

Healthcare Waste Management System

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ABSTRACT

Hospital wastes pose a significant impact on health and environment. From this study it can be said that there is an urgent need for raising awareness and education on medical waste issues. Proper waste management strategy is needed to ensure health and environmental safety. Healthcare waste is not managed properly because people are not self-aware of the problem.

Our aim is to develop a website, where people can see the ranking of hospitals on the basis of the waste management which has been complied by verified sources. This makes the hospitals to be conscious of their waste disposal methods. In this portal people can also complain if they find any illegal waste disposal is done and see the status of their complaints.

KEYWORDS:

❖ Healthcare

❖ Waste Management

❖ Online Complaint Management System

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We thank our parents, family, and friends for bearing with us throughout the course of our project and for the opportunity they provided us in undergoing this course in such a prestigious institution.

KAVINKATHIK

SHANGIRNE KHARBANDA

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INTRODUCTION

The major reason for taking this project is that during this time of pandemic spread of diseases has increased due to poor disposal of waste. This is caused due to inability of authority to contact each other. Also, the fact people don't know what to do when they see improper disposal of waste is done. The subject of biomedical waste management and handling has been assuming increasing significance for the past few years. The responsibility of medical administrators as regards proper handling and disposal of this category of waste has now become a statutory requirement with the promulgation of Government of India (Min of Environment and Forests) gazette notification no. 460 dated 27 Jul 1998.

Hence with the help of this webpage will guide people to know about the importance of proper disposal of waste. Also, the chance of improper disposal will reduce, because people will act as watchdogs in this case and also healthcare centers try to maintain their name.

Literature Review:

1. Hospital Management System using Web Technology ^[1]—

This paper gives us an idea about how details in hospitals are managed like patients and staff records. This paper addresses that particular region and paves a way for the creation of a software that helps to an easy transition from paperwork to e-papers. This includes patient management, schedule management of the doctors and give universal access to the patient data anywhere in the hospital.

2. Bio-medical waste disposal in India: From paper to practice, what has been affected ^[2] —

Bio-medical waste (BMW) disposal is a very important but challenging task. Health-care waste contains potentially harmful microorganisms, which can infect hospital patients, health workers, and the general public. This paper gives us an idea about how the bio medical waste is managed.

3. Hospital Finder Application D. Gayathri Devi, Keerthana. P. B, B. Lohitha, Tamizharasi. A Department of Computer Science and Engineering R.M.D. Engineering College, Chennai, India ^[3] —

In this paper the doctors nearby (from the app) will fill the gap by providing the information of all the doctors present near to the current location. In this, we proposed an application which locates the nearest hospitals about five km radius with the desired medical specialist. This gives us an idea about how we have to manage our database for a large number of hospitals.

Flow of Project:

The webpage will have both a frontend and backend (storing complaints, inspection and hospital details, etc.). We use CSS to make the look become more attractive. Also, the usage of JavaScript to do client-side manipulation. We are planning to use php and MySQL server for the backend.

Our webpage has the following modules:

1) Ranking Module

- a) Create the table with the hospital rankings.
- b) Get the sorted data from the table using php.
- c) Finally display the data in our webpage.

2) Complaint (Can be accessed only if user is logged in)

- a) Use JavaScript to check if the login cookie has been set.
- b) Displaying old complaints
 - i) Get the data from MySQL and display using php if any past complaints from user is present
- c) Raising a complaint
 - i) Get the form using php and validate the form.
 - ii) If it's a valid input, insert the complaint in the database.

3) Sign up

- a) Create two table with as user details and login details
- b) Get the input from php and validate it.
- c) If valid input, then insert the data in correspond table.
- d) Then create the login cookie and redirect to homepage.

4) Login

- a) Get the input from php and validate it.
- b) If valid input, then retrieve from the table the login details.
- c) If the username matches, then check if the password matches.
- d) If both matches, then create the login cookie and redirect to home page.

