CryptMSG

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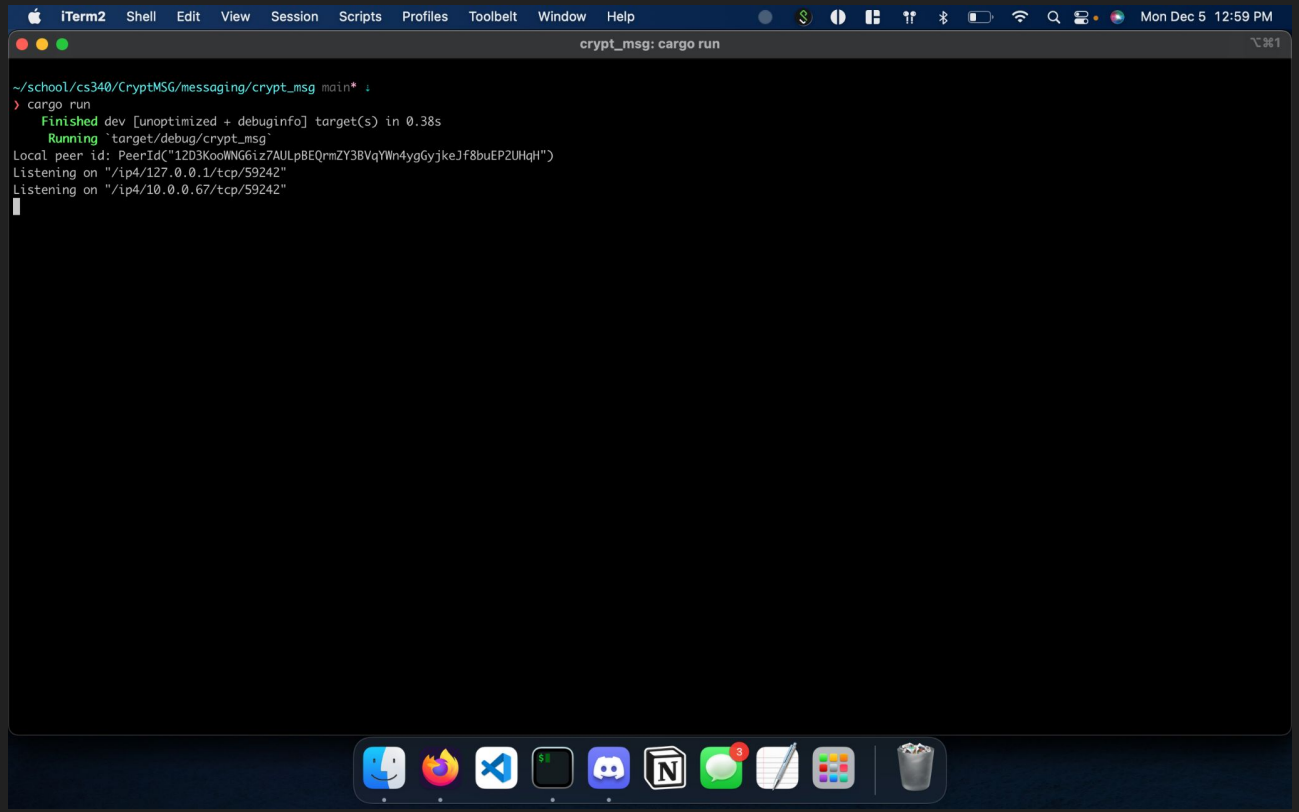
Our Process

