SIBA CAMPUS
SRI LANKA INTERNATIONAL BUDDHIST ACADEMY
(Higher Educational Institute of Sri Dalada Maligawa)
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IT 246 - CLOUD COMPUTING

SUBMITTED BY

D.A.I.M.DASANAYAKE

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PALLEKELE

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ABSTRACT

This case study delves into establishing a personal blog using Amazon Web Services (AWS), employing an EC2 instance for hosting and an S3 bucket for storing and delivering static content. It illustrates the setup process, including IAM role creation, EC2 instance launch and setup, and Apache web server installation. Furthermore, it outlines the creation and setup of an S3 bucket for streamlined file storage. This guide equips users with fundamental web development and server management skills to deploy a functional personal blog, capitalizing on AWS's scalability, reliability, and seamless integration capabilities. Ultimately, it offers a robust and economical solution for sharing personal content.

INTRODUCTION

This case study walks you through creating a personal blog on AWS, offering a dependable and scalable method for sharing your ideas and stories online. It covers setting up a blog hosted on an EC2 instance, with images and static files served from an S3 bucket. By following these instructions, you'll configure your AWS environment, install and configure a web server, set up an S3 bucket, and deploy a basic HTML website. Geared towards individuals with basic web development and server management skills, this project provides practical exposure to AWS's robust and effective infrastructure.

SET UP THE AWS ENVIRONMENT

Establishing the AWS environment marks the initial phase in hosting a personal blog on an EC2 instance while serving static files from an S3 bucket. This involves creating an IAM role and launching an EC2 instance.

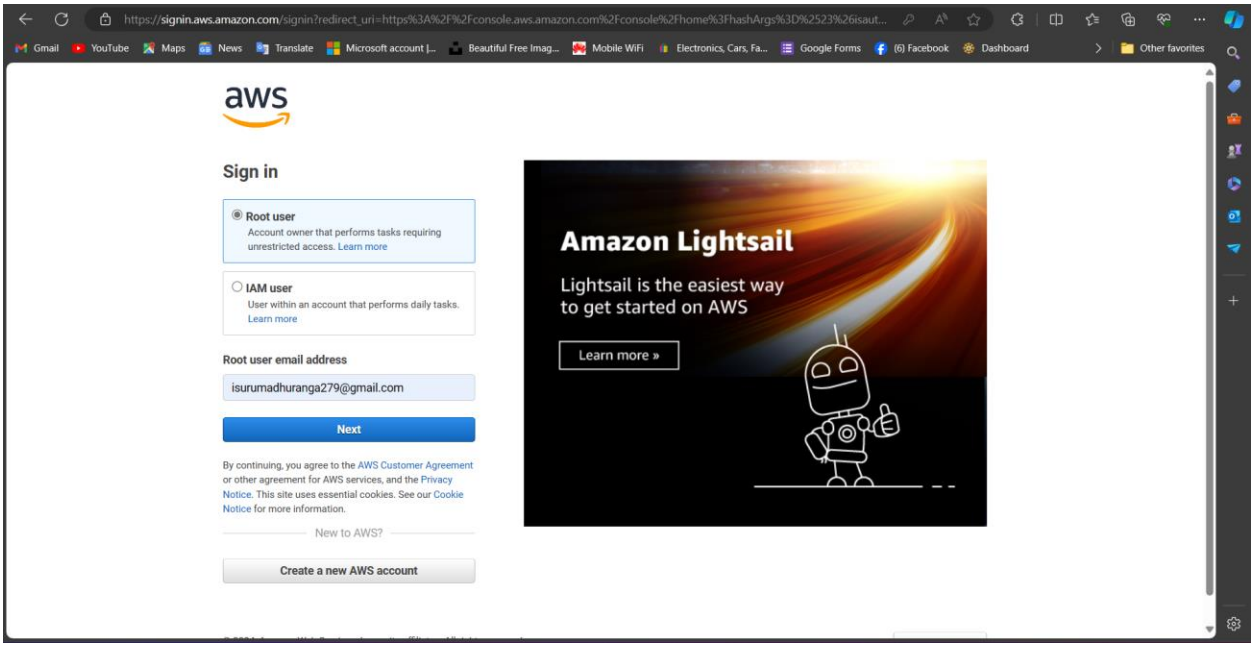
IAM assumes a pivotal role in securely managing access to AWS services and resources. Crafting an IAM role tailored for EC2 instances ensures the instance possesses the requisite permissions to interact with other AWS services, notably S3. This role facilitates EC2 instance access to the S3 bucket housing static files like images.

The launch of an EC2 instance forms the bedrock for hosting the web server responsible for serving the personal blog. Users navigate the AWS Management Console to select the desired Amazon Machine Image (AMI) and instance type, configure security settings, and specify additional details, including IAM role assignments. Configuring security groups is vital to permit inbound traffic on port 80 (HTTP) for web traffic and port 22 (SSH) for remote access.

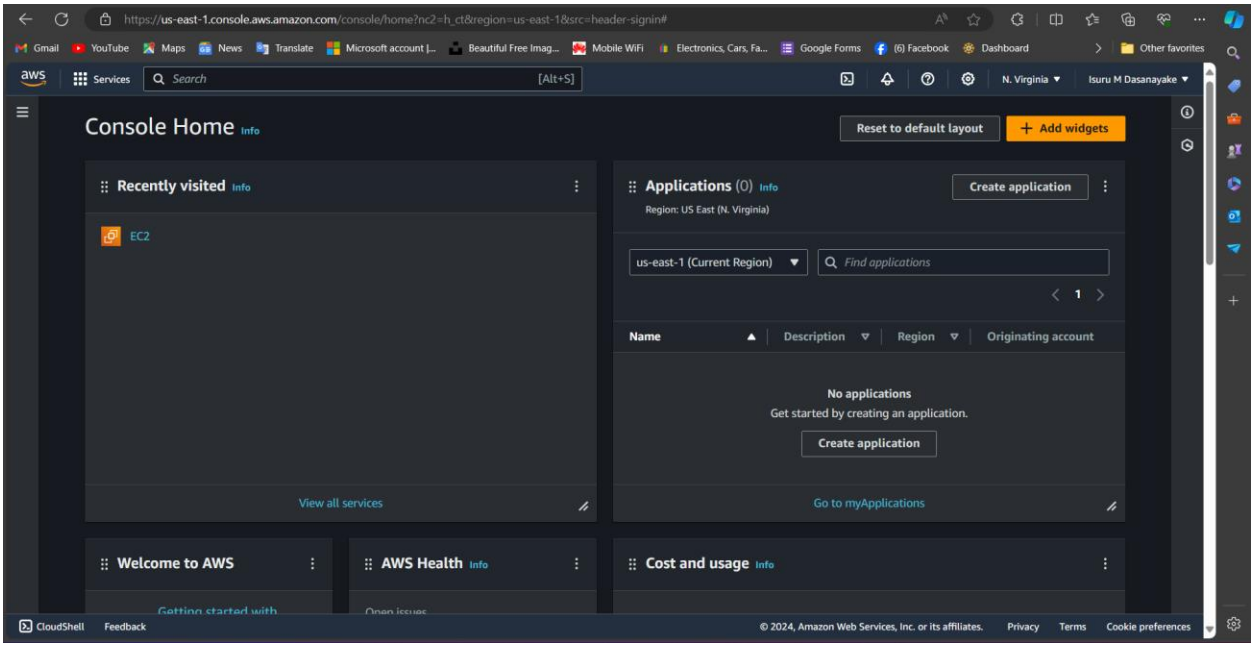
By adeptly setting up the AWS environment, users establish a secure and scalable groundwork for hosting their personal blog, setting the stage for subsequent steps like web server installation, configuration, and S3 bucket setup.

