Team Project Assignment Submission 2 – Open Table App

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CPSC – Internet Programming – 8720 – 03 – 25SP

Research Assignment

1. PRG (Post/Redirect/Get): Avoid Missing Submissions

As an illustration, picturing us completing an online flight reservation form and selecting the "Book Now" option. Duplicate reservations might result from the browser attempting to submit the same request again if we refresh the page after submitting the form.

How PRG Operates:

The browser is sent to a different page (such as a confirmation page) by the server once the form has been submitted.

This redirection stops multiple submissions by preventing the original form data from being sent again when the page is refreshed.

Advantages: Easy to use and popular Prevents unintentional multiple submissions by using the back or refresh buttons.

Cons: Doesn't stop deliberate duplicate submissions slows down the operation by adding an extra step.

2. RRG: Avoiding Intentional and Accidental Submissions

As an illustration, suppose we are making an online purchase. The system shouldn't process multiple payments if we inadvertently click "Pay" more than once or reload the page.

How RRG Operates:

The system creates a special request token and links it to the transaction before processing the payment.

The system determines if the token has already been used if the same request is submitted again (for example, by refreshing or clicking the button again). The request is disregarded if it was.

Advantages: It prevents both inadvertent and deliberate duplicate submissions, making it more secure than PRG. It is dependable for significant transactions and performs well with sessions.

Cons: More difficult to deploy than PRG. Tracking tokens are needed for every request.

3. Keeping Duplicate Transactions Out of APIs with Idempotency Key

As an illustration, consider transferring money using a banking app. We don't want the bank to transfer twice as much money if we inadvertently press the "Transfer" button twice.

The Operation of Idempotency Key:

For every transaction, a distinct key is generated by the client, which is the user's browser or application.

This key is stored by the server, which also verifies if it has been used previously.

To guarantee that the transaction only occurs once, the server rejects requests containing the same key.

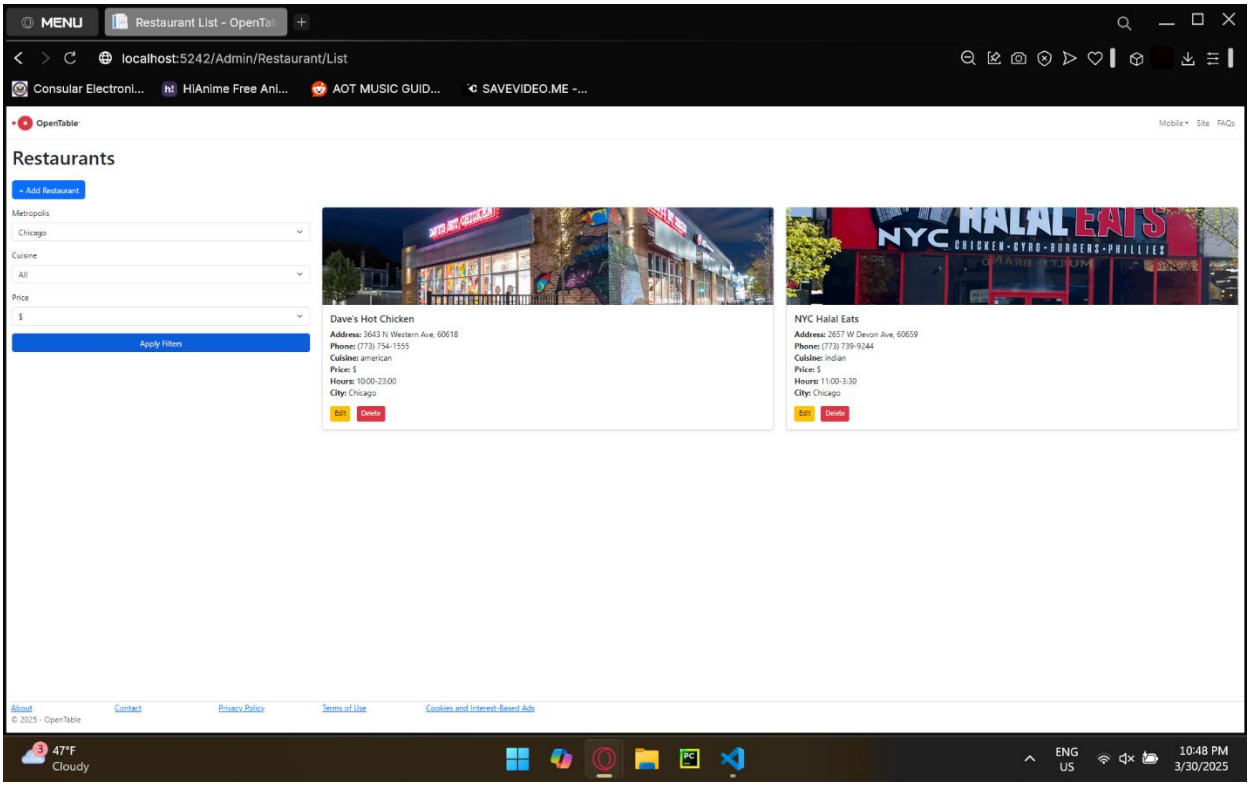
Advantages: Ensures that only one request is handled, even if submitted several times Works well for online payments, APIs, and other crucial operations.

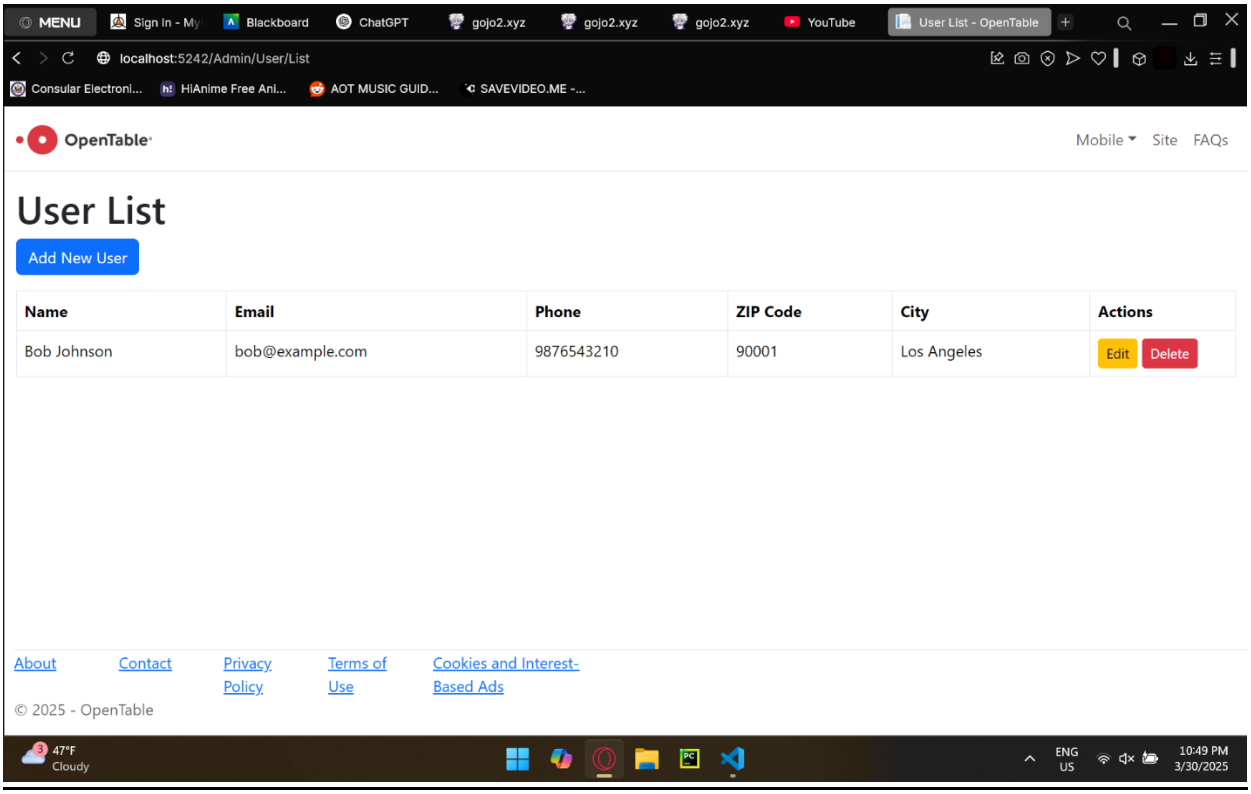
Cons: Key management adds additional processing cost and necessitates a database or cache for tracking and storing keys.

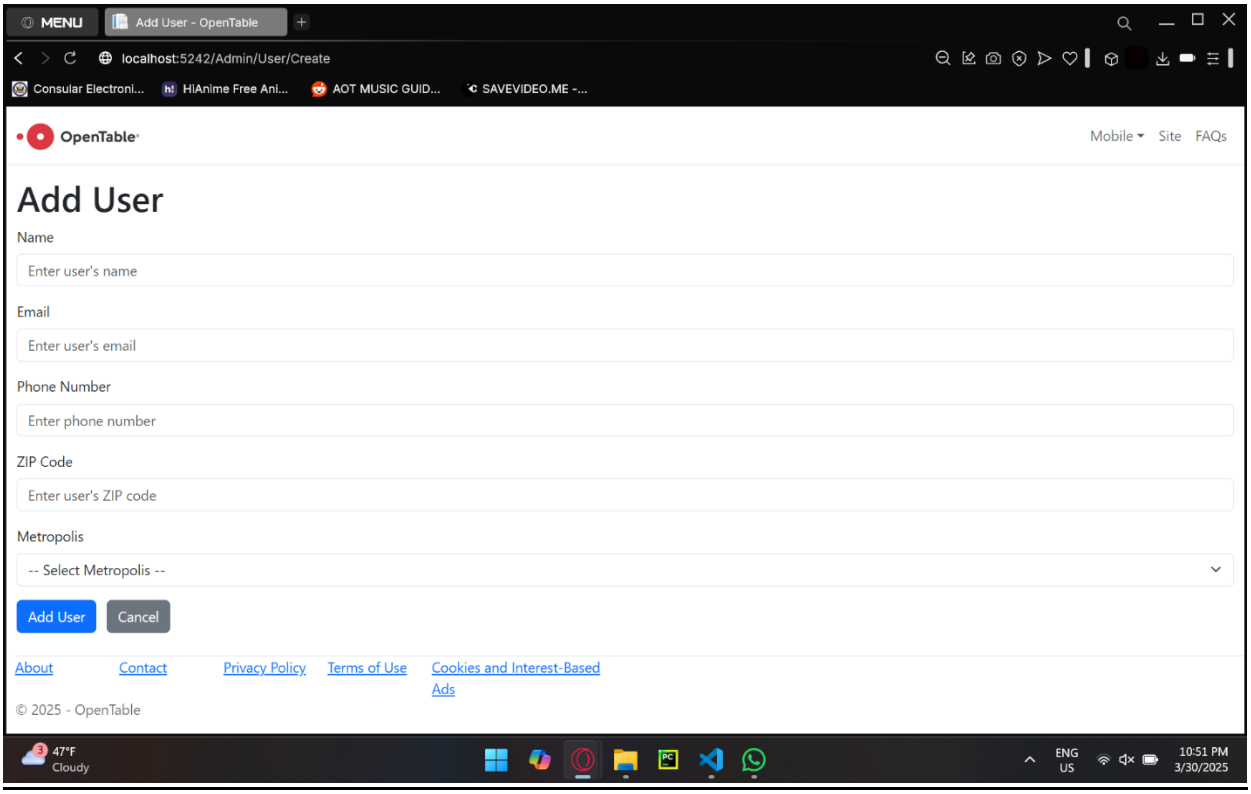
Name	**PRG (Post/Redirect/Get)**	**RRG (Redirect with Request Guard)**	**Idempotency Key**
Description	Redirects after a POST request to prevent resubmission.	Uses a unique request token to ensure a request is processed only once.	Generates a unique key for a transaction and ignores repeated requests with the same key.
Example	Prevents double submission when booking a flight.	Prevents duplicate payments when clicking "Pay" multiple times.	Ensures a money transfer is processed only once, even if requested multiple times.

Pros	Simple and widely used; prevents accidental duplicate submissions due to refresh or back button.	More secure than PRG as it prevents intentional resubmissions; works well with sessions.	Ideal for APIs and financial transactions; ensures only one execution of a request.
Cons	Does not prevent intentional resubmissions; requires extra redirects.	Adds implementation complexity; requires tracking tokens.	Requires database/cache storage; additional overhead in managing keys.