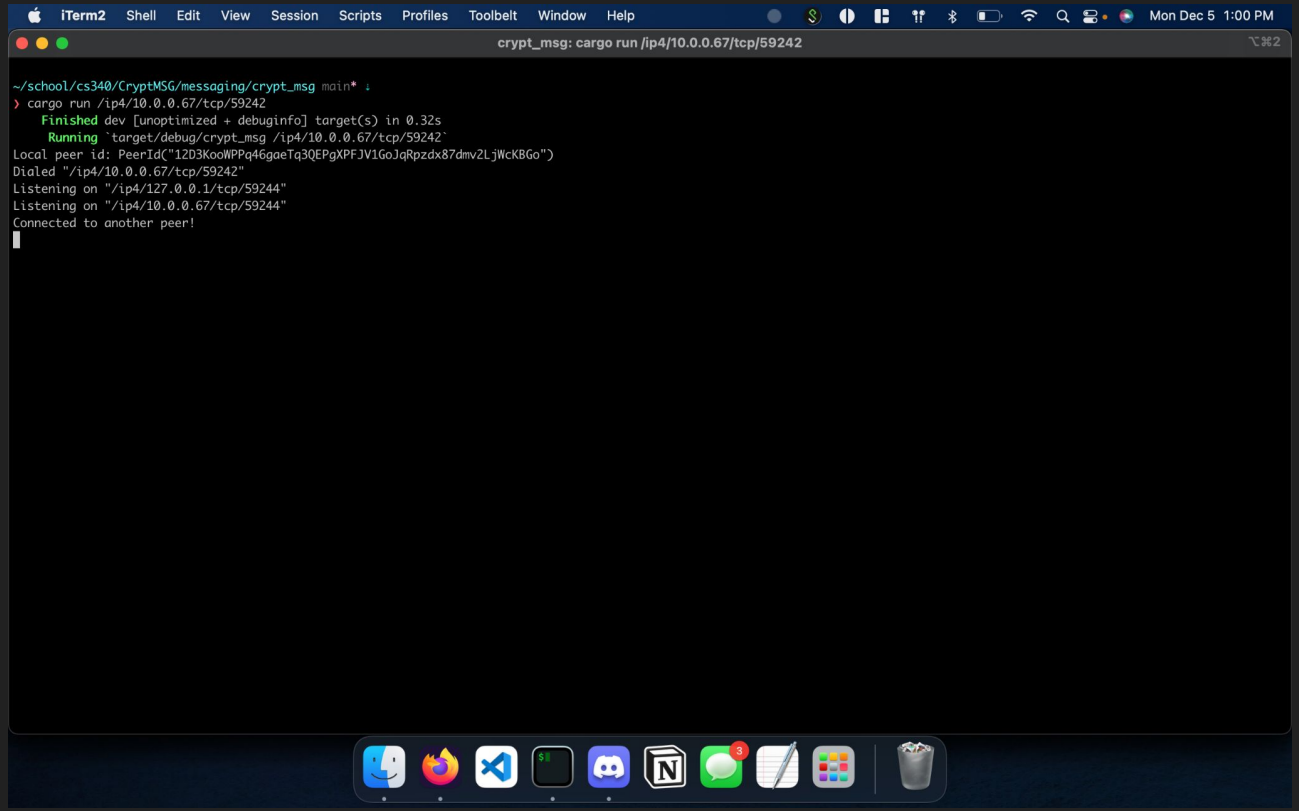
We set to create a secure messaging service, and we tried many different methods:

- Peer to Peer
  - Using the libp2p library implemented in Rust
  - Attempted to use the Rocket framework (a backend framework for Rust)
- Firebase
  - Was able to implement end-to-end encrypted messaging using the Firebase framework
  - This is a framework to help developers scale applications by providing APIs for things such as user authentication and database services
- React
  - SCSS front end styling

