

Testing Documentation

Testing Objectives and Scope:

Testing has been performed both at the component level and at the application level. Some aspects of testing include validation testing, functionality testing including APIs, integration, security, and performance are done for both positive & negative scenarios. App Testing was performed using browsers on desktop computers and mobile apps.

Tools used: Postman, Chrome developer tools, Google Cloud platform and MySQL workbench.

Test environments: Local environment for development, GCP cloud once app is launched.

Validation testing:

Firstly, validation testing was performed on the UI component level making sure that the user flow does not break in between because of validation errors. Screenshots attached below are some of the validations done as part of the user interface.

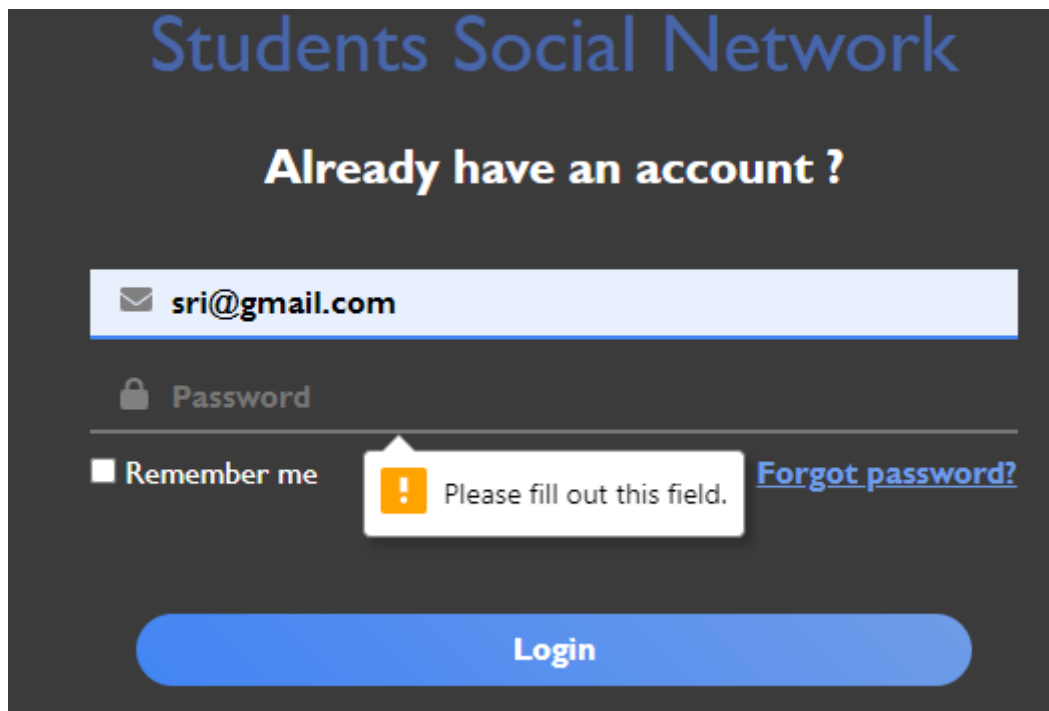


Figure 1. Field validations for the login screen

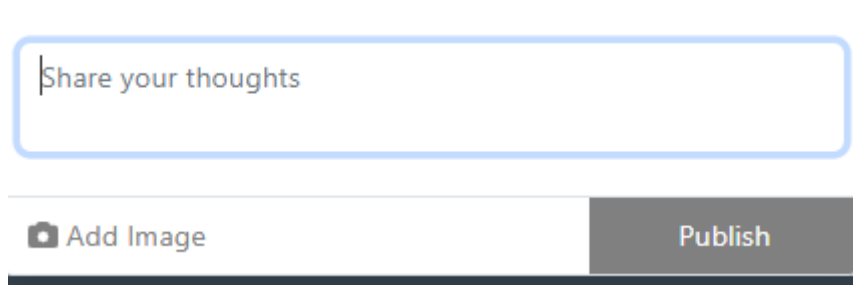


Figure 2. Disabled button while submitting empty content.

Password and confirm password should be same !

Current Password

.....

New Password

.....

Confirm Password

.....

Change Password

Figure 3. Password match check while reset.

Edit Event

Event Name

Women in Tech

Place

Conference hall

Event Start Date and Time

08/16/2023 11:45 am

Description

Speaker from Microsoft

Event Icon

Choose File

No file chosen

Open to

School

Cancel

Submit

Figure 4. Future Date validation check and blocks past dates.

Functionality testing:

Functionality testing has been performed including integration testing of the application server and database. The application was able to perform retrieve, create, update, and delete operations without any issues. A snip of most operations during the testing has been captured as a screenshot, including the scenarios that are expected to stop users and fail as shown in red.