Screenshots



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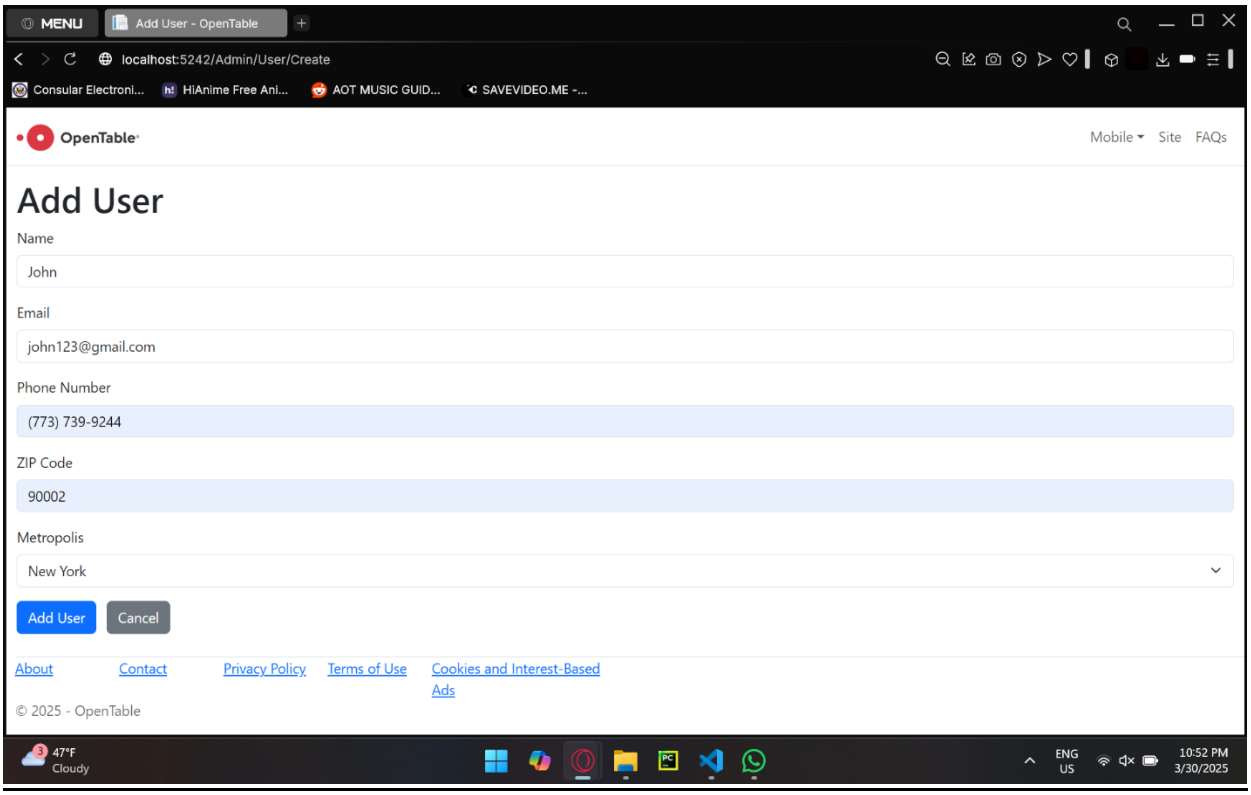
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John
Email
john123@gmail.com
Phone Number
(773) 739-9244
ZIP Code
90002
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New York
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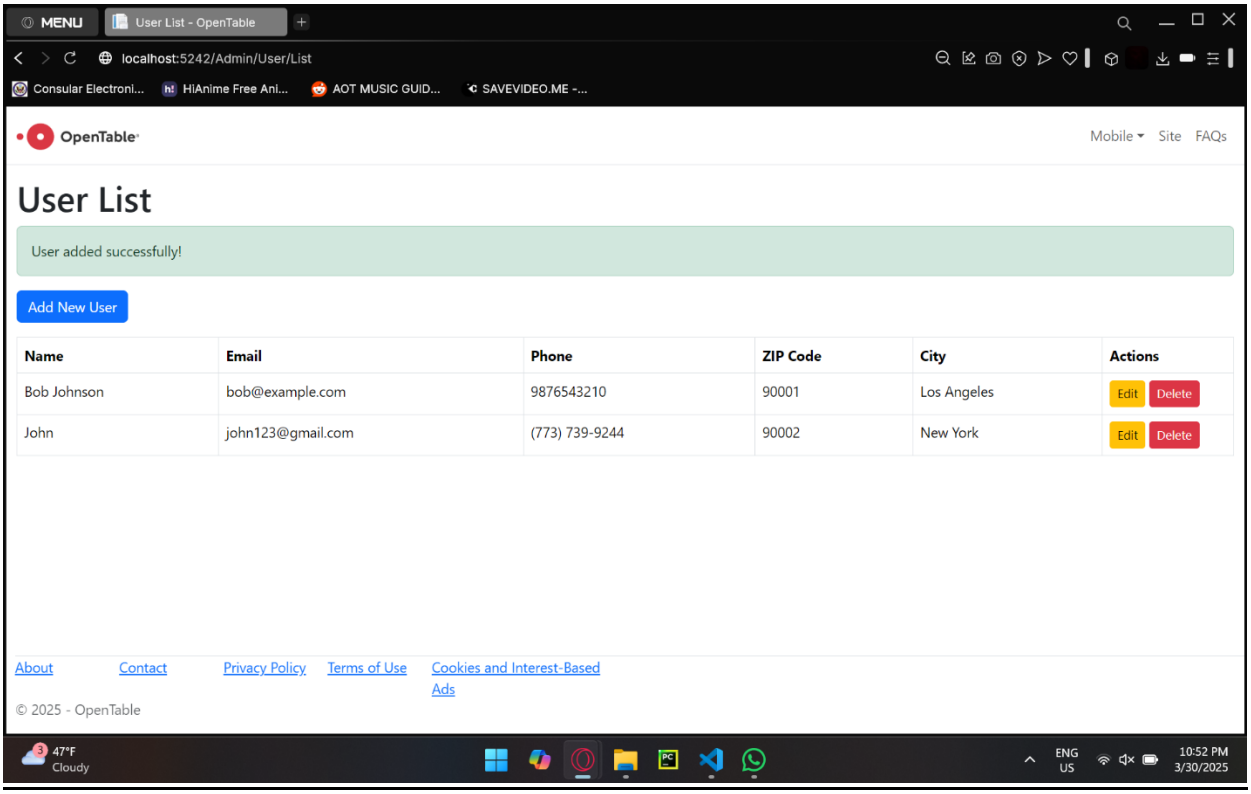
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Add New User
Name
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Phone
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City
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Bob Johnson
bob@example.com
9876543210
90001
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Edit
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John
john123@gmail.com
(773) 739-9244
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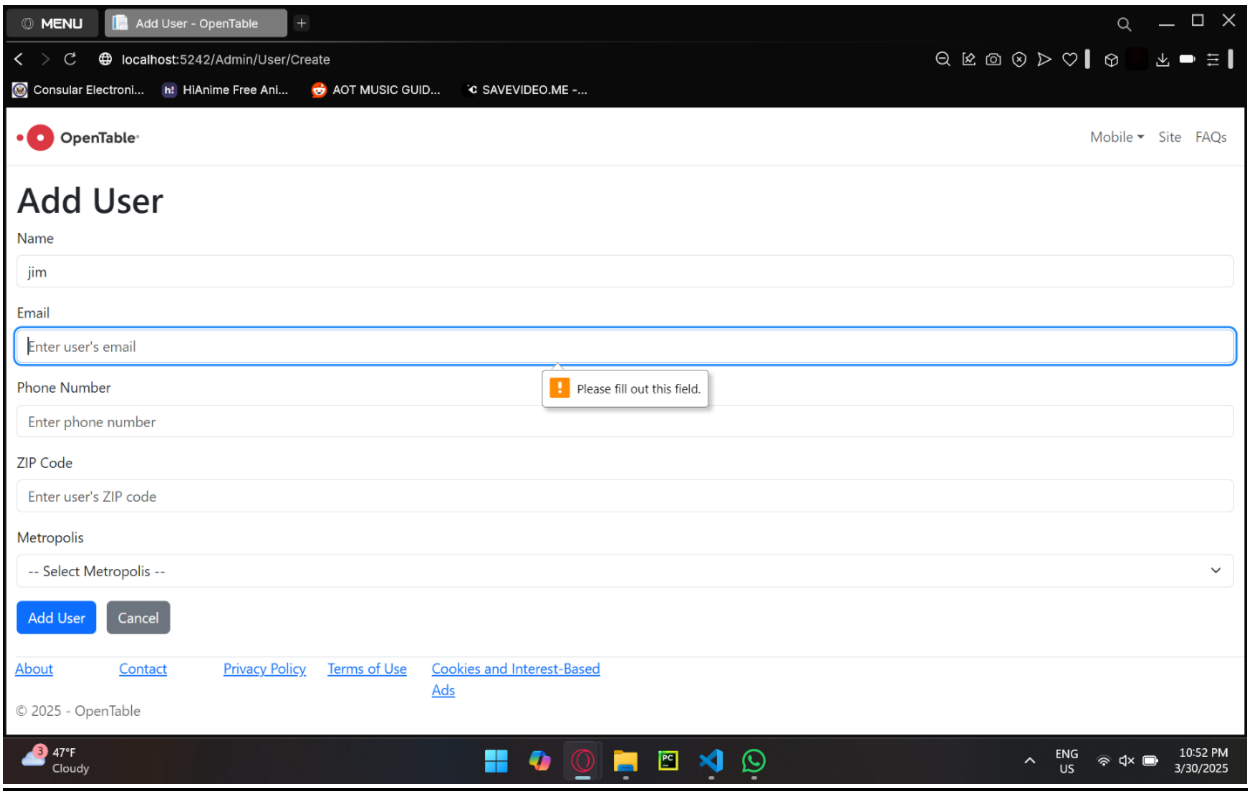
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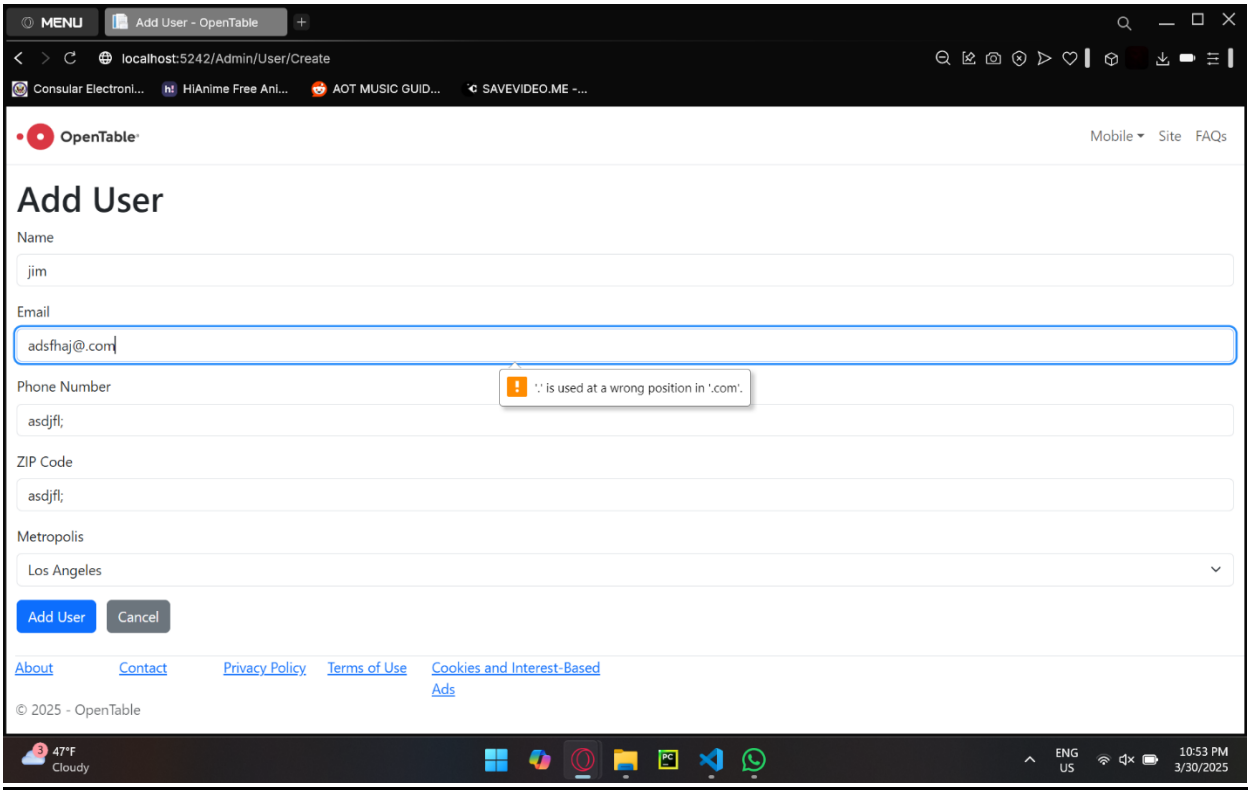
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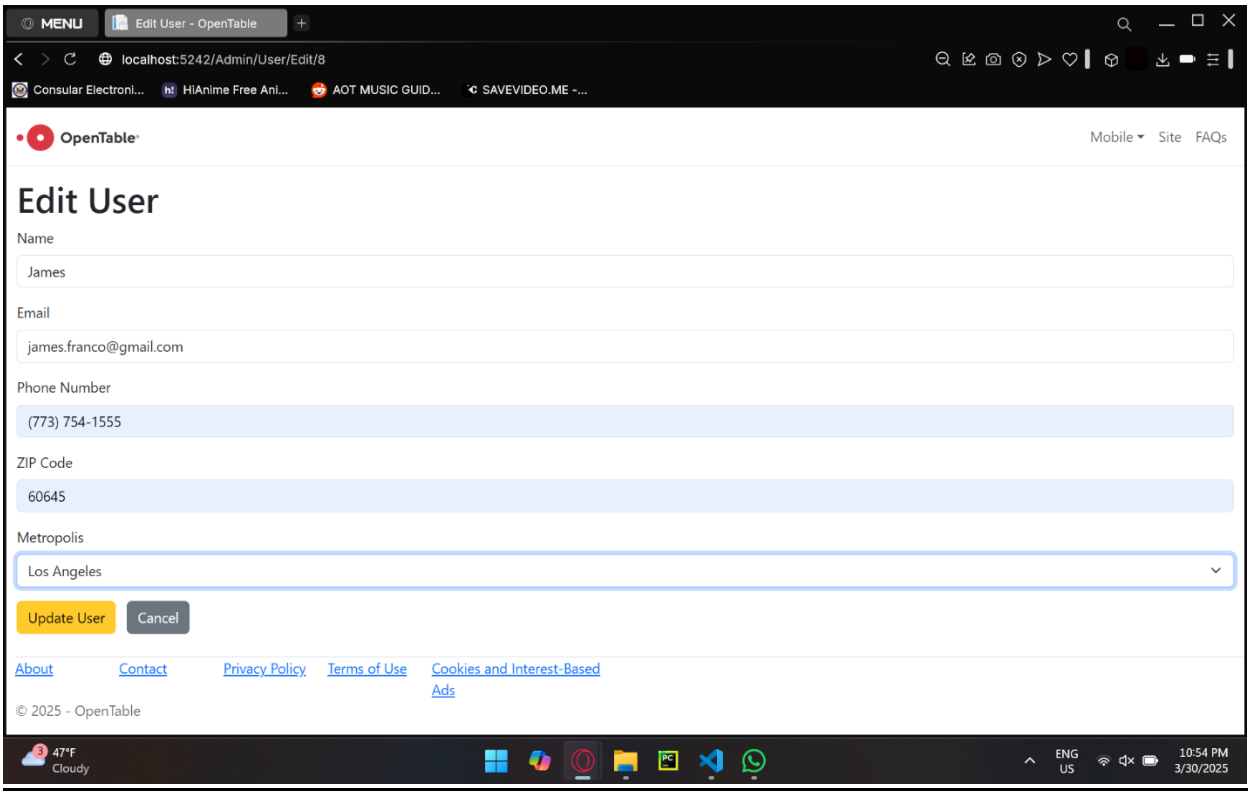
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Edit User
Name
James
Email
james.franco@gmail.com
Phone Number
(773) 754-1555
ZIP Code
60645
Metropolis
Los Angeles
Update User
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About
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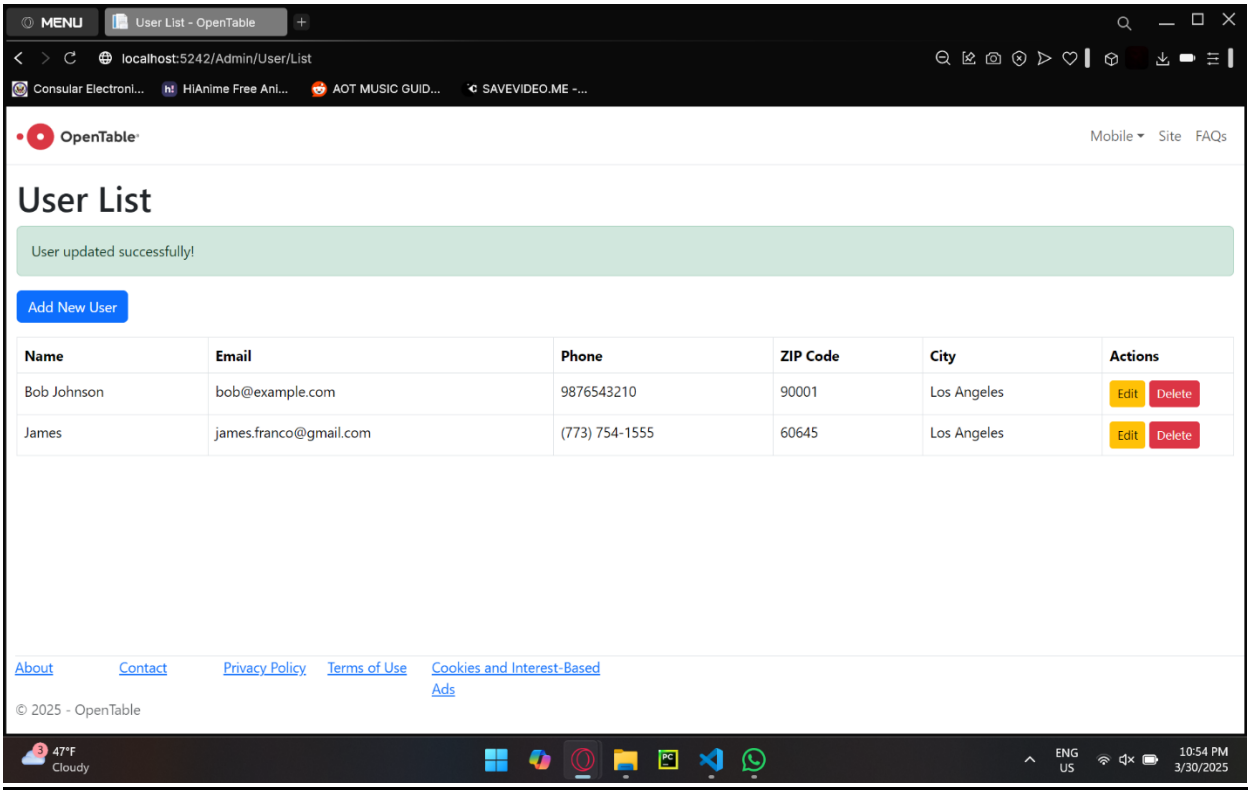
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Bob Johnson
bob@example.com
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James
james.franco@gmail.com
(773) 754-1555
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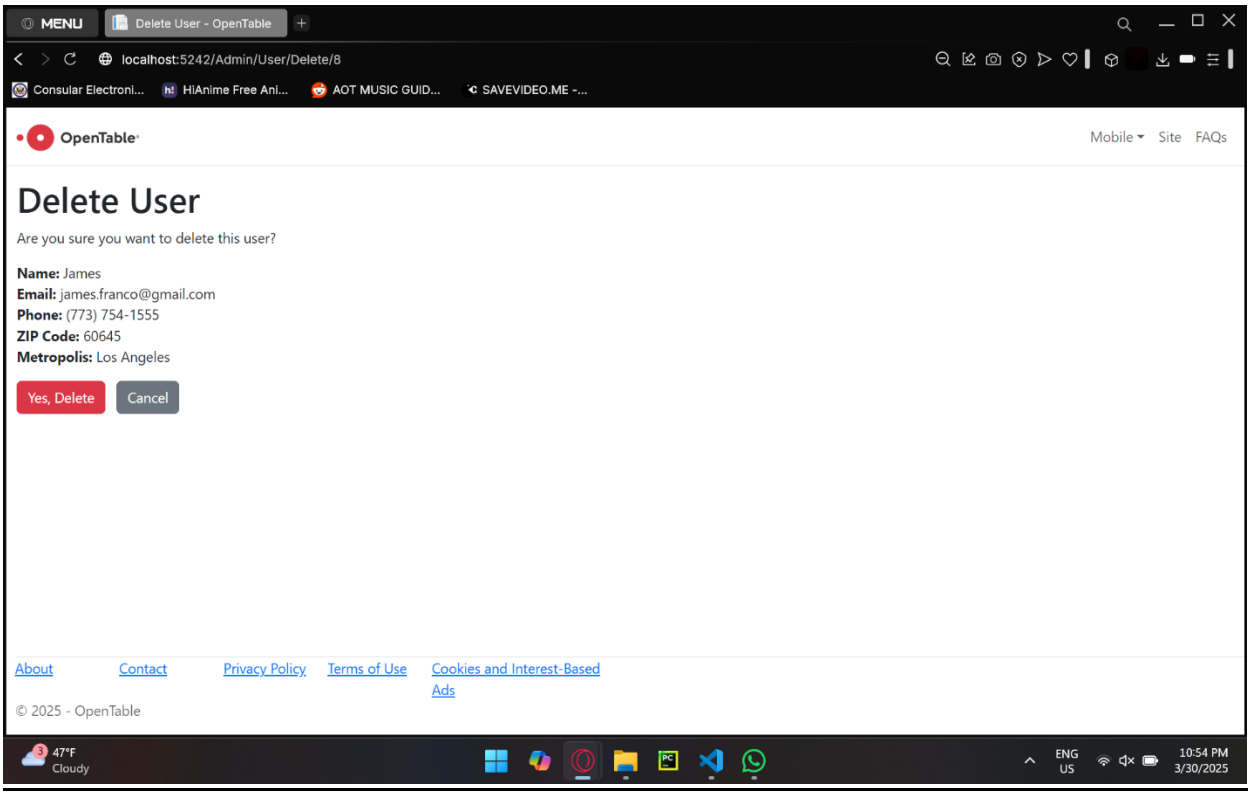
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Name: James
Email: james.franco@gmail.com
Phone: (773) 754-1555
ZIP Code: 60645