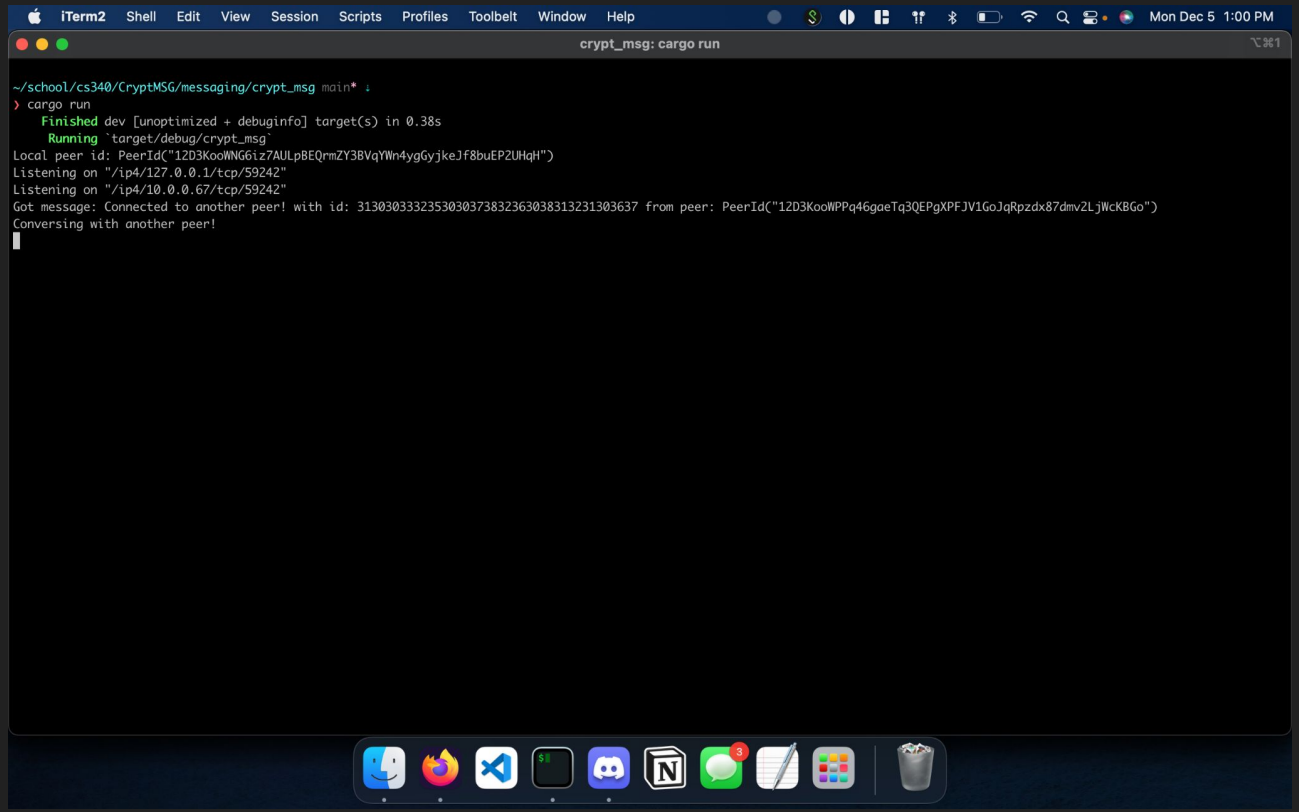
Peer to Peer Functionality



Peer to Peer Functionality

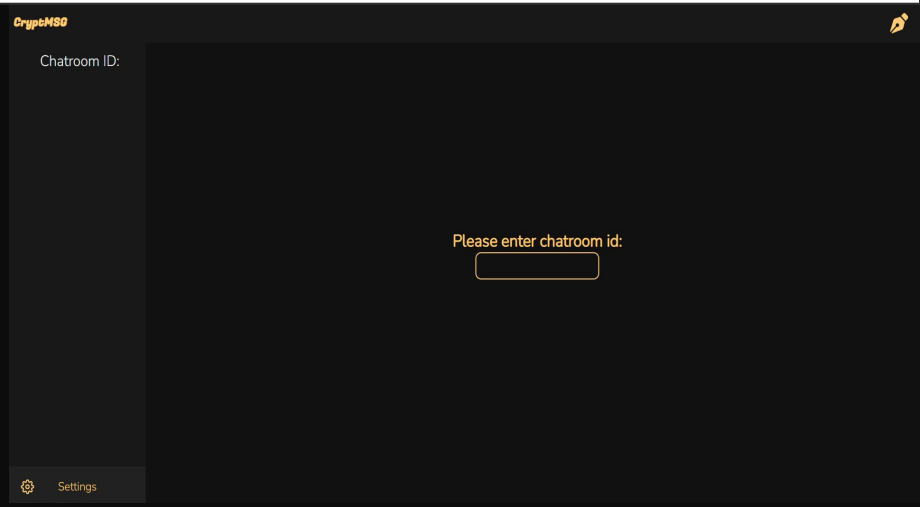


Peer to Peer Functionality



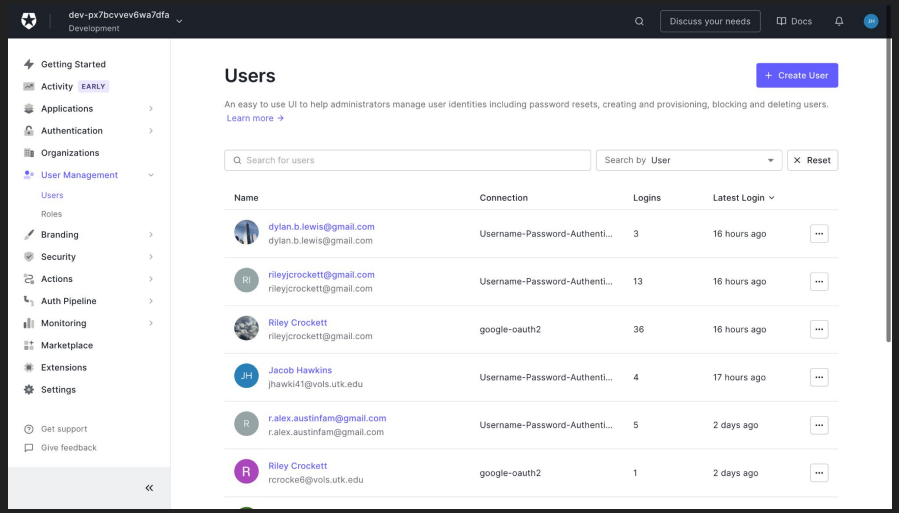
Rocket

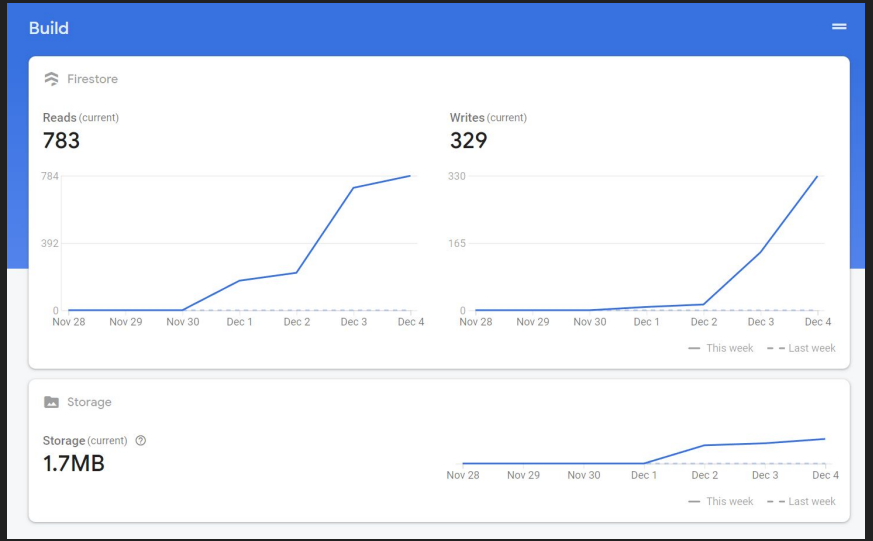
```
Configured for debug:
   >> address: 127.0.0.1
   >> port: 8000
   >> workers: 16
   >> ident: Rocket
   >> limits: bytes = 8KiB, data-form = 2MiB, file = 1MiB, form = 32KiB, json = 1MiB, msgpack = 1MiB, string = 8KiB
   >> temp dir: C:\Users\terwi\AppData\Local\Temp\
   >> http/2: true
   >> keep-alive: 5s
   >> tls: disabled
   >> shutdown: ctrlc = true, force = true, grace = 2s, mercy = 3s
   >> log level: normal
   >> cli colors: true
Routes:
   >> (events) GET /events
   >> (post) POST /message
   >> (FileServer: build) GET /<path..> [10]
Fairings:
   >> Shield (liftoff, response, singleton)
Shield:
   >> X-Content-Type-Options: nosniff
   >> X-Frame-Options: SAMEORIGIN
   >> Permissions-Policy: interest-cohort=()
Rocket has launched from http://127.0.0.1:8000
GET / text/html:
   >> Matched: (FileServer: build) GET /<path..> [10]
   >> Outcome: Success
   >> Response succeeded.
GET /static/js/main.29a727a0.js application/signed-exchange:
   >> Matched: (FileServer: build) GET /<path..> [10]
GET /static/css/main.e35360ac.css application/signed-exchange:
   >> Matched: (FileServer: build) GET /<path..> [10]
   >> Outcome: Success
   >> Outcome: Success
   >> Response succeeded.
   >> Response succeeded.
GET /favicon.ico application/signed-exchange:
   >> Matched: (FileServer: build) GET /<path..> [10]
   >> Outcome: Success
   >> Response succeeded.
GET /events text/event-stream:
   >> Matched: (events) GET /events
   >> Outcome: Success
GET /manifest.json:
   >> Matched: (FileServer: build) GET /<path..> [10]
   >> Outcome: Success
   >> Response succeeded.
GET /logo192.png image/avif
   >> Matched: (FileServer: build) GET /<path..> [10]
```



