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DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
(Autonomous College Affiliated to the University of Mumbai)
NAAC ACCREDITED with "A" GRADE (CGPA : 3.18)

DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJS22ITL604 **DATE:**
COURSE NAME: Full Stack Web Development Laboratory **CLASS: TYBTech**

Name: Anish Sharma **Roll no:I011**

EXPERIMENT NO. 08

CO/LO: CO1-Develop a full stack web application.

AIM / OBJECTIVE: Deploy the completed MERN stack project to a chosen hosting service (e.g., Heroku, Netlify, Render, Vercel).

THEORY:

Deploying a full-stack web application involves making the application accessible on the internet. The MERN stack (MongoDB, Express.js, React.js, Node.js) requires deployment of both backend and frontend, along with database configuration. Proper deployment ensures scalability, accessibility, and continuous availability of applications.

Technologies/Platforms Used:

- Frontend Hosting: Netlify / Vercel
- Backend Hosting: Render / Railway / Heroku
- Database: MongoDB Atlas
- Version Control: Git & GitHub

Step 1: Prepare the MERN Application for Deployment

1. Ensure both frontend and backend are fully functional locally.
2. Connect backend to MongoDB Atlas (cloud-based database).
3. Add the production build script in frontend package.json:

```
"scripts": {
  "start": "react-scripts start",
  "build": "react-scripts build"
```

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}

Step 2: Deploy Backend (Express.js) to Render (or Heroku)

1. **Create GitHub Repository and push backend code.**

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2. **Create Procfile (for Heroku users)** web: node server.js

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3. **Environment Variables**:
   - Create .env file for sensitive data like database URL and port.
   - Example

     MONGODB_URI=your_mongodb_atlas_url PORT=5000

4. **Update server.js to use environment variables.** const PORT = process.env.PORT || 5000;
   app.listen(PORT, () => console.log(`Server running on port ${PORT}`));

5. **Render Deployment:** Go to https://render.com

   Create a new Web Service > Connect GitHub Repo > Select branch

   Add environment variables

   Deploy

Step 3: Deploy Frontend (React.js) to Netlify/Vercel

1. **Build React App** cd frontend npm

   run build

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2. **Netlify Deployment:** Visit

   https://netlify.com

   Import GitHub Repo or drag and drop /build folder

   Set build directory

   Set environment variables if API URLs are dynamic

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3. **Vercel Deployment (Alternative):**

   Visit https://vercel.com

   Connect to GitHub

   Set Root Directory as frontend

   Set environment variables

Step 4: Connect Frontend to Deployed Backend

• In frontend, change API URLs to deployed backend URL.

- Use .env in frontend for dynamic URLs:

  REACT_APP_API_URL=https://your-backend-url.onrender.com/api

- Access API in code: axios.post(`${process.env.REACT_APP_API_URL}/users/register`, data);

Step 5: Test Deployed App

- Visit deployed frontend URL.

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- Register user via form.
- Check backend receives data and database stores it.

Code:

Server.js

```
const express=require('express') const
cors=require('cors') const
colors=require('colors') const
dotenv=require('dotenv').config()
const connectDB=require('./config/db')
```

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```
const {errorHandler}=require('./middleware/errorMiddleware')
const PORT =process.env.PORT ||8000 connectDB() const
app=express() app.use(cors({
   origin: 'https://fs2010.netlify.app', // Replace with your frontend's origin
methods: 'GET,POST,PUT,DELETE',     allowedHeaders: 'Content-
Type,Authorization', // Include 'Authorization' here
  }));
app.use(function(req, res, next) {     res.header("Access-Control-Allow-
Origin", "https://fs2010.netlify.app");
```

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```
   res.header("Access-Control-Allow-Headers", "Origin, X-Requested-With, Content-Type,
Accept");     next(); });
app.use(express.json())
app.use(express.urlencoded({ extended: false }))
app.get('/',(req,res)=>{
   res.status(200).json({message:'Welcome to the Support Desk Api'})
})
app.use('/api/users',require('./routes/userRoutes'))
app.use('/api/tickets',require('./routes/ticketRoutes'))
app.use(errorHandler)
app.listen(PORT,()=>{console.log(`Server Started on port ${PORT}`)})
```