5) Logout

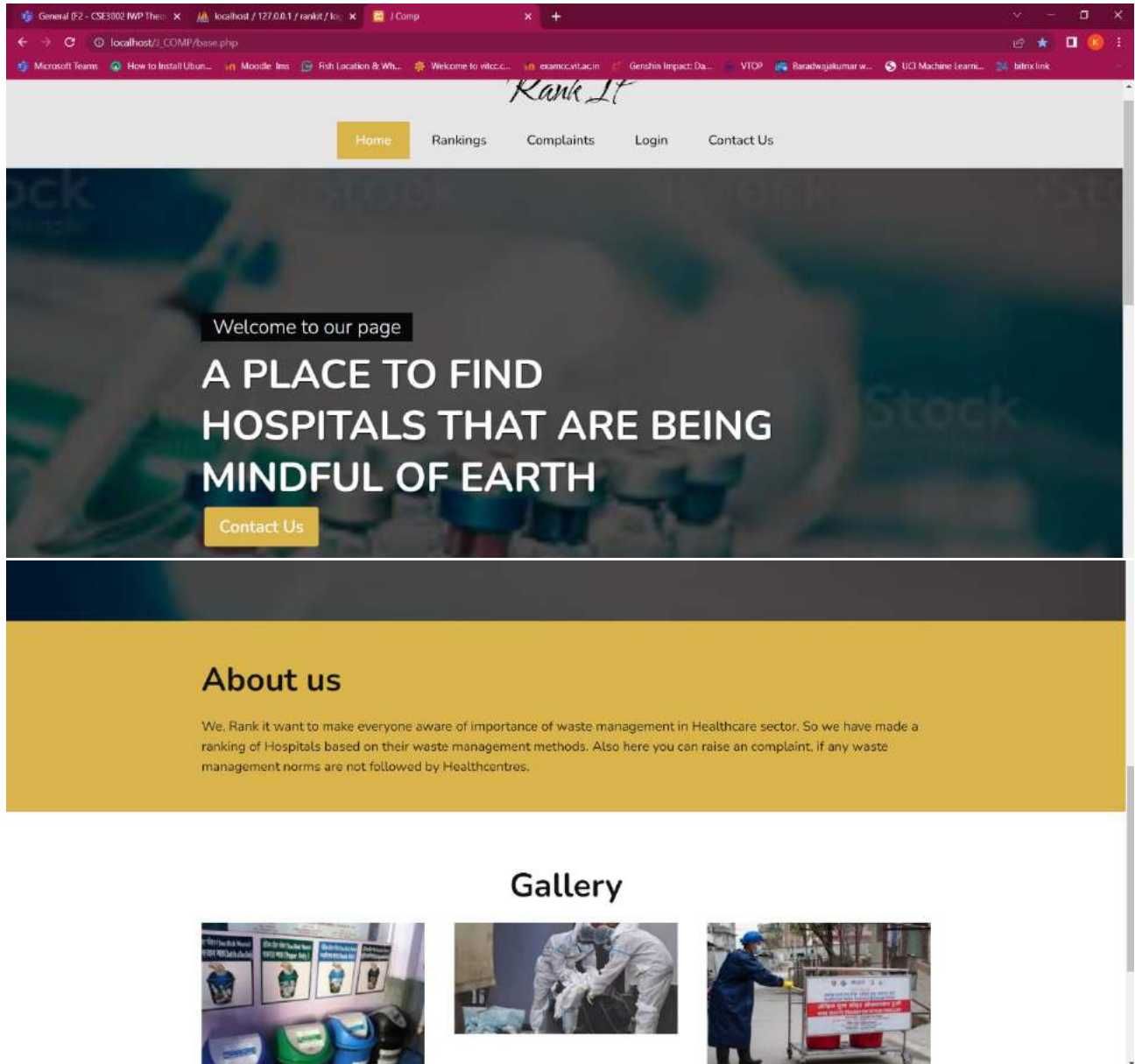
- a) Delete the login cookie.

6) Contact us

- a) Get the input using JavaScript and validate it.
- b) Then use smtp protocol to send mail to the email-id given and the body as the data given by the user.

Result and Discussion:

The homepage:



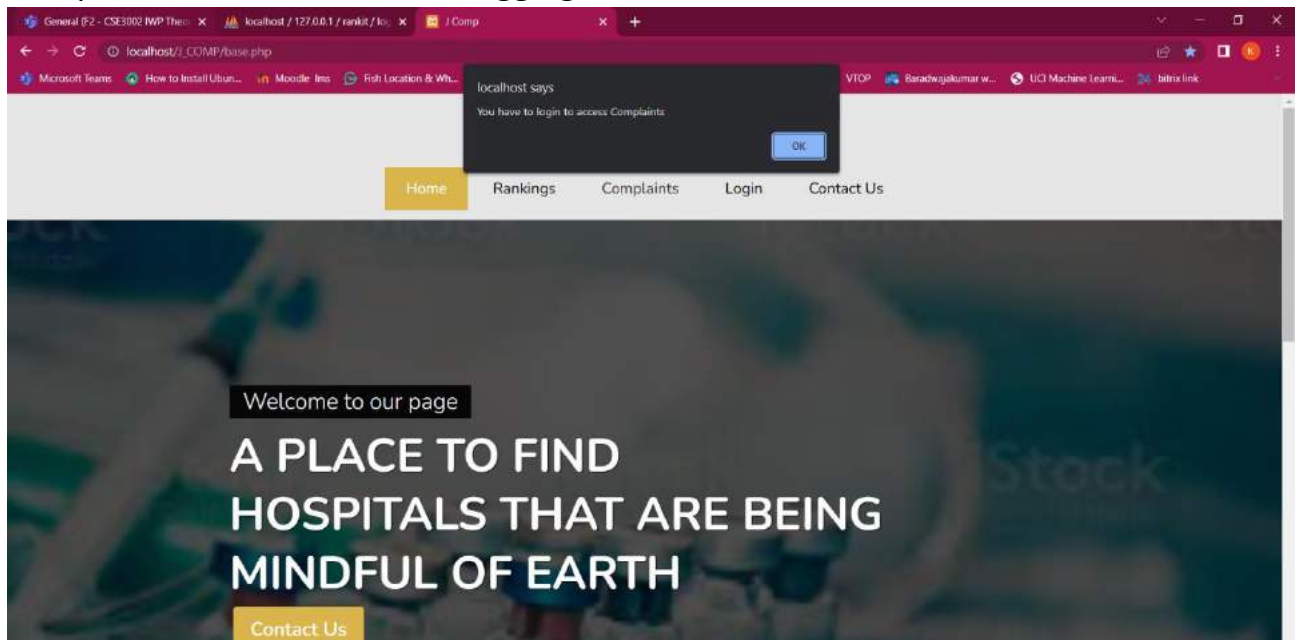
Gallery



[View Rankings](#)



Complaint tab if used without logging in.



Opening the ranking tab.

