

Fun Facts About Every Country

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Introduction

This project involves creating a website that displays one fun fact about every country in the world. The website is hosted on AWS using Ubuntu as the server, and SSL is configured using Let's Encrypt for secure browsing. The website dynamically loads country data and allows users to explore fun facts about each country in an interactive and engaging way.

Technologies Used:

- HTML, CSS, and JavaScript for the front-end
- AWS EC2 (Ubuntu) for hosting
- Apache web server
- SSL/TLS encryption with Let's Encrypt.

Project Requirements

- The website should display one fun fact for each country.
- The website should be mobile-friendly.

- SSL/TLS encryption should be implemented for secure browsing.
- The website should be deployed on an AWS EC2 instance with Ubuntu and Apache.
- DNS should be set up for the website domain (funfactcountries.space).
- GitHub repository with code should be provided for review.

Design and Architecture

The website is composed of three main files:

- index.html: The HTML file for the structure of the webpage.
- style.css: The CSS file for the website's styling.
- script.js: The JavaScript file for dynamic behavior.

The front-end is designed to be responsive, ensuring a good user experience on both desktop and mobile devices. The country data is dynamically displayed using JavaScript, which fetches the data from an API or a static source.

The server is hosted on an AWS EC2 instance running Ubuntu. Apache is used as the web server to serve the website. SSL encryption is implemented using Let's Encrypt to ensure secure communication between the user and the server.

Implementation

1. Website Structure (index.html):

The main structure of the website is created using HTML. The layout includes:

- A header with the website title.
- An area to display the country fact.

The page is styled using external CSS (`style.css`).

2. Styling (style.css):

The styling ensures that the website is visually appealing and mobile-friendly. The page layout is responsive, and the button is clearly visible and interactive.

3. JavaScript Logic (script.js):

The `script.js` file contains logic for fetching and displaying the country, the flag and the fun fact.

The interaction is handled using event listeners to ensure smooth user interaction.

4. Server Setup:

The website is deployed on an AWS EC2 instance running Ubuntu. Apache is configured to serve the website files. The website is accessible through the domain `funfactcountries.space`, and SSL encryption is set up using Let's Encrypt.

5. Security (SSL/TLS):

SSL/TLS is enabled on the server to ensure that the website is served over HTTPS. This provides encryption for user interactions and helps protect user data.

Deployment

1. AWS EC2 Setup (Ubuntu)

Instance Configuration

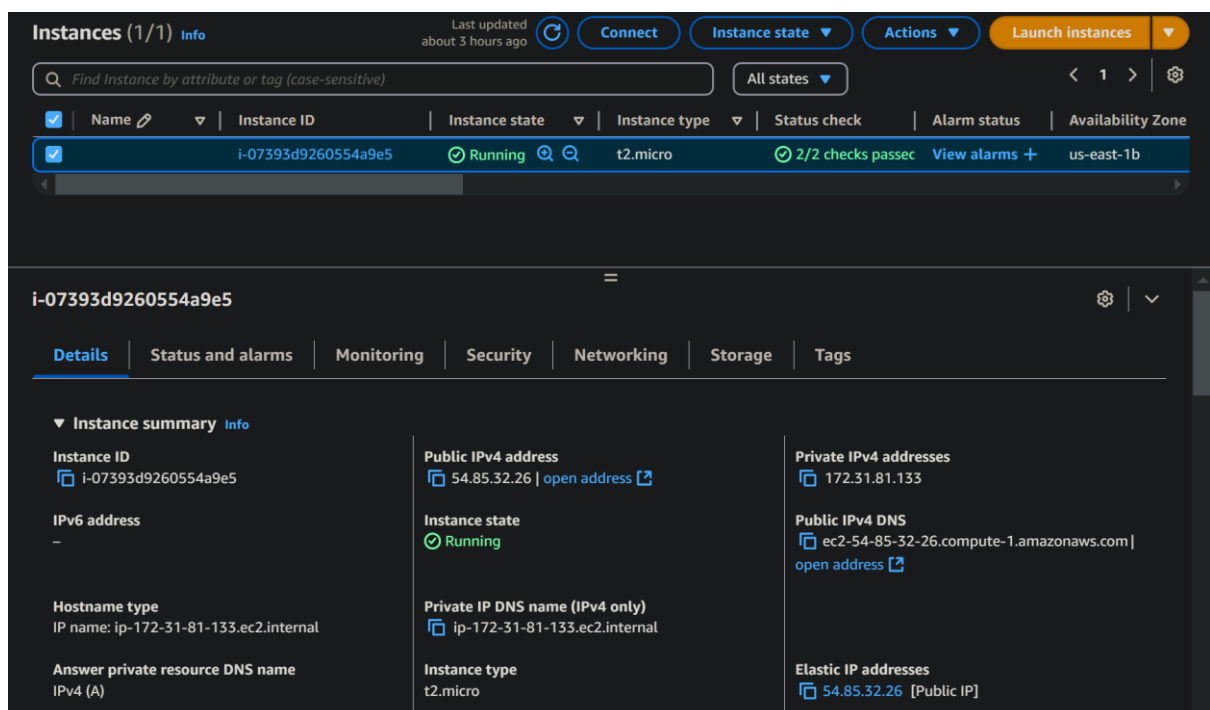
- **AMI:** *Ubuntu 22.04 LTS*
- **Instance Type:** t2.micro (1 vCPU, 1GB RAM)

