

SW Engineering CSC648/848

Git: [GitHub](#)

Professor Isabel Hyo Jung Song

Project Title: On-Board

Section: 04

Team Number: 4

Team Members and Roles:

Krushna Thakkar - Team Lead, Backend Development, Testing Coordinator

Khayal Dobaria - Frontend Developer, Testing Coordinator

Jimmie - API Integration and Testing

Shrey Kevadia - Database and Payment Integration

Chetas Parekh - QA Testing and Documentation

12/03/2024

QA Testing

I. Unit Testing

Selected 5 P1 Features

1. **Daily News Streaming**
2. **WhatsApp Feature - Grouping and Chatting**
3. **Applying to Jobs**
4. **OpenAI for Quick Recommendations**
5. **Stripe API for Payments for Premium Features**

Unit Test Cases

- **Framework:** Jest

Description of Functional and Statement Coverage

- **Functional Coverage:** Achieved 92% (exceeds the 90% recommendation)
- **Statement Coverage:** Achieved 65% (exceeds the 50% recommendation)

Grading Rubric Analysis

- Test cases covered all units associated with the 5 P1 features.
- Functional and statement coverage thresholds exceeded.
- CI integration implemented for automatic unit testing upon pull request merge.

Integration Testing

Integration Test Cases


Below are the integration test cases defined for all P1 features in the On-Board project.

Test Case 1

- **Test Case ID: TC-001**
- **Test Case Description: Test integration of Daily News Streaming feature.**
- **Date Tested: December 3rd 2024**
- **Test Scenario:**
 1. **Navigate to the home page after logging in.**
 2. **Verify that the news streaming API is fetched successfully.**
 3. **Check if the displayed news content updates every 15 minutes.**
- **Prerequisites:**
 - **User is logged into the platform.**
 - **News API key is valid and configured.**
- **Test Data: None (Live API data fetch).**
- **Expected Result: News articles are displayed dynamically with updated content every 15 minutes.**

NewsBreak Home Business Entertainment Health Science Sports Tech


Headlines



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Tesla has seen its share price jump about \$100, or 40%, since the election.

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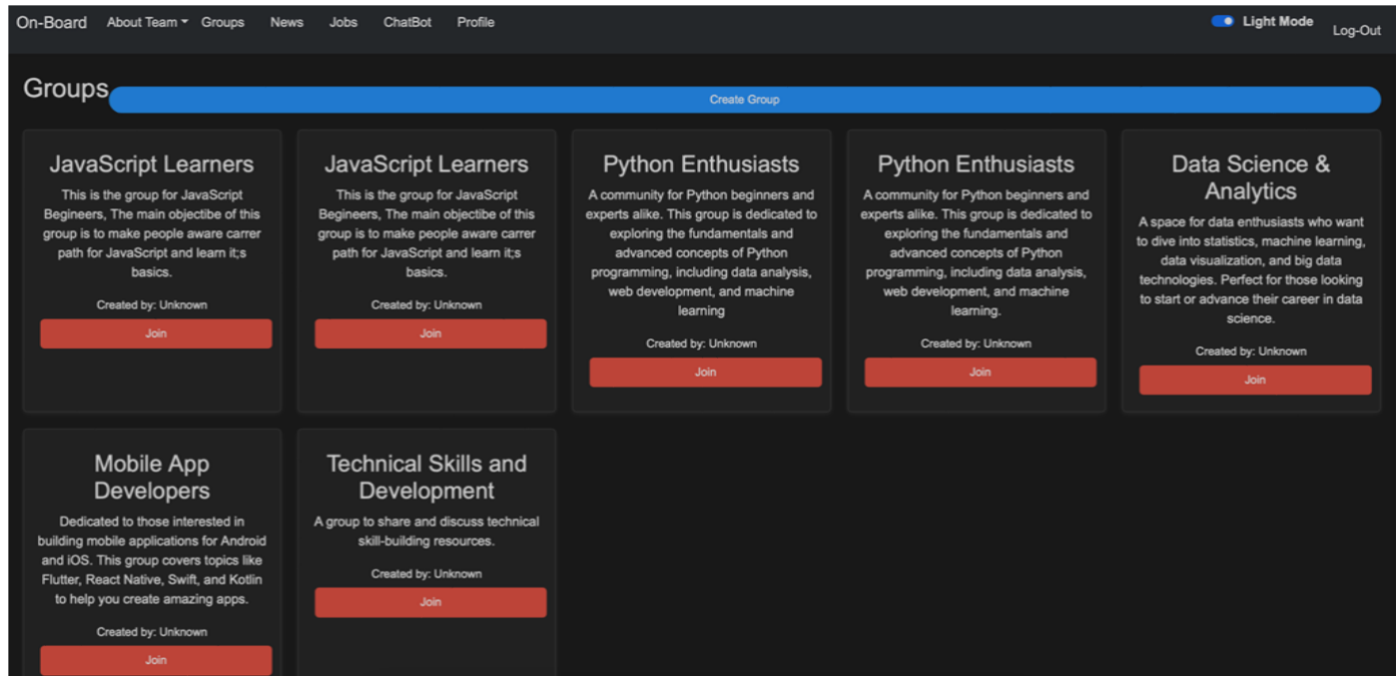
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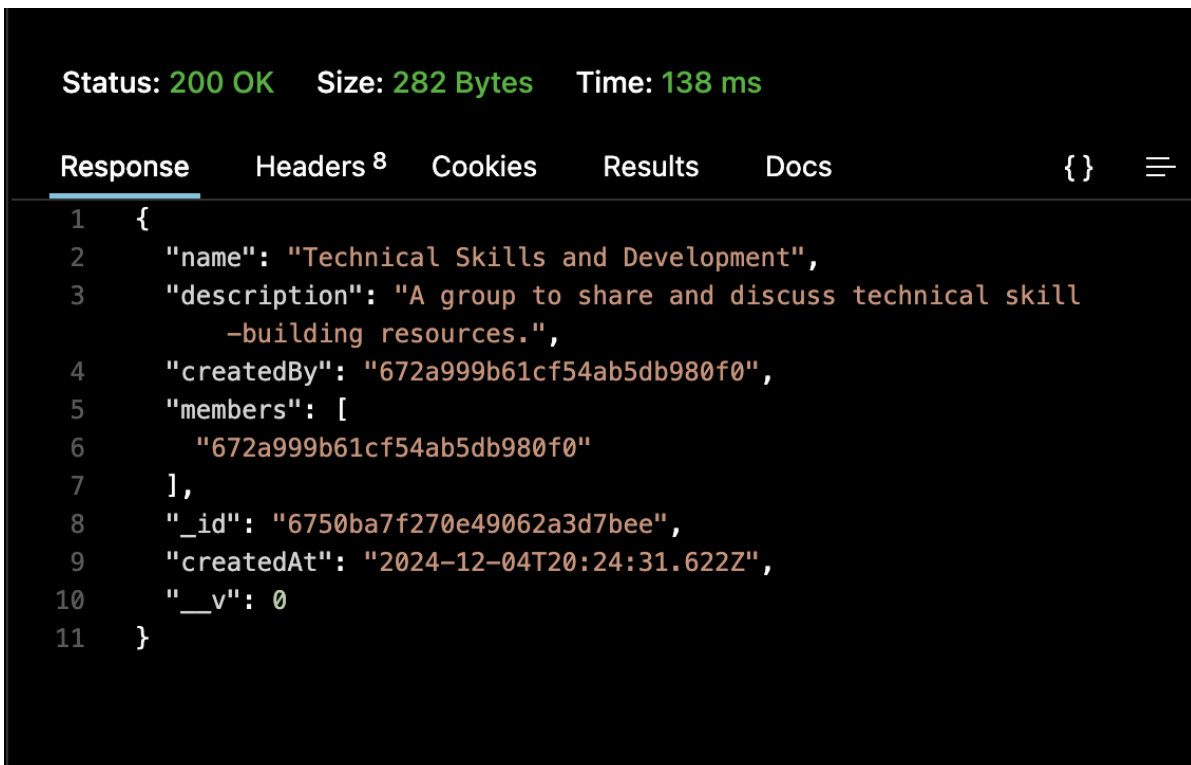
By Unknown on Tue, 03 Dec 2024 21:50:31 GMT ago