Rank It

Home Rankings Complaints Login Contact Us

RANKINGS

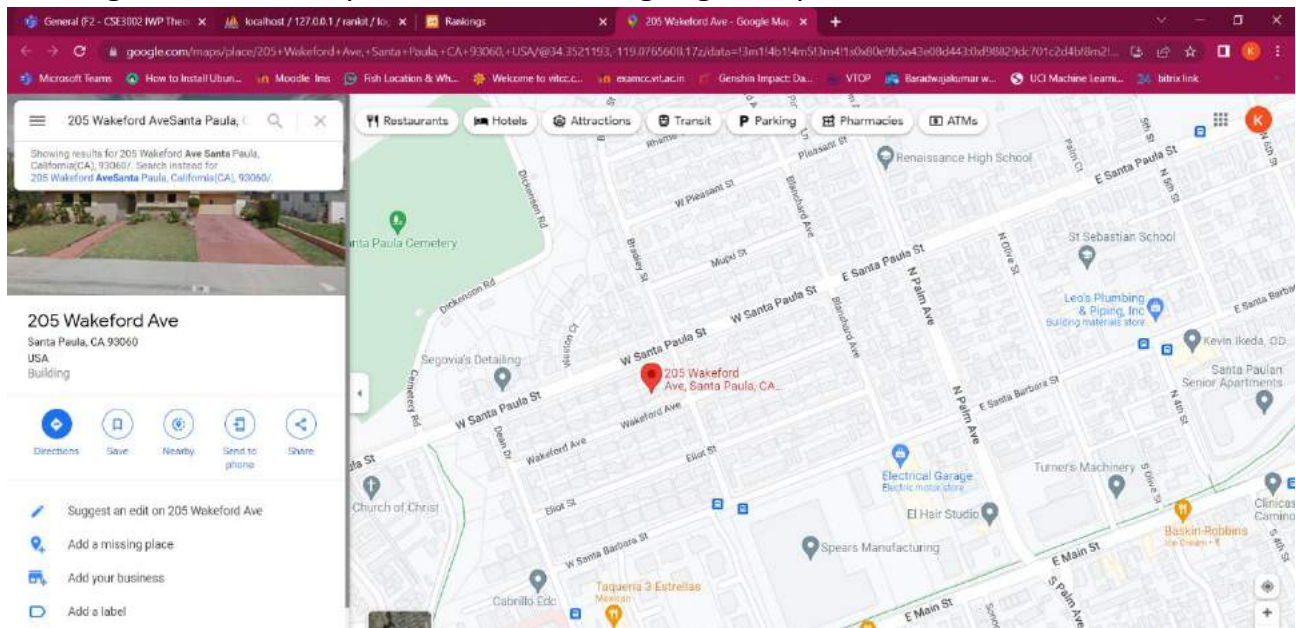
Rank	CNN	Name	Address	Phone number	Score
1	482953	New Child Clinic	205 Wakeford Ave Santa Paula, California(CA), 93060	(805) 525-6131	88.2
2	092832	Cinick Hospital	20 Orcuttville Rd Stafford Springs, Connecticut(CT), 06076	(860) 684-5679	87.4
2	323843	Marking Hospital	7827 90th Ave Woodhaven, New York(NY), 11421	(718) 296-7927	87.4
4	953302	Karlif Hospital	2716 Branden Dr Strawberry Plains, Tennessee(TN), 37871	(865) 932-9497	85.8
5	028329	Xian Hospital	275 Highland Village Dr Valley Park, Missouri(MO), 63088	(636) 225-4361	83.4

RANKINGS

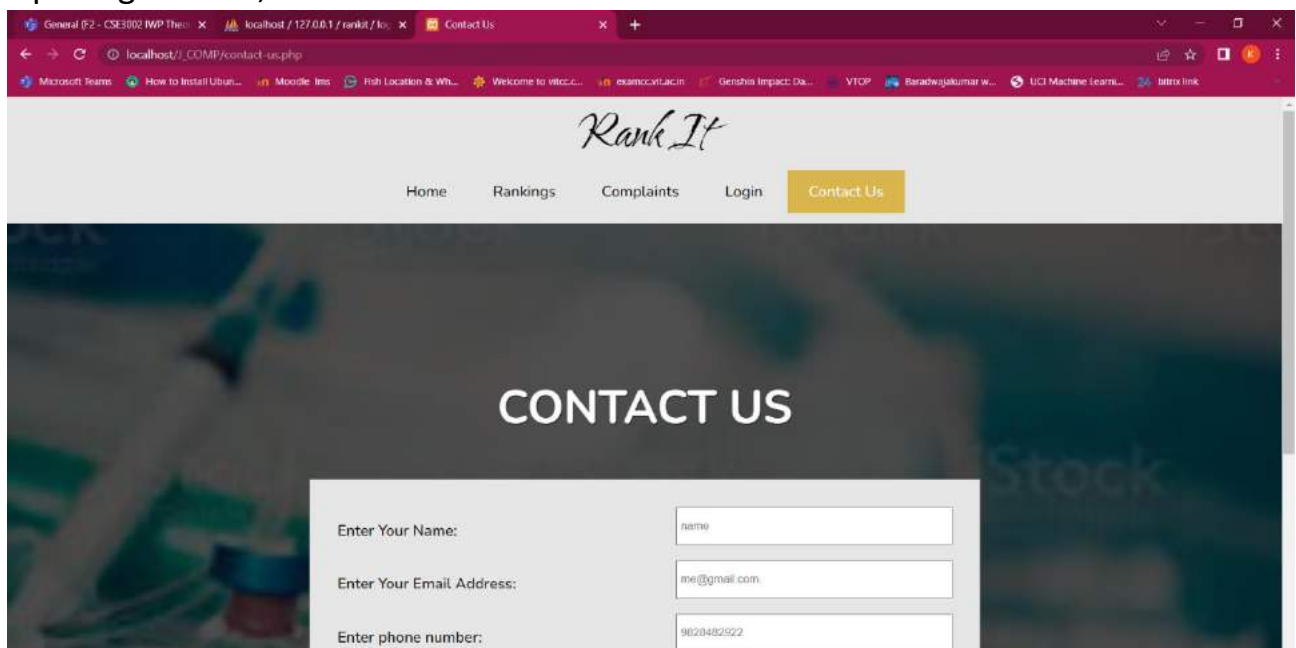
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f i t

Clicking the address, open the location in google maps.