- **Security Group:**
 - **Inbound Rules:**
 - HTTP (80), HTTPS (443), SSH (22)

SSH Connection

`chmod 400 ~/Downloads/a.pem`

`ssh -i ~/Downloads/a.pem ubuntu@54.85.32.26`



2. Apache2 Web Server Setup

Installation & Startup

`sudo apt update && sudo apt upgrade -y`

`sudo apt install apache2 -y`

`sudo systemctl start apache2`

`sudo systemctl enable apache2`

```
adel@adel-virtualbox:~$ sudo certbot certificates
[sudo] password for adel:
Saving debug log to /var/log/letsencrypt/letsencrypt.log

-----
Found the following certs:
Certificate Name: funfactcountries.space
Serial Number: 6fa8b648f1f264f96c26b131c5cc371d78f
Key Type: ECDSA
Domains: funfactcountries.space www.funfactcountries.space
Expiry Date: 2025-07-05 19:11:56+00:00 (VALID: 89 days)
Certificate Path: /etc/letsencrypt/live/funfactcountries.space/fullchain.pem
Private Key Path: /etc/letsencrypt/live/funfactcountries.space/privkey.pem
```

Upload Website Files

1. Transfer via SCP:

scp -i ~/Downloads/a.pem website.tar.gz [ubuntu@54.85.32.26:~](#)

2. Deploy on Server:

```
sudo mv ~/website.tar.gz /var/www/html
```

```
cd /var/www/html
```

```
sudo tar -xvzf website.tar.gz
```

```
sudo chown -R www-data:www-data /var/www/html
```

```
sudo chmod -R 755 /var/www/html
```

3. Cloudflare + SSL Setup

1. Domain Configuration:

- Cloudflare **A record**: funfactcountries.space → 54.85.32.26.

