

UGANDA TECHNOLOGY AND MANAGEMENT UNIVERSITY

WEEKLY JOURNAL REPORT

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SEP23/BSC/3567U/F

BACHELOR OF SCIENCE COMPUTER SCIENCE

WEEK 6: 04th/August/2025 – 10th /August/2025

1. What have been your successes/accomplishments?

- Successfully integrated the frontend React application with the backend Node.js + Express + MongoDB API.
- Implemented user authentication using JWT and bcrypt for secure password storage.
- Created protected routes in both backend and frontend to restrict access to authenticated users only.
- Learned how to manage state persistence by storing tokens in local storage.
- Deployed and tested a working MERN Full stack Authentication App locally.

2. What have been the challenges/fears?

- Configuring CORS issues when connecting frontend to backend.
- Struggled with managing authentication tokens and keeping sessions secure.
- Fear of handling security vulnerabilities like token theft and unencrypted environment variables.
- Difficulty in debugging server errors when connecting to MongoDB Atlas.

3. What is the relationship between your internship and your previous job training?

- Previous training introduced theory of backend and databases, but internship allowed hands-on application in real projects.
- Job training taught JavaScript and React basics, while internship expanded into full MERN integration.
- Training emphasized frontend design, but internship showed the importance of security, authentication, and API integration.

4. What is the difference between what you observed in the field and what you learned in class?

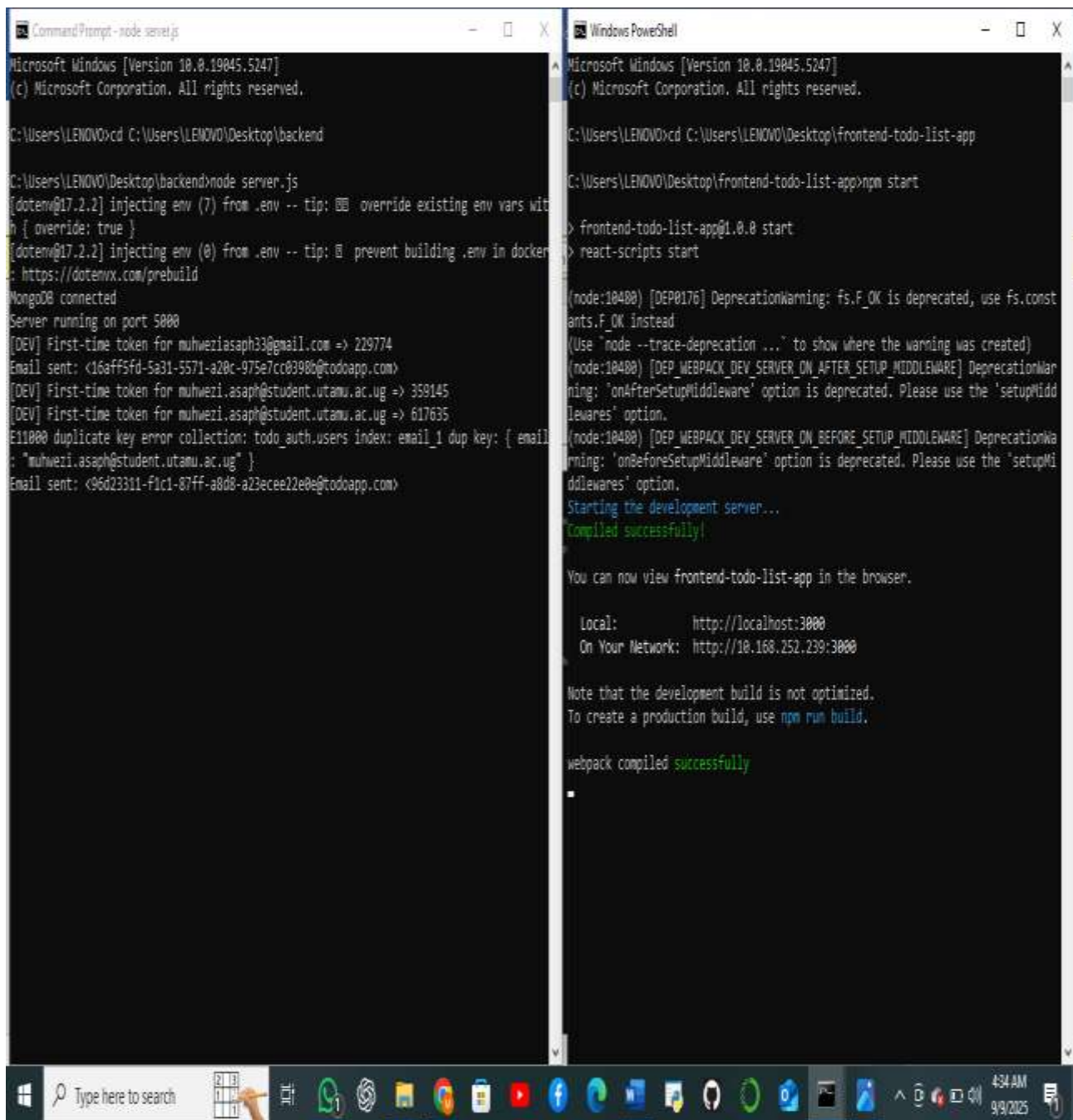
- In class concepts were mostly theoretical and based on small isolated exercises where as in the field applied knowledge to real-world full stack projects with deployment is considerations.
- Fieldwork highlighted best practices like version control, environment configuration, and error handling, which were not emphasized in class.
- Internship revealed the importance of teamwork and documentation, unlike classroom coding done individually.