Metropolis: Los Angeles
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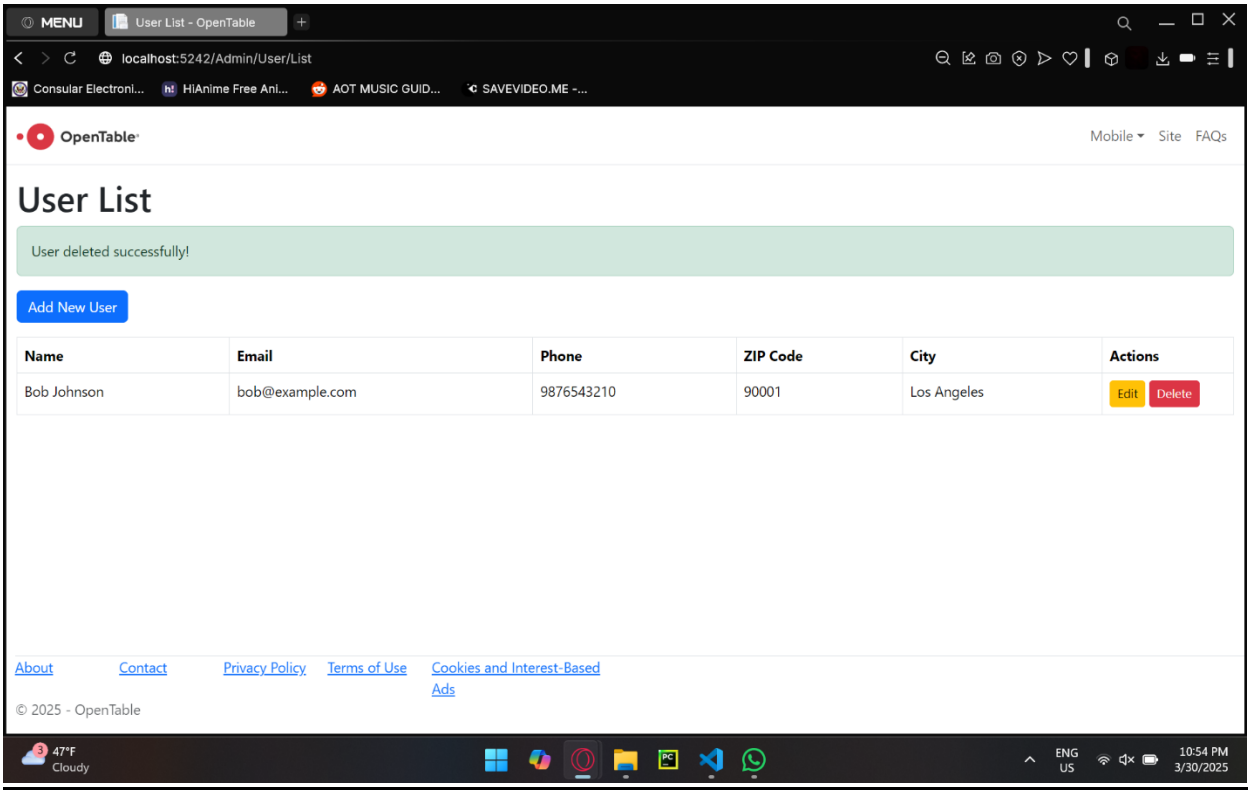
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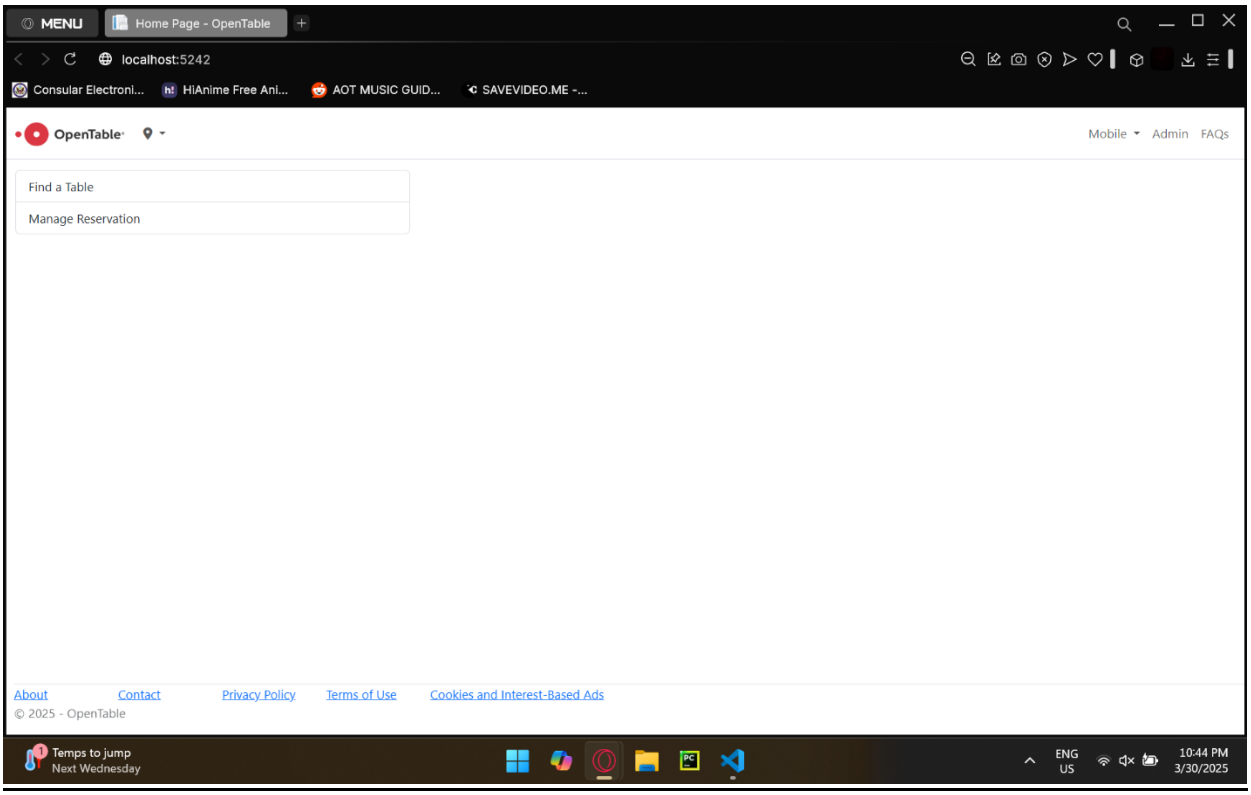
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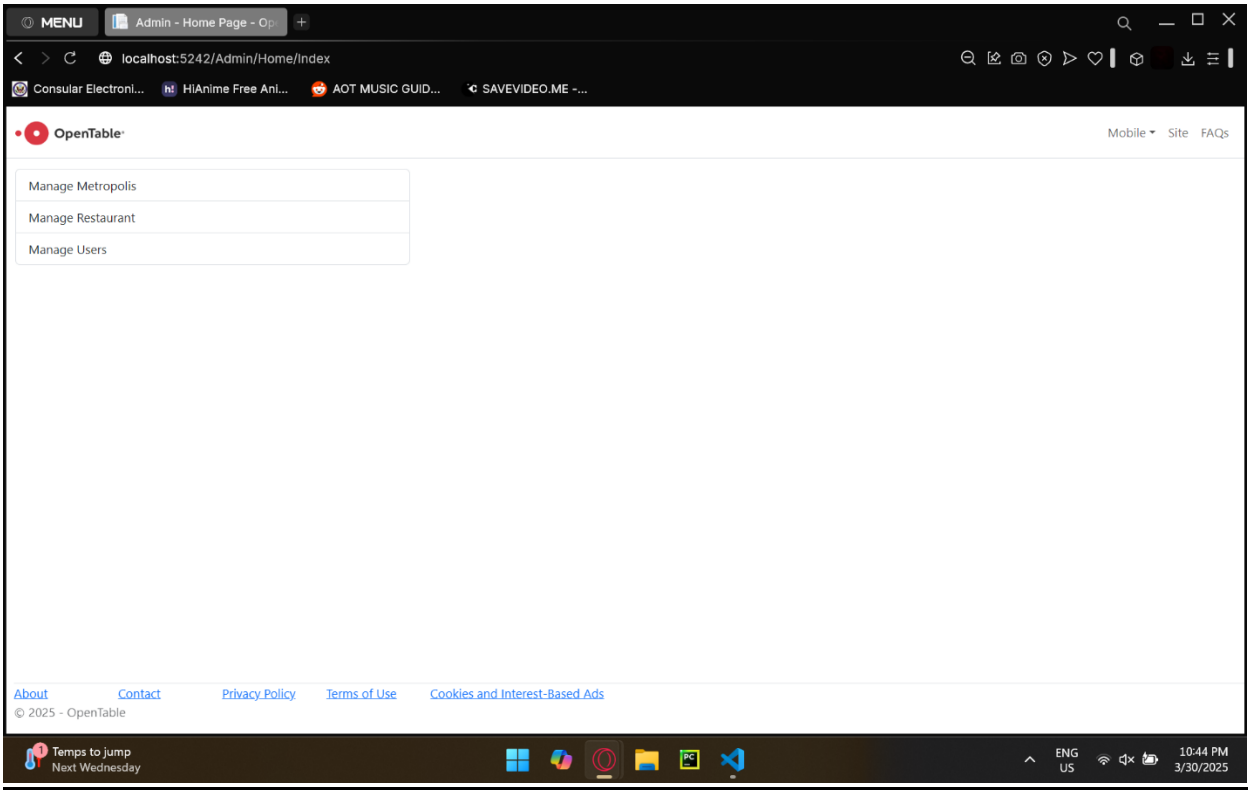
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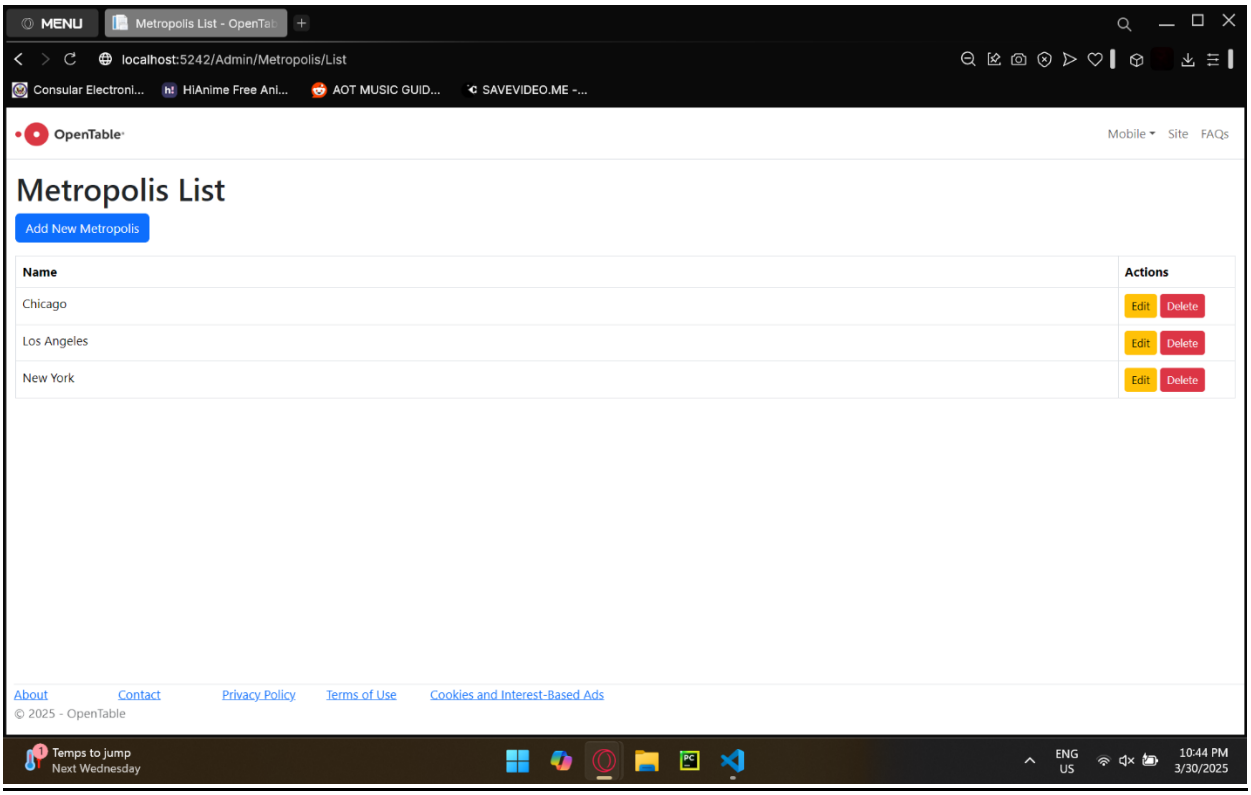
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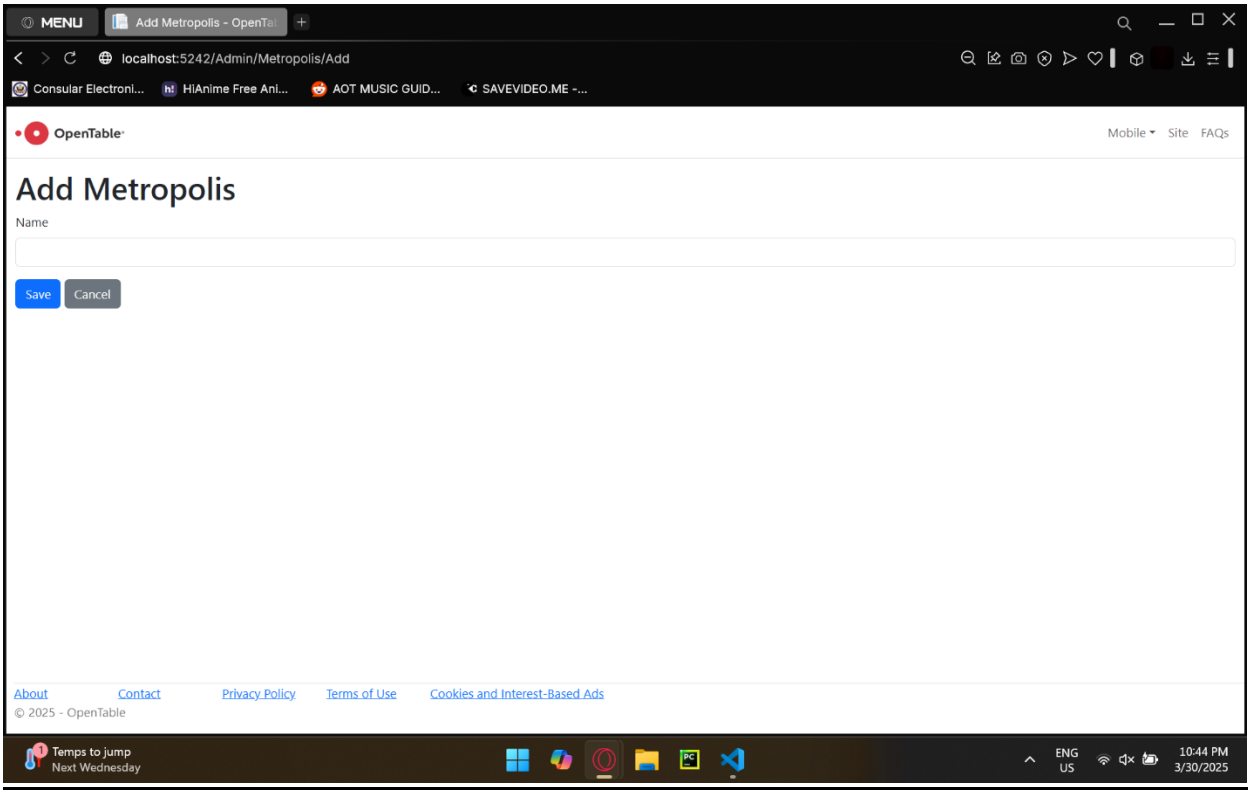
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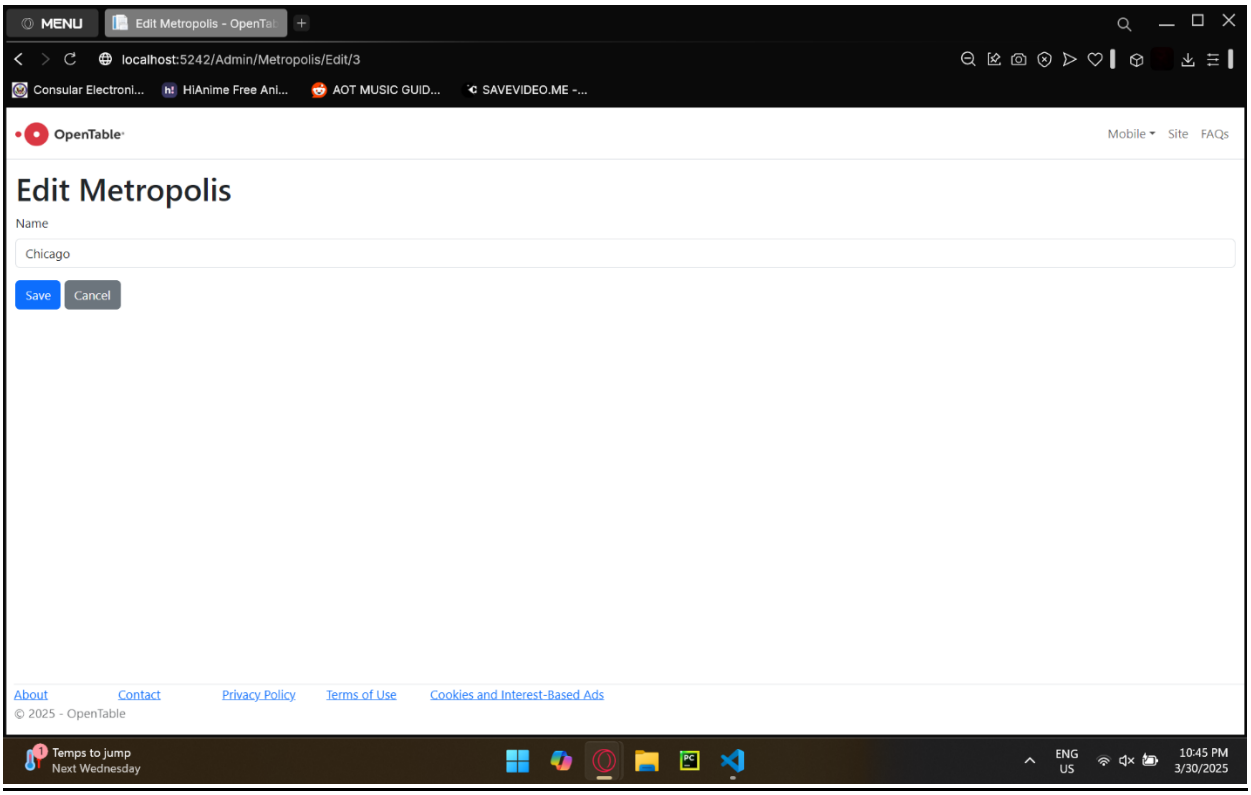
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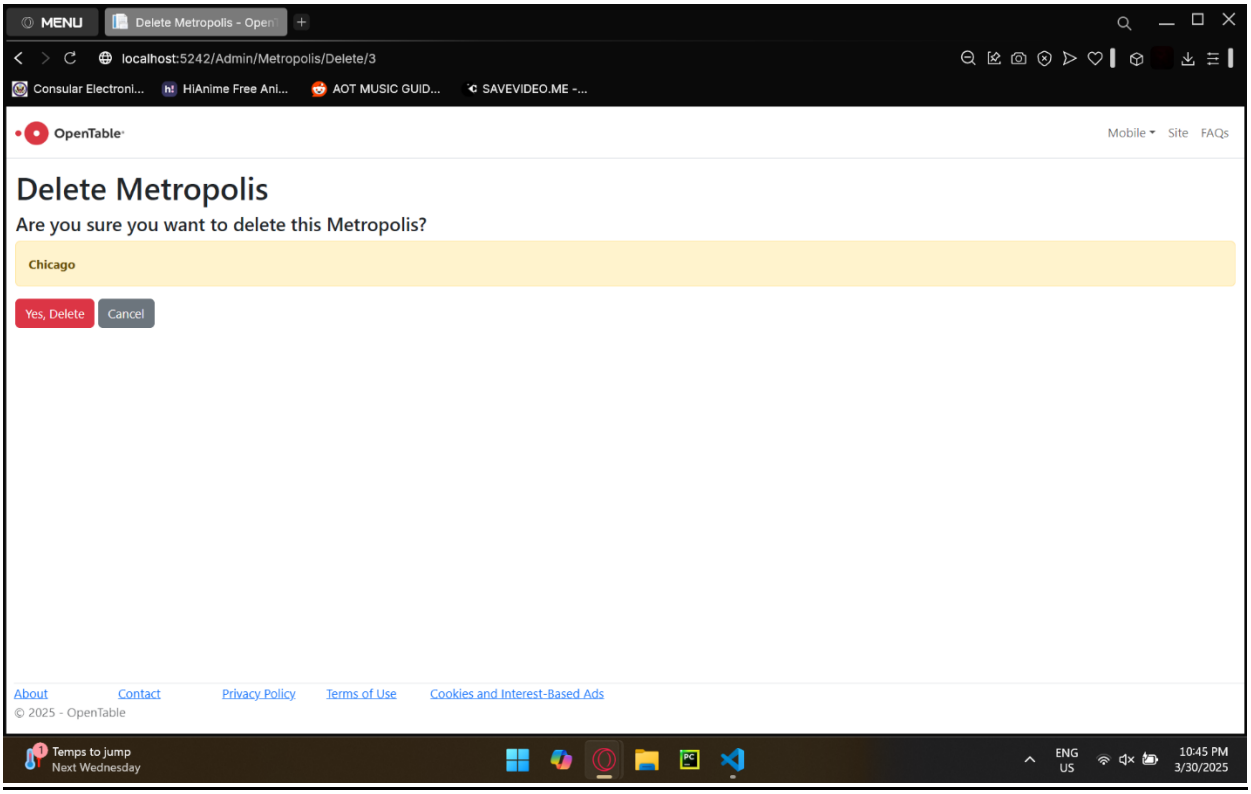
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FAQs
Delete Metropolis
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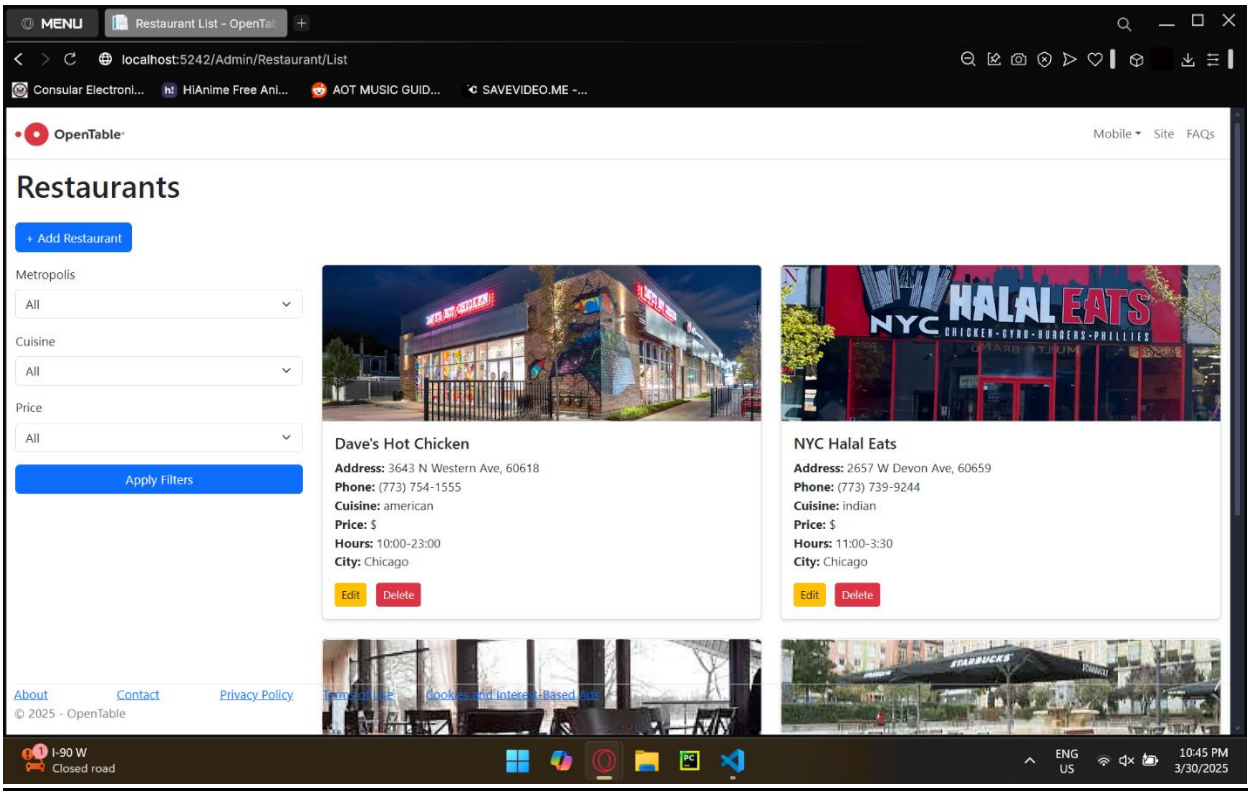
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Mobile
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FAQs
Restaurants
+ Add Restaurant
Metropolis
All
Cuisine
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Price
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Apply Filters
Dave's Hot Chicken
Address: 3643 N Western Ave, 60618
Phone: (773) 754-1555
Cuisine: american
Price: $
Hours: 10:00-23:00
City: Chicago
Edit
Delete
NYC HALAL EATS
CHICKEN · GYRO · BURGERS · PHILLIES
NYC Halal Eats
Address: 2657 W Devon Ave, 60659
Phone: (773) 739-9244
Cuisine: indian
Price: $
Hours: 11:00-3:30
City: Chicago
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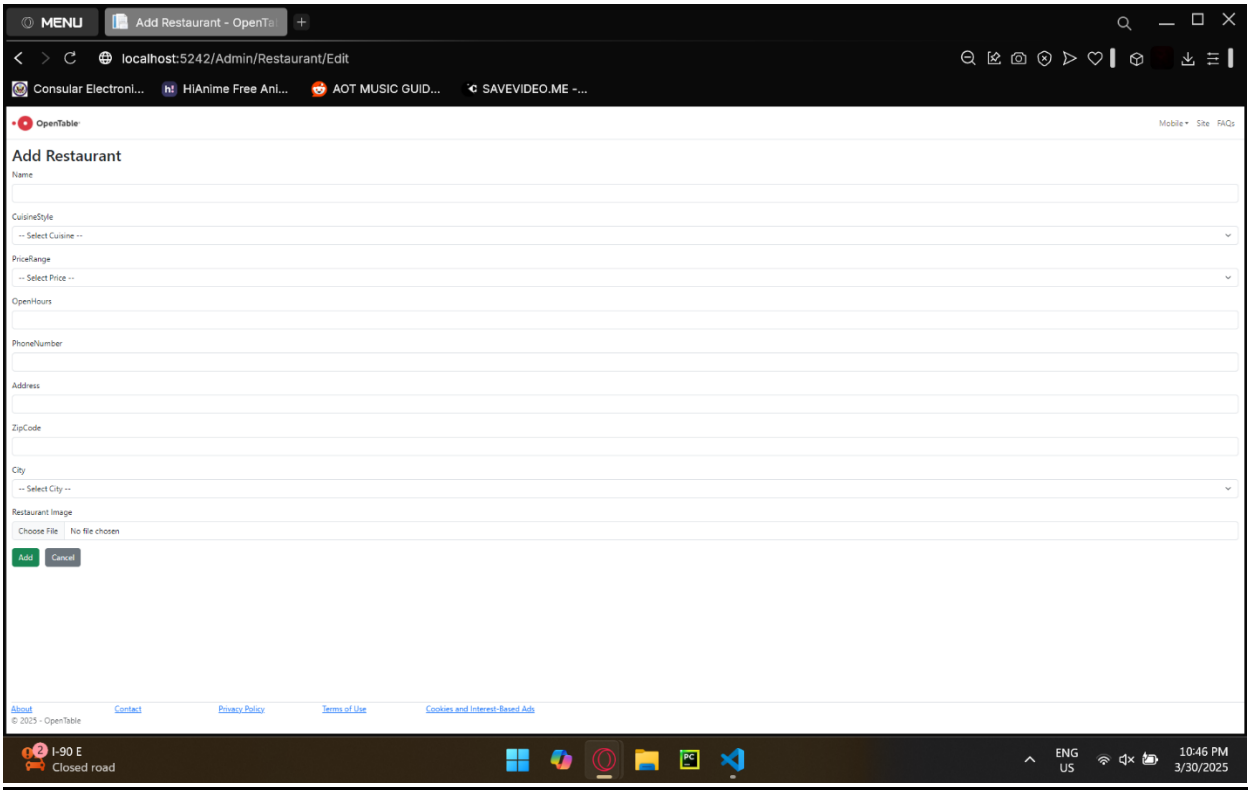
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Mobile Site FAQs
Add Restaurant
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CuisineStyle
-- Select Cuisine --
PriceRange
-- Select Price --
OpenHours
PhoneNumber
Address
ZipCode
City
-- Select City --