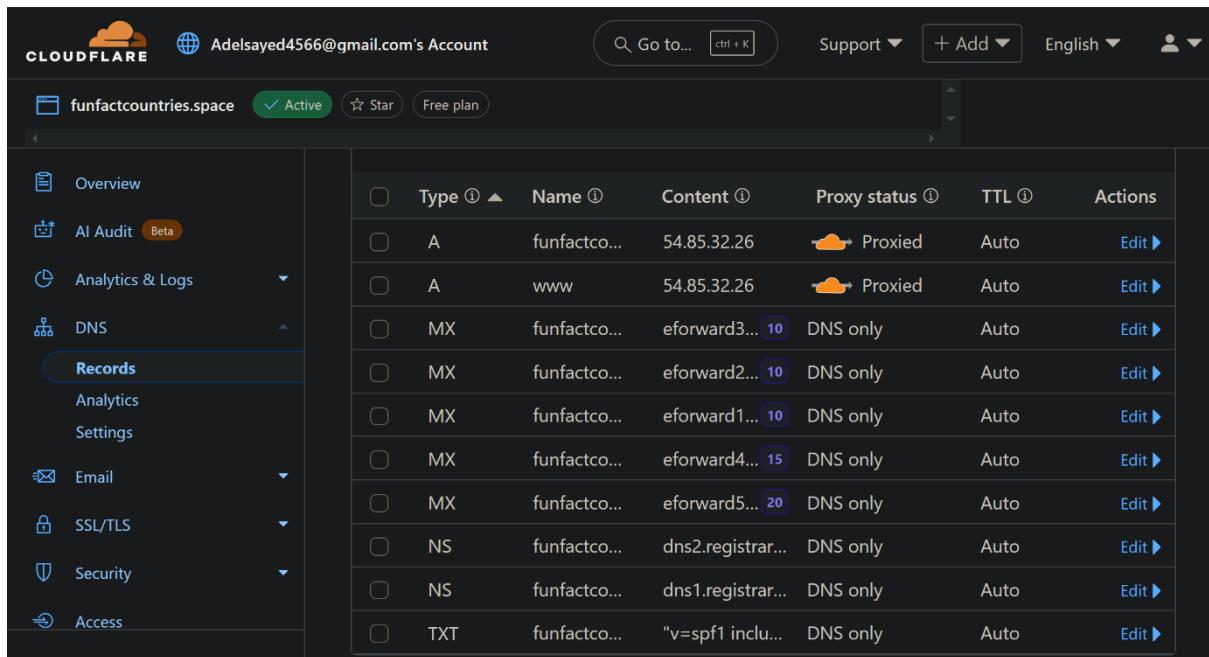
2. HTTPS with Let's Encrypt:

```
sudo apt install certbot python3-certbot-apache -y
```

```
sudo certbot --apache -d funfactcountries.space
```

- Auto-renewal:

sudo systemctl enable certbot.timer



The screenshot shows the Cloudflare dashboard for the domain funfactcountries.space. The left sidebar contains navigation links: Overview, AI Audit (Beta), Analytics & Logs, DNS, Records (selected), Analytics, Settings, Email, SSL/TLS, Security, and Access. The main content area displays a table of DNS records.

Type	Name	Content	Proxy status	TTL	Actions
A	funfactco...	54.85.32.26	Proxied	Auto	Edit
A	www	54.85.32.26	Proxied	Auto	Edit
MX	funfactco...	eforward3...10	DNS only	Auto	Edit
MX	funfactco...	eforward2...10	DNS only	Auto	Edit
MX	funfactco...	eforward1...10	DNS only	Auto	Edit
MX	funfactco...	eforward4...15	DNS only	Auto	Edit
MX	funfactco...	eforward5...20	DNS only	Auto	Edit
NS	funfactco...	dns2.registrar...	DNS only	Auto	Edit
NS	funfactco...	dns1.registrar...	DNS only	Auto	Edit
TXT	funfactco...	"v=spf1 inclu...	DNS only	Auto	Edit

4. Verification

- **Website Live:**

- <http://funfactcountries.space>
- <http://54.85.32.26>

- **Security Checks:**

- SSL Test: [SSL Labs](#)
- Apache Status: `sudo systemctl status apache2`

```
adel@adel-virtualbox:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Mon 2025-04-07 20:47:18 +04; 2min 5s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 1188 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
    Main PID: 1235 (apache2)
      Tasks: 55 (limit: 2261)
     Memory: 9.5M (peak: 9.8M)
        CPU: 186ms
    CGroup: /system.slice/apache2.service
            └─1235 /usr/sbin/apache2 -k start
              └─1239 /usr/sbin/apache2 -k start
                └─1240 /usr/sbin/apache2 -k start

20:47:17 07 أبريل adel-virtualbox systemd[1]: Starting apache2.service - The Apache HTTP Server...
20:47:18 07 أبريل adel-virtualbox systemd[1]: Started apache2.service - The Apache HTTP Server.
```

Reference

References

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