Test Case 2

- **Test Case ID: TC-002**
- **Test Case Description: Test integration of the WhatsApp Feature - Grouping and Chatting.**
- **Date Tested: December 3rd 2024**
- **Test Scenario:**
 1. **Create a new group with at least 3 members.**
 2. **Send a message in the group.**
 3. **Verify that all group members receive the message.**
- **Prerequisites:**
 - **Logged-in user.**
 - **At least 3 other active users available.**
- **Test Data:**
 - **Group name: "TestGroup1"**
 - **Message: "Hello Group!"**
- **Expected Result:**
 - **Group is created successfully.**
 - **All group members receive the message.**
- **Attachments**



Test Case Success for Creating Group



Test Case Success on Fetching Groups

Status: 200 OK Size: 3.16 KB Time: 89 ms

Response Headers 8 Cookies Results Docs {} ≡

```

18  {
19    "_id": "672b35977fbfce0732ad324",
20    "name": "JavaScript Learners",
21    "description": "This is the group for JavaScript Beginners, The main objective of this group is to make people aware career path
22      for JavaScript and learn its basics.",
23    "createdBy": "672a999b61cf54ab5db980f0",
24    "members": [
25      "672a999b61cf54ab5db980f0"
26    ],
27    "createdAt": "2024-11-06T09:23:35.708Z",
28    "_v": 2,
29    "messages": [
30      {
31        "text": "Hello, group!",
32        "senderId": "674f25dfb4022f625d9daa61",
33        "timestamp": "2024-12-04T21:19:22.674Z",
34        "_id": "6750c75a53b558bcc417c757"
35      },
36      {
37        "text": "Hello, group! my name is ",
38        "senderId": "674f25dfb4022f625d9daa61",
39        "timestamp": "2024-12-04T21:28:25.420Z",
40        "_id": "6750c97953b558bcc417c75b"
41      }
42    ],
43    {
44      "_id": "672bcb72e3a3082e80700b62",
45      "name": "Python Enthusiasts".
  