5. What experience have you gained so far from being part of the organization/community?

- Practical experience in building production-ready applications with fullstack architecture.
- Improved ability to collaborate with a team using GitHub.
- Learned how organizations handle project structure, security, and scalability.
- Gained exposure to industry standards like. gitignore, README.md, and structured project documentation.
- Developed confidence in debugging and solving real-world coding problems under deadlines.

6. List activities done for the week:

- Set up backend server with Node.js + Express.
- Created user authentication system (register, login, token validation).
- Integrated frontend React app with backend API.
- Implemented protected routes in both frontend and backend.
- Used MongoDB Atlas for database management.
- Wrote documentation (README, .gitignore) for projects repositories.



```
Command Prompt - node server.js
Microsoft Windows [Version 10.0.19045.5247]
(c) Microsoft Corporation. All rights reserved.

C:\Users\LENOVO>cd C:\Users\LENOVO\Desktop\backend

C:\Users\LENOVO\Desktop\backend>node server.js
[dotenv@17.2.2] injecting env (7) from .env -- tip: [i] override existing env vars with { override: true }
[dotenv@17.2.2] injecting env (0) from .env -- tip: [i] prevent building .env in docker
: https://dotenvx.com/prebuild
MongoDB connected
Server running on port 5000
[DEV] First-time token for muhwezi.asaph33@gmail.com => 229774
Email sent: <16aff5fd-5a31-5571-a20c-975e7cc0398b@todoapp.com>
[DEV] First-time token for muhwezi.asaph@student.utamu.ac.ug => 359145
[DEV] First-time token for muhwezi.asaph@student.utamu.ac.ug => 617635
E11000 duplicate key error collection: todo_auth.users index: email_1 dup key: { email
: "muhwezi.asaph@student.utamu.ac.ug" }
Email sent: <96d23311-f1c1-87ff-a8d8-a23ecee22e0e@todoapp.com>

Windows PowerShell
Microsoft Windows [Version 10.0.19045.5247]
(c) Microsoft Corporation. All rights reserved.

C:\Users\LENOVO>cd C:\Users\LENOVO\Desktop\frontend-todo-list-app

C:\Users\LENOVO\Desktop\frontend-todo-list-app>npm start

> frontend-todo-list-app@1.0.0 start
> react-scripts start

(node:10400) [DEP0176] DeprecationWarning: fs.F_OK is deprecated, use fs.constants.F_OK instead
(Use "node --trace-deprecation ..." to show where the warning was created)
(node:10400) [DEP_WEBPACK_DEV_SERVER_ON_AFTER_SETUP_MIDDLEWARE] DeprecationWarning: 'onAfterSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
(node:10400) [DEP_WEBPACK_DEV_SERVER_ON_BEFORE_SETUP_MIDDLEWARE] DeprecationWarning: 'onBeforeSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
Starting the development server...
Compiled successfully!

You can now view frontend-todo-list-app in the browser.

Local:      http://localhost:3000
On Your Network: http://10.168.252.239:3000

Note that the development build is not optimized.
To create a production build, use npm run build.

webpack compiled successfully
```