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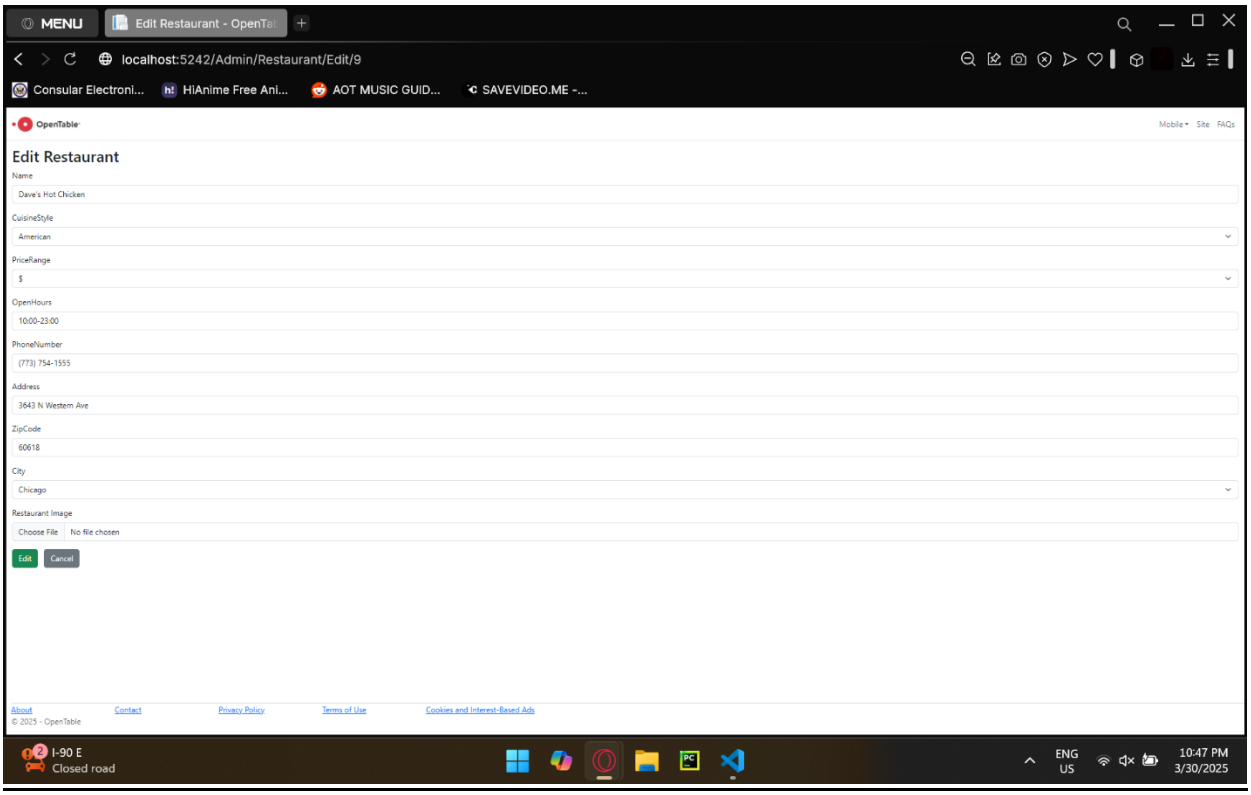
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OpenTable
Mobile Site FAQs
Edit Restaurant
Name
Dave's Hot Chicken
CuisineStyle
American
PriceRange
$
OpenHours
10:00-23:00
PhoneNumber
(773) 754-1555
Address
3643 N Western Ave
ZipCode
60618
City
Chicago
Restaurant Image
Choose File
No file chosen
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About
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Privacy Policy
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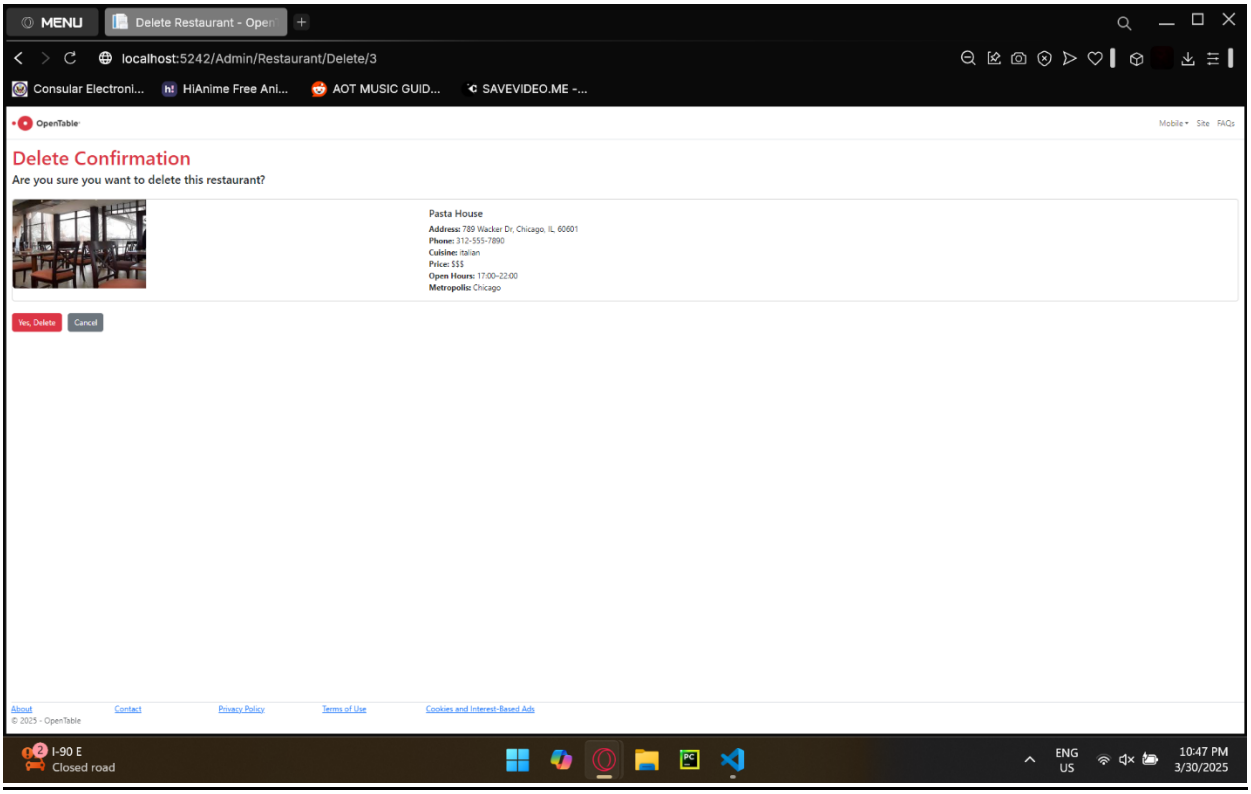
MENU
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OpenTable
Mobile
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FAQs
Delete Confirmation
Are you sure you want to delete this restaurant?
Pasta House
Address: 789 Wacker Dr, Chicago, IL, 60601
Phone: 312-555-7890
Cuisine: Italian
Price: $$$
Open Hours: 17:00-22:00
Metropolis: Chicago
Yes, Delete
Cancel
About
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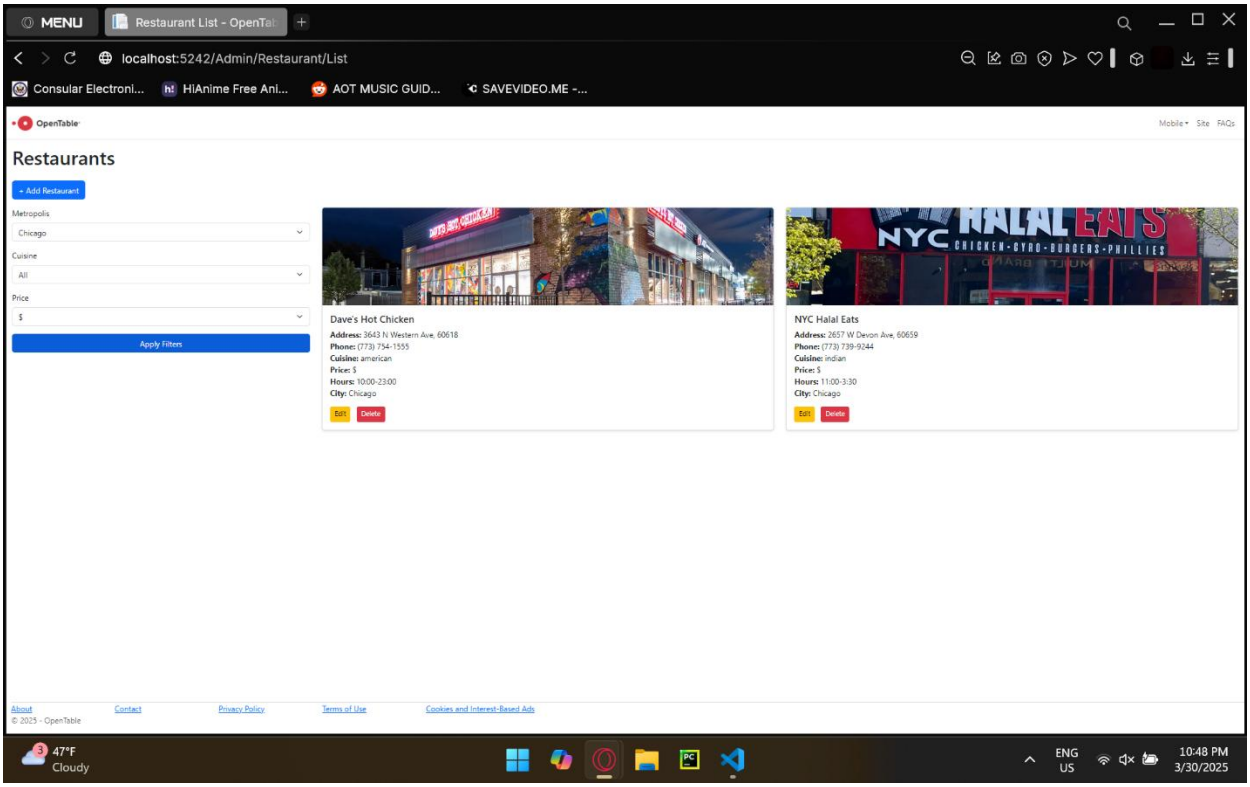
Restaurant List - OpenTable
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Restaurants
+ Add Restaurant
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Chicago
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$
Apply Filters
Dave's Hot Chicken
Address: 3643 N Western Ave, 60618
Phone: (773) 754-1555
Cuisine: american
Price: $
Hours: 1000-2300
City: Chicago
Edit
Delete
NYC HALAL EATS
CHICKEN · GYRO · BURGERS · PHILLIES
NYC Halal Eats
Address: 2657 W Devon Ave, 60659
Phone: (773) 739-9244
Cuisine: indian
Price: $
Hours: 1100-3:30
City: Chicago
Edit
Delete
About
Contact
Privacy Policy
Terms of Use
Cookies and Interest-Based Ads
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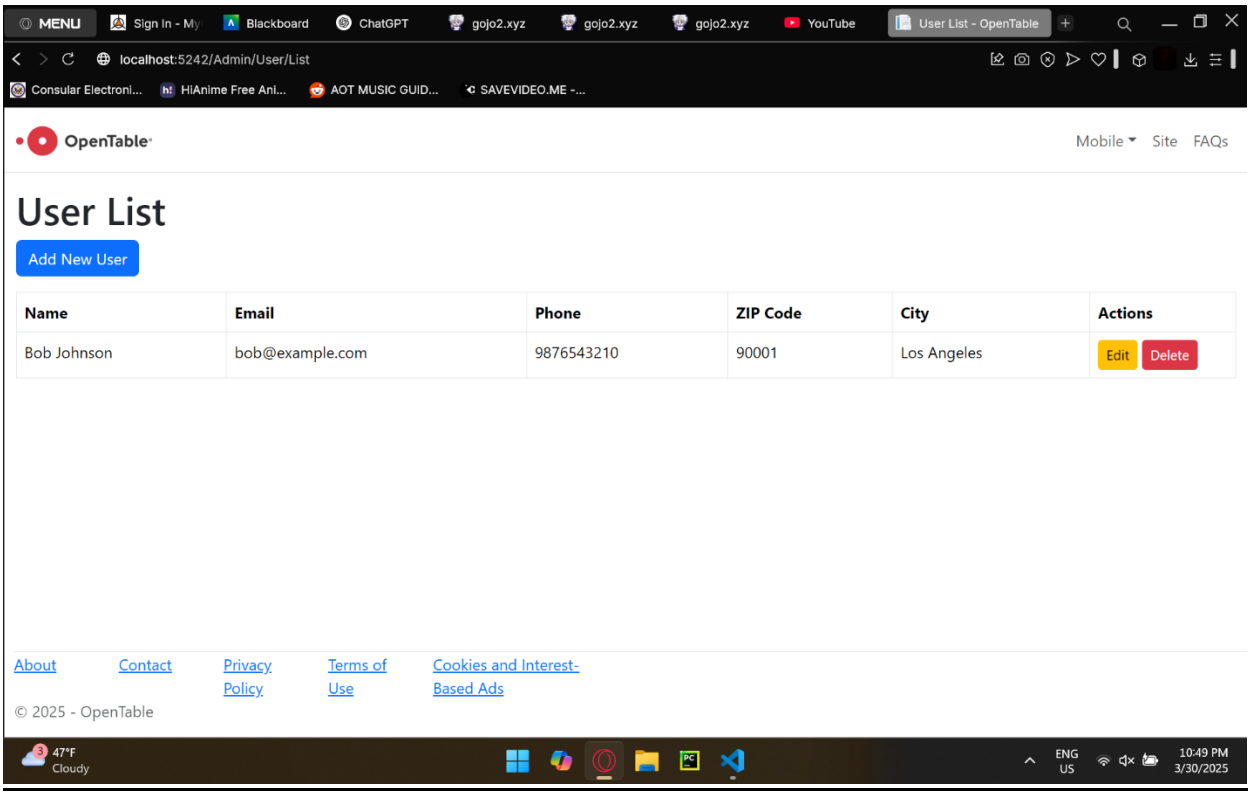
47°F
Cloudy
ENG
US
10:48 PM
3/30/2025


