- **State limitations:**
 - **Limited to one service type per day.**
 - **Each Staff only works for one task in a day.**
 - **Cash and Paypal payments are only accepted in person.**
 - **Limited the main services that the company provides.**

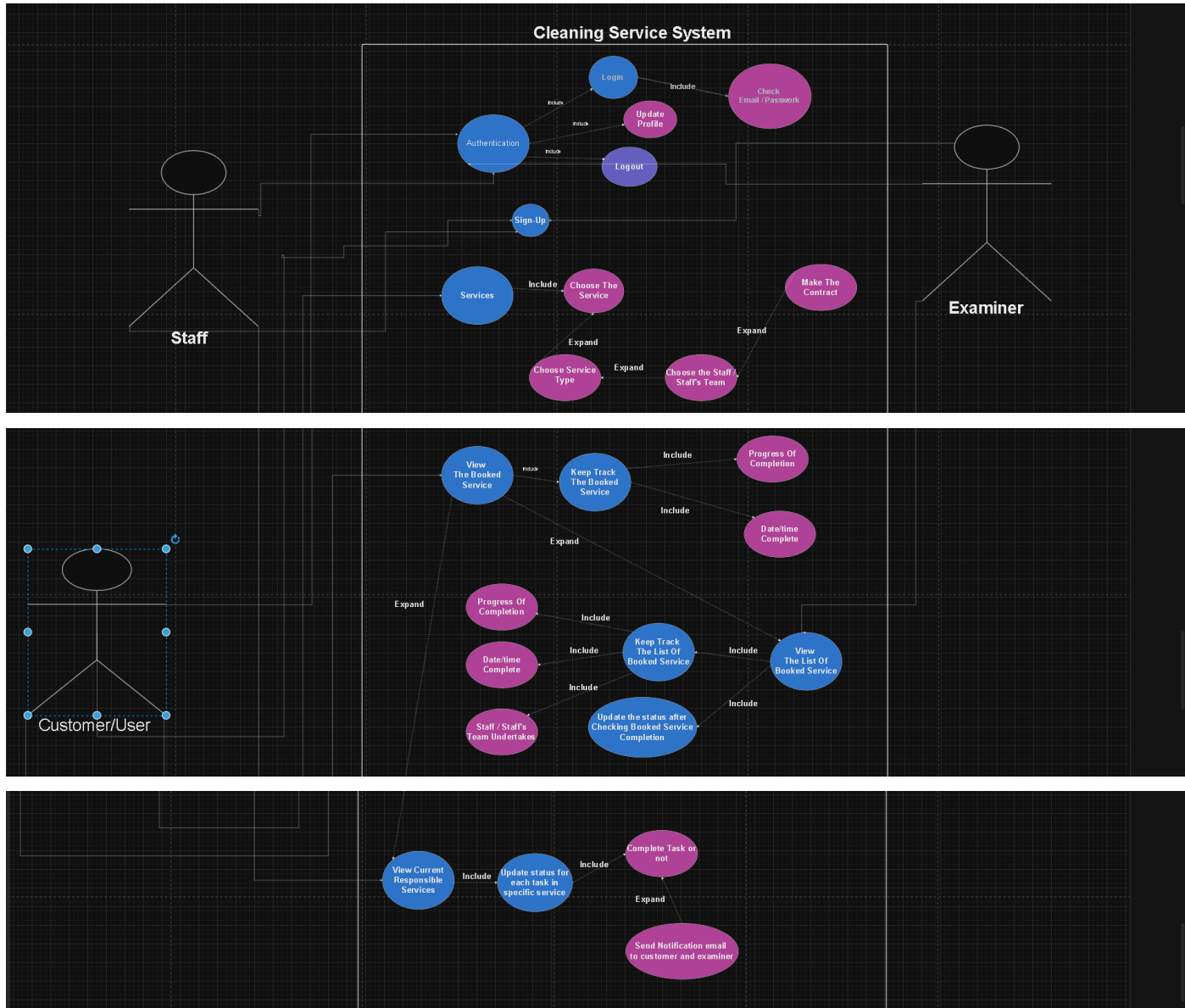
3. Overview

- **The report includes an analysis of system requirements and design, implementation details for different roles, and concludes with a discussion of findings and future recommendations.**