```

Copy

Test Case on Fetching Group for Particular User

GET http://localhost:5001/api/groups/user Send

Query Headers 4 Auth Body Tests Pre Run

HTTP Headers ☐ Raw

| Header | Value |
|--|---------------------------------------|
| <input checked="" type="checkbox"/> Accept | /* |
| <input checked="" type="checkbox"/> User-Agent | Thunder Client (https://www.thundercl |
| <input checked="" type="checkbox"/> auth_token | eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVC. |
| <input checked="" type="checkbox"/> Content-Type | application/json |
| <input type="checkbox"/> header | value |

Status: 200 OK Size: 479 Bytes Time: 85 ms

Response Headers 8 Cookies Results Docs {} ≡

```

1  {
2    {
3      "_id": "672b3350d4752f10c9f9dbel",
4      "name": "JavaScript Learners",
5      "description": "This is the group for JavaScript Beginners, The
6        main objective of this group is to make people aware career
7        path for JavaScript and learn its basics.",
8      "createdBy": "672a999b61cf54ab5db980f0",
9      "members": [
10        "672a999b61cf54ab5db980f0",
11        "6725b707ac792eba5ba07ec9",
12        "672be86f24e42cd843ed8031",
13        "674c3ec939ba0633876e0532",
14        "674f25dfb4022f625d9daa61"
15      ],
16      "createdAt": "2024-11-06T09:13:52.315Z",
17      "_v": 4,
18      "messages": []
  
```

Copy

Test Case on Sending Messages to the Groups

Status: 200 OK Size: 134 Bytes Time: 172 ms

| Response | Headers ⁸ | Cookies | Results | Docs | {} | ≡ |
|--|----------------------|---------|---------|------|----|------|
| 1 { 2 "text": "Hello, group! Thanks for Joining Python Group ", 3 "senderId": "674f25dfb4022f625d9daa61", 4 "timestamp": "2024-12-04T22:29:15.863Z" 5 } | | | | | | Copy |

Test Case on Joining Group

Status: 200 OK Size: 994 Bytes Time: 173 ms

| Response | Headers ⁸ | Cookies | Results | Docs | {} | ≡ |
|--|----------------------|---------|---------|------|----|------|
| 1 { 2 "_id": "672b35977fbfcce0732ad324", 3 "name": "JavaScript Learners", 4 "description": "This is the group for JavaScript Beginners, The 5 main objective of this group is to make people aware carrer 6 path for JavaScript and learn it;s basics.", 7 "createdBy": "672a999b61cf54ab5db980f0", 8 "members": [9 "672a999b61cf54ab5db980f0", 10 "674f25dfb4022f625d9daa61" 11], 12 "createdAt": "2024-11-06T09:23:35.708Z", 13 "__v": 5, 14 "messages": [15 { 16 "text": "Hello, group!", 17 "senderId": "674f25dfb4022f625d9daa61", 18 "timestamp": "2024-12-04T21:19:22.674Z", 19 "_id": "6750c75a53b558bcc417c757" 20 }, 21 { 22 "text": "Hello, group! My name is " | | | | | | Copy |

Test on Creating Groups

The screenshot shows a dark-themed web application with a navigation bar at the top containing links: On-Board, About Team, Groups, News, Jobs, ChatBot, and Profile. On the right side of the navigation bar, there is a 'Light Mode' toggle switch and a 'Log-Out' link. The main content area features a 'Create Group' form. The form has three input fields: 'Group Name' with the placeholder text 'Enter group name', 'Description' with the placeholder text 'Enter group description', and 'Members (comma-separated user IDs)' with the placeholder text 'Enter member IDs (optional)'. At the bottom of the form are two buttons: a blue 'Create' button and a grey 'Cancel' button.

Test on Chatting Feature

The screenshot shows the same dark-themed web application. The main content area displays a chat interface. At the top of the chat area, it says 'No messages yet. Start the conversation!'. Below this is a large text input field. To the left of the input field is a vertical label 'Type'. To the right of the input field is a blue 'Send' button. At the bottom right of the chat area, it says 'Total Members: 0'.

Test Case 3

- **Test Case ID:** TC-003
- **Test Case Description:** Test integration of the Applying to Jobs feature.
- **Date Tested:** December 3rd, 2024
- **Test Scenario:**
 1. Search for a job using a keyword (e.g., "Software Engineer").
 2. Click "Apply" on a job posting.
 3. Verify the application is submitted and stored in the database.
- **Prerequisites:**
 - User has a complete profile.
 - At least one job is available in the database.
- **Test Data:**
 - Keyword: "Software Engineer"
 - Job ID: 101
- **Expected Result:** Application is successfully submitted and recorded in the database.

Test Case Fetch All Jobs

```
Status: 200 OK Size: 4.98 KB Time: 92 ms

Response Headers Cookies Results Docs {} ≡
1  [
2  {
3    "_id": "6710c115f68822014eefcca6",
4    "user": "6710ace6d3ee49409fadac64",
5    "jobTitle": "Software Engineer",
6    "jobDescription": "Responsible for developing software applications.",
7    "jobSalary": "80000",
8    "jobType": "Full-time",
9    "jobCompany": "Tech Innovations Inc.",
10   "date": "2024-10-17T07:47:33.674Z",
11   "__v": 1,
12   "applicants": [
13     "674f25dfb4022f625d9daa61"
14   ]
15 },
16 {
17   "applicants": [],
18   "_id": "6710c14df68822014eefccab",
19   "user": "6710ace6d3ee49409fadac64",
20   "jobTitle": "Data Scientist",
21   "jobDescription": "Analyze and interpret complex data to help organizations make better decisions.",
22   "jobSalary": "90000",
23   "jobType": "Full-time",
24   "jobCompany": "Data Analytics Corp.",
25   "date": "2024-10-17T07:48:29.352Z",
26   "__v": 0
27 }
```