01. SET UP THE AWS ENVIRONMENT

- **Create AWS Environment**

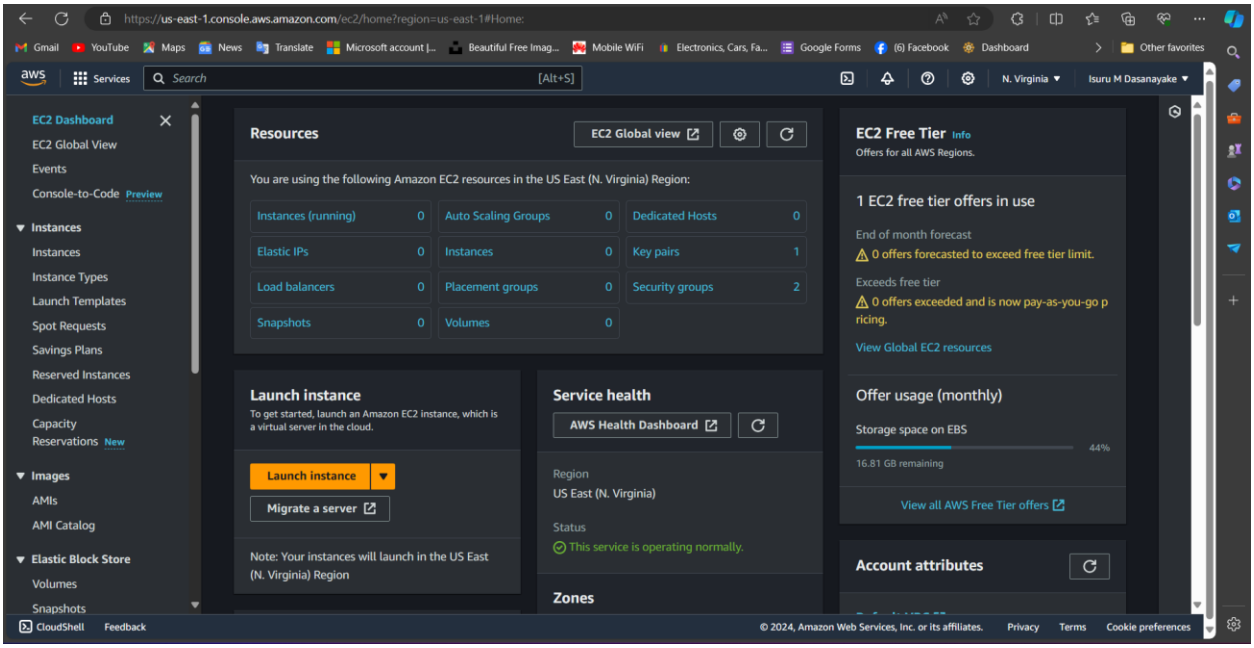


1.0 Sign In to AWS

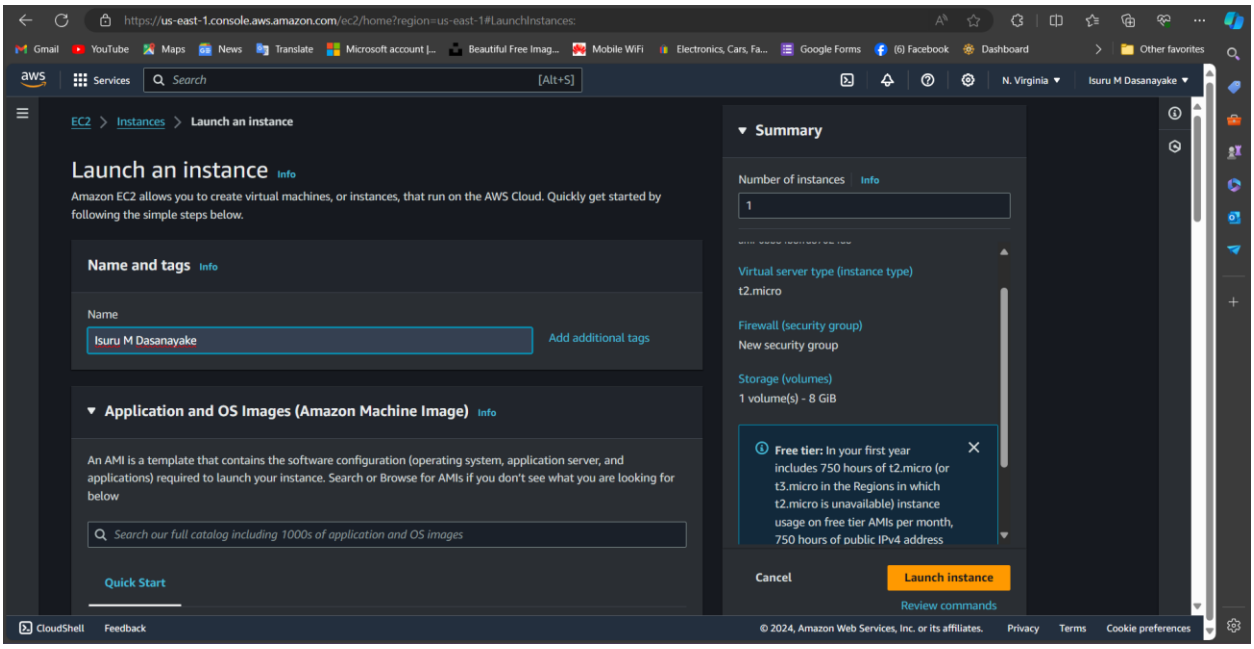


1.01 Console Home

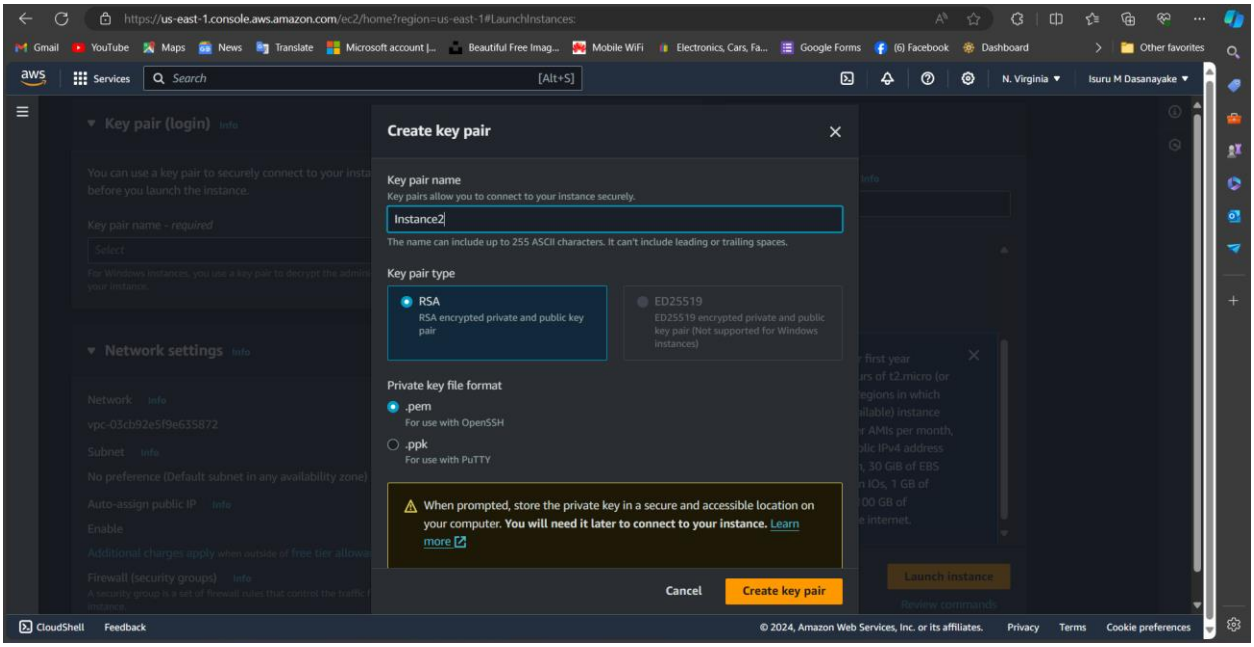
- **Launch an EC2 instance**



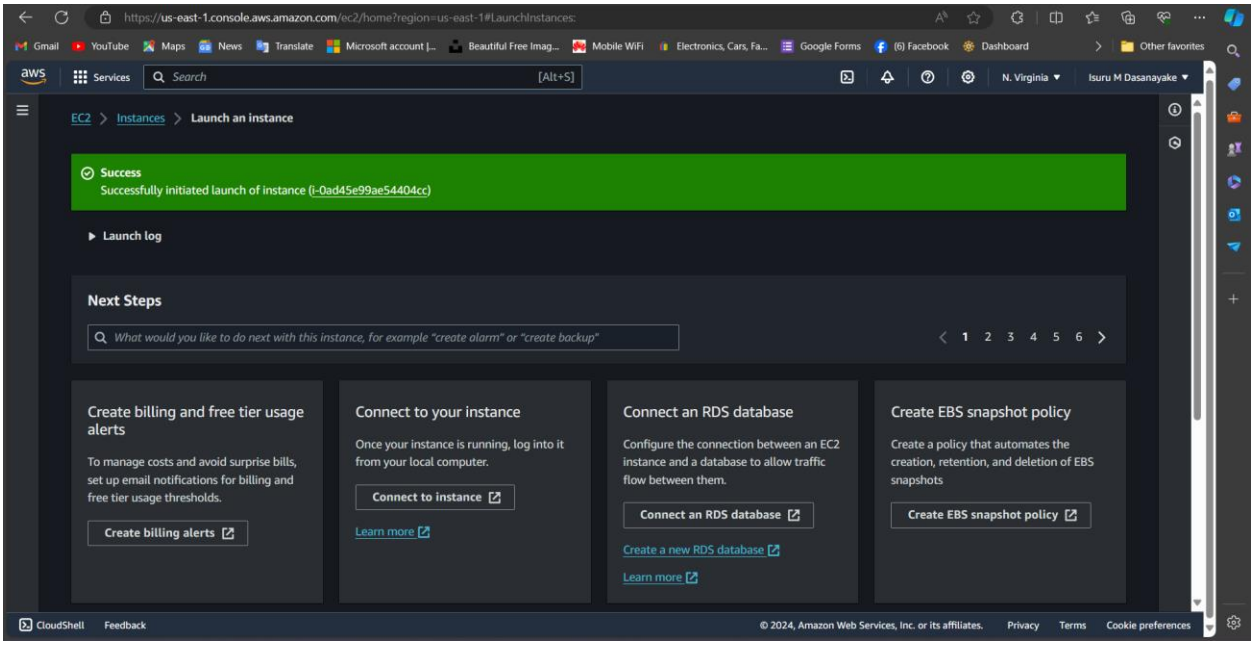
1.02 Figures EC2 Dashboard



1.03 Figures launch an instance



1.04 Figures Create Key pair



1.05 Figures Successfully Launch Instance

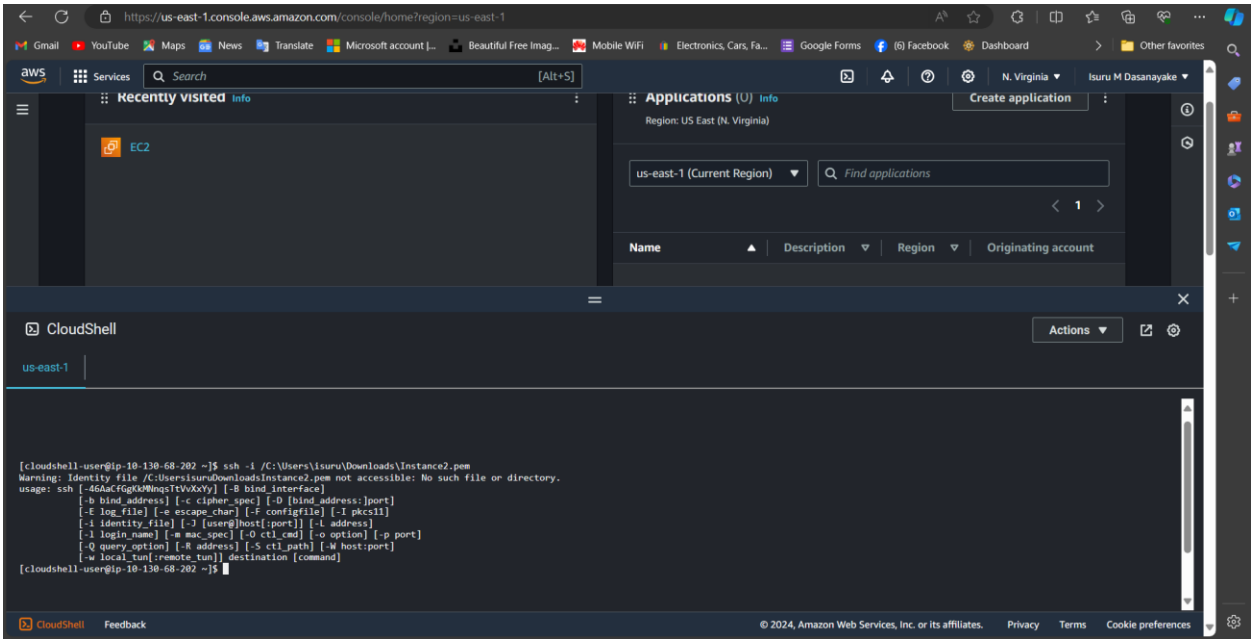
INSTALL A WEB SERVER- APACHE

Installing a web server is a vital stage in configuring your personal blog on an AWS EC2 instance, and for this project, Apache, a widely used and dependable web server, will be employed. Upon launching and connecting to your EC2 instance via SSH, the initial task involves updating the package lists to ensure all software is current, accomplished with the command ‘sudo yum update –y’. Subsequently, installing Apache is a straightforward process with ‘sudo yum install httpd –y’. Once installed, initiating the web server is achieved by starting the Apache service with ‘sudo systemctl start httpd’, enabling it to serve web pages. To ensure Apache automatically starts on boot, `sudo systemctl enable httpd` is executed.

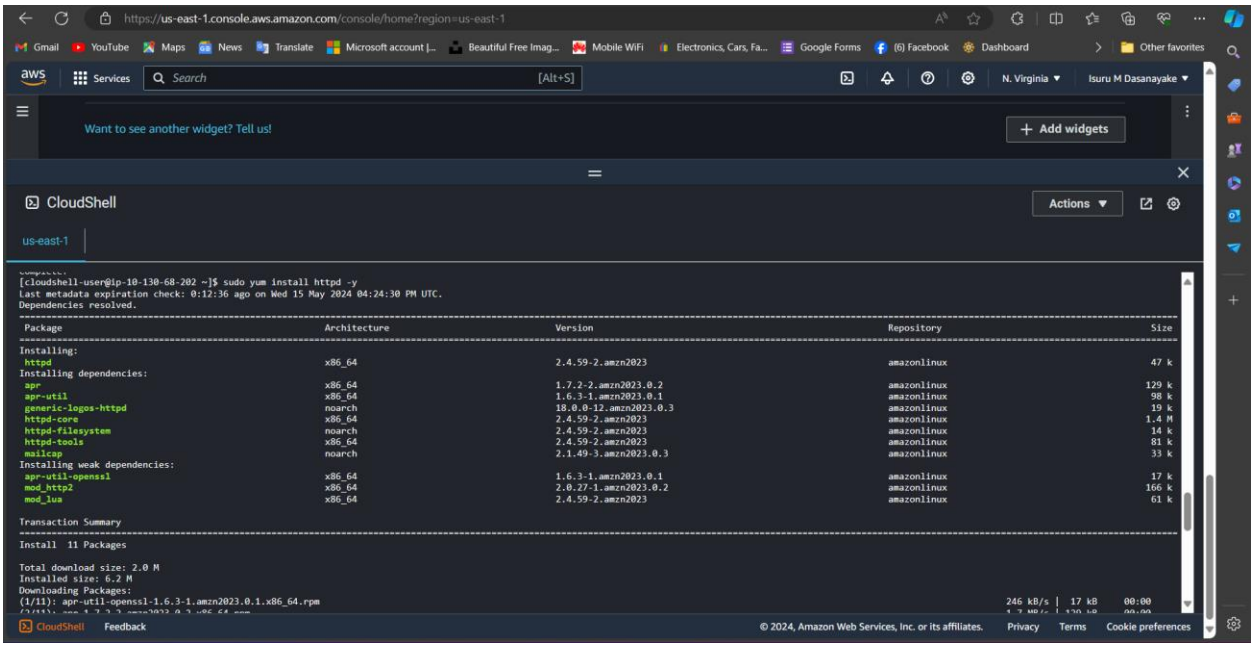
Validating the Apache installation is crucial to confirm the correct setup and operation of the web server. This entails accessing the public IP address of the EC2 instance in a web browser. If Apache is correctly installed and operational, the default Apache test page will be displayed, indicating readiness to host the blog. This stage establishes the core capability of the EC2 instance to deliver web content, paving the way for deploying the HTML website and integrating with the S3 bucket for static file storage.