Name	Path	Method	Status	Scheme	Domain	Time	Waterfall
commentsanalyze?	/v1alpha1/commentsanalyze	POST	200	https	commentanalyzer.googleapis.com	120 ms	
commentsanalyze?	/v1alpha1/commentsanalyze	POST	200	https	commentanalyzer.googleapis.com	142 ms	
enable	/api/institute/students/enable	POST + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	230 ms	
disable	/api/institute/students/disable	POST + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	248 ms	
disable	/api/institute/students/disable	POST + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	258 ms	
enable	/api/institute/students/enable	POST + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	259 ms	
students	/api/institute/students	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	266 ms	
login	/login	POST	200	https	students-social-network-oryc3brmdq-uc.a.run.app	277 ms	
staff	/api/institute/staff	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	281 ms	
students	/api/institute/students	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	293 ms	
login	/login	POST + Preflight	403	https	students-social-network-oryc3brmdq-uc.a.run.app	298 ms	
login	/login	POST + Preflight	403	https	students-social-network-oryc3brmdq-uc.a.run.app	326 ms	
user	/api/user	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	343 ms	
login	/login	POST + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	351 ms	
login	/login	POST + Preflight	403	https	students-social-network-oryc3brmdq-uc.a.run.app	361 ms	
students	/api/institute/students	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	388 ms	
students	/api/institute/students	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	426 ms	
current	/api/institute/current	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	436 ms	
user	/api/user	POST + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	461 ms	
institute	/api/institute	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	470 ms	
department	/api/department	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	473 ms	
user	/api/user	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	482 ms	
user	/api/user	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	483 ms	
department	/api/department	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	484 ms	
department	/api/department	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	518 ms	
institute	/api/institute	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	540 ms	
department	/api/department	GET + Preflight	200	https	students-social-network-oryc3brmdq-uc.a.run.app	549 ms	

91 / 177 requests | 73.7 kB / 39.8 MB transferred | 128 kB / 49.0 MB resources | Finish: 31.2 min | DOMContentLoaded: 1.94 s | Load: 3.00 s

Figure 5. Create, Retrieve, Update and Delete functionality testing.

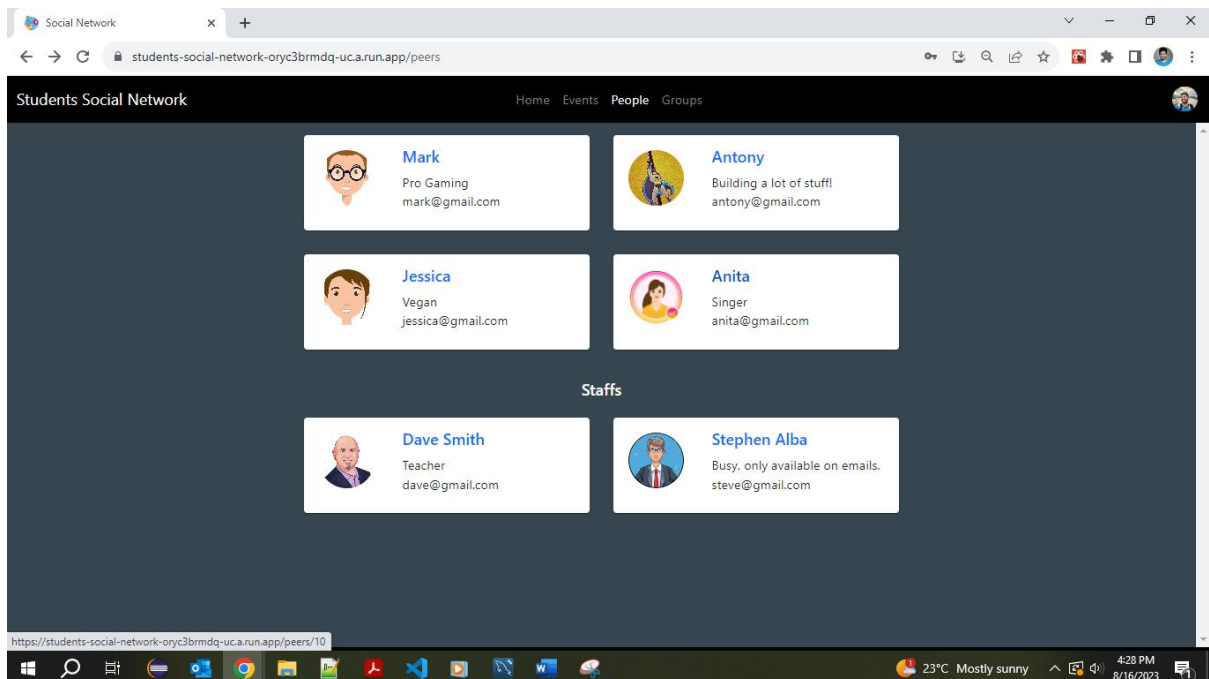


Figure 6. GET operation retrieves relevant people of same institution under People tab.

