DEPARTMENT OF COMPUTER ENGINEERING

SIES GRADUATE SCHOOL OF TECHNOLOGY
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DEVOPS SDP PROJECT REPORT

on

"DEPLOYING A STATIC WEBSITE ON EC2 INSTANCE IN GOOGLE CLOUD"

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ABSTRACT

This project aims to demonstrate the deployment of a static website on an Elastic Compute Cloud (EC2) instance within the Google Cloud Platform (GCP). As cloud computing continues to evolve, efficient web hosting solutions become imperative for businesses and individuals alike. The utilization of EC2 instances in Google Cloud offers a scalable, reliable, and cost-effective solution for hosting static websites. This abstract provides a brief overview of the project's objectives, methodologies, and key findings, emphasizing the significance of deploying static websites on EC2 instances in the context of modern cloud computing.

In addition to the core objectives of deploying a static website on an EC2 instance in Google Cloud, this project seeks to address the growing need for efficient and scalable web hosting solutions in an era dominated by dynamic content. The abstract underscores the significance of static websites as a lightweight, high-performance alternative, showcasing the relevance of such deployments in the face of increasing demand for fast and reliable online experiences. The project's findings not only highlight the technical aspects of deployment but also shed light on the economic and environmental advantages associated with utilizing cloud resources for hosting static content.

INTRODUCTION

The advent of cloud computing has revolutionized the way we host and manage websites, and the selection of an appropriate hosting environment plays a crucial role. This project delves into the deployment of a static website on an EC2 instance within Google Cloud, a platform known for its robust infrastructure and extensive services. In an era where scalability, reliability, and cost-efficiency are paramount, the choice of EC2 instances in Google Cloud becomes a compelling solution. This introduction sets the stage for exploring the intricacies of deploying static websites on EC2 instances, highlighting the project's significance in addressing the growing demand for efficient web hosting solutions.

As digital landscapes continue to evolve, the introduction delves deeper into the broader context of cloud computing trends and their transformative impact on traditional web hosting paradigms. Emphasizing the paradigm shift towards cloud-native solutions, this section explores the reasons behind choosing Google Cloud as the hosting platform and delves into the unique features that make EC2 instances a preferred choice. The introduction also briefly touches on the project's relevance to industries ranging from e-commerce to informational websites, setting the stage for an exploration of the intricacies of static website deployment on EC2 instances within Google Cloud's versatile infrastructure. This section aims to provide readers with a holistic understanding of the evolving web hosting landscape and the specific challenges addressed by the project.

SYSTEM DESIGN

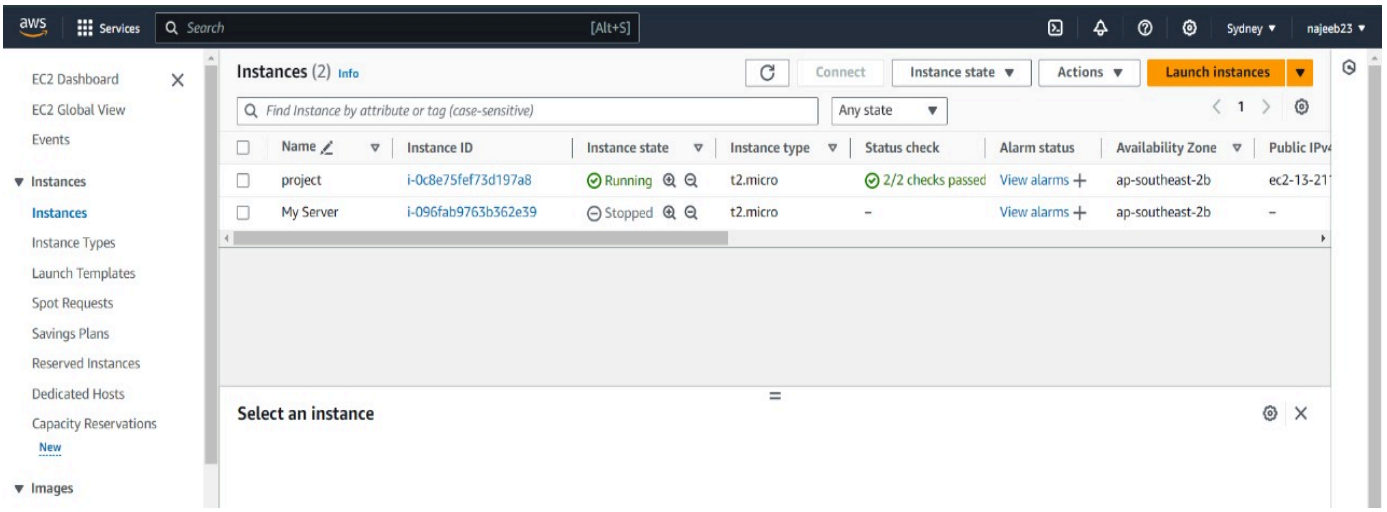
CODE:

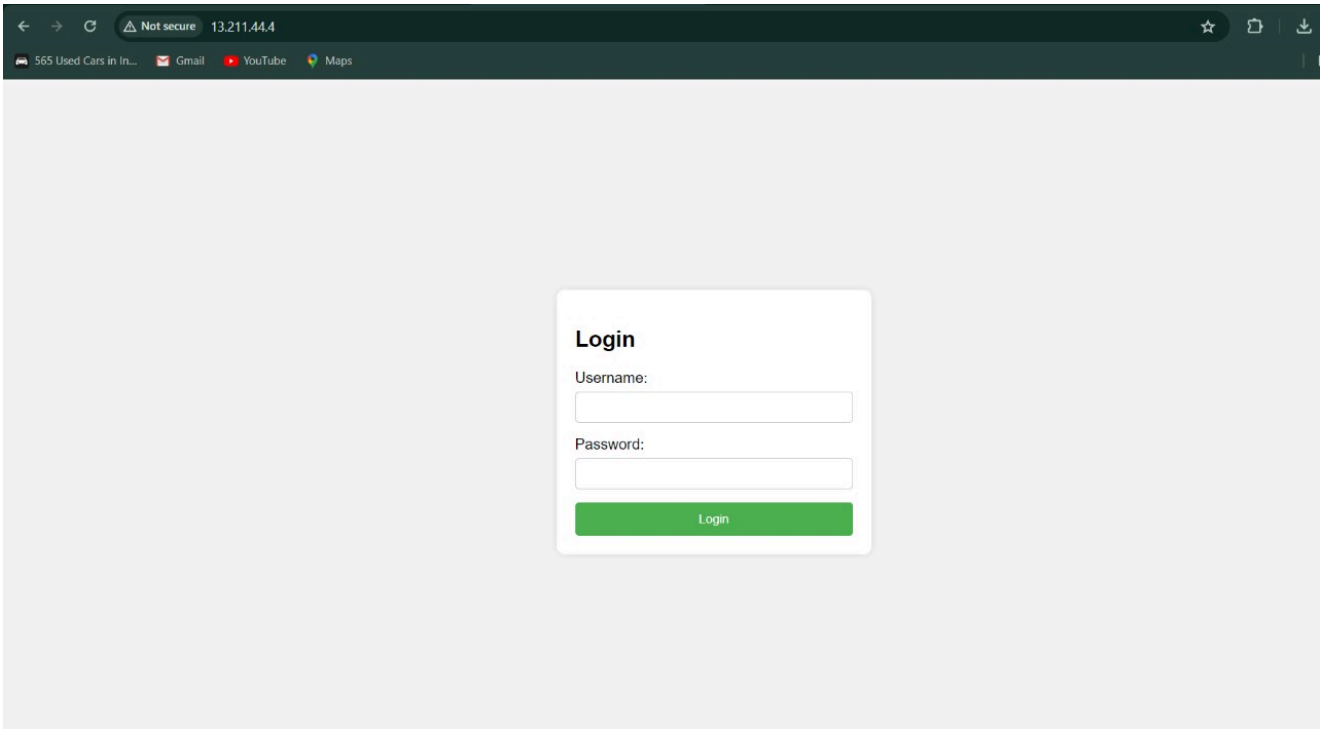
```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Login Page</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            background-color: #f4f4f4;
            margin: 0;
            padding: 0;
            display: flex;
            justify-content: center;
            align-items: center;
            height: 100vh;
        }

        .container {
            background-color: #fff;
            padding: 20px;
            border-radius: 8px;
            box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
```