Opening contact, us a tab.



If empty fields are present

The screenshot shows a web browser window with the address bar displaying `localhost / 127.0.0.1 / rankit / lo... / contact-us.php?name=awd&email=awd%40wd&phone=12312&message=asad`. The page title is "CONTACT US". The form contains the following fields:

- Enter Your Name:
- Enter Your Email Address: (A tooltip message "Please fill out this field." is displayed over this field.)
- Enter phone number:
- Type Your Message:

A yellow "Send Message" button is located at the bottom of the form.

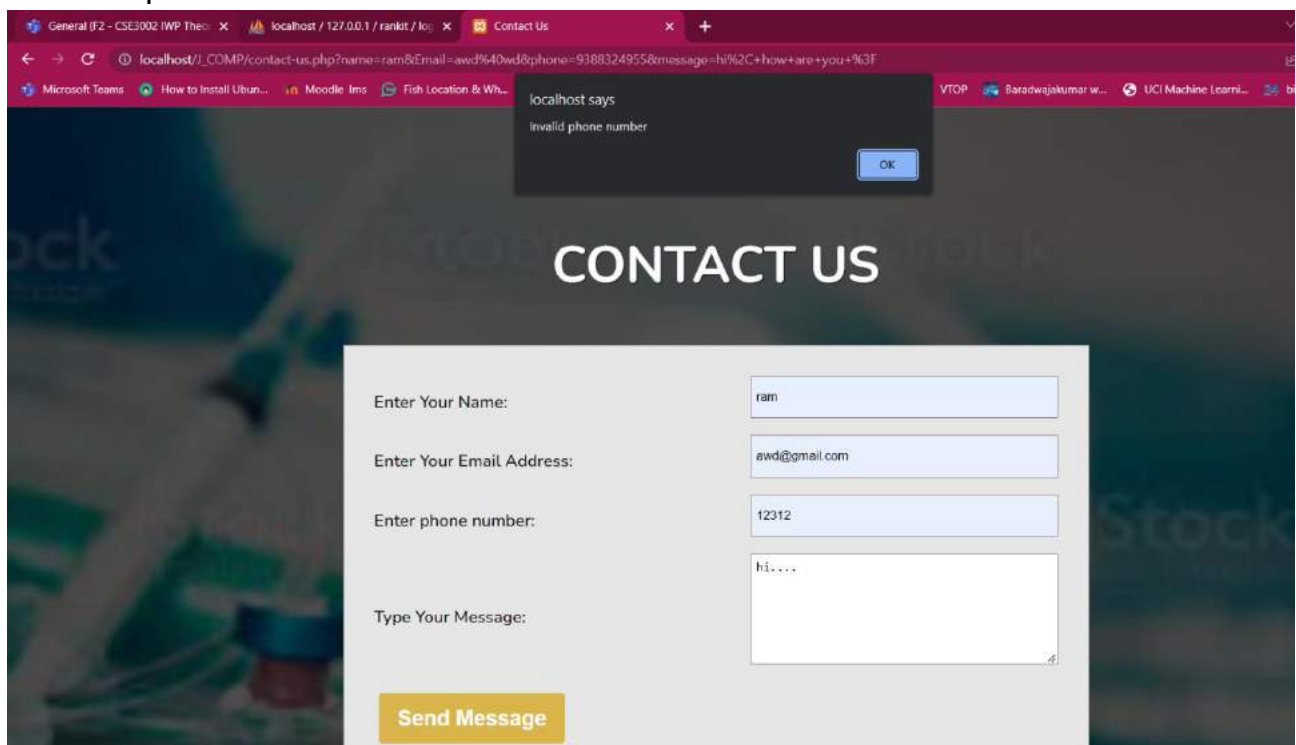
If invalid email

The screenshot shows the same web browser window as before, but with the email field containing the invalid address `awd@wd`. A modal dialog box titled "localhost says" with the message "Invalid email" and an "OK" button is displayed over the form. The form fields are:

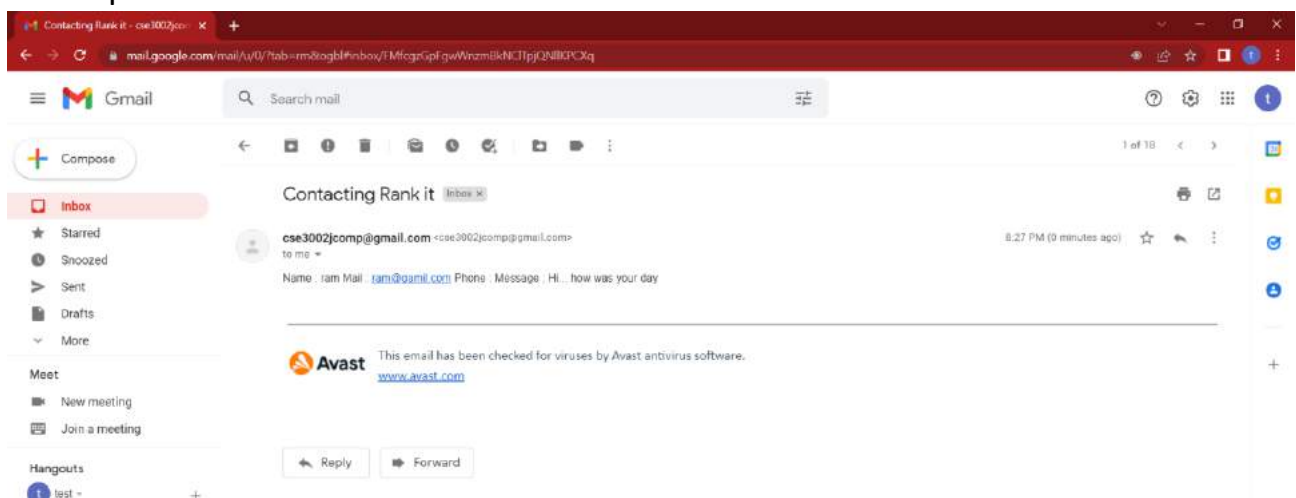
- Enter Your Name:
- Enter Your Email Address:
- Enter phone number:
- Type Your Message:

The yellow "Send Message" button remains at the bottom of the form.