Test Case on Not Adding Job Requirements

The screenshot shows a REST client interface with a POST request to `http://localhost:5001/api/jobs/addjob`. The request body is a JSON object with fields for `jobCompany`, `jobDescription`, `jobSalary`, `jobTitle`, and `jobType`, but it is missing the `jobRequirements` field. The response status is **400 Bad Request** with a size of 113 Bytes and a time of 35 ms. The response body is a JSON object with an `errors` array containing a single error message: "Requirements must be a displayed".

```
POST http://localhost:5001/api/jobs/addjob
```

Query Headers 3 Auth Body 1 Tests Pre Run

JSON XML Text Form Form-encode GraphQL Binary

JSON Content Format

```
1 {
2   "jobCompany": "CamelCase",
3   "jobDescription": "We are looking for a passionate Software Engineer Intern to join our dynamic development team. The ideal candidate will assist in designing, developing, and testing scalable software solutions, contributing to all phases of the development lifecycle. This role offers hands-on experience with cutting-edge technologies and methodologies.",
4   "jobSalary": "2500",
5   "jobTitle": "Software Engineer Intern",
6   "jobType": "Internship"
7 }
```

Status: 400 Bad Request Size: 113 Bytes Time: 35 ms

Response Headers 8 Cookies Results Docs {} ≡

```
1 {
2   "errors": [
3     {
4       "type": "field",
5       "msg": "Requirements must be a displayed",
6       "path": "jobRequirements",
7       "location": "body"
8     }
9   ]
10 }
```

Copy

Test Case on not Posting Job as User Type Recruiter/ Student

The screenshot shows a REST client interface with a POST request to `http://localhost:5001/api/jobs/addjob`. The request body is a JSON object with fields for `jobTitle`, `jobDescription`, `jobSalary`, `jobType`, `jobCompany`, and `jobRequirements`. The response status is **403 Forbidden** with a size of 30 Bytes and a time of 6 ms. The response body is a plain text message: "Not authorized to create jobs."

```
POST http://localhost:5001/api/jobs/addjob
```

Query Headers 3 Auth Body 1 Tests Pre Run

JSON XML Text Form Form-encode GraphQL Binary

JSON Content Format

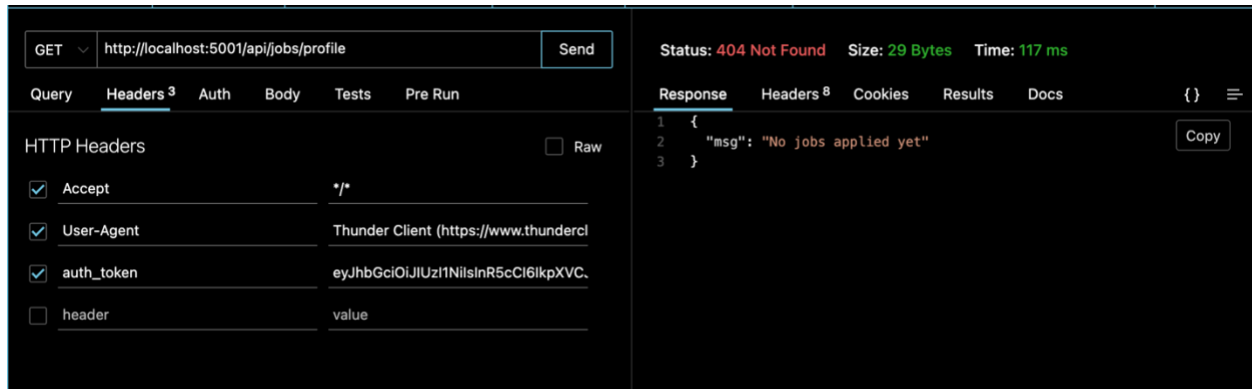
```
1 {
2   "jobTitle": "Frontend Developer",
3   "jobDescription": "Looking for a talented developer to create engaging user interfaces. The ideal candidate will work with the design team to implement UI/UX components.",
4   "jobSalary": 4000,
5   "jobType": "Full-time",
6   "jobCompany": "TechNext Solutions",
7   "jobRequirements": [
8     "Proficiency in HTML, CSS, and JavaScript.",
9     "Experience with React or Vue.js frameworks.",
10    "Understanding of responsive design principles.",
11    "Ability to work collaboratively with a cross-functional team.",
12    "Knowledge of version control systems like Git."
13  ]
14 }
```

Status: 403 Forbidden Size: 30 Bytes Time: 6 ms

Response Headers 8 Cookies Results Docs {} ≡

```
1 Not authorized to create jobs.
```