II. REQUIREMENT ANALYSIS AND DESIGN

1. Use Case

- Centralize around the three main actors: User, Staff, Examiner



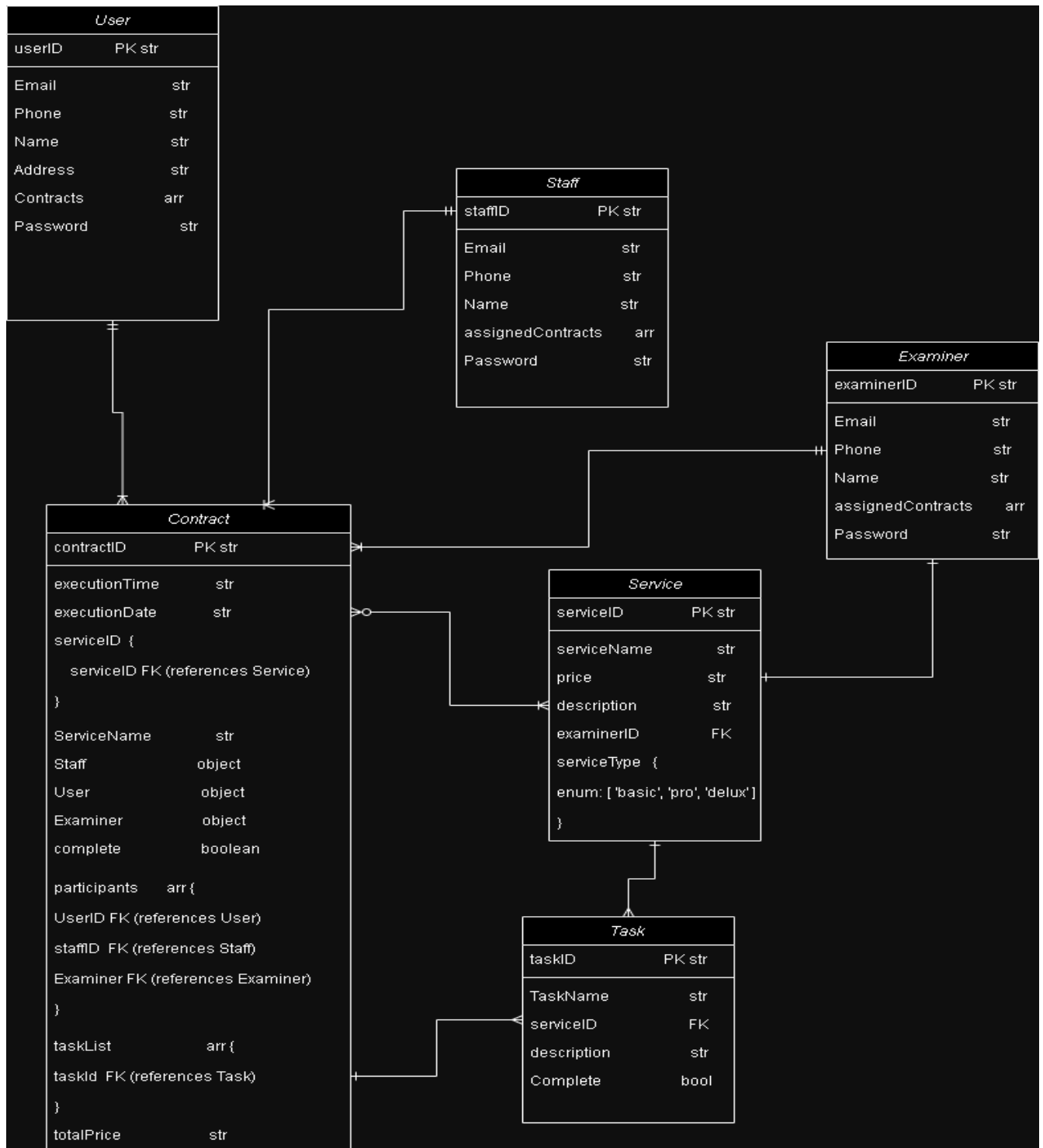
(To see more detail, go to download file [Cleaning_Service_UseCase_Diagram.drawio.png](#))

- **User:**
 - **Log in/register.**
 - **Log out.**
 - **Update profile.**
 - **View services and pricing.**
 - **Book service and make payment.**
 - **Check service and contract status.**

- **Staff:**
 - **Log in to view assigned tasks.**
 - **Log out.**
 - **Update Profile**
 - **Update task status (pending → complete).**

- **Examiner:**
 - **Log in to review tasks.**
 - **Log out.**
 - **Update profile.**
 - **Approve contracts after verification (update contract status).**

2. Database Table Diagram



- **Detailed Model:**

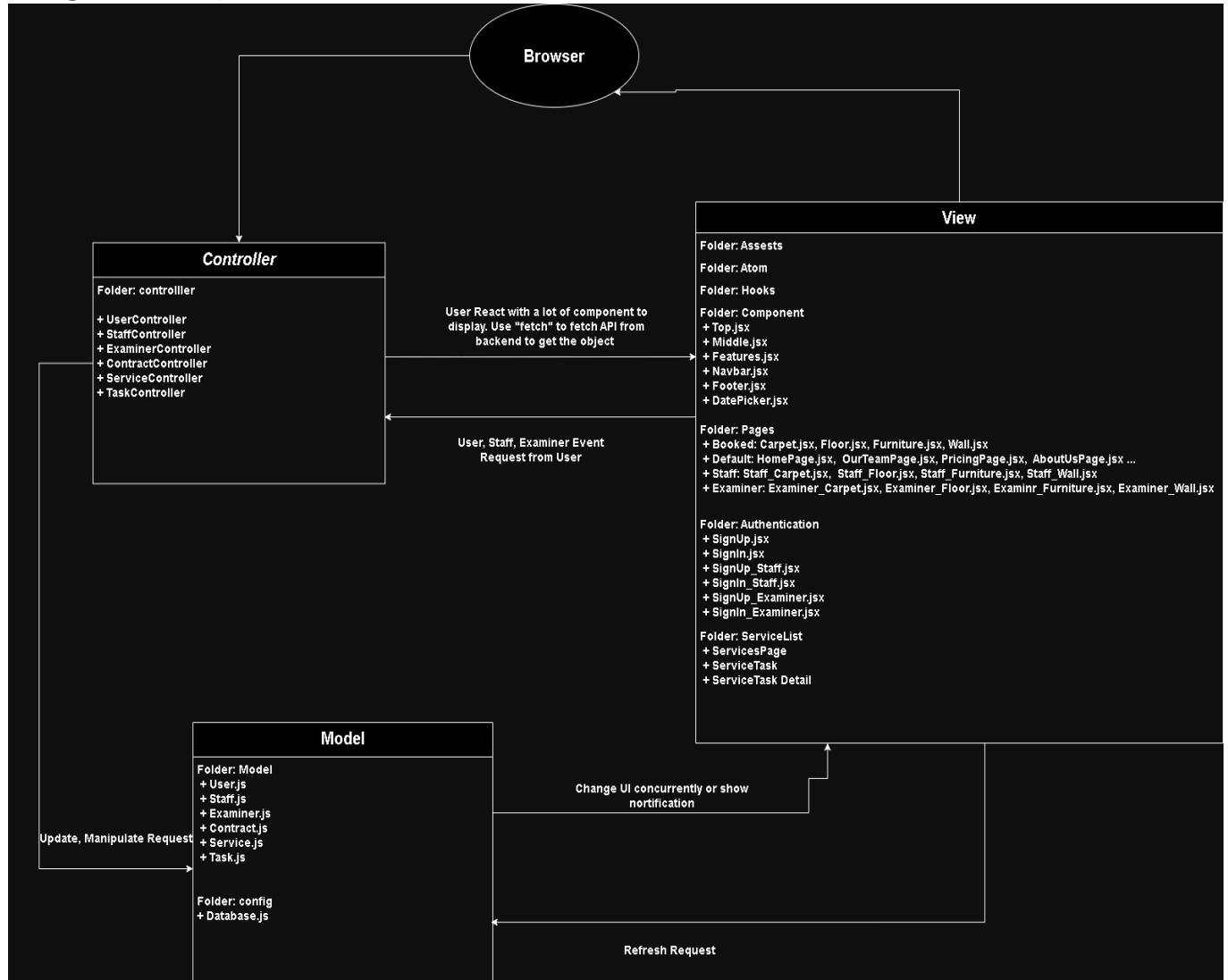
- **User:** id, name, email, password, phone, address, Contract.
- **Staff:** id, name, email, password, phone, address, assignedContract.
- **Examiner:** id, name, email, password, phone, address, assignedContract.
- **Service:** id, serviceType, description, price, examinerID.
- **Task:** id, taskName, serviceID, description, complete.
- **Contract:** id, user, serviceId, staff, examiner, taskList, complete, totalPrice, participants, execution time, execution date.

