

PROFESSIONAL TRAINING REPORT

Sathyabama Institute of Science and Technology (Deemed to be University)

Submitted in partial fulfilment of the requirements for the award
of Bachelor of Technology Degree in Information Technology

By

Sanjaikanth J

(40120078)



DEPARTMENT OF INFORMATION TECHNOLOGY

SCHOOL OF COMPUTING

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

Accredited “A” Grade by NAAC

JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI,

TAMILNADU – 600119

April 2023



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE

(www.sathyabama.com)

DEPARTMENT OF INFORMATION TECHNOLOGY

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **SANJAIKANTH J, (Reg.No.40120078)** who carried out the project as a **"CREATE A WORDPRESS WEBSITE IN AMAZON LIGHTSAIL"** under our supervision from January 2023 to April 2024.

Internal Guide

Dr.R.M.Gomathi M.Tech., Ph.D.,

Head of the Department

Dr. R Subhashini, M.E., Ph.D.,

Internal Examiner

External Examiner

DECLARATION

I **SANJAIKANTH J**, (Reg. No. 40120078) hereby declare that the Project Report entitled "**CREATE A WORDPRESS WEBSITE IN AMAZON LIGHTSAIL**" is done by me under the guidance of **Dr.R.M.Gomathi M.Tech.,Ph.D.**, and is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology degree in Information Technology.

DATE: 29/04/2023

PLACE: Chennai



SIGNATURE OF THE CANDIDATE

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to the **Board of Management** of **SATHYABAMA** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr. T Sasikala, M.E., Ph.D.**, Dean, School of Computing **Dr. R Subhashini, M.E., Ph.D.**, Head of the Department of Information Technology for providing me with necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project Guide **Dr.R.M.Gomathi, M.Tech., Ph.D.** for her valuable guidance,suggestions and constant encouragement that paved way for the successful completion of my project work.

I wish to express my thanks to all Teaching and Non-teaching staff members of the **Department of Information Technology** who were helpful in many ways for the completion of the project.

CERTIFICATE OF COMPLETION

Ref.No.: 60 /FSPCC/BC001/04/2023



इलेक्ट्रॉनिक्स एवं
सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF
ELECTRONICS AND
INFORMATION TECHNOLOGY
सत्यमेव जयते



COURSE COMPLETION LETTER

It is certified that

Sanjai Kanth

Sathyabama Institute of Science and Technology

has successfully undergone the Bridge Course Training Program on

Cloud Computing Technology

Under "FutureSkills PRIME" Programme

commenced from 11 Mar, 2023

Shri. V. Sridharan
Chief Investigator
Cloud Computing Technology
Lead Resource Centre

L R PRAKASH

Digitally signed by L R PRAKASH
Date: 2023.04.26 02:36:13
+05'30'

Cdr.(Retd.) L.R. Prakash
Senior Director
Centre Head
C-DAC, Chennai

ABSTRACT

This project provides an overview of the process for creating a WordPress website in Amazon Lightsail. Amazon Lightsail is a cloud-based service that allows you to easily create and manage virtual private servers (VPS) on Amazon Web Services (AWS). With Lightsail, you can quickly create a WordPress website without having to worry about managing the underlying infrastructure. To create a WordPress website in Amazon Lightsail, you first need to sign up for an AWS account and create a Lightsail instance. Once you have your instance up and running, you can easily install WordPress and configure your website using the Lightsail management console. This article provides step-by-step instructions for installing WordPress and configuring your website, including creating a domain name, setting up email, and securing your website with SSL/TLS encryption. By following the steps outlined in this article, you can quickly and easily create a WordPress website in Amazon Lightsail, without the need for advanced technical skills or knowledge of AWS. With Lightsail, you can focus on creating content for your website, while Amazon takes care of the underlying infrastructure, ensuring that your website is fast, reliable, and secure.