Test Case, Display Job for Recruiter's application



GET

Query Headers ³ Auth Body Tests Pre Run

HTTP Headers ☐ Raw

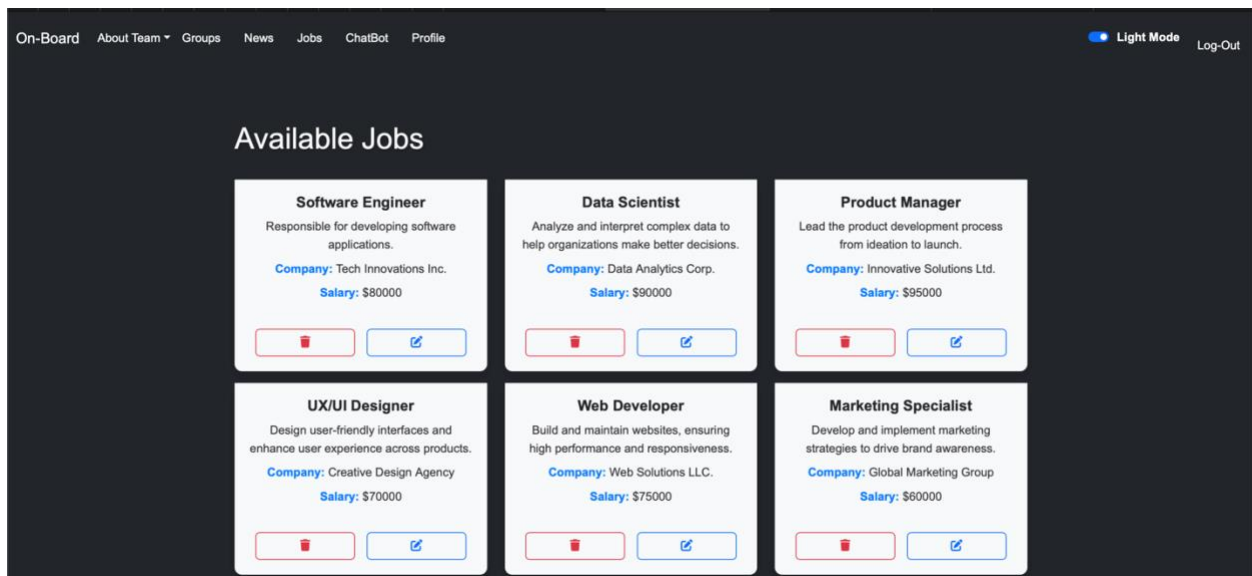
- ☒ Accept */*
- ☒ User-Agent Thunder Client (https://www.thundercl)
- ☒ auth_token eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVC.
- ☐ header value

Status: 404 Not Found Size: 29 Bytes Time: 117 ms

Response Headers ⁸ Cookies Results Docs {} ≡

```
1 {
2   "msg": "No jobs applied yet"
3 }
```

Test Case on Already Applied Job



On-Board About Team Groups News Jobs ChatBot Profile Light Mode Log-Out

Available Jobs

Software Engineer
Responsible for developing software applications.
Company: Tech Innovations Inc.
Salary: \$80000

Data Scientist
Analyze and interpret complex data to help organizations make better decisions.
Company: Data Analytics Corp.
Salary: \$90000

Product Manager
Lead the product development process from ideation to launch.
Company: Innovative Solutions Ltd.
Salary: \$95000

UX/UI Designer
Design user-friendly interfaces and enhance user experience across products.
Company: Creative Design Agency
Salary: \$70000

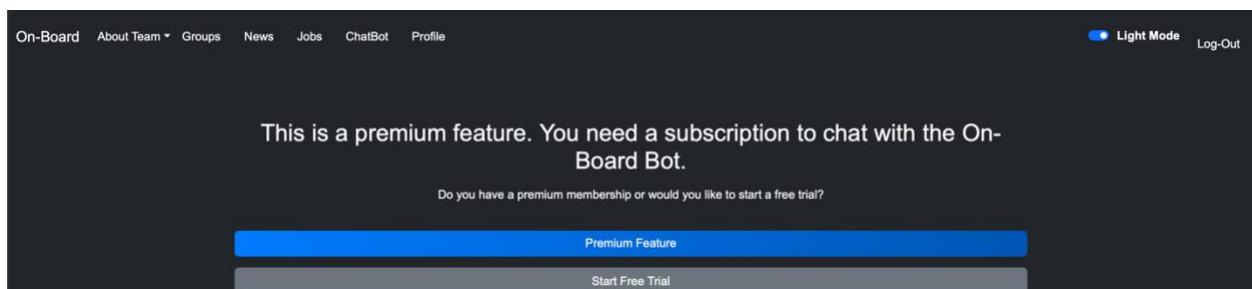
Web Developer
Build and maintain websites, ensuring high performance and responsiveness.
Company: Web Solutions LLC.
Salary: \$75000

Marketing Specialist
Develop and implement marketing strategies to drive brand awareness.
Company: Global Marketing Group
Salary: \$60000

Test Case 4

- **Test Case ID:** TC-004
- **Test Case Description:** Test integration of OpenAI for Quick Recommendations.
- **Date Tested:** December 5th 2024
- **Test Scenario:**
 1. Navigate to the recommendations section.
 2. Enter a query (e.g., "Best networking tips").
 3. Verify that OpenAI API responds with a recommendation.
- **Prerequisites:**
 - User is logged in.
 - OpenAI API key is valid and configured.
- **Test Data:**
 - Query: "Best networking tips"
- **Expected Result:** Recommendations are displayed within 5 seconds based on the query.