Figure 1 showing screen shot of testing frontend and backend locally

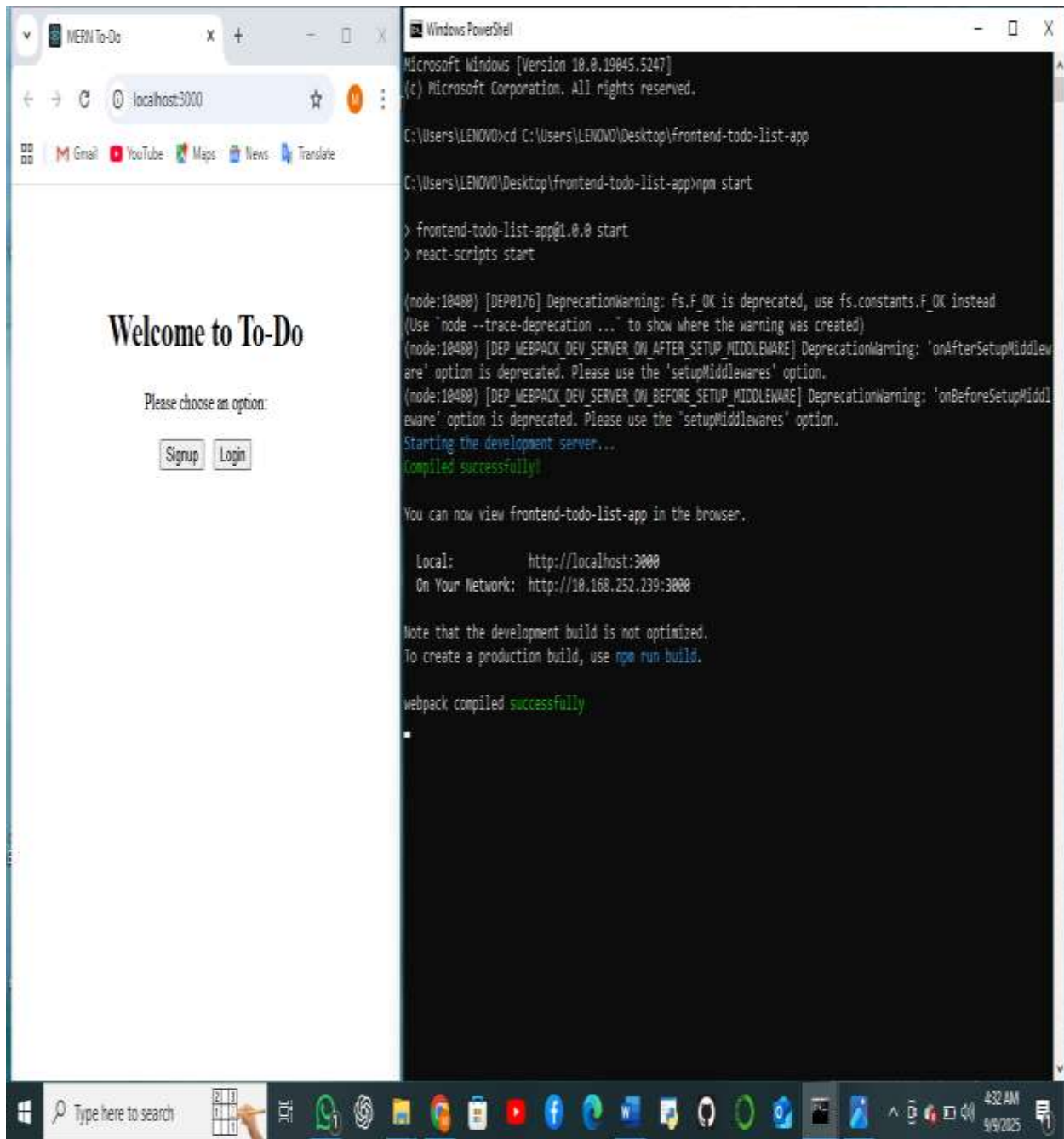


Figure 2screenshot of functioning MERN app tested locally