- **Relationships:**

- **One User → Many Contracts.**
- **One Staff → Many Contracts.**
- **One Examiner → Many Contracts.**
- **One Contract → One Service, Many Tasks.**
- **One Service → Many Tasks.**
- **One Service → One Examiner.**

3. System Architecture

Diagram Components:



- **Presentation Layer (view):**

- **React/HTML pages for users, staff, examiners and default company pages.**
- **Business Logic Layer (controller):**
 - **Node.js backend handling service bookings, task updates, staff, user, examiner action and contract approvals.**
- **Data Layer (model):**
 - **MongoDB database storing data for users, staff, examiner, tasks, and contracts.**

III. IMPLEMENTATION

1. User Role

- **Steps:**
 - **Register/Login.**
 - **View services with pricing and options.**
 - **Book a service:**
 - 1. Select service type (Basic/Pro/Deluxe).**
 - 2. Choose staff for the task.**
 - 3. Confirm booking details.**
 - **Make payment:**
 - 1. Choose between PayPal or cash.**
 - 2. Redirect to PayPal for online payment.**
 - **Track booked services and task statuses.**
- **Pictures:**

- **Screenshots of login forms.**

Welcome back, customer!

Enter your Credentials to access your account

Email address

Password

Login

Or



Sign in with Staff



Sign in with Examiner

Don't have an account? [Sign Up](#)

- **Screenshots of registration forms.**

Get Started Now

Name

Enter your name

Email address

Enter your email

Password

Enter your password

Phone

Enter your phone

Address

Enter your address

☐ I agree to the terms & policy

Signup

Or




Sign in with Staff



Sign in with Examiner


- **Service selection and booking pages.**

HOMEABOUT US

localhost:4000 says
Contract created successfully!

OK

CUSTOMER APPRECIATE

user6

LOGOUT

Service

Carpet Cleaning

Service Type

☐basic

☒pro

☐deluxe

Staff


Samantha Lee

Execution Date

04/12/2024

Create Service

Service Summary



Carpet Cleaning

Supervisor

examiner1

Description

Removes dirt and stains from carpets using steam or dry cleaning to refresh and sanitize.

Service Type

pro

Total

Execution Day

\$650

04/12/2024

Make Contract

- Confirmation pages.

Using Services Agreement

Read each item carefully and select agree if you have no questions. Otherwise, contact us immediately to change inappropriate items in a timely manner.

1. User Details

- User Name : user1
- Address : 8888 City Plaza, Ngai Lee
- Email : user1@gmail.com

2. Service Selection

- Selected Services:

1. Carpet Cleaning

Included Tasks:

1. Mopping
2. Post-treatment
3. Spot cleaning
4. Drying
5. Deep cleaning

3. Examiner Information

- Examiner Name :examined
- Phone : 123456
- Examiner Visit Date : 04/02/2024

4. Scheduling Options

- Select Exam Date : 04/02/2024
- Exam Date Time : 9:00 AM

5. Contract Details

- Responsible Staff : Amanda Lee
- Total Estimated Price : \$450

6. Payment Information

Deposit Payment Method:

- ☐ Cash
 - ☒ PayPal
- Final Payment Amount: \$650

7. Terms

This Agreement will begin on the date of acceptance and will remain in effect until all services have been completed.

Total Payment

650 \$

☒ I agree to the term & contract

Agree

Go Back

- **Payment interface**
 - 1. Paypal**



Pay with PayPal

With a PayPal account, you're eligible for
Purchase Protection and Rewards.

Email or mobile number

sb-tqvr33100107@personal.example.com

Password

|

[Forgot password?](#)

Log In



Log in with a one-time code

or

Pay with Debit or Credit Card

[Cancel and return to BLAST.com](#)


2. Card

Cleaning.io

TEST MODE

Carpet Cleaning


\$650.00


Pay with  link

Or pay another way

Email


Payment method

☐  Card


☐  Cash App Pay

☐ **Securely save my information for 1-click checkout**
Pay faster on Cleaning.io and everywhere Link is accepted.

Pay

Powered by  [Terms](#) [Privacy](#)