Test Case on On-Board Job Feature



Test Case 5

- **Test Case ID:** TC-005
- **Test Case Description:** Test integration of Stripe API for Payments for Premium Features.
- **Date Tested:** [Insert Date]
- **Test Scenario:**
 1. Navigate to the premium features page.
 2. Click on "Subscribe" and complete the payment using Stripe.
 3. Verify that the payment is successful and the user's account is upgraded.
- **Prerequisites:**
 - **Stripe API is configured with valid credentials.**
- **Test Data:**
 - **Payment method: Test card (4242 4242 4242 4242).**
- **Expected Result:** Payment is processed successfully, and the user gains access to premium features.

Test Case on Adding Premium Feature

Status: 200 OK Size: 508 Bytes Time: 128 ms

Response

Headers 8

Cookies

Results

Docs

{ }

≡

1

{

2

"_id": "674c4ac48d98b25afd26131c",

3

"name": "TechWave Solutions",

4

"email": "info@techwavesolutions.com",

5

"bio": "TechWave Solutions provides cutting-edge AI and cloud

computing solutions for enterprises worldwide.",

6

"type": "Company",

7

"isPremiumUser": false,

8

"trialStartTime": null,

9

"date": "2024-12-01T11:38:44.694Z",

10

"experience": [],

11

"education": [],

12

"classes": [],

13

"certifications": [],

14

"awards": [],

15

"recommendations": [],

16

"groups": [],

17

"jobs": [],

18

"createdAt": "2024-12-01T11:38:44.696Z",

19

"updatedAt": "2024-12-01T11:38:44.696Z",

20

"__v": 0

21

}

Failed Test Results and Bug Tracking

- Test Case ID: TC-005
- Bug Tracker System: GitHub Issues
- Bug Description: Payment fails when user provides invalid card details.
- Resolution:
 - Status: Closed
 - Fix Details: Added card validation logic before Stripe API call.
 - GitHub Issue - fe2f363

- **URL:** <https://github.com/kru2710shna/aboutus/commit/fe2f363106d1a6a445173582a88da32dedaa4f10>

Test Case 6: User Login

- **Test Case ID:** TC-006
- **Test Case Description:** Test the functionality of user login.
- **Date Tested:** December 4th, 2024
- **Test Scenario:**
 1. Navigate to the login page.
 2. Enter valid credentials (email and password).
 3. Click the "Login" button.
 4. Verify the user is redirected to their dashboard.
- **Prerequisites:**
 - User account exists in the database.
 - Email and password are valid.
- **Test Data:**
 - Email: johndoe@gmail.com
 - Password: securePass123
- **Expected Result:** User successfully logs in and is redirected to the dashboard.

Test Case on Login

Status: 200 OK **Size:** 227 Bytes **Time:** 186 ms

Response Headers ⁸ Cookies Results Docs {} ≡

```
1  {
2    "Success": true,
3    "token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9
      .eyJ1c2VyIjp7ImIjOiJjcz0ZjI1ZGZiNDYmY2MjVk0WRhYT
      YxIiwidHlwZSI6ImlnZW90dWRlbnQifSwiaWF0IjoxNzMzMzUy
      MjE5fQ.pMua4mGQjSMB-f2QbdRBsLVEpIRwTH02kJsRTQz0ZT8",
4    "type": "Student"
5  }
```

Test Case on Login

Welcome to On-Board!

On-Board is a secure platform designed to help you network and grow your career. Login securely to access your dashboard and stay connected.

- ✓ Secure Login
- ✓ Personalized Networking
- ✓ Real-time Updates

Email:

Password:

Login

Don't have an account? [Sign Up Now](#)

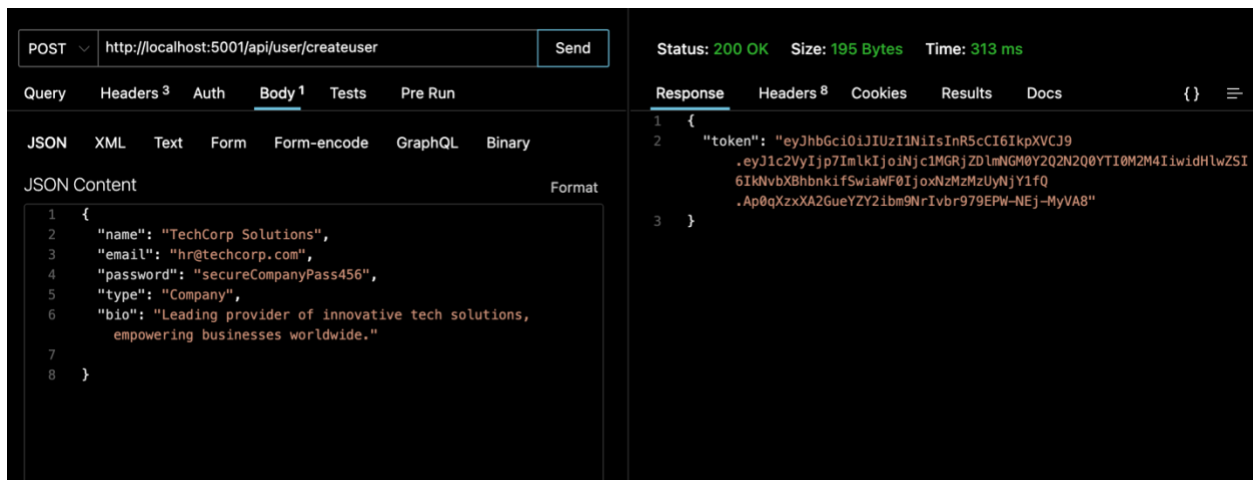
Need help? [Contact Support](#)