COURSE CODE: DJS22ITL604 DATE: frontend

```
import axios from 'axios' const API_URL='https://ticket-
backend-8.onrender.com/api/users'
//Register user
const register=async(userData)=>{     const response =
await axios.post(API_URL,userData)
if(response.data)
   {
      localStorage.setItem('user',JSON.stringify(response.data))
   }
   return response.data
```

```
}
const login=async(userData)=>{
   const response = await axios.post('https://ticket-backend-
8.onrender.com/api/users/login',userData)
console.log(response.data)     if(response.data)
   {
      localStorage.setItem('user',JSON.stringify(response.data))
   }
   return response.data
}
//Logout user
const logout=()=>localStorage.removeItem('user') const
authService={
```



```
register,     logout,login
}
export default authService

import axios from 'axios' const API_URL='https://ticket-backend-
7.onrender.com/api/tickets'
//Create new Ticket
```

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```
const createTicket = async (ticketData,token) => {
const config = {            headers: {
            Authorization: `Bearer ${token}`,
        },
    };
    const response = await axios.post(API_URL,ticketData,config);
return response.data;
  }
const ticketService={
createTicket
}
export default ticketService
```

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Output:

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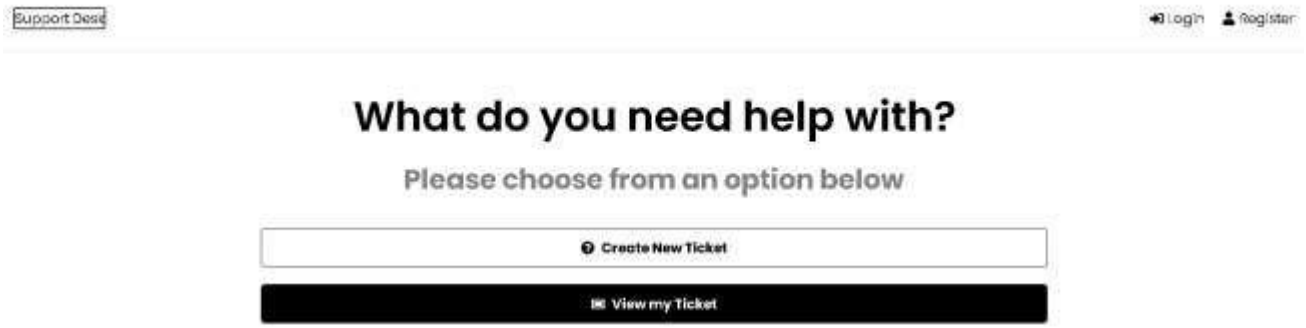

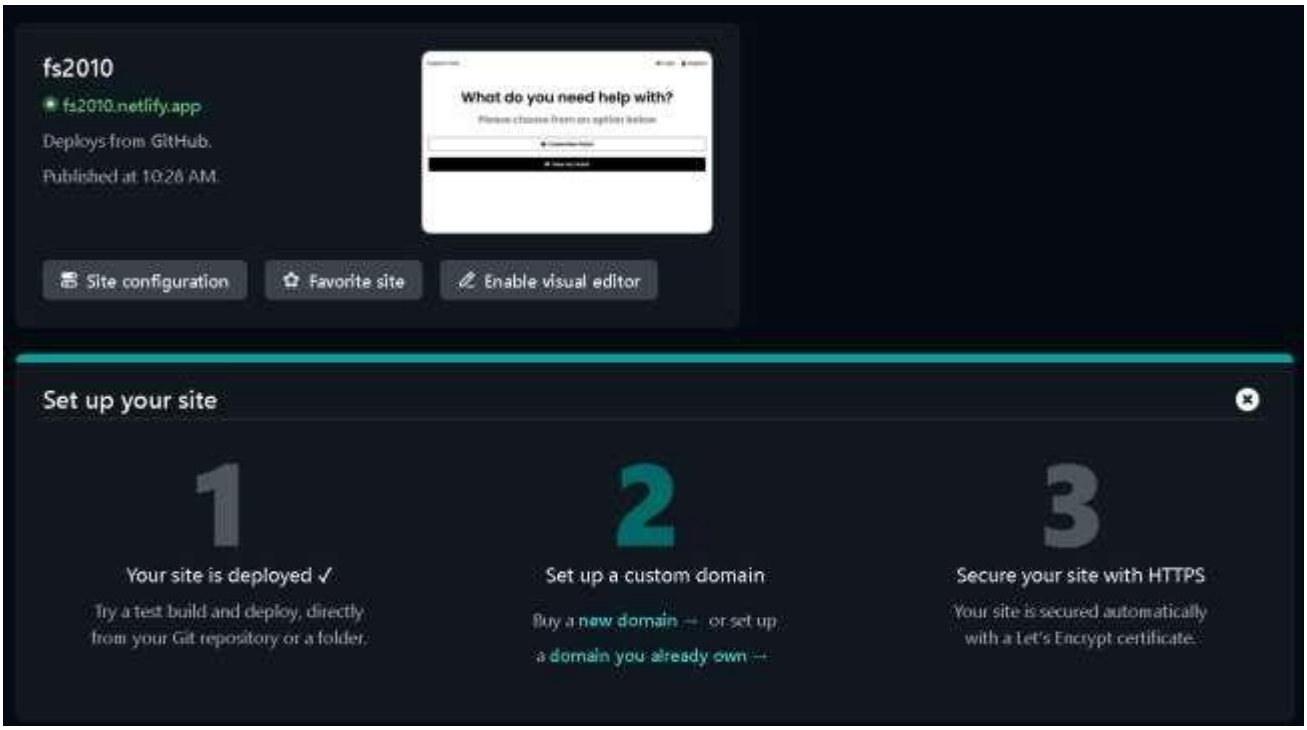

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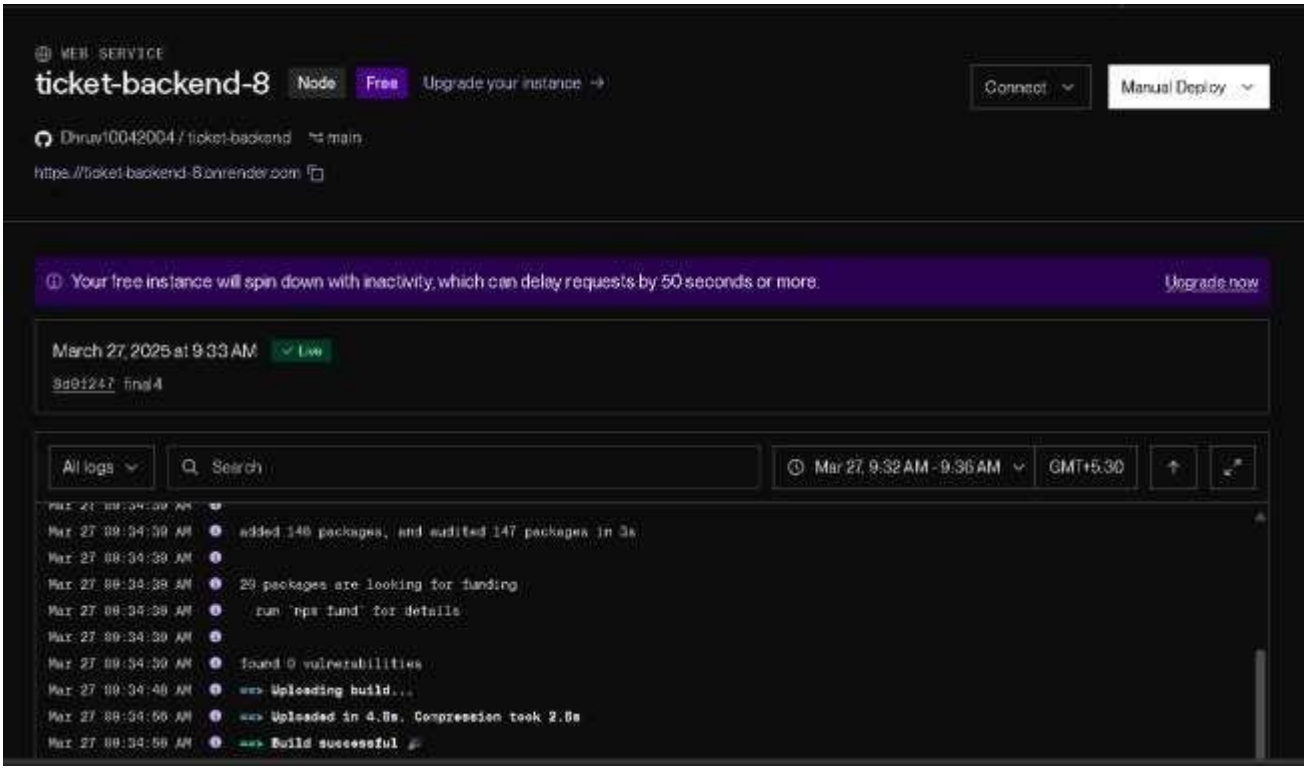

Conclusion: Successfully deployed the site.

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BOOKS AND WEB RESOURCES:

- React Documentation
- Express.js Guide
- Render Hosting Guide

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- Netlify Deployment

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- MongoDB Atlas
- YouTube Guide: Deploy MERN App

WRITE-UP QUESTIONS:

1. Why is input validation necessary in both frontend and backend?
2. What is the purpose of error handling middleware in Express.js?
3. How can security be improved further in this application?