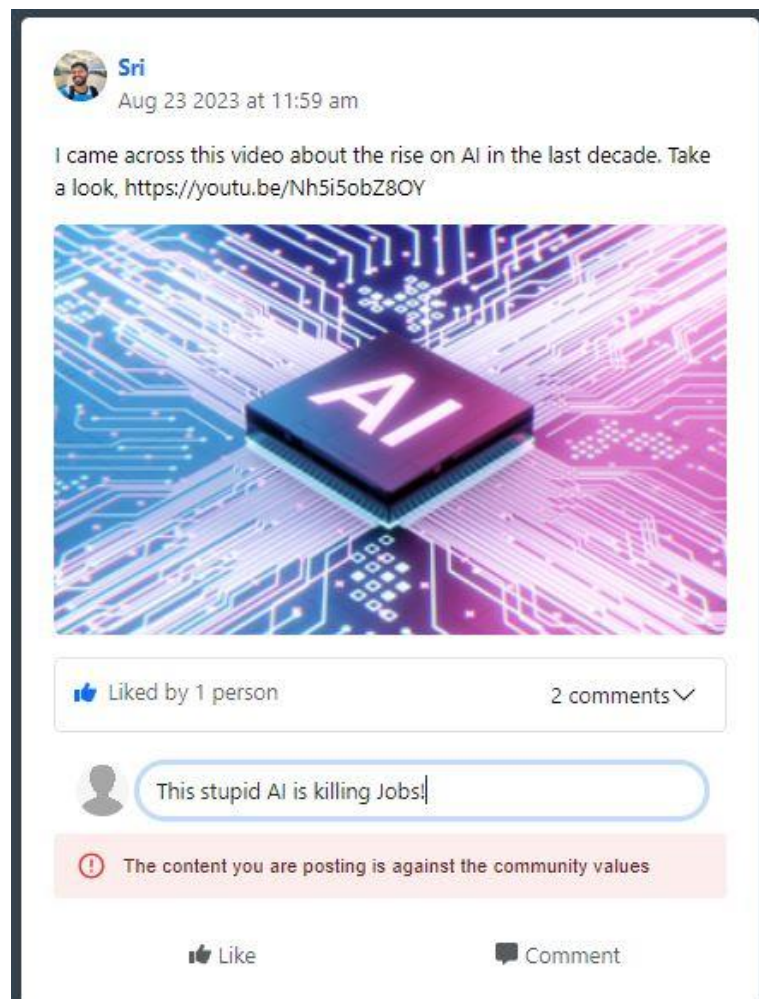


Figure 7. A content post has been created, application analyzes the attempt to post an inappropriate comment and blocks it immediately with a warning message.

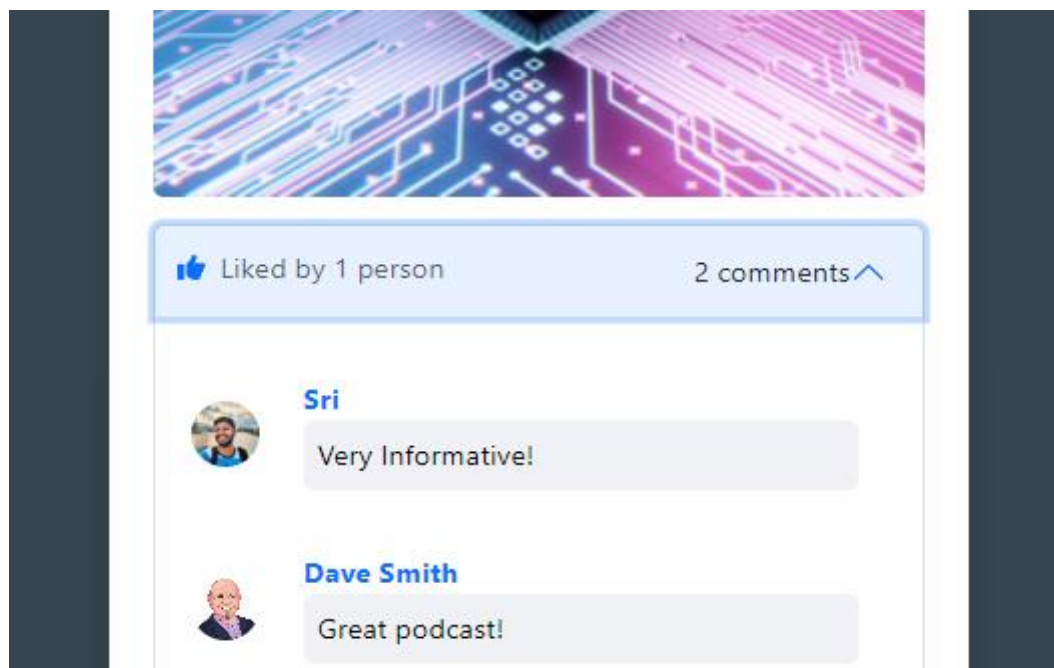


Figure 8. Application allows appropriate comments.