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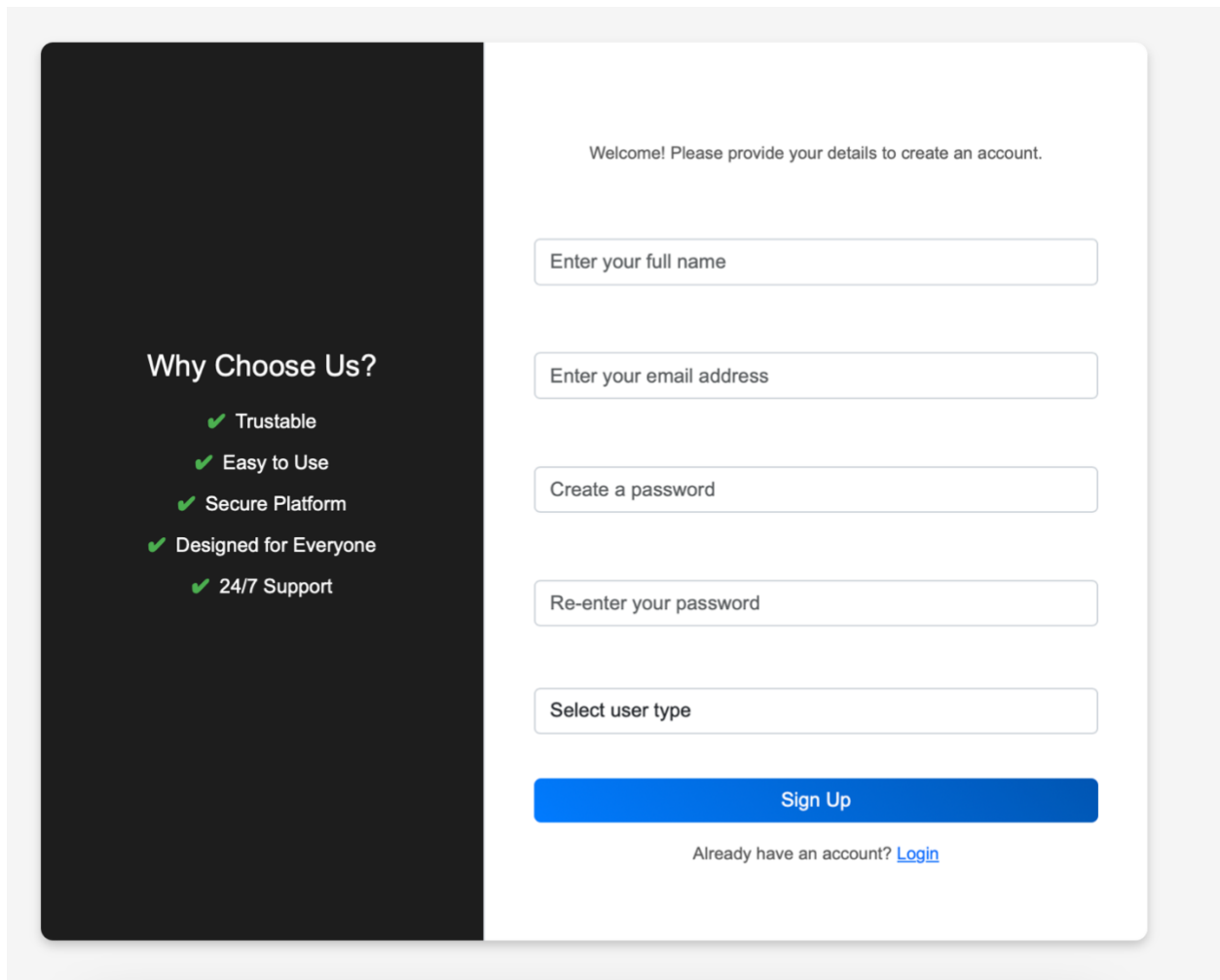
Test Case 7: Create User