TABLE OF CONTENT

Chapter No.	Title	Page No.
1	Introduction	1
	1.1 Cloud Computing	
	1.2 Amazon Web Service	
	1.3 Amazon Light Sail	
	1.4 Benefits of Cloud Computing	
2	Aim and Scope of AWS	5
	2.1 Aim	
	2.2 Scope	
3	Problem Statement	6
	3.1 AWS Service	
	3.2 Objectives	
4	Methodology	9
	4.1 Connect To Your Windows Instance	
	4.2 Accessing Cloud watch	
	4.3 Accessing Light sail Console	
5	Cloud Front Distribution Creation	11
	5.1 Recovering from failure	
	5.2 Dynamic content	
6	Instances	16
	6.1 Launching Amazon Lightsail	
7	Result and Discussion	31
8	SSH Into The Light sail Instance You Want To Monitor	33
9	Future Work And Conclusion	34
	9.1 Future work	
	9.2 Conclusion	

List of Images

Figure Number	Figure Description	Page No.
6.1	Selecting an Instance	17
6.2	Elastic IP Address Running Successfully	17
6.3	Creating instance	18
6.4	Aws Marketplace	18
6.5	Selecting instance Type	19
6.6	Keypair	19
6.7	Launching Instance	20
6.8	Successfully Launched	20
6.9	Local Host	21
6.10	Wordpress Login Page	21
7.1	Selecting Lightsail	22
7.2	Creating Instance	22
7.3	Choosing Platform	23
7.4	Selecting Application	24

7.5	Naming Instance	25
7.6	Public IP	25
7.7	Successfully Created Instance	26
7.8	Bitnami Terminal	26
7.9	Cd /opt/bitnami/	27
7.10	Wordpress ls/	27
7.11	Cat \$home/bitnami_application_password	28
7.12	Static IP location	28
7.13	Creating DNS Zone	29
7.14	Public IP Address	29
7.15	Wordpress Login page	30
8.1	FINAL OUTPUT 1	31
8.2	FINAL OUTPUT 2	31
8.3	FINAL OUTPUT 3	32
8.4	FINAL OUTPUT 4	32

Chapter 1

INTRODUCTION

1.1 CLOUD COMPUTING

Cloud computing refers to the delivery of computing services, including servers, storage, databases, software, and other resources, over the internet. These services can be accessed on-demand and can be provided by a third-party provider, rather than being stored and maintained on a local server or personal computer.

Cloud computing offers several advantages over traditional computing methods. For one, it provides businesses and individuals with more flexibility, as they can access their data and applications from anywhere with an internet connection. Additionally, cloud computing can be more cost-effective, as users only pay for the resources they use and don't have to invest in expensive hardware and software.

There are several different types of cloud computing services, including:

1. Infrastructure as a Service (IaaS) - Provides virtualized computing resources, such as servers and storage, over the internet.
2. Platform as a Service (PaaS) - Provides a platform for developers to build, test, and deploy applications over the internet.
3. Software as a Service (SaaS) - Provides software applications over the internet, often on a subscription basis. There are also several different types of cloud computing deployment models, including public clouds, private clouds, hybrid clouds, and multi-clouds, each with its own unique advantages and challenges.

1.2 AMAZON WEB SERVICE

Amazon Web Services (AWS) is a comprehensive cloud computing platform provided by Amazon.com. It offers a wide range of services, including computing power, storage, and databases, as well as networking, analytics, machine learning, and security services. AWS provides a highly scalable and flexible platform for businesses and organizations of all sizes, from startups to large enterprises.

Some of the most popular AWS services include:

1. Amazon Elastic Compute Cloud (EC2) - Provides virtual computing resources, including customizable CPU, memory, and storage options.
2. Amazon Simple Storage Service (S3) - Provides scalable and secure object storage for data, images, and other files.
3. Amazon Relational Database Service (RDS) - Provides managed relational database services, including MySQL, Oracle, and PostgreSQL.
4. Amazon Elastic Container Service (ECS) - Provides scalable and managed container orchestration services.
5. Amazon Lambda - Provides serverless computing services, allowing users to run code without managing servers.

AWS also offers a range of tools and services to help users manage and monitor their applications and infrastructure, including AWS CloudFormation, AWS CloudTrail, and AWS CloudWatch.

Overall, AWS has become one of the most popular cloud computing platforms in the world, offering a wide range of services and tools to help businesses and organizations of all sizes manage and scale their applications and infrastructure in the cloud.

1.3 AMAZON LIGHT SAIL

Amazon Lightsail is a simplified version of Amazon Web Services (AWS) designed to provide an easy-to-use, low-cost cloud platform for small businesses and individual developers. It offers pre-configured virtual private servers (VPS) with a fixed amount of memory, storage, and data transfer, making it an affordable and straightforward option for hosting websites and web applications.

Some of the features of Amazon Lightsail include:

Pre-configured virtual private servers (VPS) - Amazon Lightsail offers several pre-configured VPS options with varying amounts of memory, storage, and data transfer, making it easy to select the right configuration for your needs.