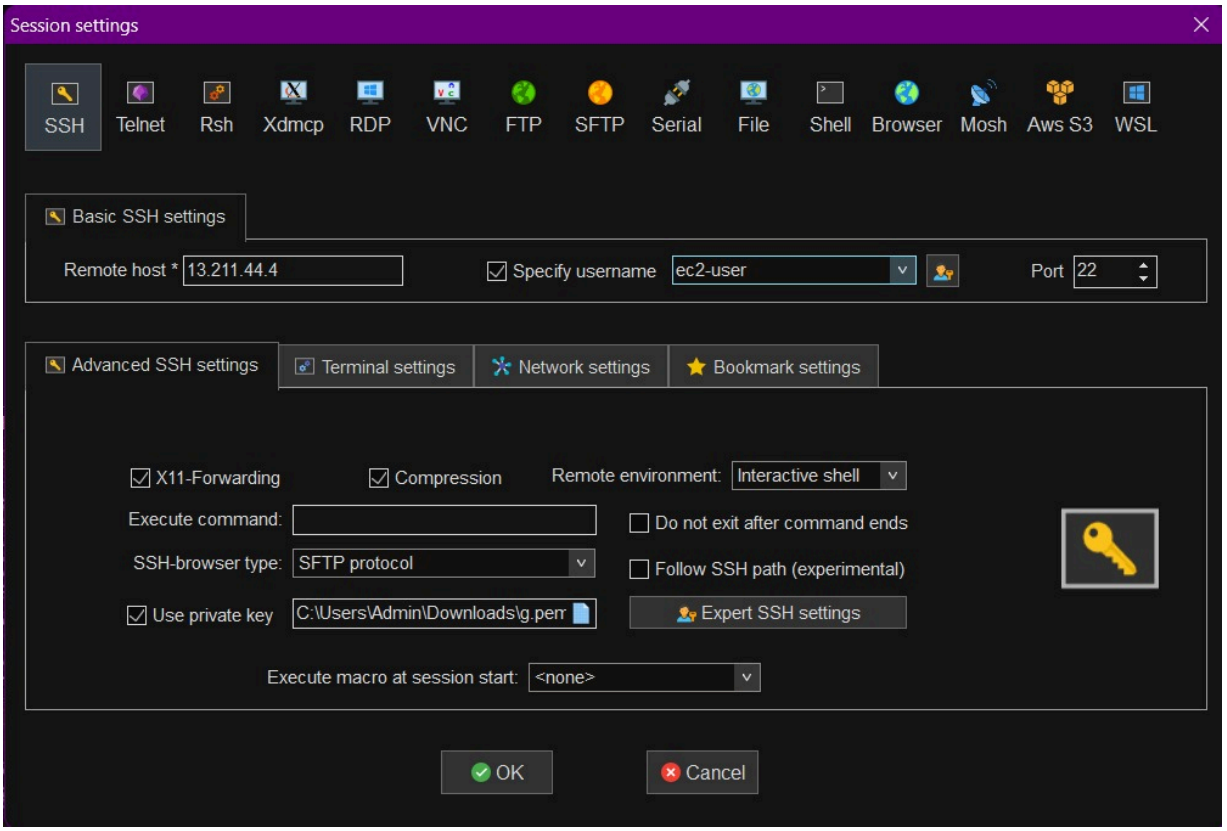
```
    width: 300px;
}

.form-group {
    margin-bottom: 15px;
}

label {
    display: block;
    margin-bottom: 5px;
}

input {
    width: 100%;
    padding: 8px;
    box-sizing: border-box;
    border: 1px solid #ccc;
    border-radius: 4px;
}

button {
    background-color: #4caf50;
    color: #fff;
    padding: 10px;
    border: none;
    border-radius: 4px;
    cursor: pointer;
```

```
            width: 100%;
        }

        button:hover {
            background-color: #45a049;
        }
    </style>
</head>
<body>
    <div class="container">
        <h2>Login</h2>
        <form>
            <div class="form-group">
                <label for="username">Username:</label>
                <input type="text" id="username" name="username" required>
            </div>
            <div class="form-group">
                <label for="password">Password:</label>
                <input type="password" id="password" name="password" required>
            </div>
            <button type="submit">Login</button>
        </form>
    </div>
</body>
</html>
```