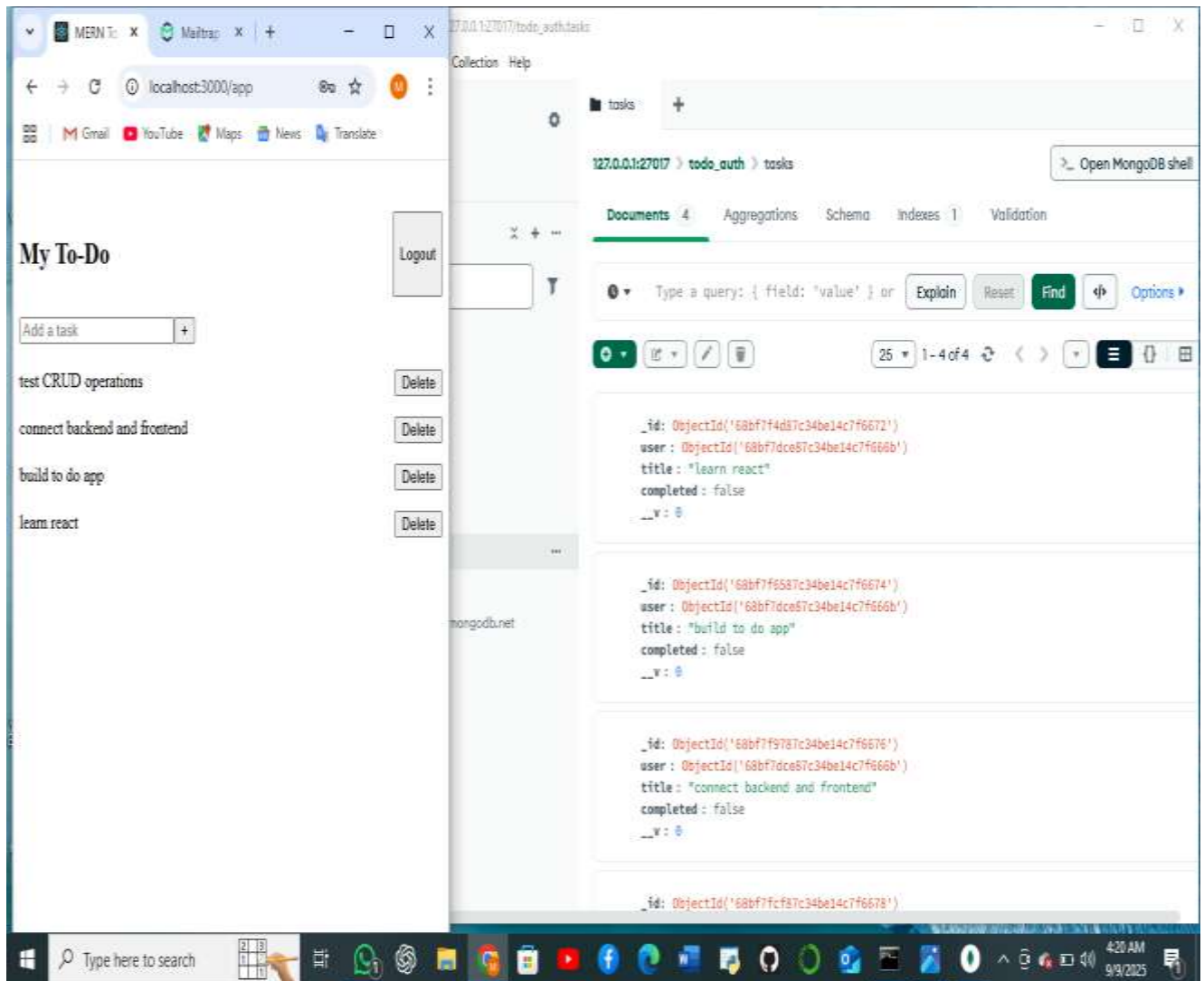


Figure 3 showing the screenshot of a well-functioning app frontend well communicating with backend at local testing