○ **Complete Payment**



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 user6

LOGOUT

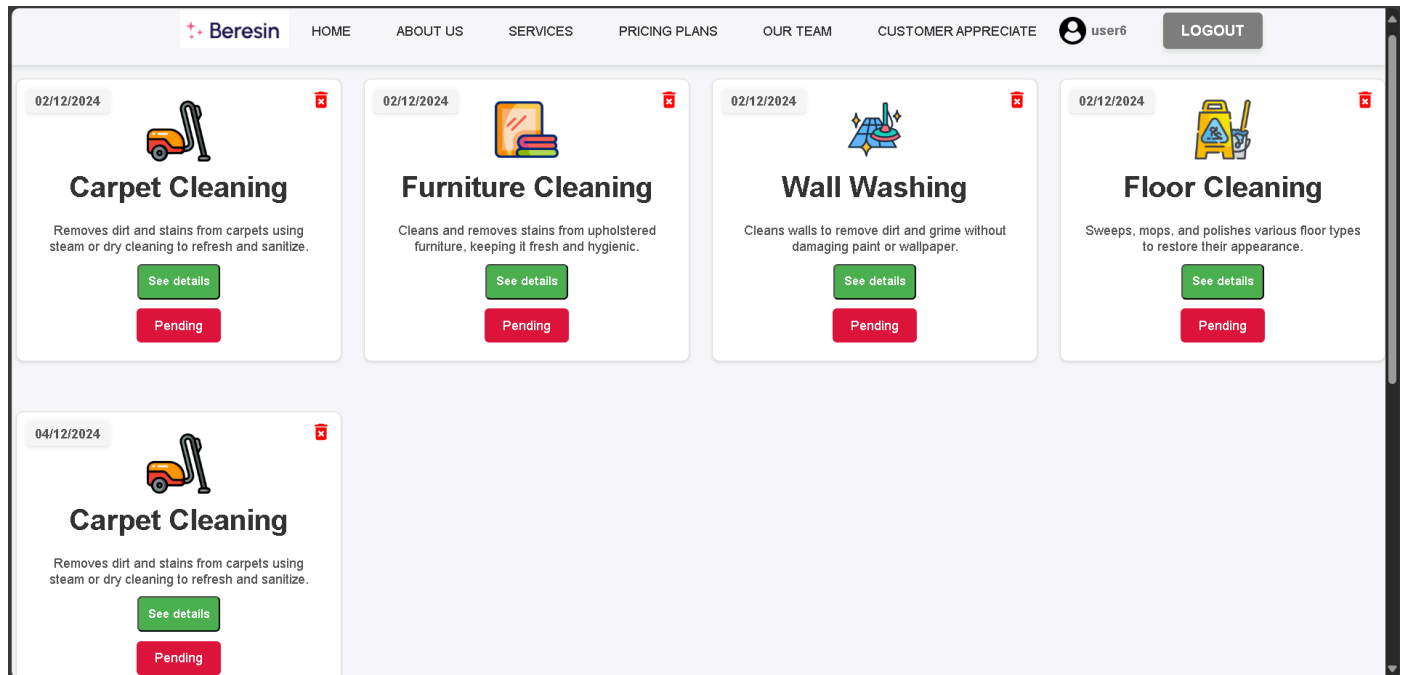


Payment Successful

Thank you for your payment!

Go To Your Booked Service(s)

- **Booked Service Page (can keep track the contract status)**



2. Staff Role

- **Steps:**

- **Log in to the staff portal.**
- **View assigned tasks and contracts.**
- **Update task statuses:**
 - 1. Mark tasks as pending, in-progress, or complete.**
- **Track overall progress of assigned services.**

- **Pictures:**

- **Staff login screen.**

Welcome back, Staff!

Enter your Credentials to access your account

Email address

staff1@gmail.com

Password

...