User List - OpenTable
localhost:5242/Admin/User/List
OpenTable
Mobile
Site
FAQs
User List
Add New User
Name
Email
Phone
ZIP Code
City
Actions
Bob Johnson
bob@example.com
9876543210
90001
Los Angeles
Edit
Delete
About
Contact
Privacy Policy
Terms of Use
Cookies and Interest-Based Ads
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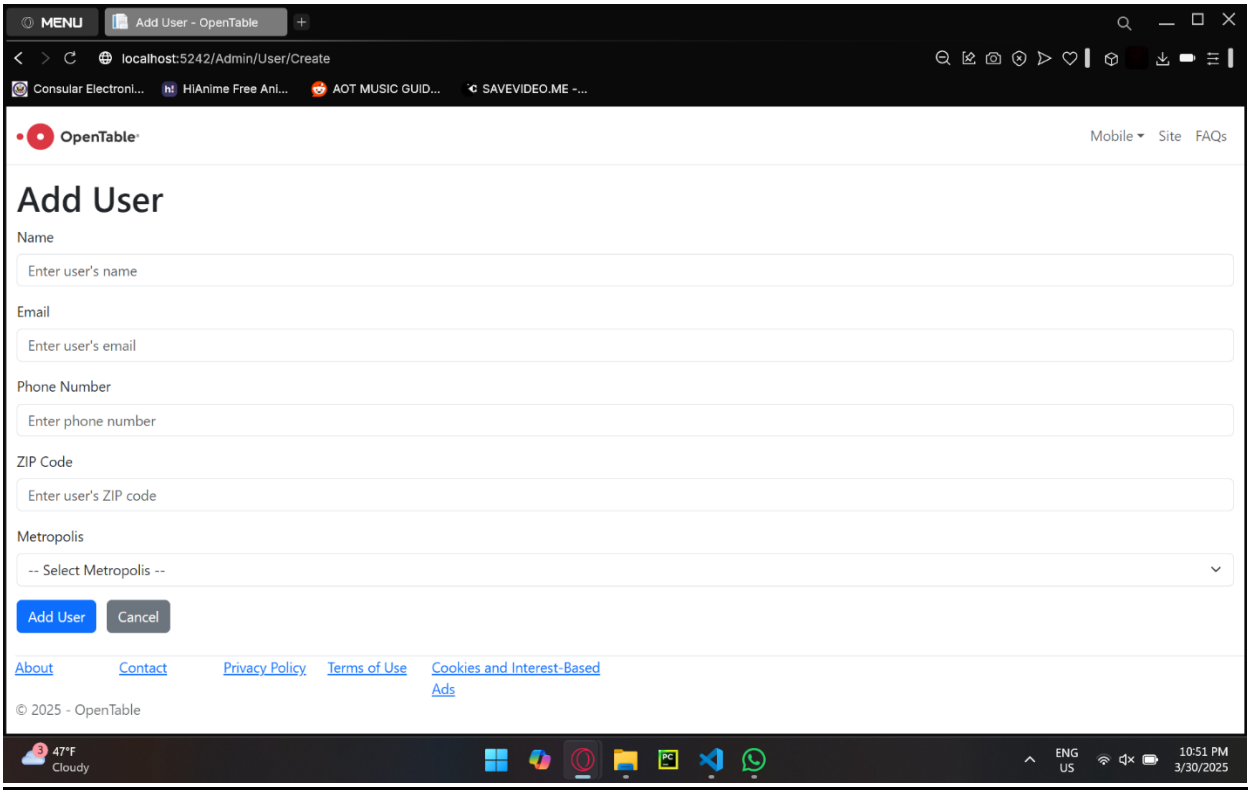
Cloudy
ENG
US
10:49 PM
3/30/2025