INSTALL A WEB SERVER- APACHE

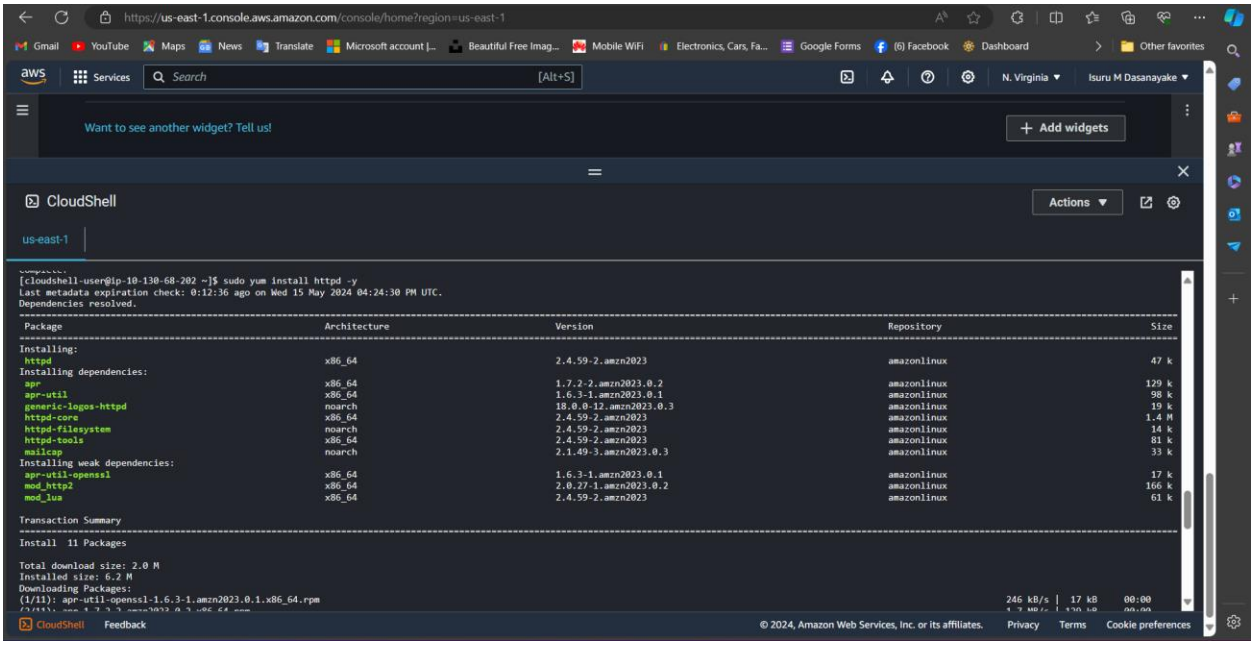
- **Connect to EC2 instance via SSH**



1.06 Figures CloudShell Amazon Linux



1.07 Figures Transaction Summary



1.08 Figures Install httpd

CONFIGURE THE S3 BUCKET

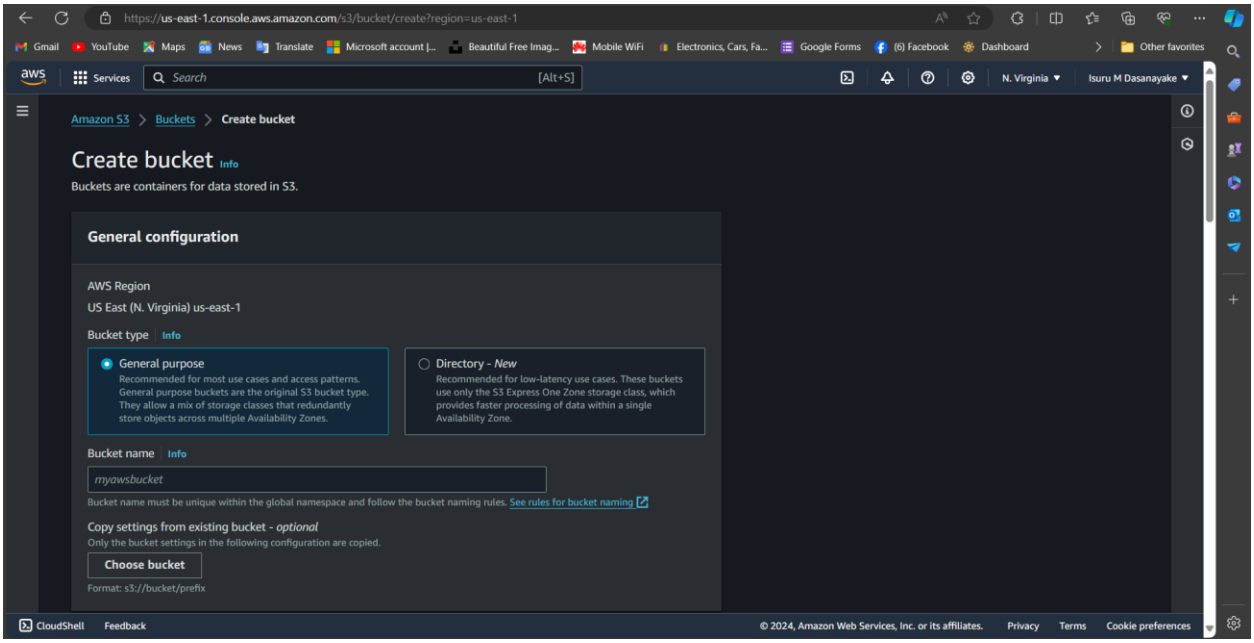
Setting up the S3 bucket is a crucial step in establishing your personal blog, facilitating efficient storage and retrieval of static files like images. Begin by logging into the AWS Management Console and accessing the S3 service. Initiate the creation of a new bucket by clicking the "Create bucket" button, where you'll specify a unique name and select the region that aligns with your requirements. Generally, sticking to default settings is advisable unless specific needs for versioning or logging arise. Upon bucket creation, you'll have a secure and scalable storage solution primed for integration with your EC2 instance.

Once the bucket is established, proceed to upload your static files. Navigate to the newly created bucket, then utilize the "Upload" button to add images and other static content. You can opt to drag and drop files or use the file picker to select them from your local system. Following the upload, each file will possess a unique URL, essential for embedding them in your HTML code. For instance, a file named `profile.jpg` uploaded to the bucket will sport a URL structured as `https://your-bucket-name.s3.amazonaws.com/profile.jpg`, enabling efficient content delivery.