Login

Or

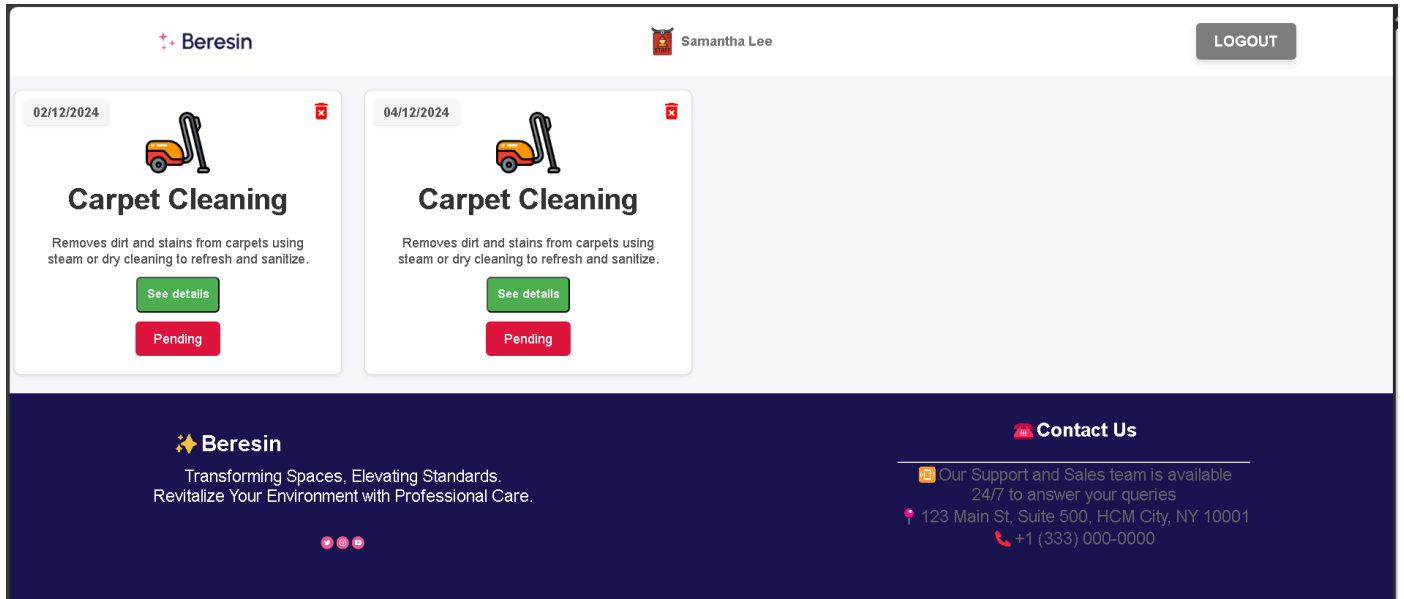


Sign in with Customer

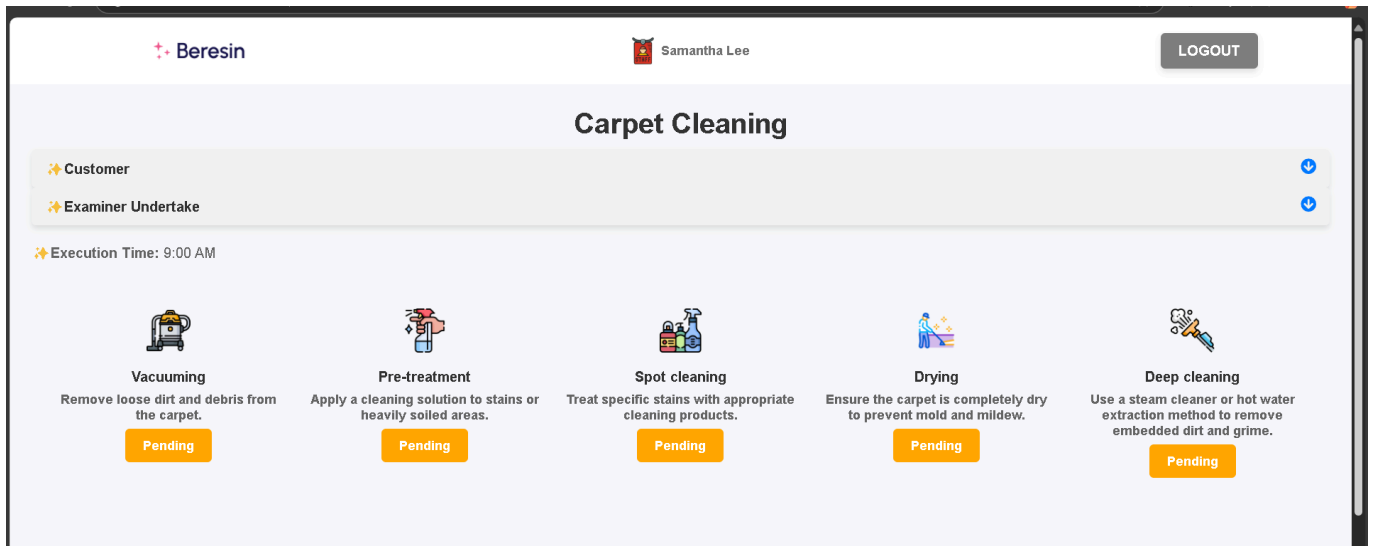


Sign in with Examiner

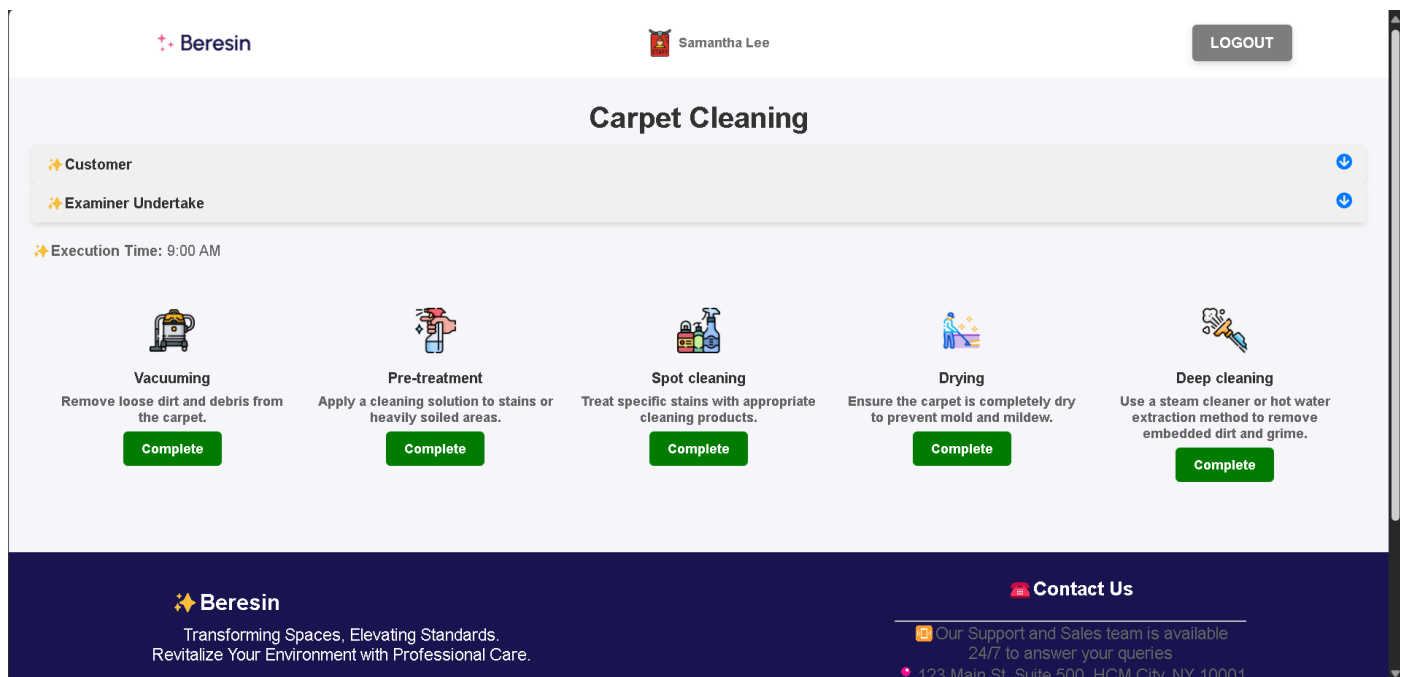
- Task management interface.



- Contract details page showing associated tasks.



- **After completing each task, click to change state from pending to complete**



3. Examiner Role

- **Steps:**
 - **Log in to the examiner portal.**
 - **Review assigned contracts and task statuses.**
 - **Approve contracts after verifying task completion.**
 - **Mark contracts as "Complete and Checked."**
- **Pictures:**

- **Examiner login screen.**

Welcome back, Examiner!

Enter your Credentials to access your account

Email address

blast12k3@gmail.com

Password

...