MENU
Add User - OpenTable
localhost:5242/Admin/User/Create
Consular Electroni...
HiAnime Free Ani...
AOT MUSIC GUID...
SAVEVIDEO.ME -...
OpenTable
Mobile
Site
FAQs
Add User
Name
Enter user's name
Email
Enter user's email
Phone Number
Enter phone number
ZIP Code
Enter user's ZIP code
Metropolis
-- Select Metropolis --
Add User
Cancel
About
Contact
Privacy Policy
Terms of Use
Cookies and Interest-Based Ads
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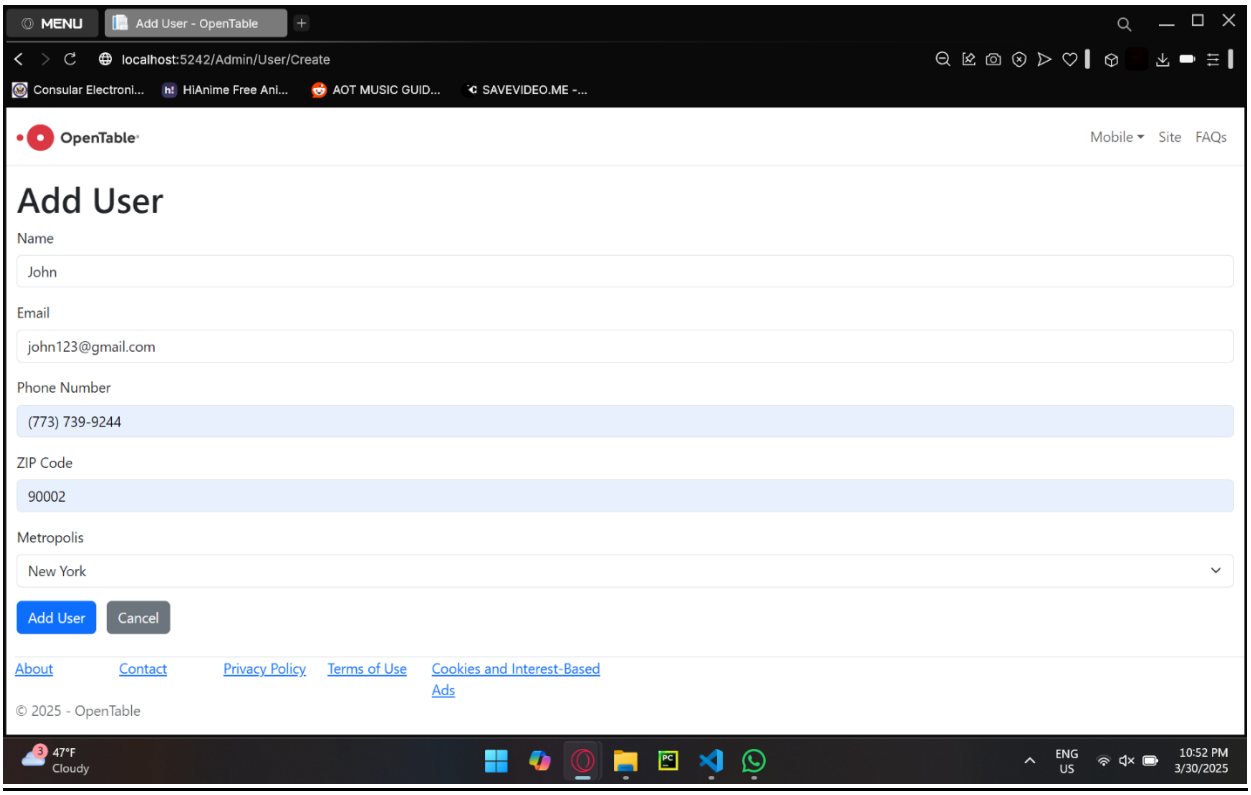
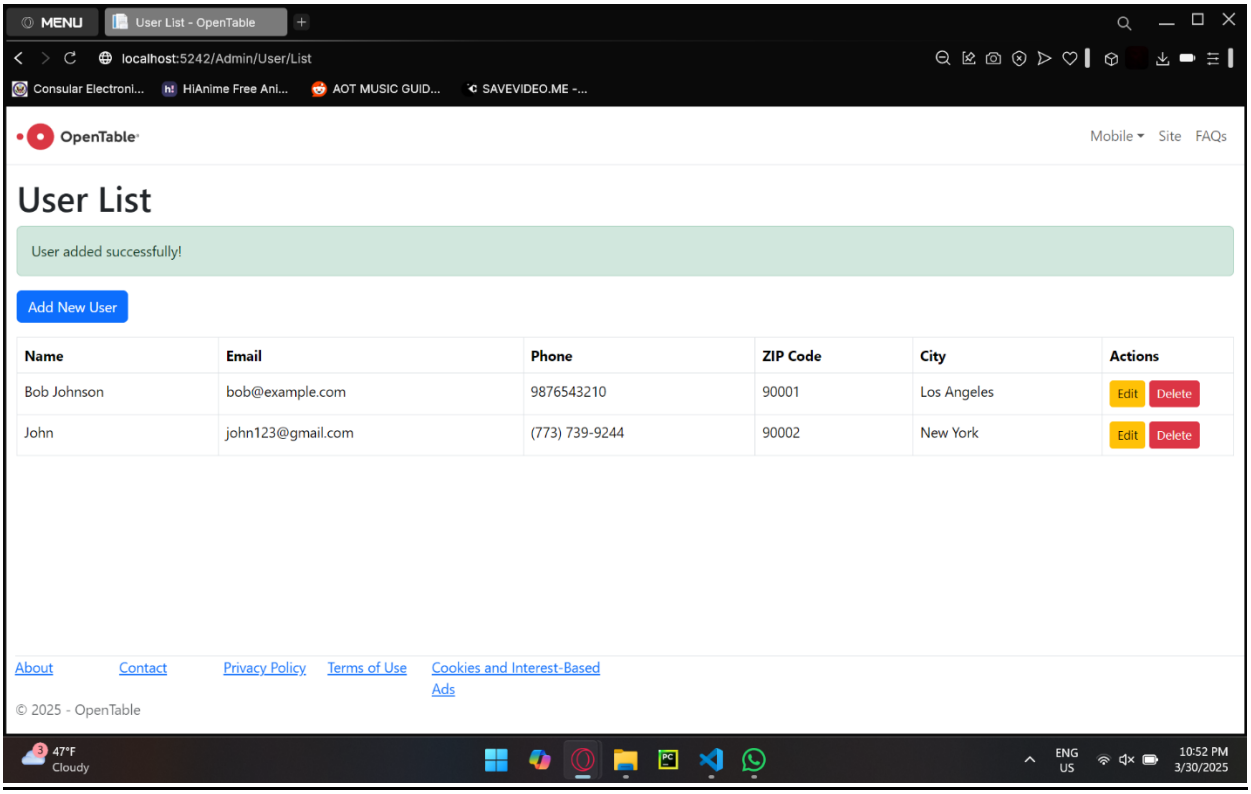
47°F
Cloudy
ENG
US
10:51 PM
3/30/2025


