# TravelMemory Application Deployment Documentation

## 1. Introduction

This document provides a step-by-step guide to deploying the **TravelMemory** application on an **AWS EC2 instance** using the **MERN stack** (MongoDB, Express, React, Node.js). The deployment includes:

- Setting up the **backend** (Node.js).
- Configuring the **frontend** (React).
- Ensuring proper communication between the frontend and backend.
- Setting up **load balancing** for high availability.
- Connecting the custom domain manjyyot.online through **Cloudflare**.

## 2. Prerequisites

Ensure that the following tools and resources are available:

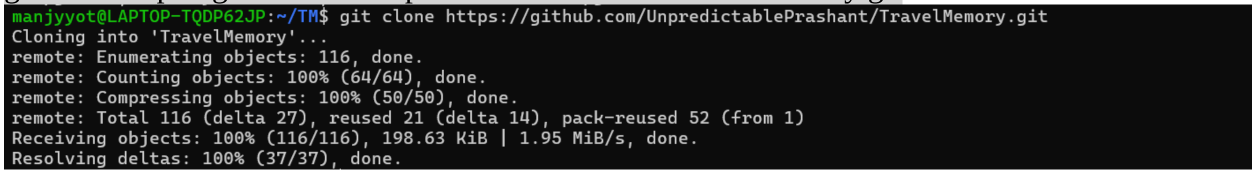
- **AWS Account** (for EC2, Load Balancer, etc.)
- **Cloudflare Account** (for domain management).
- **Git** (to clone the repository).
- **Nginx** (for reverse proxy).
- **Node.js & NPM** (for the backend).
- **MongoDB Atlas** (or local MongoDB setup).
- **Custom Domain (manjyyot.online)** registered and linked with Cloudflare.

## 3. Backend Configuration

### Step 1: Clone the Repository

Clone the TravelMemory repository from GitHub:

```
git clone https://github.com/UnpredictablePrashant/TravelMemory.git
```



```
manjyyot@LAPTOP-TQDP62JP:~/TM$ git clone https://github.com/UnpredictablePrashant/TravelMemory.git
Cloning into 'TravelMemory'...
remote: Enumerating objects: 116, done.
remote: Counting objects: 100% (64/64), done.
remote: Compressing objects: 100% (50/50), done.
remote: Total 116 (delta 27), reused 21 (delta 14), pack-reused 52 (from 1)
Receiving objects: 100% (116/116), 198.63 KiB | 1.95 MiB/s, done.
Resolving deltas: 100% (37/37), done.
```

Navigate to the backend directory:

```
cd Travelmemory/backend
```

### Step 2: Install Dependencies

Install the required dependencies:

```
npm install
```

**Step 3: Set up Environment Variables**

Create a .env file in the root of the backend directory with the following content:

```
nano .env
```

Contents for the .ev file:

```
PORT=3000
MONGO_URI='mongodb+srv://manjyotsinghchaudhary:Xs7AnsL6bDfhirvy@travelbackend.qy
czv.mongodb.net/'
```

This connects the backend to MongoDB and sets the backend to run on port 3000.

**Step 4: Set Up Nginx Reverse Proxy**

Install Nginx on the EC2 instance:

```
sudo apt update
sudo apt install nginx
```

Create an Nginx configuration file for the backend:

```
sudo nano /etc/nginx/sites-available/travelmemory
```

Add the following configuration to proxy requests to the backend:

Nginx file content:

```
server {
    listen 80;

    server_name manjyyot.online;
{
        proxy_pass http://34.236.65.214:3000;  # Backend running on port 3000 on the public ip4
address of the EC2 instance
        proxy_http_version 1.1;
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection 'upgrade';
        proxy_set_header Host $host;
        proxy_cache_bypass $http_upgrade;
    }
}
```

Restart Nginx:

```
sudo systemctl restart nginx
```

**4. Frontend and Backend Connection**

**Step 1: Update urls.js**

Navigate to the frontend directory:

```
cd frontend/src
```

Update the urls.js file to ensure the frontend communicates with the backend (EC2 public IP or load balancer URL):

```
const baseUrl = "http:// 34.236.65.214:3000"; // Replace with the correct IP or load balancer endpoint
```

**5. Scaling the Application**

**Step 1: Launch EC2 Instances**

Launch at least two EC2 instances: one for the frontend and one for the backend.

**Step 2: Set Up Load Balancer**

- Go to **EC2 > Load Balancers** in the AWS Management Console.
- Create an **Application Load Balancer (ALB)**.
- Add both EC2 instances (frontend and backend) to the target group of the load balancer.

**Step 3: Configure Auto Scaling**

- Set up an **Auto Scaling Group** for both frontend and backend instances to automatically scale based on traffic.