Login

Or

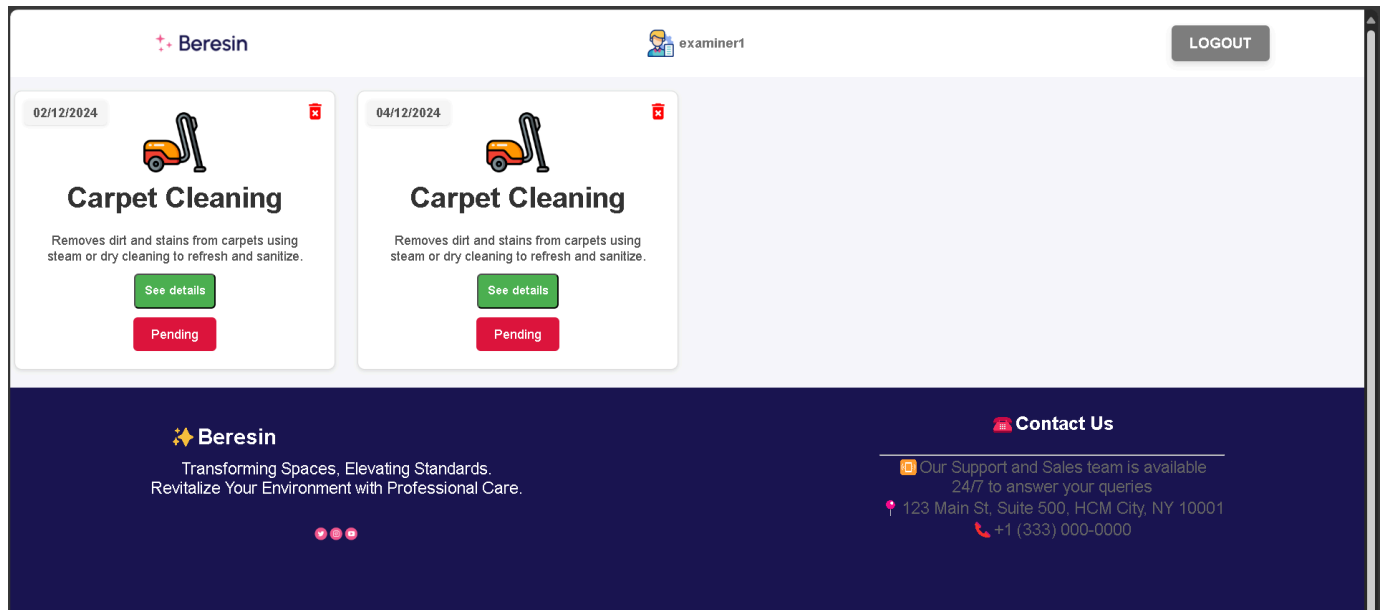


Sign in with Customer



Sign in with Staff

- **Examiner management interface.**



- **Task and contract approval interface.**

Carpet Cleaning

✦ Customer

Name: user6

Phone: 123456

Email: darayaf684@luxyss.com


✦ Staff Undertake

Name: staff1

Phone: 123456


Email: staff1@gmail.com

✦ Execution Time: 9:00 AM




Vacuuming
Remove loose dirt and debris from the carpet.

Pending




Pre-treatment
Apply a cleaning solution to stains or heavily soiled areas.

Pending




Spot cleaning
Treat specific stains with appropriate cleaning products.

Pending



Drying
Ensure the carpet is completely dry to prevent mold and mildew.

Pending



Deep cleaning
Use a steam cleaner or hot water extraction method to remove embedded dirt and grime.

Pending

- **Recheck and confirmation contract after completing staff's tasks.**

02/12/2024



Carpet Cleaning

Removes dirt and stains from carpets using steam or dry cleaning to refresh and sanitize.

[See details](#)[Complete](#)[Completed, unchecked](#)

04/12/2024



Carpet Cleaning

Removes dirt and stains from carpets using steam or dry cleaning to refresh and sanitize.

[See details](#)[Pending](#)

click to recheck



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Contact Us

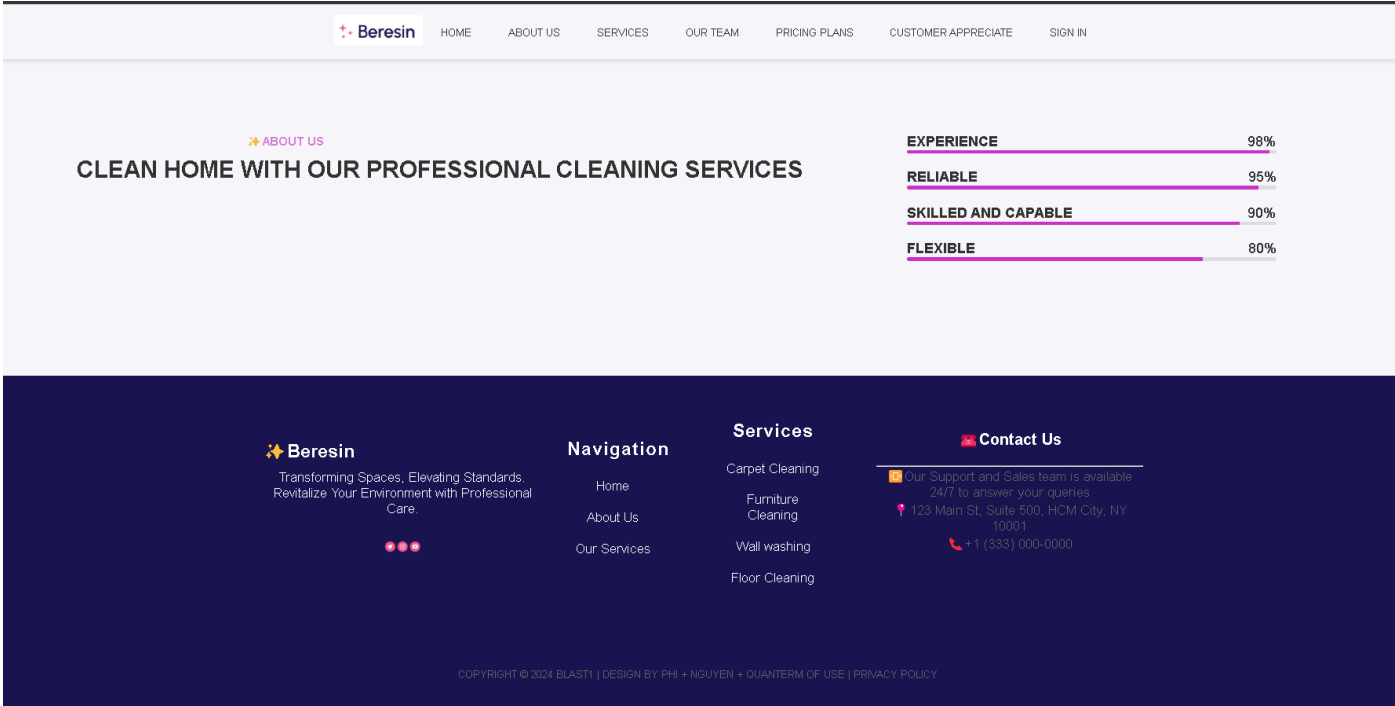
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24/7 to answer your queries