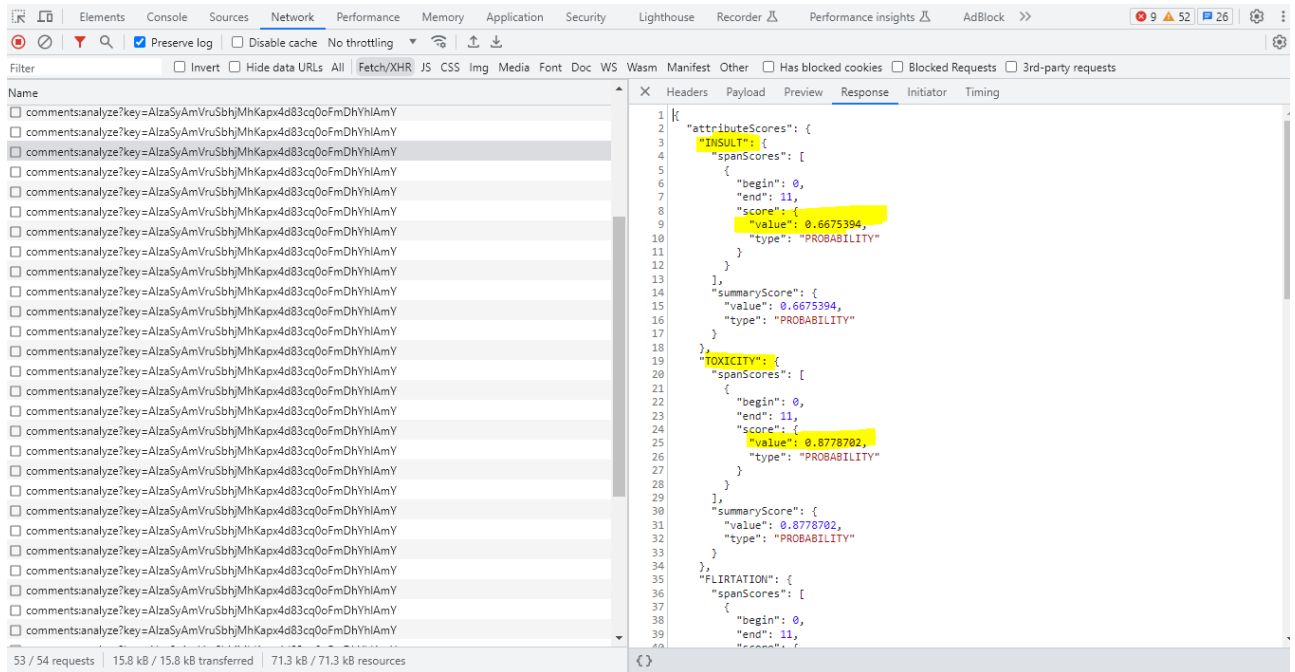


Figure 9. Content is monitored for every key stroke, retrieves results from Google API. API integration is validated.

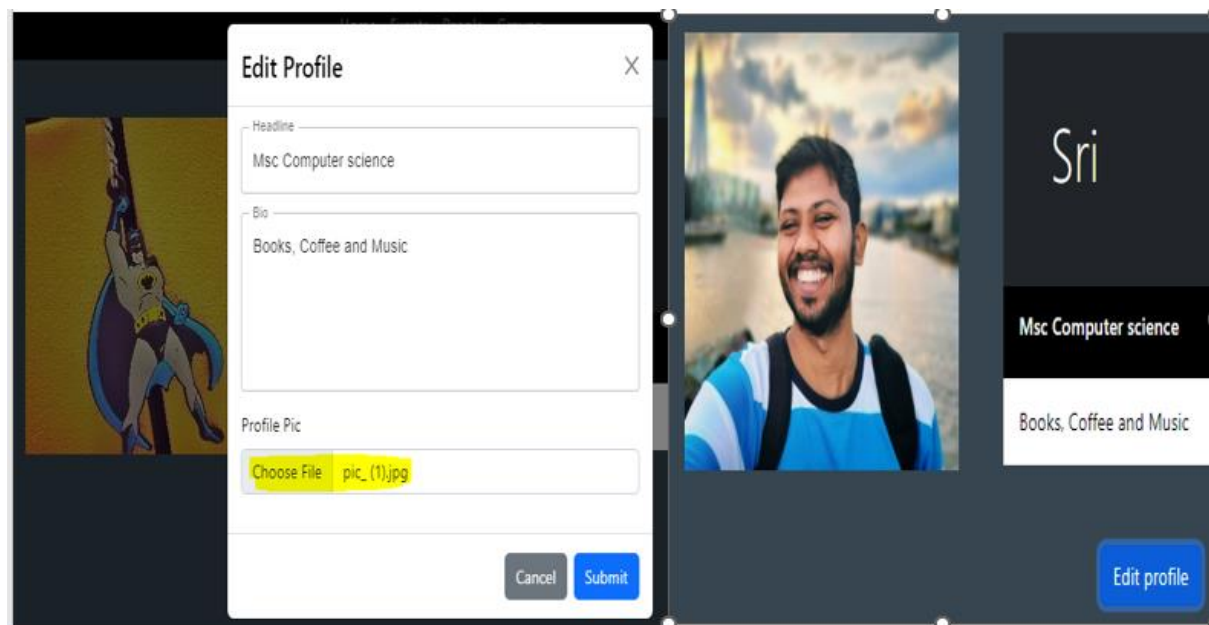


Figure 10. Application successfully uploads image content.

Students Social Network

Create your new account here !

Error while creating user !

👤
Test

✉
sri@gmail.com

🔒
••••••••

🔒
••••••••

Role : ☒ Student ☐ Staff

🏛
London University
▼

🏛
School of Arts & Drama
▼

🏛
Method acting
▼

🔑
940208

Register

Figure 11. App blocks new user registration with existing username

ben@gmail.com	School of Law	Corporate Law	Disable Account
ioe@gmail.com	School of Arts & Drama	Method acting	Disable Account
mark@gmail.com	School of Computer Science	Machine learning	Disable Account
antony@gmail.com	School of Computer Science	Artificial Intelligence	Disable Account
Sri@gmail.com	School of Computer Science	Design for Human Interaction	Enable Account
anna@gmail.com	School of Law	Finance Law	Disable Account
jessica@gmail.com	School of Computer Science	Artificial Intelligence	Disable Account
anita@gmail.com	School of Computer Science	Design for Human Interaction	Disable Account
sriv@gmail.com	School of Arts & Drama	Method acting	Disable Account

Students Social Network

Already have an account ?