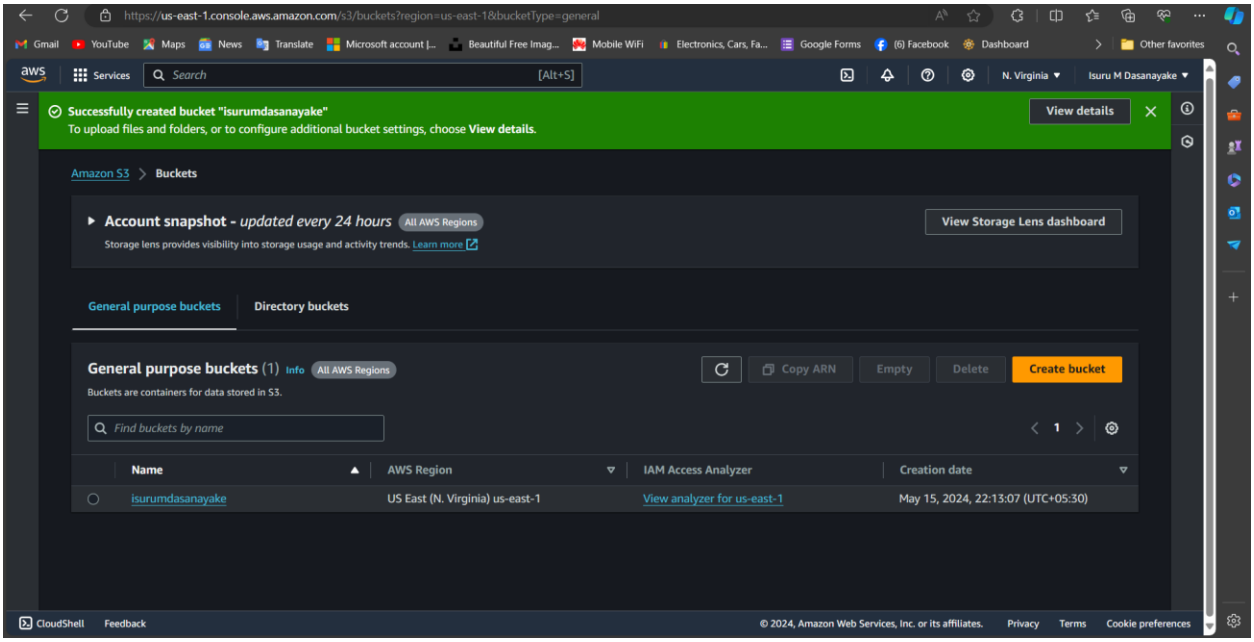
To render your static files publicly accessible, adjust the bucket's permissions. Navigate to the "Permissions" tab of your S3 bucket and configure settings to allow public read access to the files. This can be executed by tweaking the bucket policy or utilizing the S3 console to set appropriate permissions. Exercise caution with these settings to expose only necessary components for your website. Once permissions are configured, your static files will be reachable via their URLs, seamlessly integrating into your HTML website hosted on the EC2 instance. This setup harnesses AWS S3's scalability and cost-effectiveness for static file delivery.

