Deploying MYSQL with AWS:

A screenshot of a computer

Description automatically generated

Connecting to AWS MYSQL RDS Instance:

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Description automatically generated

Creating a new user:

A screenshot of a computer

Description automatically generated with medium confidence

Users\_db on AWS reflecting the changes:

A screenshot of a computer

Description automatically generated

Two Factor Authentication Library. Secret Key will be updated before deployment. Using the current time but rounded down to the nearest 3 minutes. 2FA Codes will be unique every 3 minutes

A picture containing text, screenshot

Description automatically generated

Method that generates a unique six digit code that is valid for 3 minutes based on the username, the rounded time and a secret key:

A picture containing text, screenshot, font

Description automatically generated

Method that generates a hash from the username and the tfa code for comparison, if no tfa code is provided the current tfa code will be used:

A picture containing text, screenshot, font, software

Description automatically generated

Method that validates a login for a user based on their username and tfa\_code

A screen shot of a computer code

Description automatically generated with low confidence

Creating a basic login form for the API, testing the API by simply sending back the login info:

A screenshot of a login screen

Description automatically generated with medium confidence

Form is correctly hitting the API endpoint:

Login Process:

After many failed attempts first successful login:

A screenshot of a computer

Description automatically generated

User\_logins table functioning:

A screenshot of a computer

Description automatically generated with medium confidence

Login attempt with incorrect password:

A screenshot of a computer

Description automatically generated

Failed attempt saved in db:

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Description automatically generated with medium confidence

Lockout Feature explanation and screenshots. When a user fails a login the failed\_login\_count column in the database increments (starts at 0). If the user fails 3 logins the following happens:

1. locked\_out column is set to 1 (default is 0)
2. locked\_out\_end is set to 5 minutes from now
3. failed\_login\_count resets to 0
4. All logins from the user will be blocked until the locked\_out\_end with a 403 code until time has passed

A screenshot of a computer

Description automatically generated

Database with an active lockout:

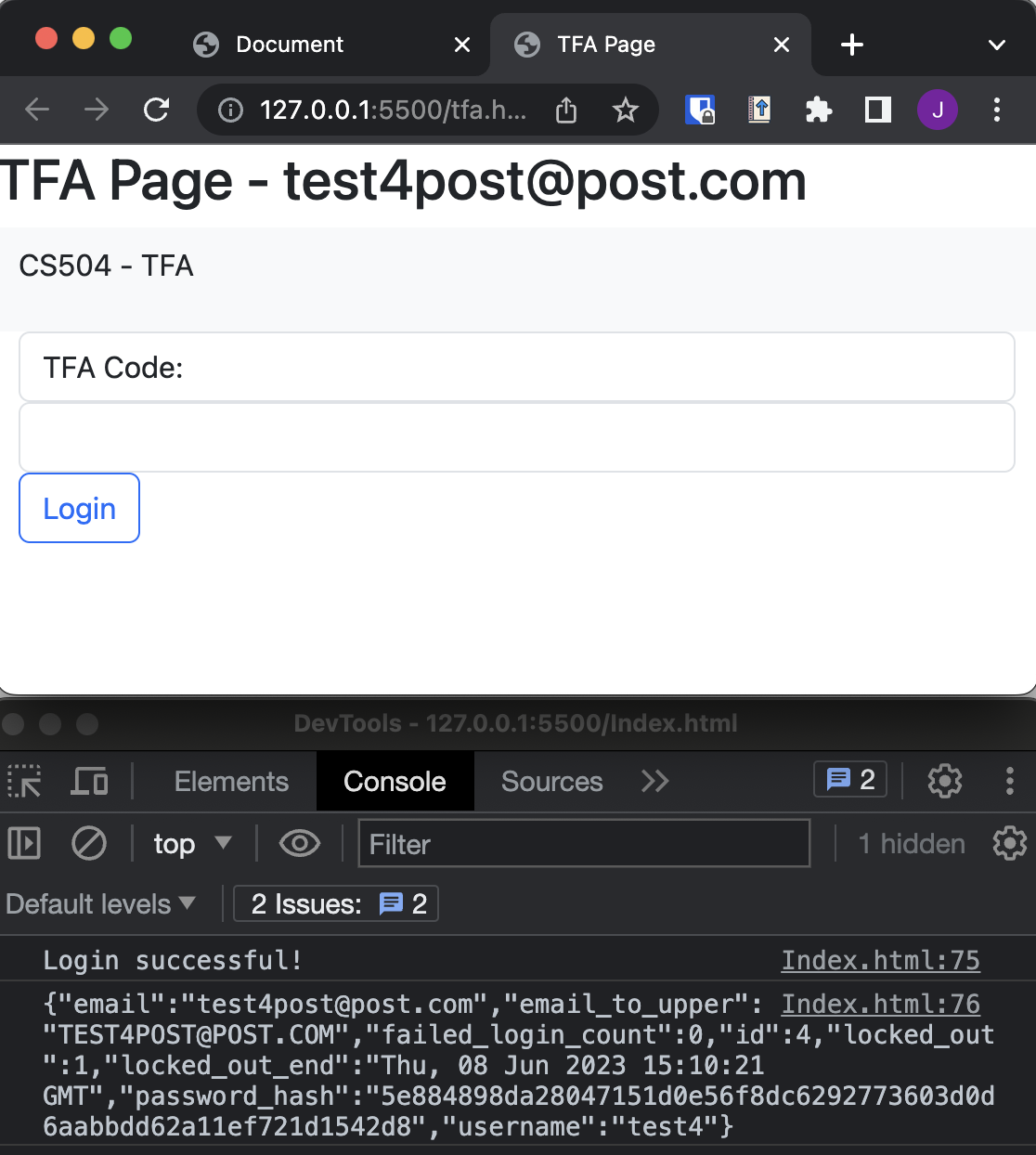
A screenshot of a computer

Description automatically generated

Successful login with redirect to 2FA page:

A screenshot of a computer

Description automatically generated with medium confidence



TFA\_Code generation with postman:

A screenshot of a computer

Description automatically generated

Code updates automatically with the time:

A screenshot of a computer

Description automatically generated

Testing for Validation:

A screenshot of a computer

Description automatically generated with medium confidence

Code has expired:

A screenshot of a computer

Description automatically generated with medium confidence