If invalid phone number



If all inputs are valid



Sign in page

A screenshot of a web browser showing the 'Rank It' sign-in page. The browser's address bar displays 'localhost/J_COMP/sign.php'. The page features a navigation bar with links: Home, Rankings, Complaints, Login, and Contact Us. The main heading is 'SIGN IN'. Below it, there are three input fields: 'Enter Your Name:' (containing 'name'), 'Enter Your Email Address:' (containing 'me@gmail.com'), and 'Enter phone number:' (containing '9828482922').

If empty fields

A screenshot of the same 'Rank It' sign-in page, but with validation errors. The 'Enter Your Name:' field now contains 'ram'. The 'Enter Your Email Address:' field contains 'me@gmail.com'. The 'Enter phone number:' field contains '982848292' and has a red error message: 'Please fill out this field.' Below these fields are two more empty input fields labeled 'Enter Your Username:' and 'Enter Your Password:'. A yellow 'Sign In' button is located at the bottom of the form.

Invalid phone number

The image displays two screenshots of a web application's sign-in page, illustrating a validation error for the phone number field.

Top Screenshot (Successful Sign-In):

- Page Title: SIGN IN
- Form Fields:
 - Enter Your Name: ram
 - Enter Your Email Address: ram@gmail.com
 - Enter phone number: 882834232
 - Enter Your Username: raming123
 - Enter Your Password: passo084
- Action: Sign In (button)

Bottom Screenshot (Invalid Phone Number):

- Page Title: SIGN IN
- Form Fields:
 - Enter Your Name: name
 - Enter Your Email Address: me@gmail.com
 - Enter phone number: 9828402922
 - Enter Your Username: (empty)
 - Enter Your Password: (empty)
- Action: Sign In (button)
- Error Message: Invalid Phone number format

Using existing username

The image displays two screenshots of a web application's sign-in page, illustrating a scenario where a user attempts to sign in with an existing username.

Top Screenshot (Successful Sign-In):

- Page Title:** SIGN IN
- Form Fields:**
 - Enter Your Name:
 - Enter Your Email Address:
 - Enter phone number:
 - Enter Your Username:
 - Enter Your Password:
- Action:** A yellow button labeled "Sign In" is visible.

Bottom Screenshot (Error Message):

- Form Fields:**
 - Enter Your Name:
 - Enter Your Email Address:
 - Enter phone number:
 - Enter Your Username:
 - Enter Your Password:
- Action:** A yellow button labeled "Sign In" is visible.
- Error Message:** Below the "Sign In" button, a red message states: "Username Already in use".

If valid credentials are given

The image shows a web browser window with two tabs. The first tab is titled 'Sign In' and shows a 'SIGN IN' form. The second tab is titled 'Rank It' and shows the homepage of a website.

Sign In Form:

Enter Your Name: ram

Enter Your Email Address: ram@gamil.com

Enter phone number: 8829342343

Enter Your Username: raming123

Enter Your Password: passo084

Sign In

Rank It

Home Rankings Complaints raming123 Contact Us

Welcome to our page

A PLACE TO FIND HOSPITALS THAT ARE BEING MINDFUL OF EARTH

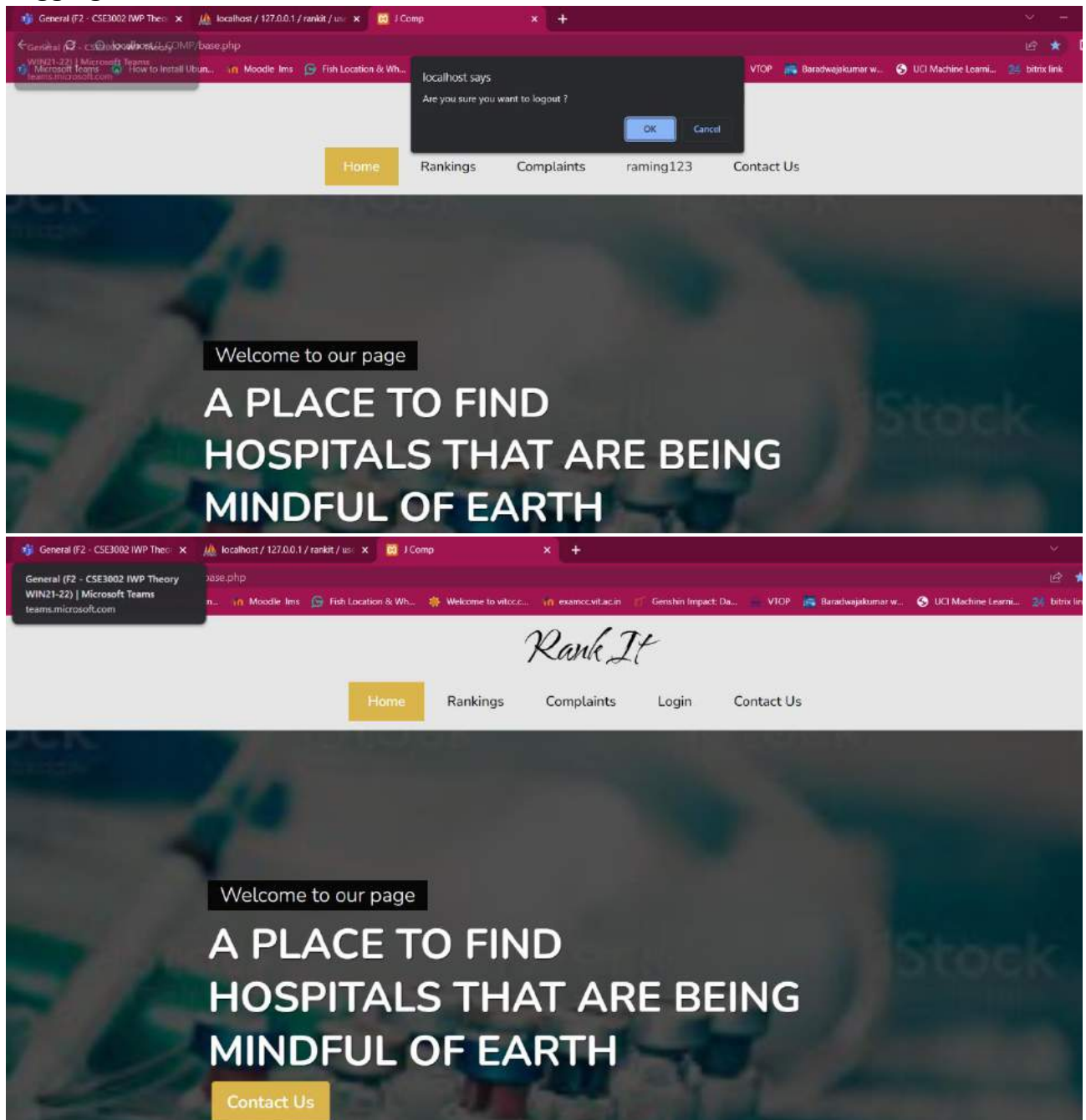
Contact Us

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key:

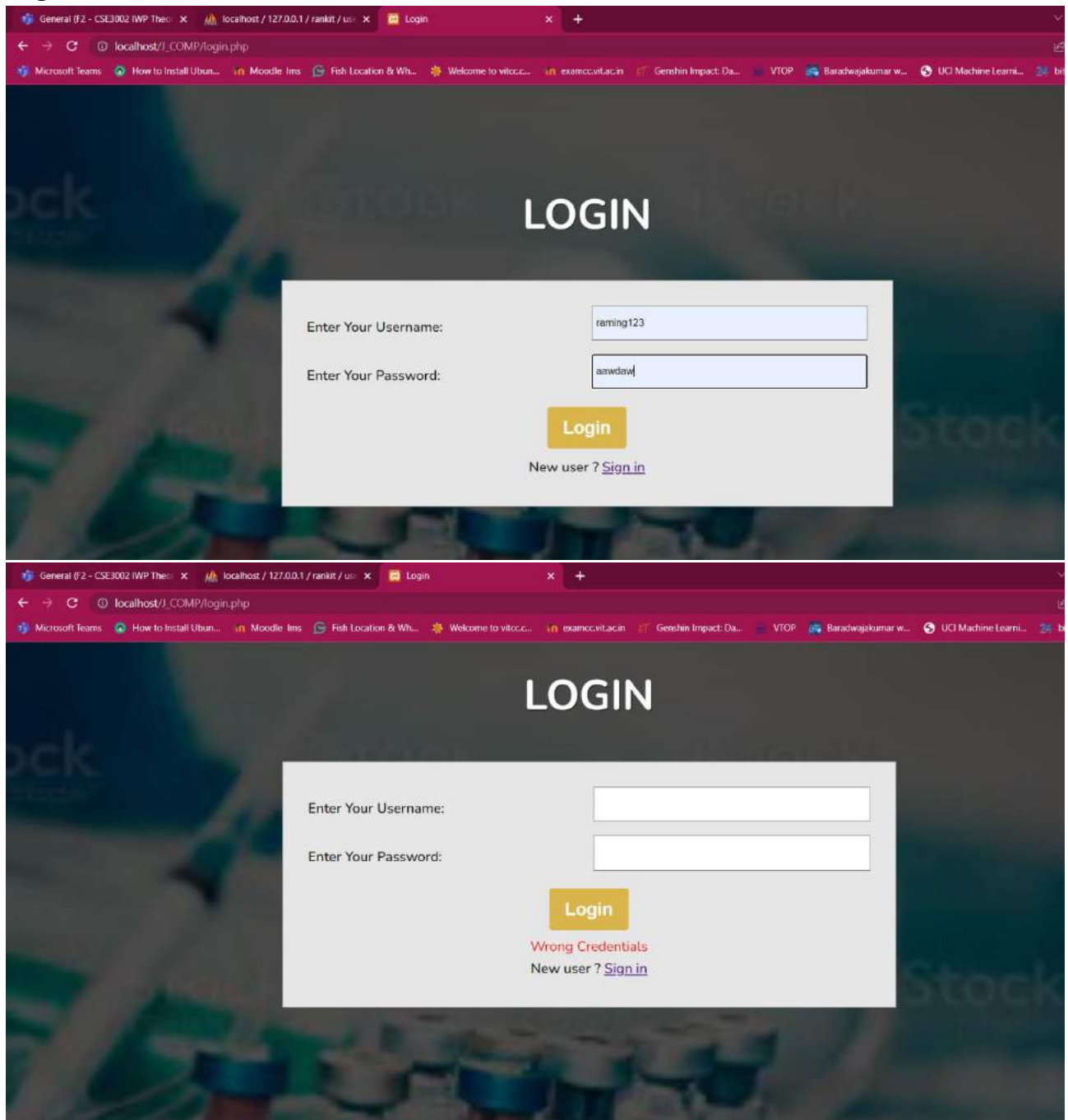
+ Options

		username	fullname	email	phone_num
<input type="checkbox"/>	Edit Copy Delete	20BAI1118	awd	awd@gmail.com	9388324955
<input type="checkbox"/>	Edit Copy Delete	raming123	ram	ram@gamil.com	8829342343