CONFIGURE THE S3 BUCKET

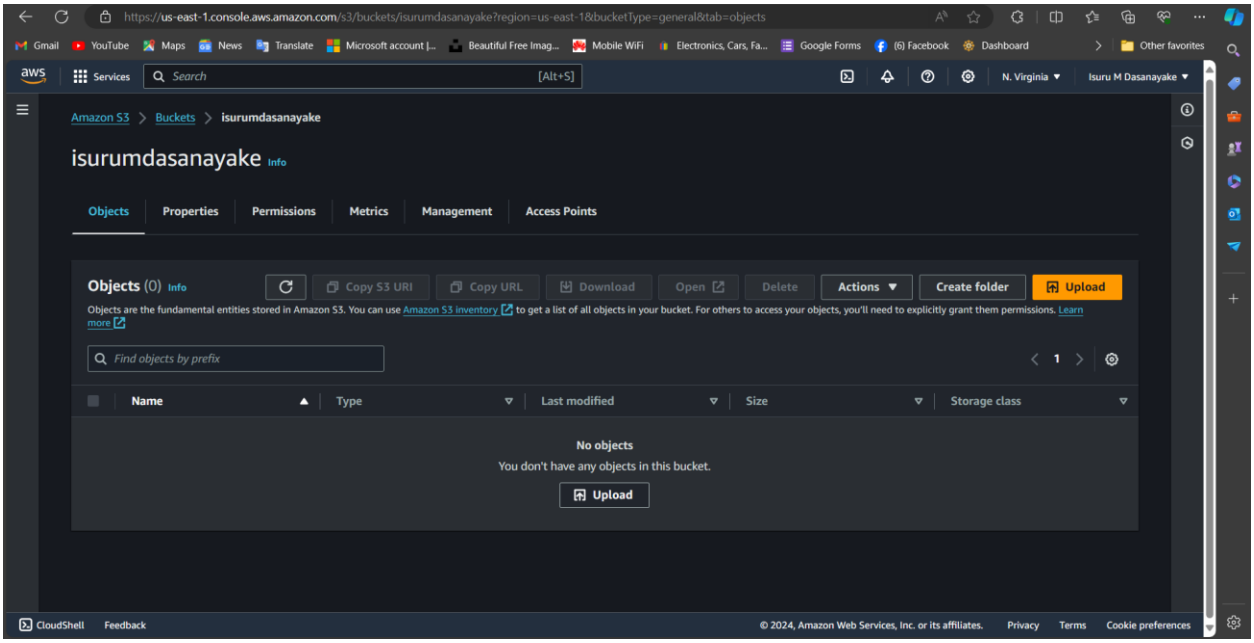
- **Create an S3 bucket**



1.09 Create S3 Bucket

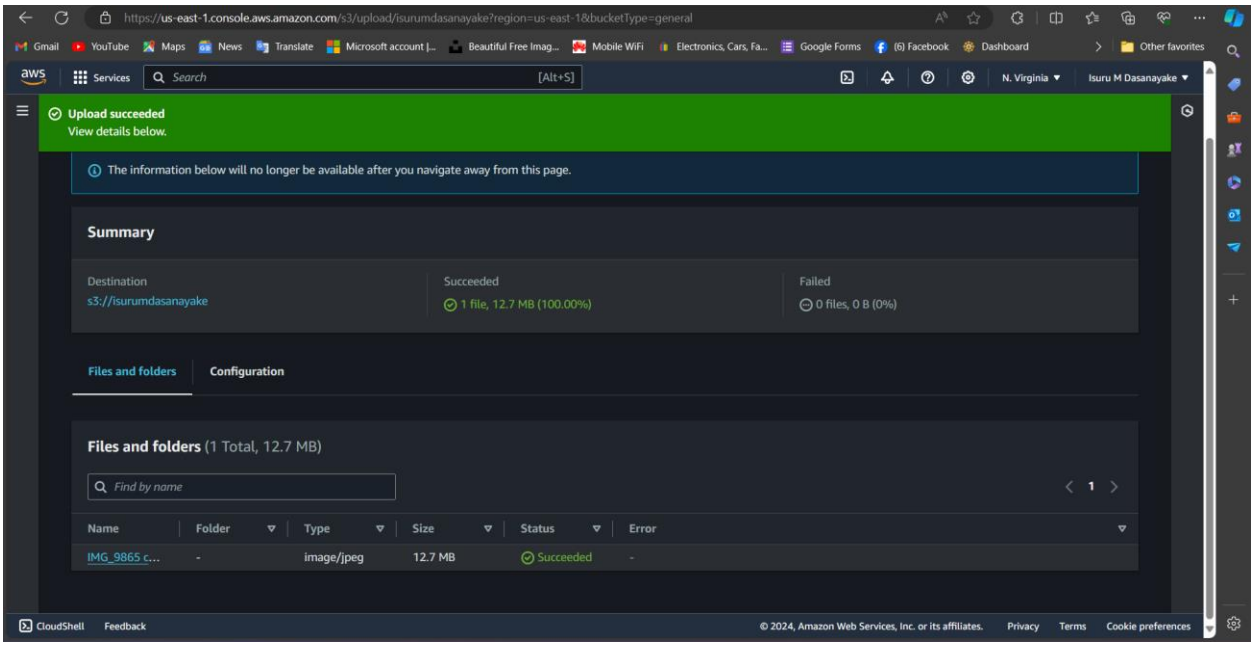


1.10 Figures General Purpose Bucket



1.11 Figures Upload file in Bucket

- **Upload required image/s**



1.12 Figures Upload succeeded in Bucket

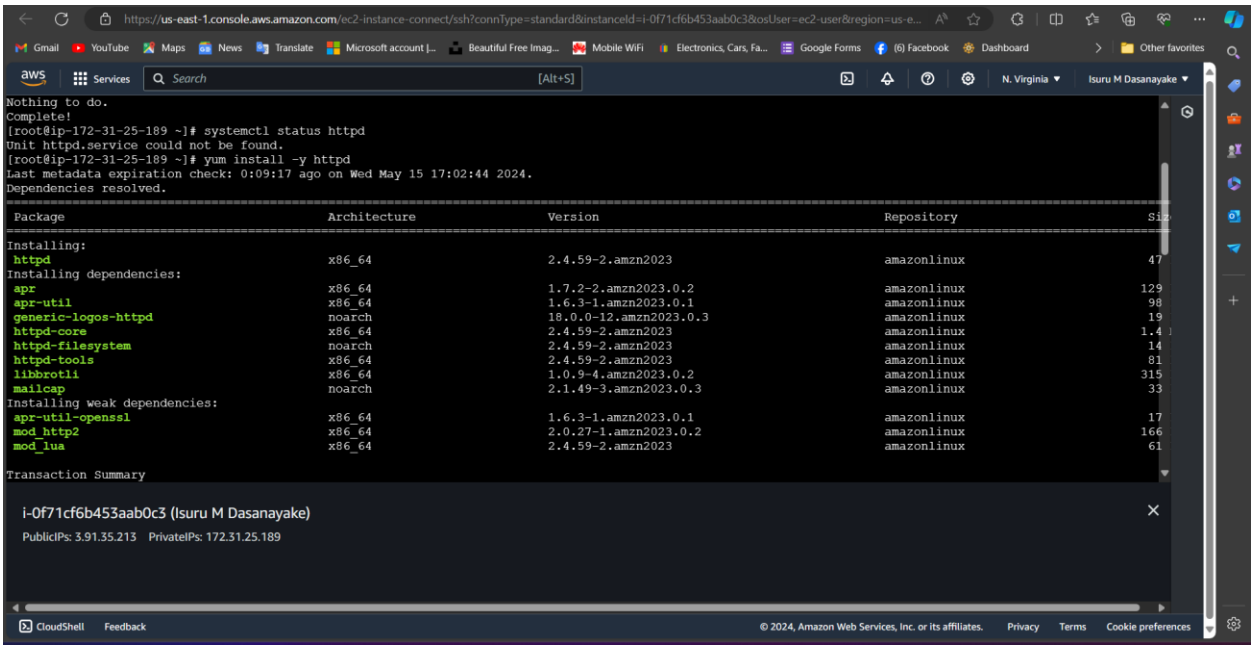
CREATE AND DEPLOY THE WEBSITE

Developing and deploying the website entails crafting HTML content and ensuring it's accurately hosted on the EC2 instance, with static assets linked from the S3 bucket. Begin by establishing an SSH connection to your EC2 instance and navigating to the Apache root directory, typically located at `/var/www/html`. Within this directory, create your primary HTML file, such as `index.html`, employing a text editor like `nano`. Within this HTML file, structure your webpage, incorporating images and other static content using the