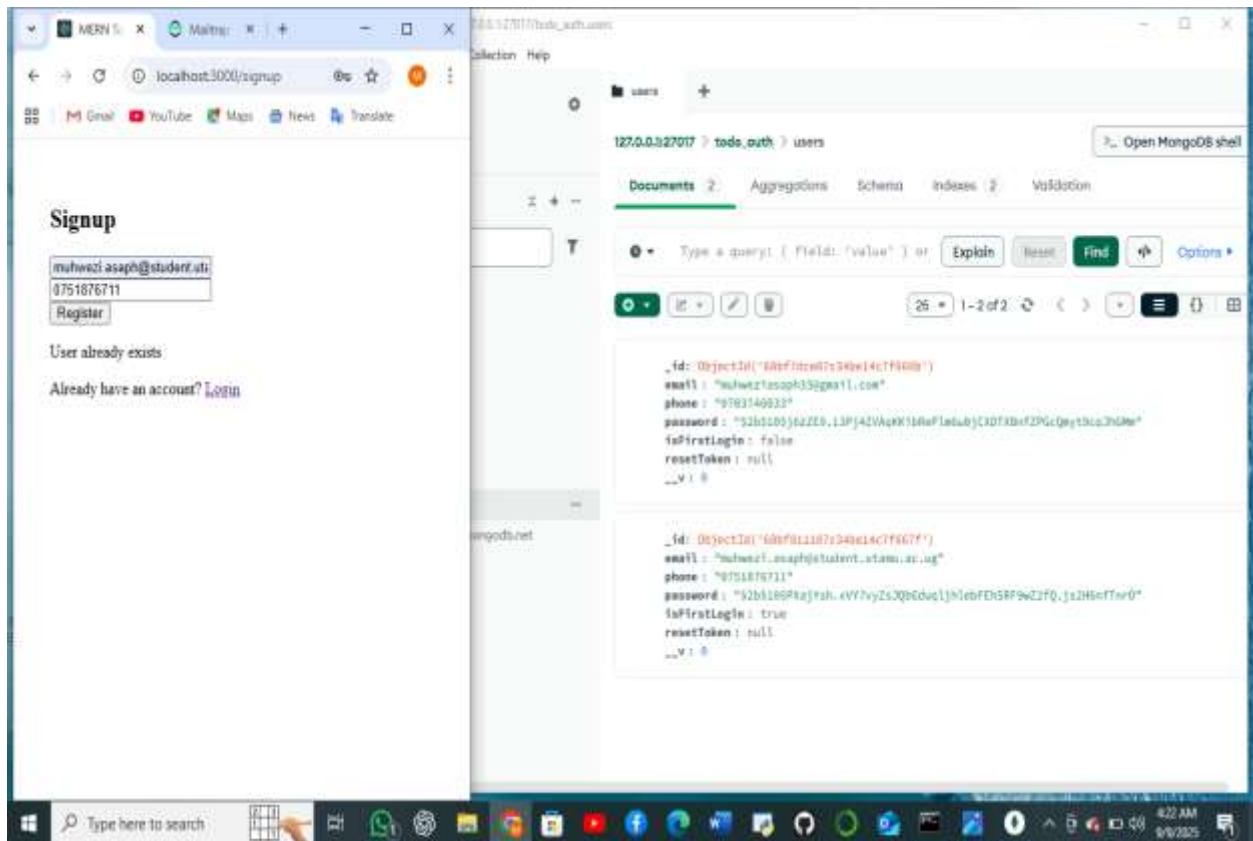


Figure 4 showing a well-functioning app registering new user

DAILY RECORD OF PROGRESS

Week 6 internship at Zentrix Africa Technologies institute

Internship Duration: 30 June 2025 – 18th August 2025

Week covered: Week 6 (04th Aug – 09th August 2025)

Location: National ICT Innovation Hub, Nakawa (Physical) and Online

DAY BY DAY DETAILED BREAKDOWN

Day 1 – Monday, 04th Aug 2025 (Physical)

Activity:

- Create a simple backend API (Node + Express + MongoDB).
- Connect the React frontend (Week 4 To-Do App) with the backend API.
- Test data flow using Axios/Fetch.