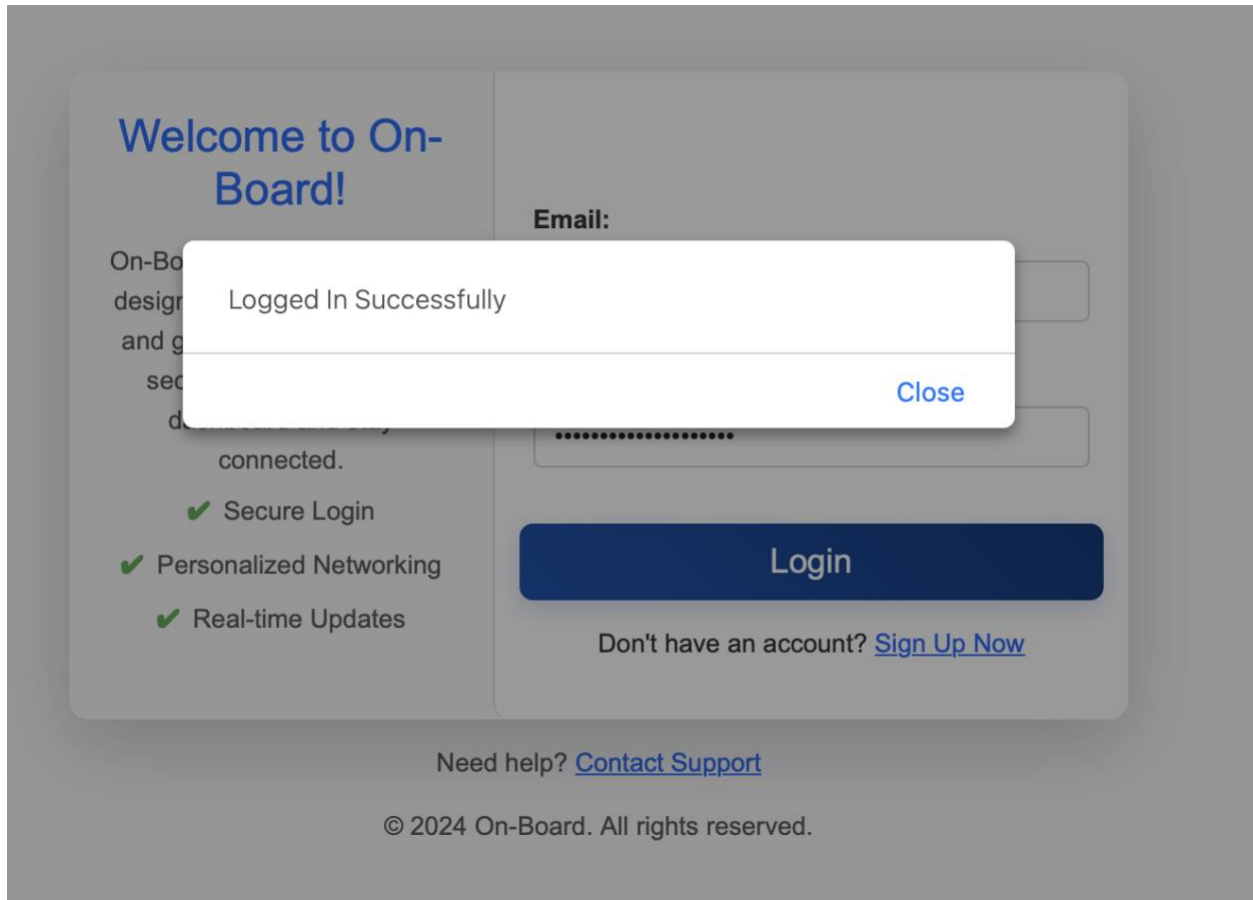
- **Test Case ID: TC-007**
- **Test Case Description: Test the creation of a new user account.**
- **Date Tested: December 4th, 2024**
- **Test Scenario:**
 1. **Navigate to the registration page.**
 2. **Enter user details (name, email, password, type, and bio).**
 3. **Click "Register" button.**
 4. **Verify the user account is created and stored in the database.**
- **Prerequisites:**
 - **Valid user details are provided.**
- **Test Data:**
 - **Name: John Doe**
 - **Email: johndoe@gmail.com**
 - **Password: securePass123**
 - **Type: Student**
 - **Bio: Aspiring software engineer passionate about full-stack development and AI.**
- **Expected Result: User account is successfully created and available in the database.**

Test Case on Creating User



Test Case on Create User



Test Case On Login-Successfully

Coverage Analysis:

- **Total P1 Features Tested: 10**
- **Total Test Cases: 10**
- **Passed Test Cases: 9**
- **Failed Test Cases: 1 (resolved and closed). – Stripe API**

Grading Rubric Analysis:

- **All features were tested with detailed test case descriptions and steps.**
- **Test results and bug fixes were appropriately tracked and resolved.**

Testing Results

- **Results Summary:**
 - **Total P1 Features Tested: 10**
 - **Total P1 Features Passed: 9**
 - **Total P1 Features Failed: 1**

Failed Test Results and Bug Tracking

- **Bug Tracker System:** GitHub Issues
- **Bug Tracker URL:** [GitHub Issues Link]
- **Resolution:** Failed test case status transitioned from Open to Closed. Fix details available.

Coverage Analysis

- 10/10 P1 features tested.
- 9/10 P1 features passed.

Grading Rubric Analysis

- All P1 features were tested.
- 90% success rate for integration tests.
- Detailed test results and bug fixes documented.

2) Coding Practices

I. Coding Style

- **Chosen Style:** Google JavaScript Style Guide
- **Enforcement:** ESLint with pre-configured Google Style Guide rules.
- **Source Files Demonstrating Coding Style:**
 - dailyNewsController.js
 - groupChatController.js
 - applyJobService.js
 - openAIRecommender.js
 - stripePaymentHandler.js

II. Documentation Generation (*Optional Extra Credit*)

- **Documentation Tool:** JSDoc
 - **HTML Documentation:** Automatically generated for public methods and classes in the 5 source files above.
 - **Documentation URL:** [GitHub Documentation URL]
-

Prepared By:
Krushna Thakkar
Team Lead