URLs provided by your S3 bucket. For instance, you may include an image using a tag like `<img src="https://my-personal-blog-bucket.s3.amazonaws.com/profile.jpg" alt="Profile Picture">`.

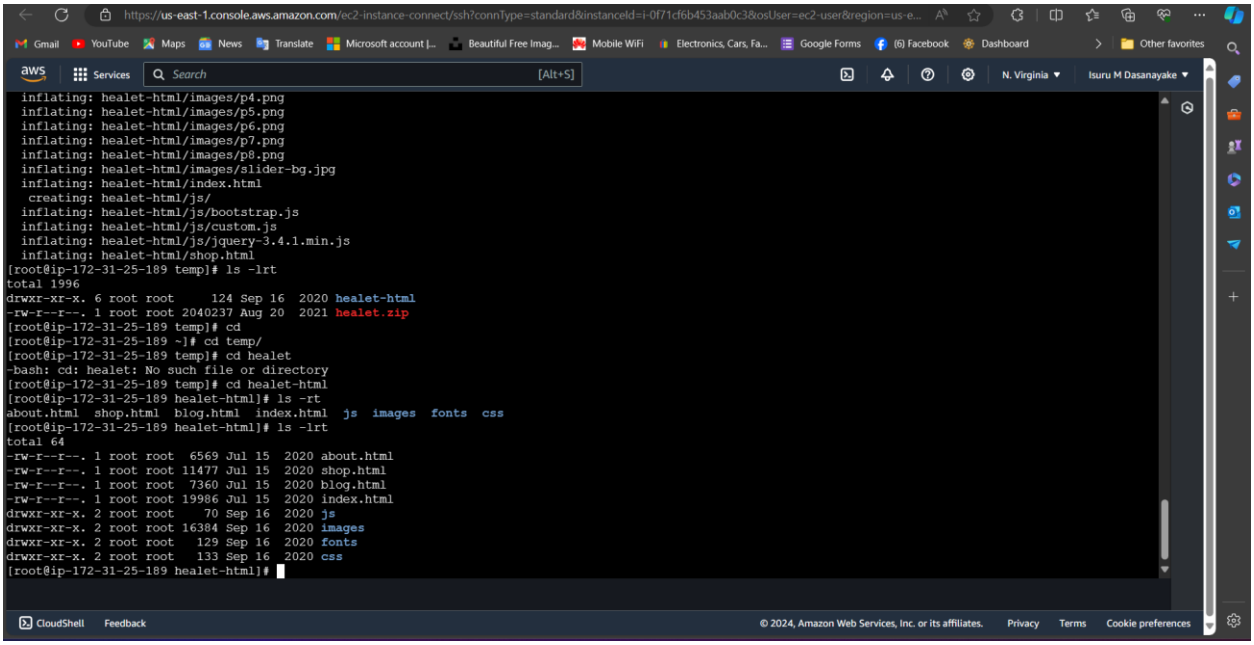
Once the HTML content is composed, save the file and ensure it's appropriately positioned in the Apache root directory. This placement guarantees that when users visit your EC2 instance's public IP address, the server serves the correct HTML content. To confirm the deployment, launch a web browser and enter the public IP address of your EC2 instance. If everything is configured accurately, your personal blog should load, showcasing the HTML content and images stored in the S3 bucket. This stage concludes the deployment process, rendering your blog publicly accessible and showcasing the seamless integration of AWS services for delivering a dynamic and scalable web application.