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+1 (333) 000-0000

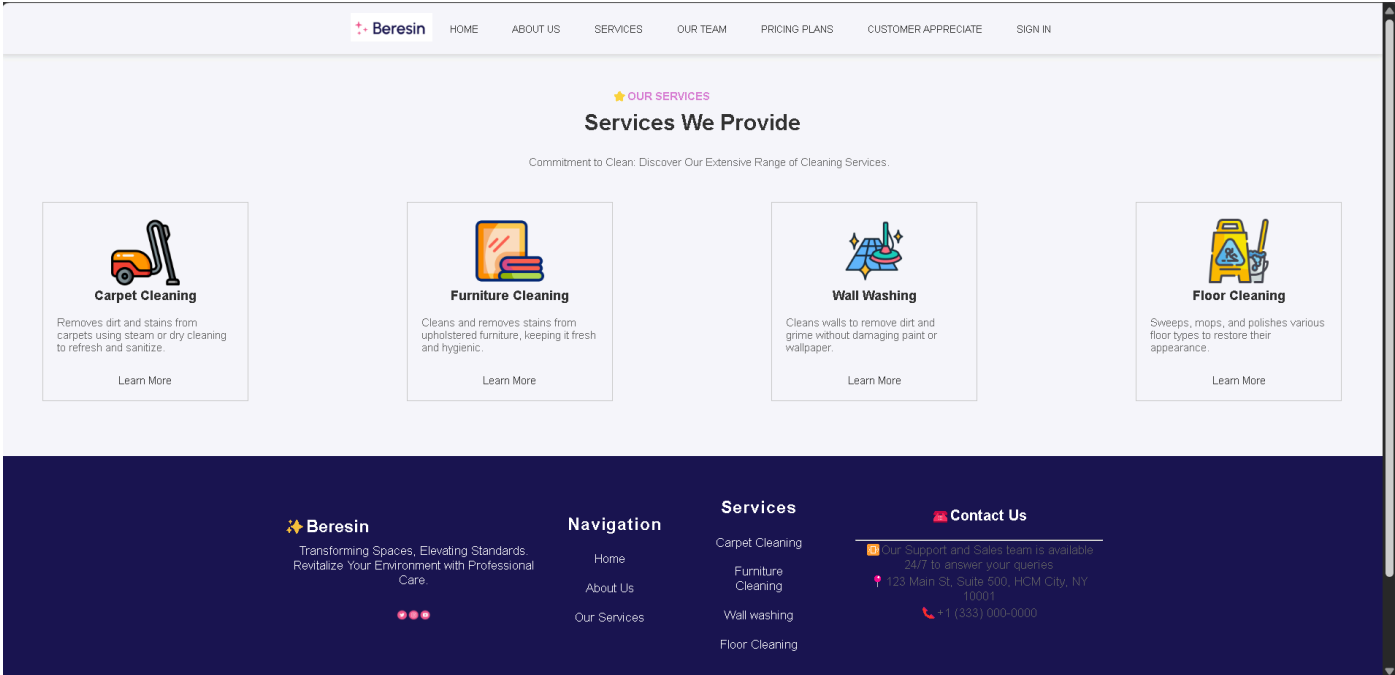
- **Home Page**




● About Us Page



● Services Page



- Detail Task For Each Service
 - Carpet Cleaning



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SIGN IN


✦ Task Undertake

Carpet Cleaning




Vacuuming

Remove loose dirt and debris from the staff.




Pre-treatment

Apply a cleaning solution to stains or heavily soiled areas.




Spot cleaning

Treat specific stains with appropriate cleaning products.



Deep cleaning

Clean deeply with steam or hot water to remove embedded dirt and grime.




Drying

Ensure the staff is completely dry to prevent mold and mildew.

✦ Beresin

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- Furniture Cleaning



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✦ Task Undertake

Furniture Cleaning




Dusting

The process of removing dust from surfaces..




Vacuuming

Vacuum upholstered furniture to remove dirt and debris.




Spot cleaning

Treat stains on furniture with appropriate cleaning solutions.



Upholstery cleaning

For deep cleaning, hire a pro or use a steam cleaner.




Leather conditioning

Condition leather to keep it soft and supple.

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● Our Team Page



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★OUR STAFF


Meet Our Cleaning Staff




Samantha Lee
Senior Carpet Cleaning Technician




James Wang
Upholstery & Furniture Care Specialist




Emily Davis
Senior Wall Care & Cleaning Technician



Michael Brown
Floor Care Specialist



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- **Staff Detail Page:**
 - **Samantha Lee**

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★ OUR STAFF

Meet Samantha Lee



Samantha Lee

Senior Carpet Cleaning Technician

BIO

With 8+ years in carpet cleaning, Samantha specializes in both steam and dry cleaning. She's certified in advanced stain removal and fabric care, ensuring every step of the process is meticulously done. Known for eco-friendly solutions, she handles both residential and commercial properties, bringing carpets back to life.

EXPERIENCE

Expert in stain removal, steam/dry cleaning.

○ James Wang

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★ OUR STAFF

Meet James Wang



James Wang

Upholstery & Furniture Care Specialist

BIO

James brings 7 years of expertise in cleaning and maintaining upholstered furniture, including high-end brands. Skilled in fabric and leather care, he offers spot cleaning, deep upholstery treatments, and conditioning to keep furniture fresh and durable.

EXPERIENCE

Specialist in upholstery care, with extensive work in both residential and commercial

○ Emily Davis

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★ OUR STAFF

Meet Emily Davis



Emily Davis

Senior Wall Care & Cleaning Technician

BIO

Emily has 6 years of experience in wall care, specializing in maintaining painted, wallpapered, and tiled surfaces. She ensures dirt, grime, and stains are removed without damaging the walls, using non-toxic solutions and steam cleaners. Her work spans both residential and commercial properties.

EXPERIENCE

Expertise in wall cleaning for various

○ **Michael Brown**



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★ **OUR STAFF**

Meet Michael Brown



Michael Brown

Floor Care Specialist

BIO

With over 10 years in floor cleaning, Michael excels at caring for hardwood, tile, laminate, and carpeted floors. He specializes in sweeping, mopping, scrubbing, polishing, and rug cleaning, leaving floors immaculate. His professional approach ensures durable, long-lasting floor care.

EXPERIENCE

Expert in floor care, including wood floors and rugs, with extensive experience in both

● Pricing Plans Page

Beresin

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◆ Pricing Plans for Every Budget

Faucibus commodo a aenean et sit quisque ipsum. Consequat eu id ut dolor felis quis. Sagittis a sapien pulvinar etiam.

Basic Cleaning

\$350 /service

Faucibus commodo a aenean et sit quisque ipsum. Consequat eu id ut dolor felis quis.