MENU
Add User - OpenTable
localhost:5242/Admin/User/Create
Consular Electroni...
HiAnime Free Ani...
AOT MUSIC GUID...
SAVEVIDEO.ME -...
OpenTable
Mobile
Site
FAQs
Add User
Name
John
Email
john123@gmail.com
Phone Number
(773) 739-9244
ZIP Code
90002
Metropolis
New York
Add User
Cancel
About
Contact
Privacy Policy
Terms of Use
Cookies and Interest-Based Ads
© 2025 - OpenTable
47°F
Cloudy
ENG
US
10:52 PM
3/30/2025


MENU
User List - OpenTable
localhost:5242/Admin/User/List
Consular Electroni...
HiAnime Free Ani...
AOT MUSIC GUID...
SAVEVIDEO.ME -...
OpenTable
Mobile
Site
FAQs
User List
User added successfully!
Add New User
Name
Email
Phone
ZIP Code
City
Actions
Bob Johnson
bob@example.com
9876543210
90001
Los Angeles
Edit
Delete
John
john123@gmail.com
(773) 739-9244
90002
New York
Edit
Delete
About
Contact
Privacy Policy
Terms of Use
Cookies and Interest-Based Ads
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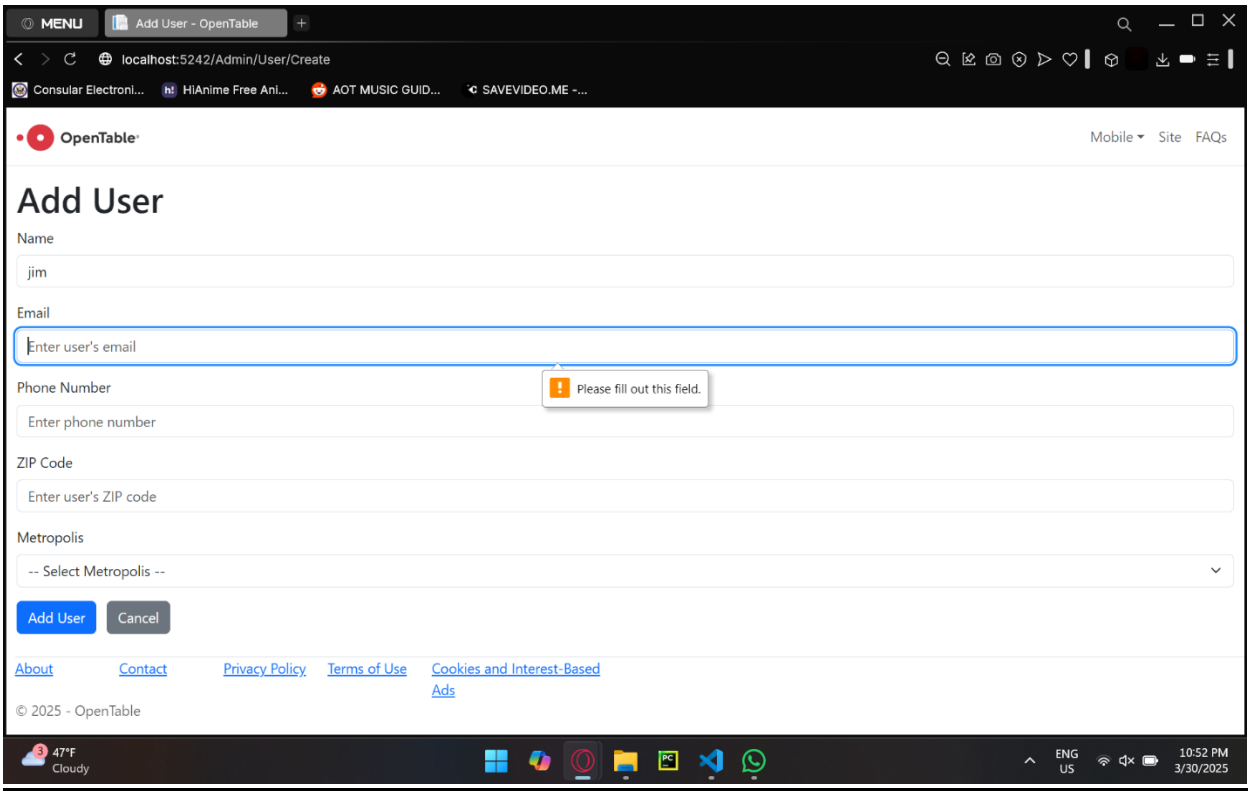
US
10:52 PM
3/30/2025


MENU
Add User - OpenTable
localhost:5242/Admin/User/Create
Consular Electroni...
HiAnime Free Ani...
AOT MUSIC GUID...
SAVEVIDEO.ME -...
OpenTable
Mobile
Site
FAQs
Add User
Name
jim
Email
Enter user's email
Please fill out this field.
Phone Number
Enter phone number
ZIP Code
Enter user's ZIP code
Metropolis
-- Select Metropolis --
Add User
Cancel
About
Contact
Privacy Policy
Terms of Use
Cookies and Interest-Based Ads
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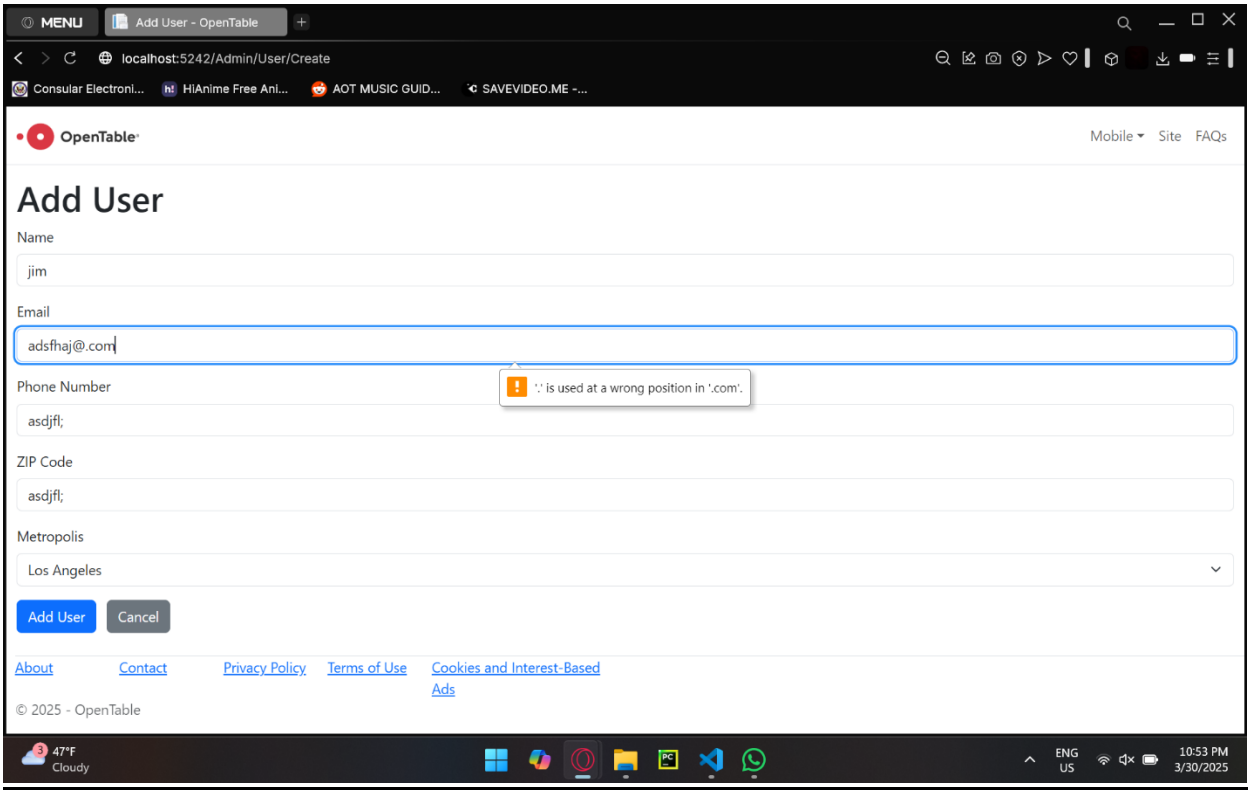
Cloudy
ENG
US
10:52 PM
3/30/2025