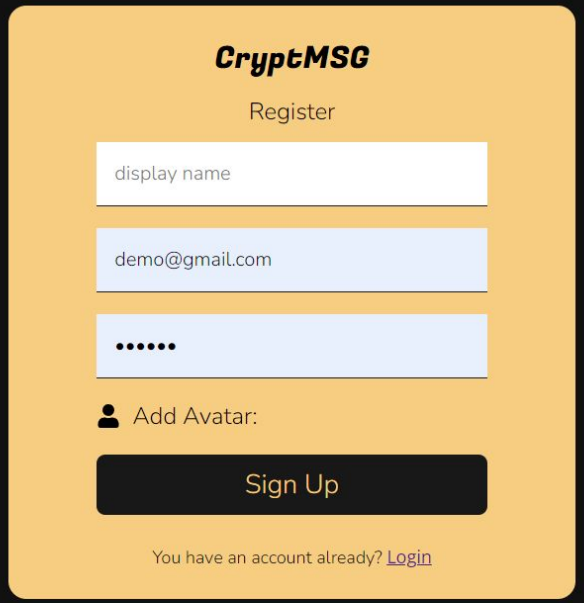
```
GET / text/html:
   >> Matched: (FileServer: build) GET /<path..> [10]
   >> Outcome: Success
   >> Response succeeded.
GET /static/css/main.e35360ac.css text/css:
   >> Matched: (FileServer: build) GET /<path..> [10]
   >> Outcome: Success
GET /static/js/main.29a727a0.js:
   >> Response succeeded.
   >> Matched: (FileServer: build) GET /<path..> [10]
   >> Outcome: Success
   >> Response succeeded.
GET /events text/event-stream:
   >> Matched: (events) GET /events
   >> Outcome: Success
GET /manifest.json:
   >> Matched: (FileServer: build) GET /<path..> [10]
   >> Outcome: Success
   >> Response succeeded.
GET /logo192.png image/avif:
   >> Matched: (FileServer: build) GET /<path..> [10]
   >> Outcome: Success
   >> Response succeeded.
POST /message application/json:
   >> Matched: (post) POST /message
content! "adsfhello"
   >> Outcome: Success
   >> Response succeeded.
POST /message application/json:
   >> Matched: (post) POST /message
content! "asdfhello"
   >> Outcome: Success
   >> Response succeeded.
```

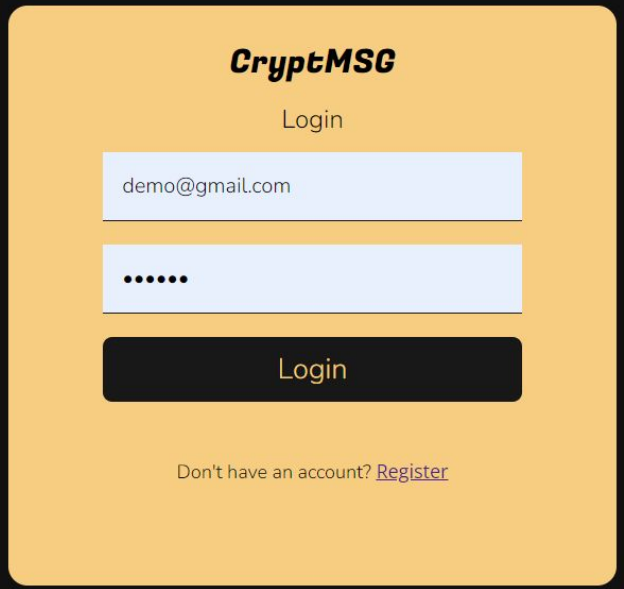
Auth0 → Firebase





Demo slides


CryptMSG
Register
display name
demo@gmail.com
Add Avatar:
Sign Up
You have an account already? Login


CryptMSG
Login
demo@gmail.com
Login
Don't have an account? Register

CryptMSG

demo Logout

jacobhawkins

Find a user

Sarah
How is your morning?