Error while logging in

✉
sri@gmail.com

🔒
••••••••

☐ Remember me
[Forgot password?](#)

Login

Figure 12. App blocks the sign in of disabled accounts.

Security and Performance Testing:

Security testing has been carried out considering the platform app is hosted, secured database and the application server. Testing verifies the channel application communicates with the users, network security to protect from intruders, and user data security to restrict resource access from any human or bot injection attacks. Performance testing is done to verify the responsiveness of the app and app monitoring is done to ensure the overall performance with minimal resources by considering the cost of the infrastructure as well.

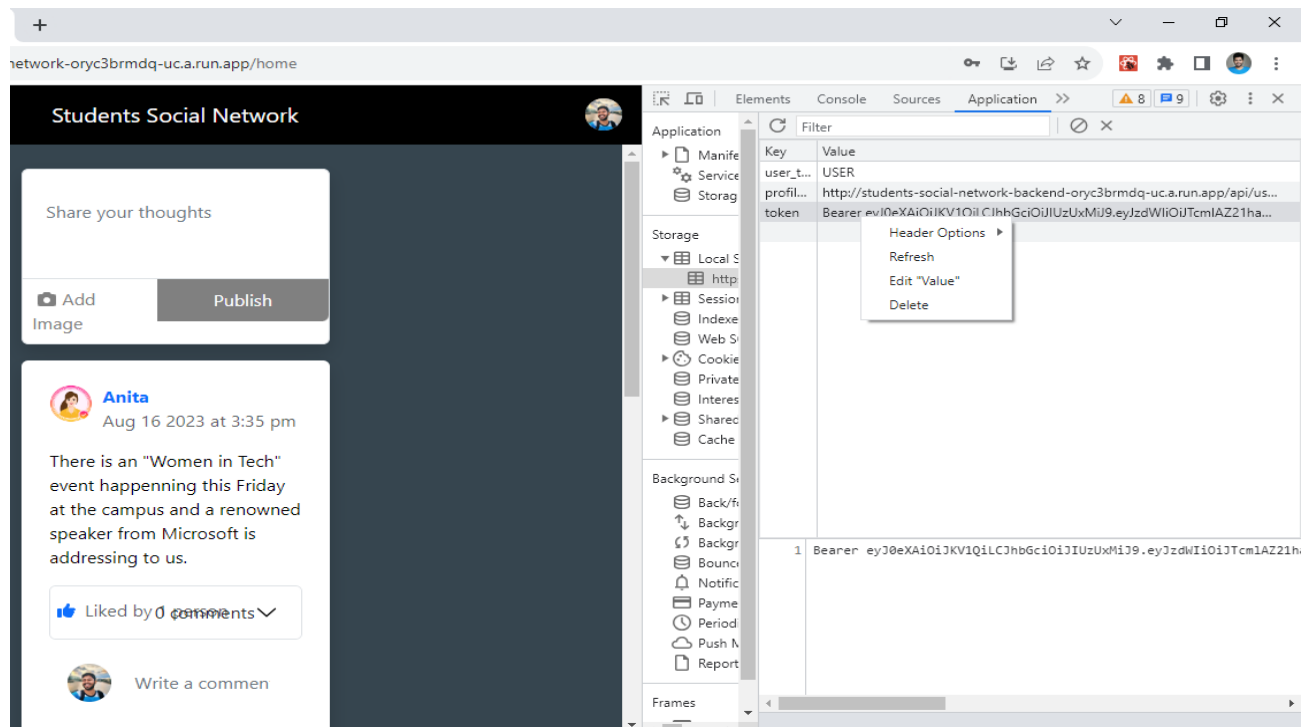


Figure 13. Application creates the JWT token only after successful login and logs out if the token is deleted from browser.

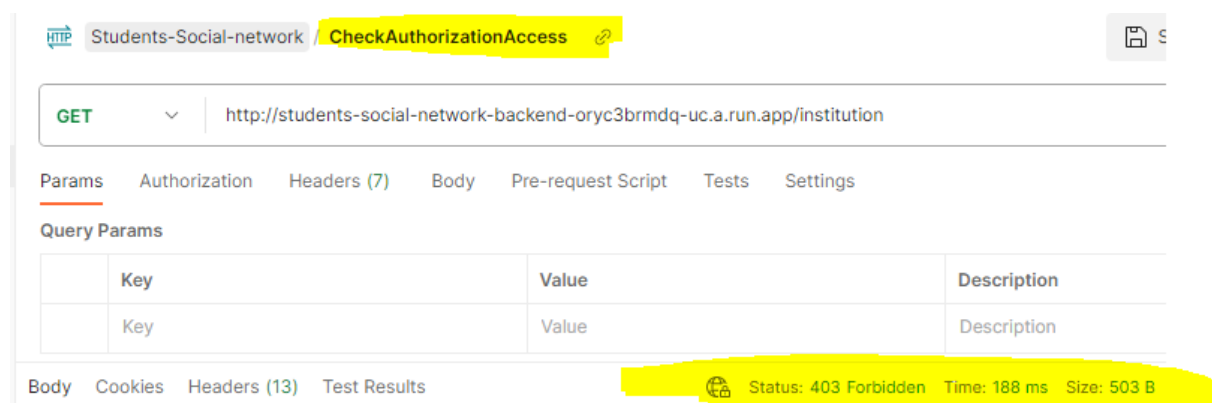


Figure 14. Application blocks requests to the APIs without the authorised token and returns forbidden access 403 error.