CREATE AND DEPLOY THE WEBSITE

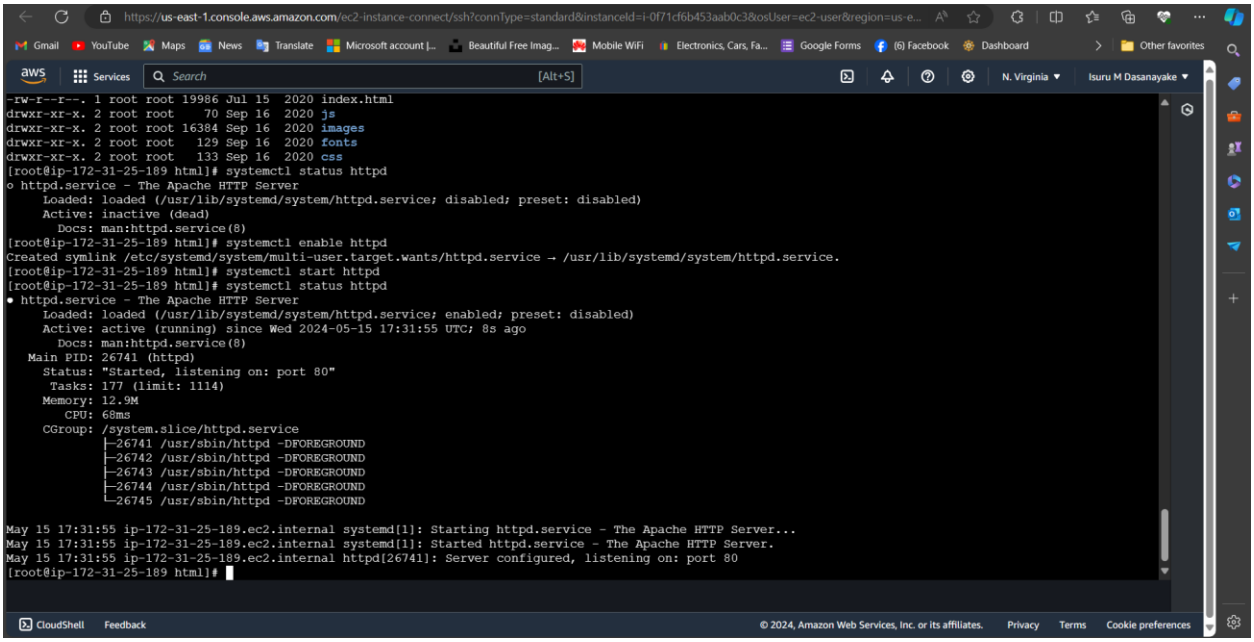
- **Create the HTML file on the EC2 instance**



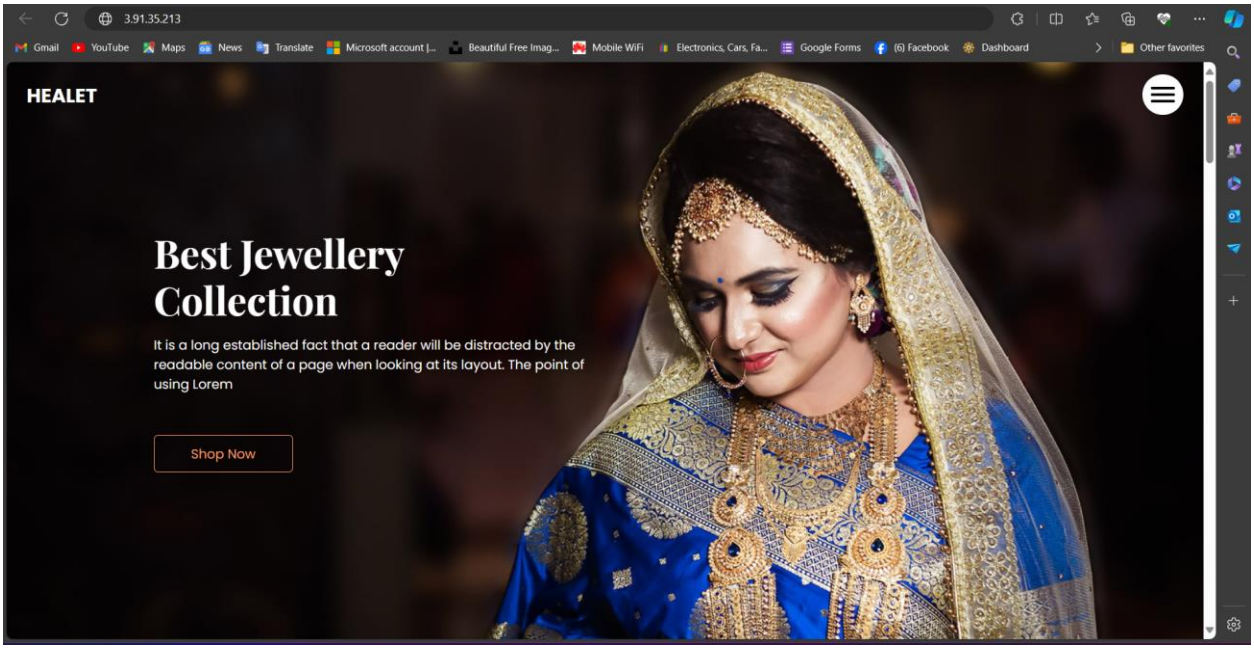
1.13 Figures Yum Update -y



1.14 Figures Unzip Zip folder



1.15 Figures Unzipping Zip folder



1.16 Figures Created Web Site