MENU
Add User - OpenTable
localhost:5242/Admin/User/Create
Consular Electroni...
HiAnime Free Ani...
AOT MUSIC GUID...
SAVEVIDEO.ME -...
OpenTable
Mobile
Site
FAQs
Add User
Name
jim
Email
adsfhaj@.com
'.' is used at a wrong position in '.com'.
Phone Number
asdjfl;
ZIP Code
asdjfl;
Metropolis
Los Angeles
Add User
Cancel
About
Contact
Privacy Policy
Terms of Use
Cookies and Interest-Based Ads
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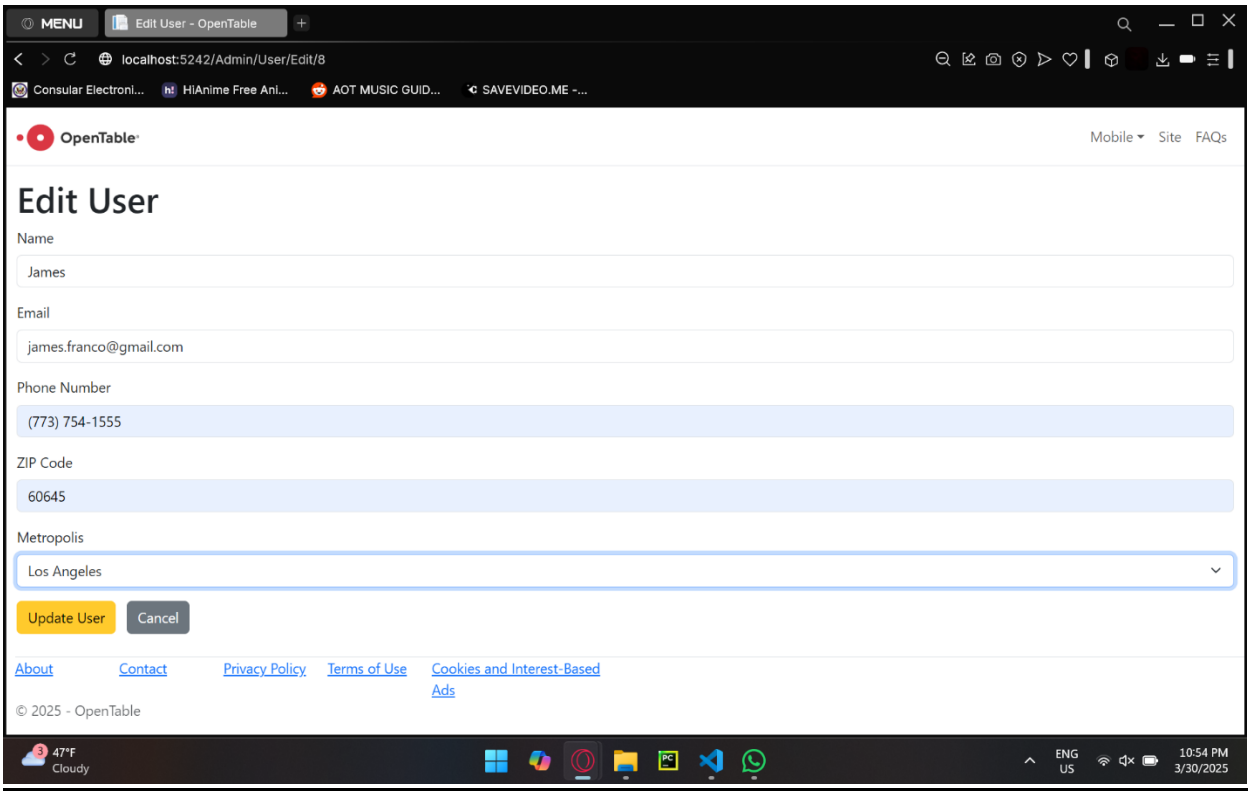
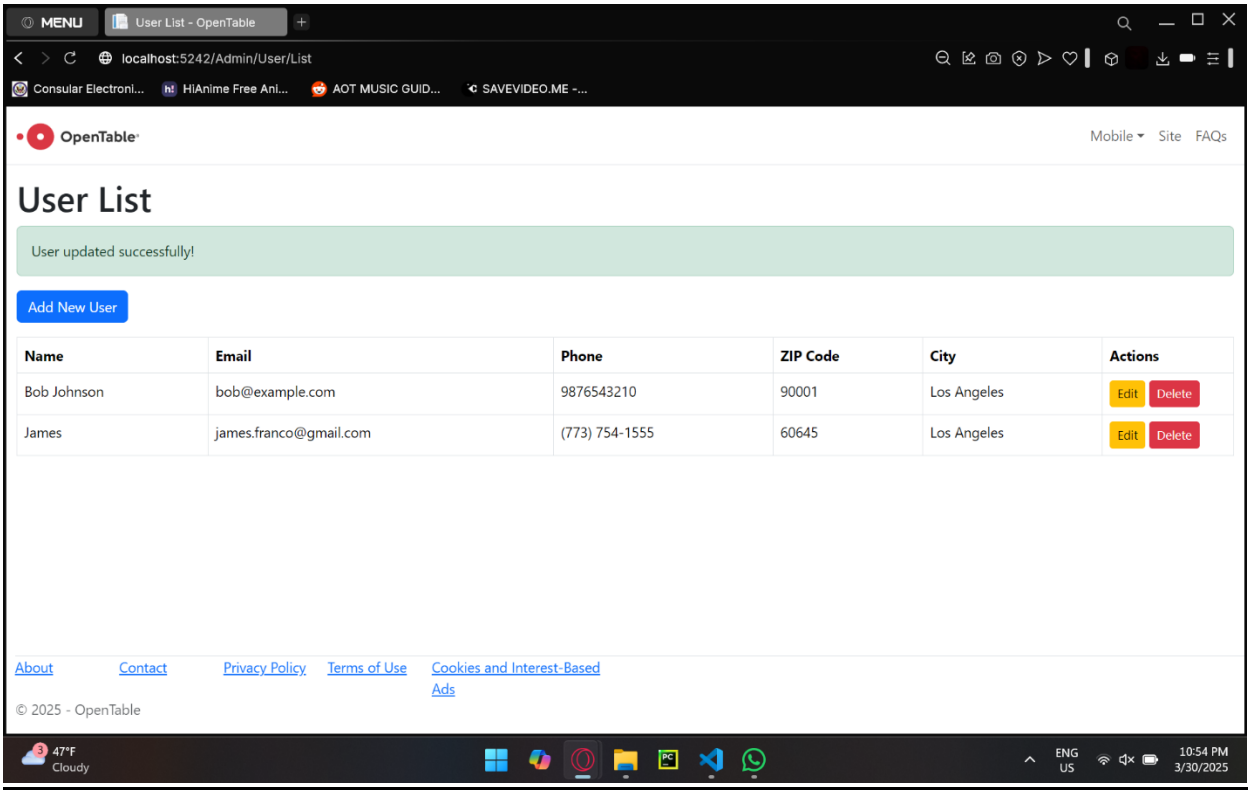
47°F
Cloudy
ENG
US
10:53 PM
3/30/2025


MENU
Edit User - OpenTable
localhost:5242/Admin/User/Edit/8
Consular Electroni...
HiAnime Free Ani...
AOT MUSIC GUID...
SAVEVIDEO.ME -...
OpenTable
Mobile
Site
FAQs
Edit User
Name
James
Email
james.franco@gmail.com
Phone Number
(773) 754-1555
ZIP Code
60645
Metropolis
Los Angeles
Update User
Cancel
About
Contact
Privacy Policy
Terms of Use
Cookies and Interest-Based Ads
© 2025 - OpenTable
47°F
Cloudy
ENG
US
10:54 PM
3/30/2025


MENU
User List - OpenTable
localhost:5242/Admin/User/List
Consular Electroni...
HiAnime Free Ani...
AOT MUSIC GUID...
SAVEVIDEO.ME -...
OpenTable
Mobile
Site
FAQs
User List
User updated successfully!
Add New User
Name
Email
Phone
ZIP Code
City
Actions
Bob Johnson
bob@example.com
9876543210
90001
Los Angeles
Edit
Delete
James
james.franco@gmail.com
(773) 754-1555
60645
Los Angeles
Edit
Delete
About
Contact
Privacy Policy
Terms of Use
Cookies and Interest-Based Ads
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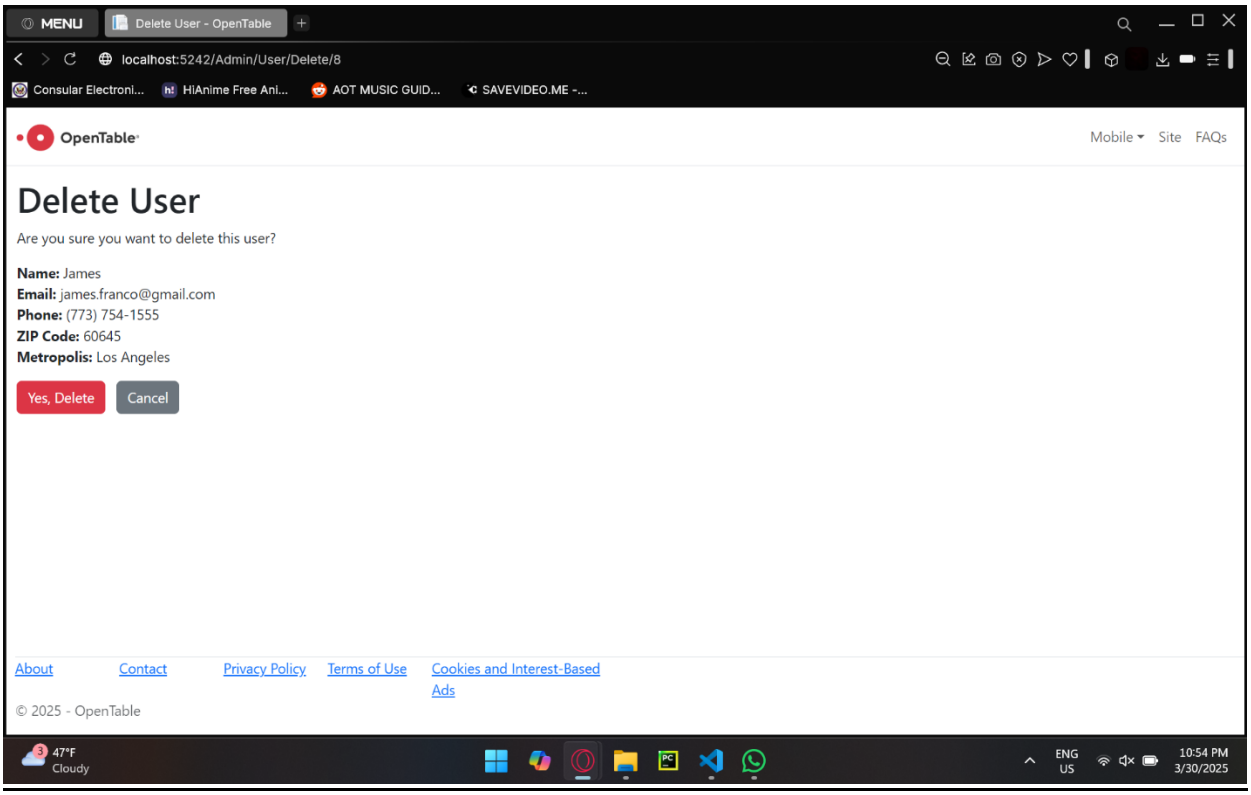
Cloudy
ENG
US
10:54 PM
3/30/2025


MENU
Delete User - OpenTable
localhost:5242/Admin/User/Delete/8
Consular Electroni...
HiAnime Free Ani...
AOT MUSIC GUID...
SAVEVIDEO.ME -...
OpenTable
Mobile
Site
FAQs
Delete User
Are you sure you want to delete this user?
Name: James
Email: james.franco@gmail.com
Phone: (773) 754-1555
ZIP Code: 60645
Metropolis: Los Angeles
Yes, Delete
Cancel
About
Contact
Privacy Policy
Terms of Use
Cookies and Interest-Based Ads
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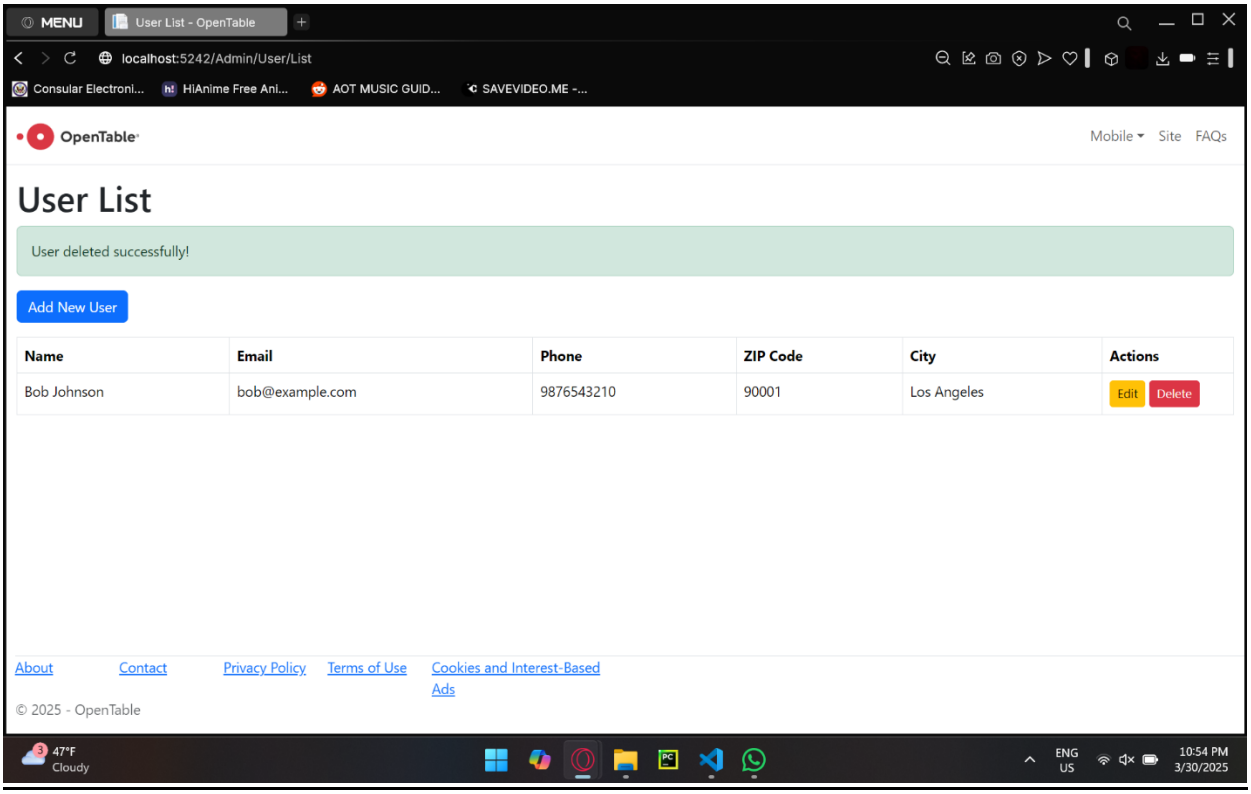
47°F
Cloudy
ENG
US
10:54 PM
3/30/2025


MENU
User List - OpenTable
localhost:5242/Admin/User/List
Consular Electroni...
HiAnime Free Ani...
AOT MUSIC GUID...
SAVEVIDEO.ME -...
OpenTable
Mobile
Site
FAQs
User List
User deleted successfully!
Add New User
Name
Email
Phone
ZIP Code
City
Actions
Bob Johnson
bob@example.com
9876543210
90001
Los Angeles
Edit
Delete
About
Contact
Privacy Policy
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