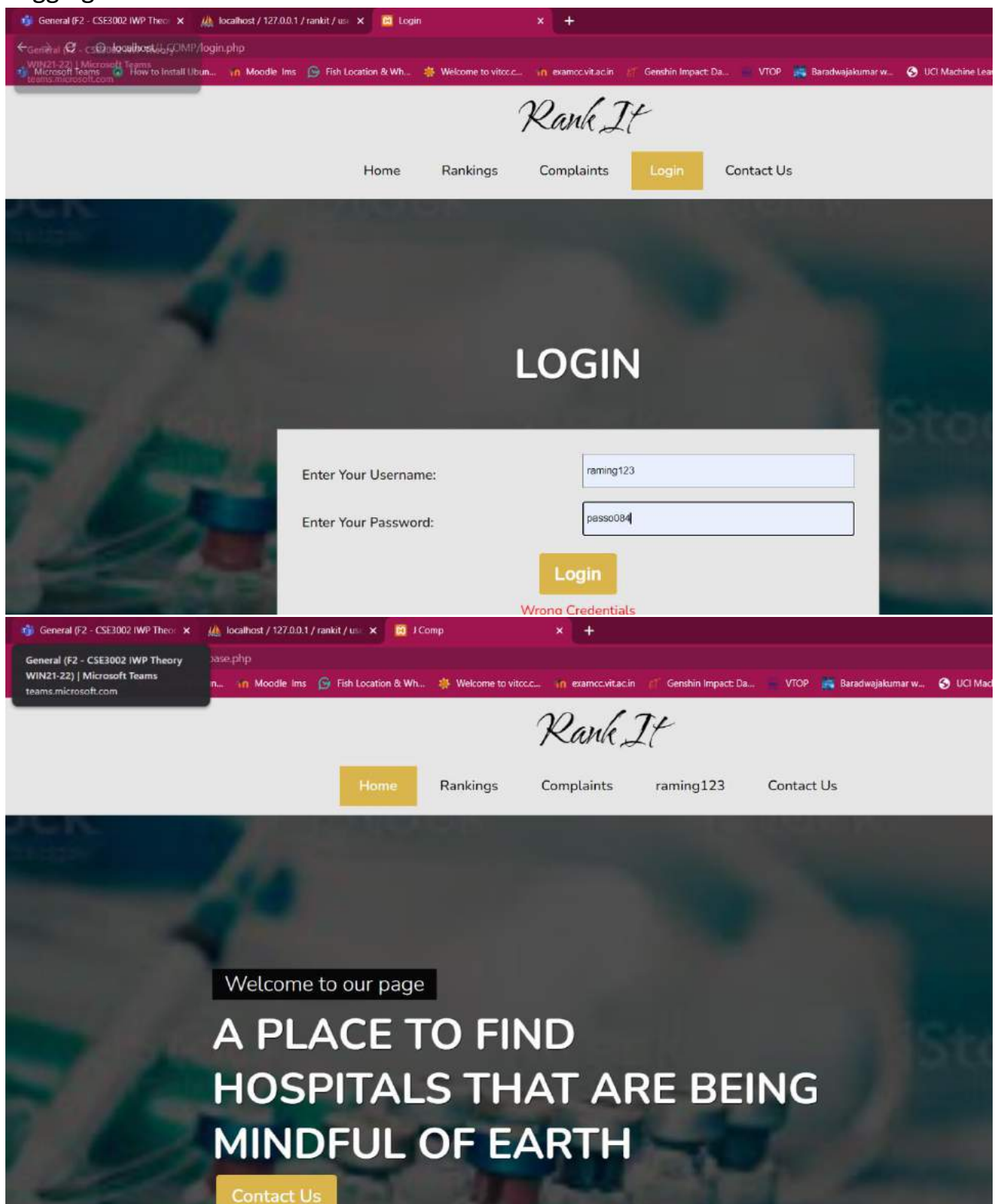
Logging out



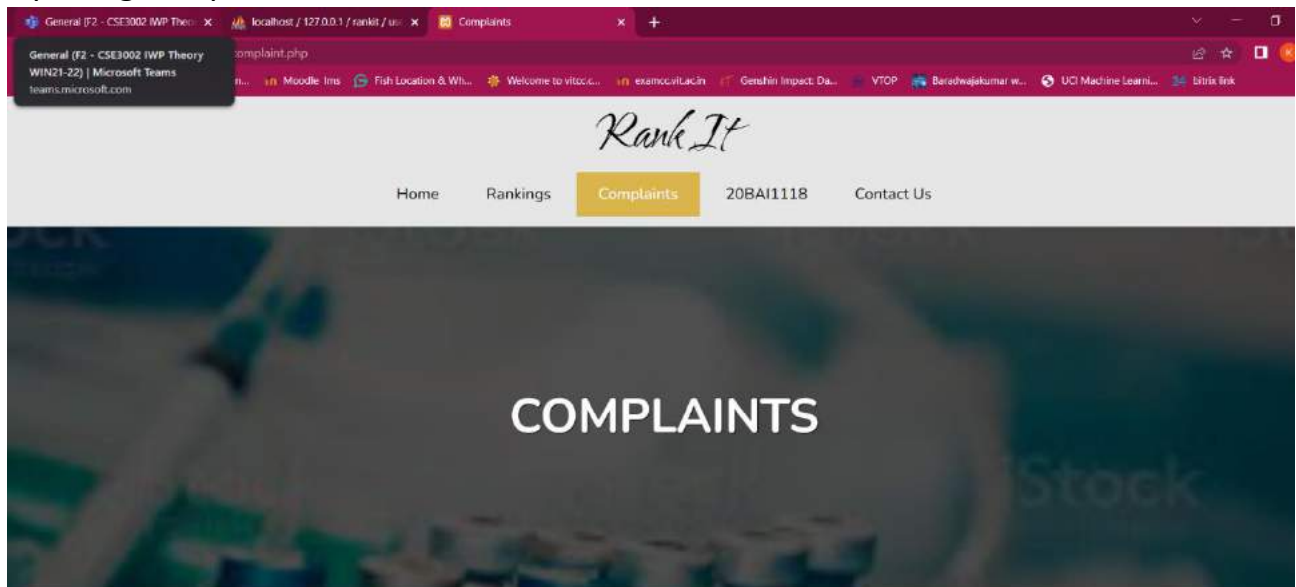
Login with invalid credentials



Logging in with valid credentials

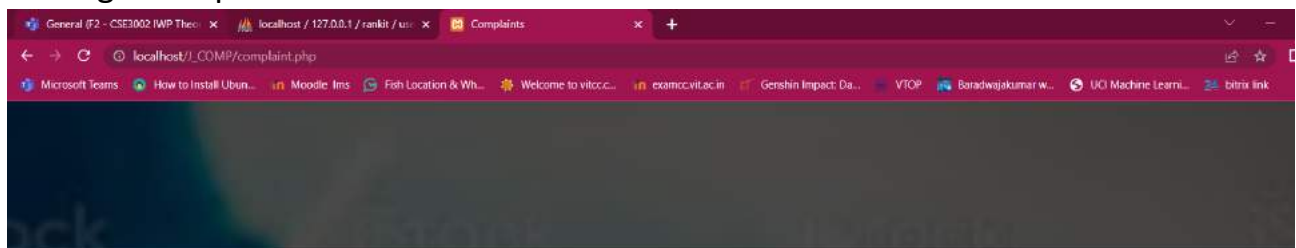


Opening complaints tab



Complaint Number	CNN	Time	Complaint	Status
1001	243223	2022-04-30 21:40:40	Segregation of waste is not done properly	pending
1002	084827	2022-04-30 21:57:43	Dumping waste in nearby empty ground	pending

Raising a complaint



Complaint Number	CNN	Time	Complaint	Status
1001	243223	2022-04-30 21:40:40	Segregation of waste is not done properly	pending
1002	084827	2022-04-30 21:57:43	Dumping waste in nearby empty ground	pending

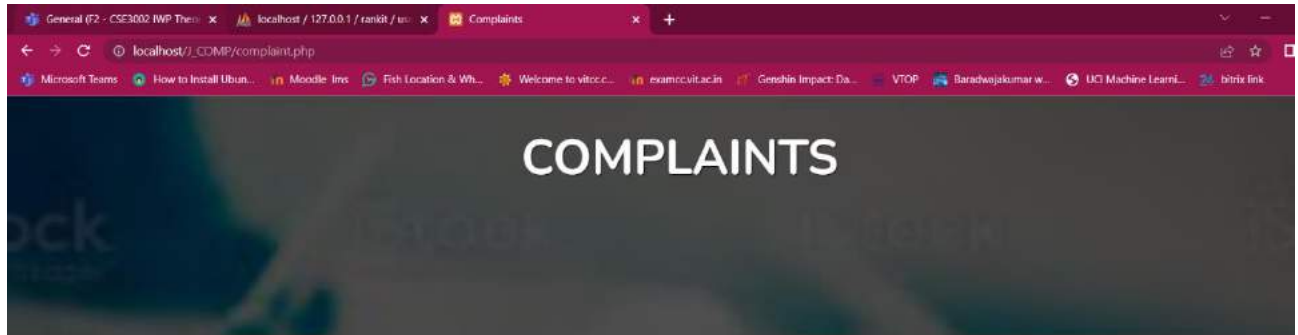
Enter Hospital CNN:

234134

Type Your Complaint:

Syringes were disposed along with food waste

Send Complaint



Complaint Number	CNN	Time	Complaint	Status
1001	243223	2022-04-30 21:40:40	Segregation of waste is not done properly	pending
1002	084827	2022-04-30 21:57:43	Dumping waste in nearby empty ground	pending
1003	234134	2022-05-02 20:41:18	Syringes were disposed along with ffod waste	pending

Enter Hospital CNN:

Conclusion:

We have successfully made a Healthcare Waste Management System with the help of our website with the appropriate functionalities embedded in it. We used various web technologies like HTML, CSS, Javascript, MySQL, PHP to achieve this task.

References:

1. https://www.researchgate.net/publication/342171051_Hospital_Ma

nagement System using Web Technology

2. [https://www.researchgate.net/publication/336584260 Bio-medical waste disposal in India From paper to practice what has been effected](https://www.researchgate.net/publication/336584260_Bio-medical_waste_disposal_in_India_From_paper_to_practice_what_has_been_effected)
3. [https://ijesc.org/upload/b3e5113668be0c8ac2686692a5cc08ff.Hospital%20Finder%20Application%20\(1\).pdf](https://ijesc.org/upload/b3e5113668be0c8ac2686692a5cc08ff.Hospital%20Finder%20Application%20(1).pdf)