✓ 60 Minutes Consultation

✓ 2 Bedroom Cleaning

✓ 3 Bathroom Cleaning

✓ 1 Living Room Cleaning

✓ 7 Days Guarantee

Pay

Pro Cleaning

\$650 /service

Faucibus commodo a aenean et sit quisque ipsum. Consequat eu id ut dolor felis quis.

✓ 90 Minutes Consultation

✓ 3 Bedroom Cleaning

✓ 4 Bathroom Cleaning

✓ 1 Living Room Cleaning

✓ 7 Days Guarantee

Pay

Deluxe Cleaning

\$950 /service

Faucibus commodo a aenean et sit quisque ipsum. Consequat eu id ut dolor felis quis.

✓ 120 Minutes Consultation

✓ 4 Bedroom Cleaning

✓ 5 Bathroom Cleaning

✓ 1 Living Room Cleaning

✓ 7 Days Guarantee

Pay

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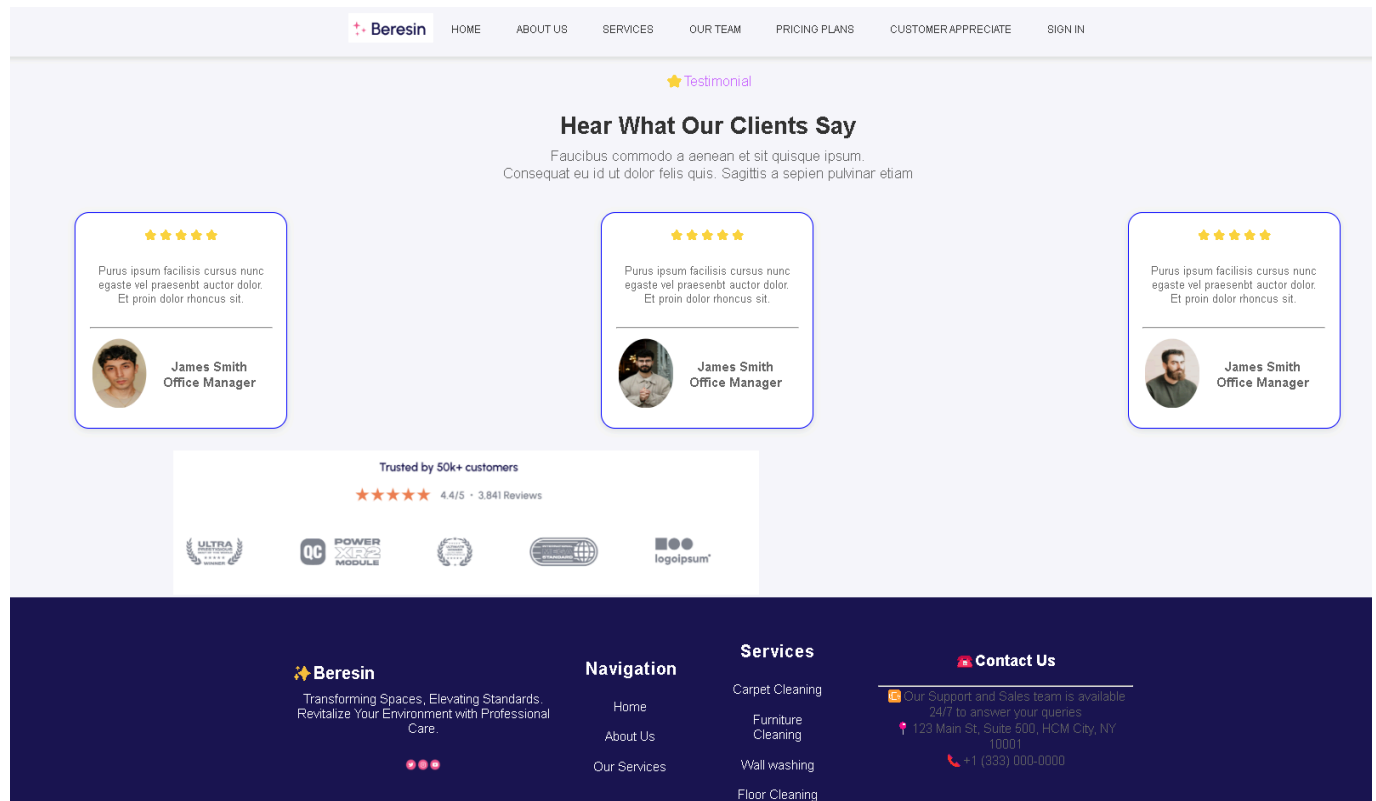
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- **Customer Appreciation Page**



IV. DISCUSSION AND CONCLUSION

1. Challenges:

- Ensuring real-time updates for task statuses.
- Managing dependencies between staff and examiner workflows.
- Handling overlapping bookings or unavailable staff.

2. Strengths:

- User-friendly interface for all roles.
- Clear task tracking and contract management system.
- Flexible payment options for users.

3. Weaknesses:

- Limited to single-day service contracts.
- Cash and Paypal payments restricted to in-person transactions.
- The main services are not variety and can not recommend the extra options.

V. Assigned Task, GitHub and Deployment

1. Assigned Task

- Quân: UI, UX design + frontend developer
- Nguyễn: frontend developer
- Phi: full-stack developer

2. GitHub

- Development (has report + diagram)
 - https://github.com/Blast2003/Blast2003-Cleaning_Service
- Production:
 - https://github.com/Blast2003/Cleaning_Commercial

3. Deployment (using Render)

- <https://cleaning-commercial.onrender.com>

VI. REFERENCES

Books/Articles:

- "Designing Data-Intensive Applications" by Martin Kleppmann.
- "Clean Architecture" by Robert C. Martin.

Websites:

- Documentation for React, Node.js, and MongoDB:
 - <https://react.dev/>
 - <https://nodejs.org/fr>
 - <https://www.mongodb.com/>
- Guides for creating use case and class diagrams:
 - <https://www.figma.com/resource-library/what-is-a-use-case/>
 - <https://www.geeksforgeeks.org/unified-modeling-language-uml-class-diagrams/>

Tools:

- Figma for UI design.
 - <https://www.figma.com/design/6l7BIBOR4k1aAvf5ZrkFNZ/Cleaning-Service?node-id=0-1&node-type=canvas&t=MXhcsicJZC1Ctq7W-0>
- Draw.io for diagrams.