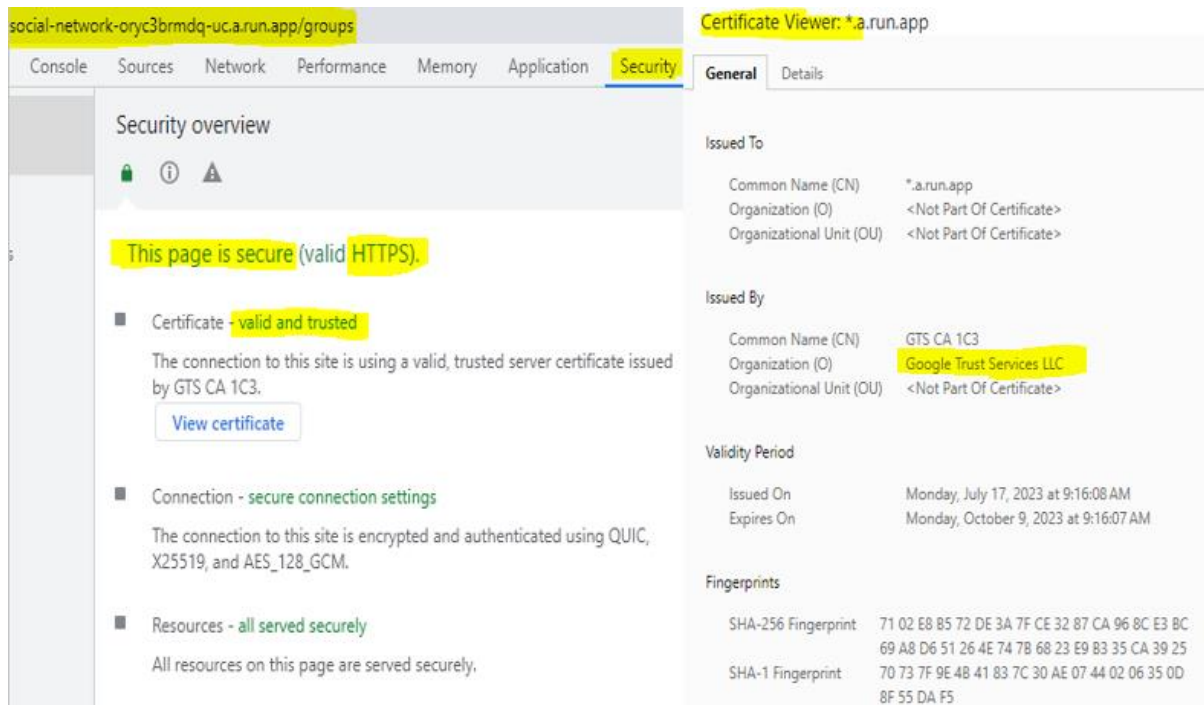


Figure 15. Application is run on a secure HTTPS encrypted channel with trusted certificate provided by Google.

testsocialapp

MySQL 8.0

SUMMARY
NETWORKING
SECURITY
CONNECTIVITY TESTS

Networking

Connection name	socialapp-395121:us-central1:testsocialapp
Private IP connectivity ?	Enabled
Associated networking	projects/socialapp-395121/global/networks/default
Network	default
Service connection method	Private services access
Allocated IP range ?	
Internal IP address	10.37.32.3
Public IP connectivity ?	Disabled

Information
No connection established

Action Output

#	Time	Action	Message
1	17:21:41	Could not connect, server may not be running.	Unable to connect

Figure 16. SQL Database instance in the GCP cloud is made private to limit access outside of the application domain.

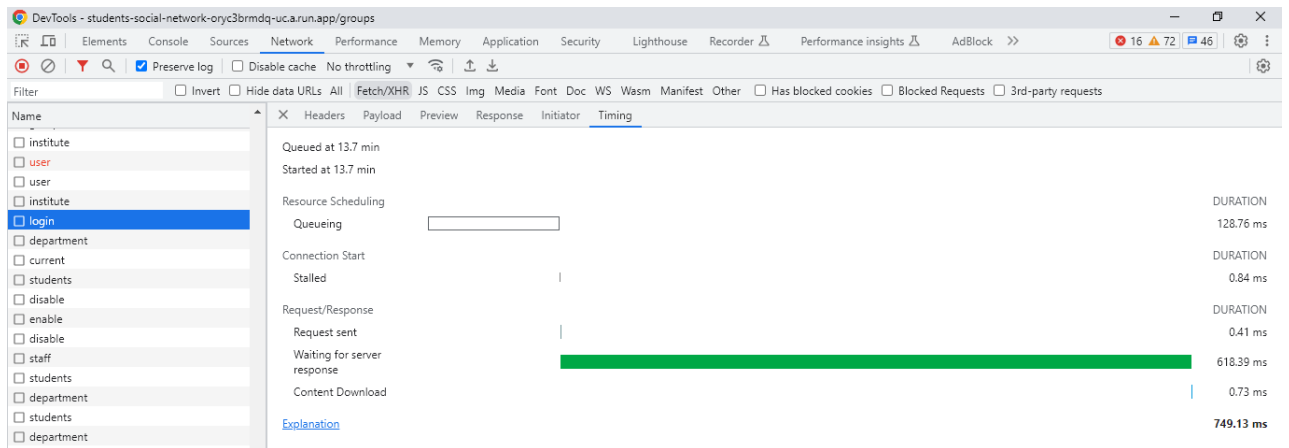
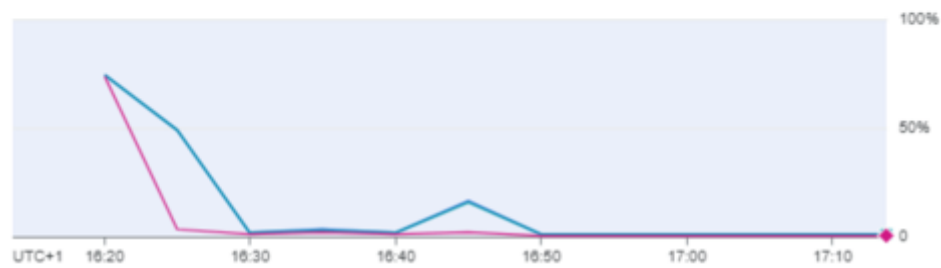