Rex
In my book, experience outranks everything

jacobhawkins
yo

Maddox
hope all is well

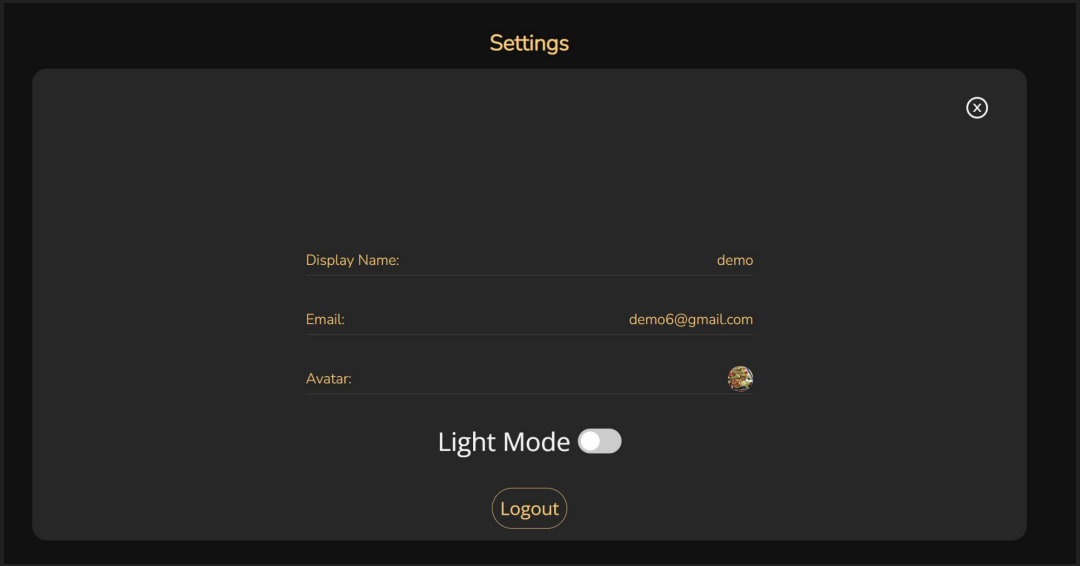
user
yeah that sounds good

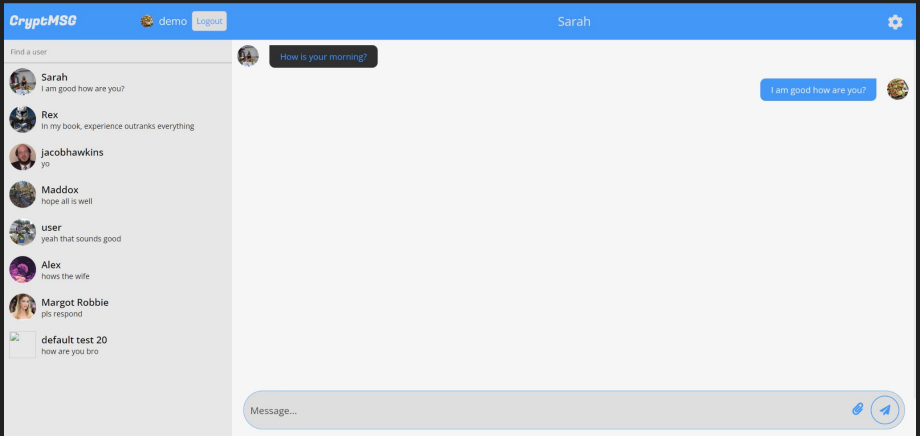
Alex
hows the wife

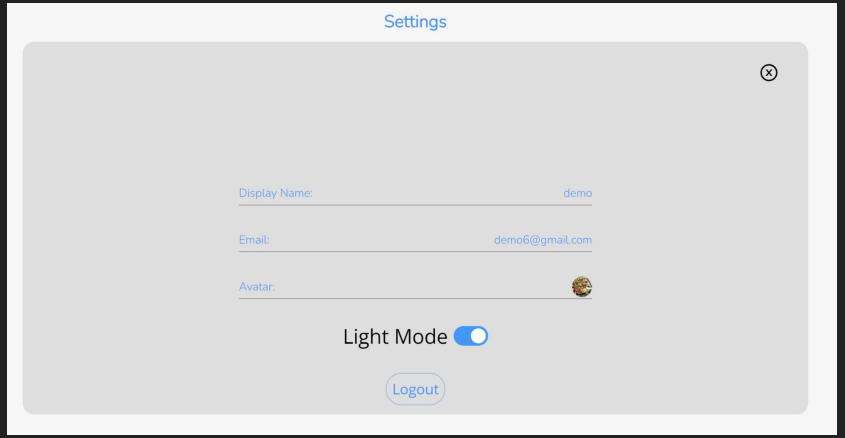
Margot Robbie
pls respond

yo

What's up bro


Settings
Display Name:
demo
Email:
demo6@gmail.com
Avatar:
Light Mode
Logout


CryptMSG
demo
Logout
Sarah
Find a user
Sarah
I am good how are you?
Rex
In my book, experience outranks everything
jacobhawkins
yo
Maddox
hope all is well
user
yeah that sounds good
Alex
hows the wife
Margot Robbie
pls respond
default test 20
how are you bro
How is your morning?
I am good how are you?
Message...


Settings
Display Name:
demo
Email:
demo6@gmail.com
Avatar:
Light Mode
Logout