SNAPSHOTS


aws
Services
Search
[Alt+S]
Sydney
najeeb23
EC2 Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
New
Images
Instances (2) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
Any state
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4
project
i-0c8e75fef73d197a8
Running
t2.micro
2/2 checks passed
View alarms
ap-southeast-2b
My Server
i-096fab9763b362e39
Stopped
t2.micro
View alarms
ap-southeast-2b
Select an instance


Not secure
13.211.44.4
565 Used Cars in In...
Gmail
YouTube
Maps
Login
Username:
Password:
Login


Session settings
SSH
Telnet
Rsh
Xdmcp
RDP
VNC
FTP
SFTP
Serial
File
Shell
Browser
Mosh
Aws S3
WSL
Basic SSH settings
Remote host * 13.211.44.4
Specify username
ec2-user
Port 22
Advanced SSH settings
Terminal settings
Network settings
Bookmark settings
X11-Forwarding
Compression
Remote environment: Interactive shell
Execute command:
Do not exit after command ends
SSH-browser type: SFTP protocol
Follow SSH path (experimental)
Use private key
C:\Users\Admin\Downloads\g.pem
Expert SSH settings
Execute macro at session start: <none>
OK
Cancel

FUTURE SCOPE

While the current project successfully demonstrates the deployment of a static website on an EC2 instance in Google Cloud, there exist avenues for future enhancements and optimizations. Potential improvements may include the integration of additional features, optimization of performance, or exploration of other cloud services to enhance scalability and flexibility. This section discusses the future scope of the project, outlining possibilities for refinement and expansion, and acknowledges the dynamic nature of cloud computing technologies.

- **Dynamic Content Integration:** While the current project focuses on deploying static websites, future iterations can explore the integration of dynamic content. This involves incorporating server-side scripting languages or backend frameworks to enhance website interactivity, paving the way for more versatile web applications.
- **Auto-scaling Strategies:** Investigating and implementing auto-scaling strategies could further optimize resource utilization. This would allow the system to automatically adjust the number of EC2 instances based on varying traffic loads, ensuring optimal performance during peak times and cost-efficiency during periods of lower demand.

CONCLUSION

In conclusion, this project successfully achieved its objectives by deploying a static website on an EC2 instance within the Google Cloud Platform. The endeavor highlighted the importance of leveraging EC2 instances for web hosting, offering scalability, reliability, and cost-effectiveness. Challenges faced during the deployment process were addressed, contributing to a comprehensive understanding of hosting static content on cloud infrastructure. This conclusion reflects on the project's success and its broader implications in the realm of cloud computing, underscoring the significance of efficient web hosting solutions for the evolving digital landscape.

REFERENCES

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- https://www.softwareadvice.com/iaas-solutions/google-cloud-platform-profile/vs/hostinger/
- https://youtu.be/_LIuNAu5Ktc?si=rfS1U2lqsucf-dVp