Figure 17. Responsiveness of the app is validated for all the functionalities.

Max. concurrent requests



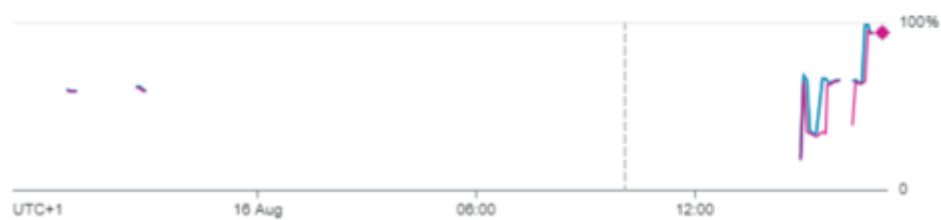
Container CPU utilisation



Request latencies



Container memory utilisation



Cloud Run

Deploy revision to students-social-network (us-central1)

request.

☐ CPU is always allocated
You are charged for the entire lifecycle of the container instance.

Capacity

Memory

1 GiB

▼

Memory to allocate to each instance of this container.

CPU

1

▼

Number of vCPUs allocated to each instance of this container.

Request timeout

300

seconds

Time within which a response must be returned (maximum 3600 seconds).

Maximum concurrent requests per instance

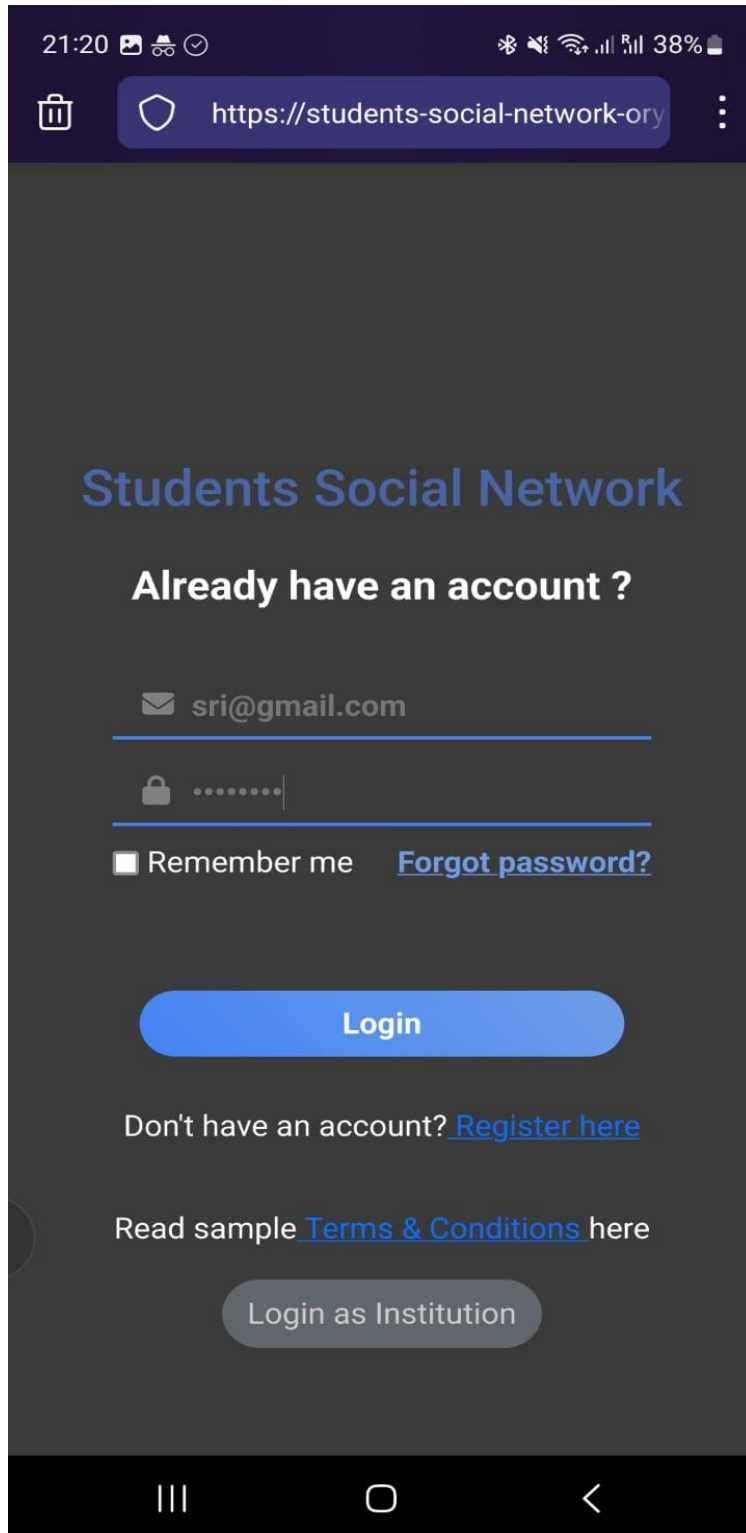
80

The maximum number of concurrent requests that can reach each instance. [What is concurrency?](#)

Figure 18. Memory resource of the app has been increased considering the requirement of the app to run smoothly.