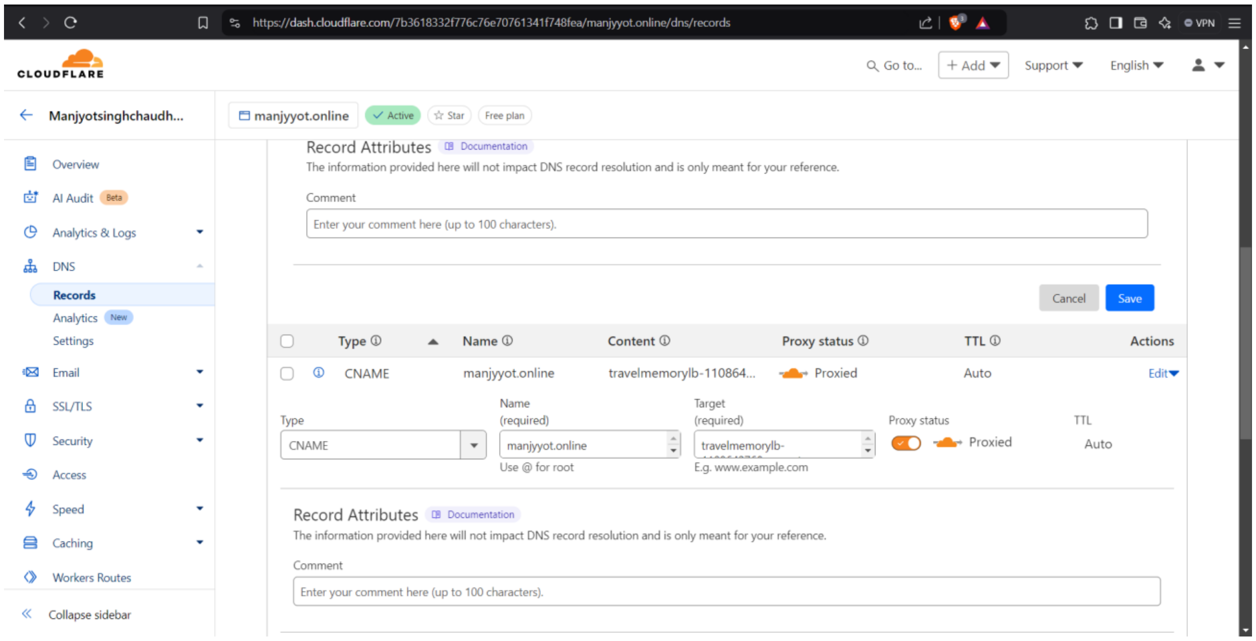
**6. Domain Setup with Cloudflare**

**Step 1: Add Your Domain to Cloudflare**

- Log in to Cloudflare.
- Add your domain (manjyyot.online) to Cloudflare if not already done.

**Step 2: Configure DNS Records**

**CNAME Record** for the load balancer:


https://dash.cloudflare.com/7b3618332f776c76e70761341f748fea/manjyyot.online/dns/records

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| | Type | Name | Content | Proxy status | TTL | Actions |
|---|---|---|---|---|---|---|
| | CNAME | manjyyot.online | travelmemorylb-110864... | Proxied | Auto | Edit |

Type: CNAME
Name (required): manjyyot.online — Use @ for root
Target (required): travelmemorylb- — E.g. www.example.com
Proxy status: Proxied
TTL: Auto

Record Attributes Documentation

The information provided here will not impact DNS record resolution and is only meant for your reference.

Comment

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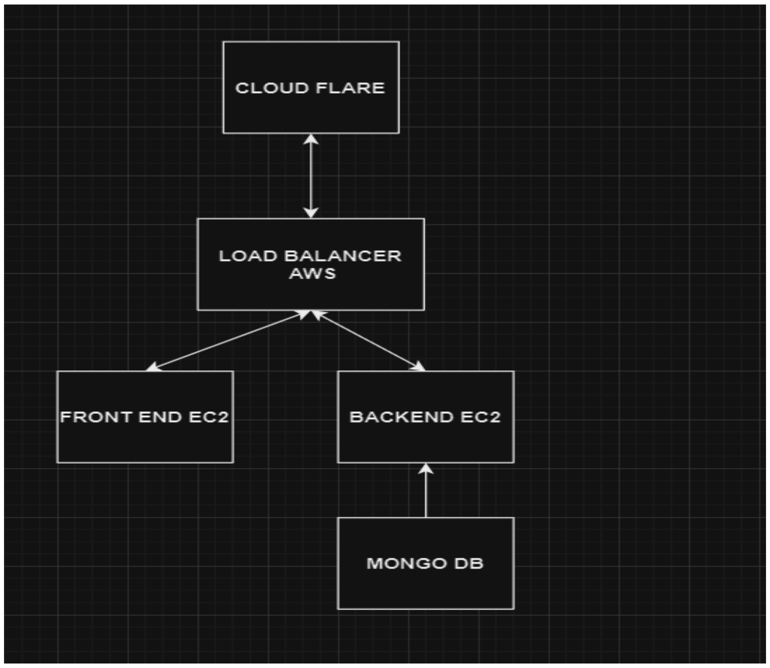
## 7. Deployment Architecture Diagram



## 8. Conclusion

In this guide, we have successfully deployed the **TravelMemory** full-stack application on **AWS EC2**, set up a **reverse proxy** with **Nginx**, scaled the application using a **load balancer**, and connected the custom domain manjyyot.online via **Cloudflare**. These steps ensure high availability, security, and scalability of the application.