Lessons learned:

- How API endpoints serve data to React.
- Understanding CORS and cross-origin requests.


Challenges:

- CORS errors when connecting frontend to backend.
- Managing environment variables (.env).

Recommendation:

- Always test APIs on Postman before connecting with frontend.

I declare that all the information provided is true


Signed by trainee

04/08/2025
Date



Signed by field supervisor



Figure 5 shows screenshot of record of progress day 1

Day 2 Tuesday, 05th Aug 2025 (online)

Activity:

- Create a User model in MongoDB with fields (name, email, password).
- Implement a register route (/api/users/register).
- Hash passwords using bcrypt.js before saving.

Lessons learned:

- Importance of password hashing.
- How to create secure user schemas with validation.

Challenges:

- Validating duplicate emails.
- Handling errors gracefully.

Recommendation:

Use try/catch blocks and proper HTTP status codes.

I declare that all the information provided is true

	<u>05/08/2025</u>		
Signed by trainee	Date	Signed by field supervisor	

Figure 6 shows screenshot of record of progress day 2

Day 3 Wednesday, 06th Aug 2025 (physical)

Activities:

- Introduction to MongoDB.
- Installing and connecting MongoDB with Node.js using Mongoose.

Lessons Learned:

- Understanding NoSQL databases.
- How Mongoose simplifies database interactions.

Challenges:

- Difficulty in installing MongoDB locally.
- Errors in connection strings.

Recommendations:

- Use MongoDB Atlas if local installation fails.
- Double-check database URIs.

I declare that all the information provided is true


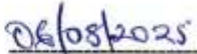


			
Signed by trainee	Date	Signed by field	

Figure 7 shows screenshot of record of progress day 3

Day 4 – Thursday, 07th/ Aug 2025 (online)

Activity:

- Create middleware to verify JWT tokens.
- Protect API routes (e.g., only logged-in users can add/edit data).
- Test with Postman using Authorization: Bearer token.

Lessons learned:

- Role of middleware in Express.
- Importance of securing routes to prevent unauthorized access.

Challenges:

- Handling expired/invalid tokens.

Recommendation:

- Always send meaningful error messages to the frontend.

I declare that all the information provided is true




	07/08/2025		
Signed by trainee	Date	Signed by field supervisor	

Figure 8 shows screenshot of record of progress day 4

Day 5 – Friday, 8th /Aug 2025 (physical)

Activity:

- Create signup & login forms in React.
- Store JWT token after login.
- Fetch user-specific data only if authenticated.

Lessons Learned:

- How frontend uses backend authentication.
- React state management for authentication.

Challenges:

- Redirecting unauthenticated users.

Recommendation:

- Use React Router for private routes.

I declare that all the information provided is true




	<u>08/08/2025</u>		
Signed by trainee	Date	Signed by field supervisor	

Figure 9 shows screenshot of record of progress day 5

Day 6 - Saturday, 09th/Aug 2025(online)

Activity:

- Finalize a **MERN Full stack app**
- Test all CRUD operations + authentication flow.
- Push to GitHub.

Lessons Learned:

- How all MERN technologies integrate.
- Real-world application of full stack skills.

Challenges:

- Debugging errors across both frontend & backend.

Recommendation:

- Keep logs in both frontend & backend for easier debugging.

I declare that all the information provided is true

Student Signature: ASD 09/08/2025

Date

Field supervisor name: Henry TURWOMWE BENJAMIN

Field supervisor signature: Henry



Figure 10 shows screenshot of record of progress day 6

Student Signature: 

Field supervisor name: TURWOMWE BENJAMIN

Field supervisor signature: 
0791 650674



The stamp is a rectangular box with a blue border. Inside, it reads: 'ZENTRIX AFRICA' in bold, 'Technology Institute' below it, the date '18 AUG 2025' in red, and contact information at the bottom: '+256 414 673 086', 'info@zati.africa | www.zati.africa', and 'Plot 9-22 Port Bell Rd, Nakawa, K'la, UG'. There are two stars on either side of the date.

Figure 11 shows screenshot of final page of weekly report with the signature and name of the field supervisor

Below is the link to the repository of internship week 6

<https://github.com/muhweziasaph/Internship-week-6.git>