Figure 19. Performance of the app is monitored in terms of CPU, memory, latency, etc. through regular testing and continuously improved as per the need.

All the above testing has been performed for scenarios and verified in a smartphone as well. The screenshots are added below.



21:20 38%

https://students-social-network-ory

Students Social Network

Already have an account ?

sri@gmail.com

.....

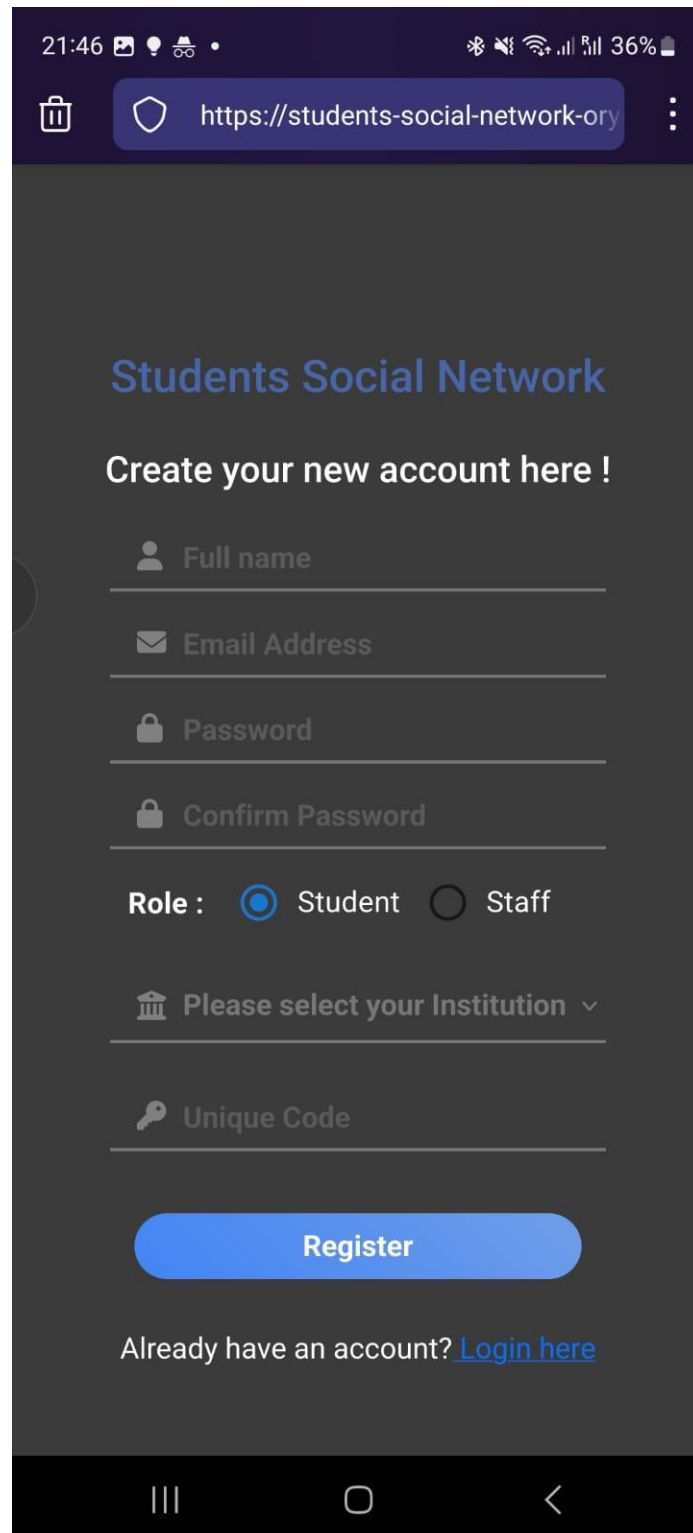
☐ Remember me [Forgot password?](#)

Login

Don't have an account? [Register here](#)

Read sample [Terms & Conditions](#) here

Login as Institution



21:46 36%

https://students-social-network-ory

Students Social Network

Create your new account here !

Full name

Email Address

Password

Confirm Password

Role : ☒ Student ☐ Staff

Please select your Institution

Unique Code

Register

Already have an account? [Login here](#)