Easy-to-use management console - The management console for Amazon Lightsail is designed to be easy to use, with a simple interface that allows users to create and manage instances, add and configure storage, and set up networking and DNS.

Integration with other AWS services - Amazon Lightsail can be integrated with other AWS services, such as Amazon S3 for storage and Amazon Route 53 for DNS management.

Cost-effective pricing - Amazon Lightsail offers a predictable pricing model, with a flat monthly fee that includes all of the resources needed to run your application or website.

Overall, Amazon Lightsail is a simple and cost-effective option for small businesses and individual developers who need a low-cost cloud platform for hosting websites and web applications. While it may not offer the same level of flexibility and customization as AWS, it provides a straightforward and easy-to-use platform that can be a great option for those just starting out in the cloud.

1.4 BENEFITS OF CLOUD COMPUTING

Cloud computing has been around for approximately two decades and despite the data pointing to the business efficiencies, cost-benefits, and competitive advantages it holds, a large portion of the business community continues to operate without it. According to a study by the International Data Group, 69% of businesses are already using cloud technology in one capacity or another, and 18% say they plan to implement cloud-computing solutions at some point. At the same time, Dell reports that 11 companies that invest in big data, cloud, mobility, and security enjoy up to 53% faster revenue growth than their competitors. As this data shows, an increasing number of tech-savvy businesses and industry leaders are recognizing the many benefits of the cloud-computing trend. But more than that, they are using this technology to more efficiently run their organizations, better serve their customers, and dramatically increase their overall profit margins.

- Cost Savings
- Security
- Flexibility
- Mobility
- Insight
- Increased Collaboration
- Disaster Recovery
- Loss Prevention
- Automatic Software Updates
- Competitive Edge
- Sustainability

CHAPTER 2

AIM AND SCOPE OF AWS

2.1 AIM

The aim of the project is to create a Virtual Machine (VM) on a Cloud Based system called AWS (Amazon Web Service). It allows using cloud storage so that it enables us to create a server and initialize an alert while the server of the particular instance goes down. Instances are useful for running memory-intensive workloads such as real-time data ingestion, distributed in-memory caches, big data analytics, memory-intensive enterprise applications, and high-performance databases.

2.2 SCOPE

Amazon Light provides the broadest and deepest instance choice to match your workload's needs. General purpose, compute optimized, memory optimized, storage optimized, and accelerated computing instance types are available that provide the optimal compute, memory, storage, and networking balance for your workloads. Processors from Intel, AMD, NVIDIA and AWS power these instance types and provide additional performance and cost optimizations. Local storage and enhanced networking options available with instance types further help optimize performance for workloads that are disk or network I/O bound. Many instance types also offer bare metal instances that provide your applications with direct access to the processor and memory of the underlying server for running in non-virtualized environments or for applications where you want to use your own hypervisor.

Chapter 3

PROBLEM STATEMENT

Whenever you install a WordPress on Machines you have config files related to WP. Now if you install the WordPress on multiple machine each machine will have its own files and if you run those machines behind some Load Balancer then you will encounter an issues with it. one more thing is Database maintenance for your WordPress site is critical. Your database instance holds all of your important data for your WordPress site. If the database goes down, your website may go down with it, and you could even lose your data.

3.1 AWS SERVICE

1. Relational Database Service — We will use AWS RDS MySQL which is fully Managed MySQL Database services provided by AWS
2. Application Load Balancer — We will use AWS ALB as a single-entry point for our website. ALB will route requests to multiple EC2 behind ALB
3. Elastic File System — AWS EFS is fully managed network file system which we will use for storing all our WordPress config files, plugins, Webpages. Another advantage of EFS is we can mount EFS to Multiple EC2 Instances, so that every EC2 Instance points to same files and we can run multiple EC2 to achieve High Availability and Fault Tolerance.

3.2. OBJECTIVES

Successfully complete this lab by achieving the following learning objectives:

Create RDS Database

Using the AWS console, create an RDS database with the following configurations:

- Choose a database creation method: Standard create
- Engine options: MySQL
- Edition: MySQL Community
- Version: MySQL 8.0.28
- Templates: Free tier
- DB instance class: db.t2.micro
- DB instance identifier: word press

LITERATURE SURVEY

The Hosting word press on AWS reference architecture available on GitHub outlines best practices for deploying WordPress on AWS and includes a set of AWS Cloud Formation templates to get you up and running quickly. The following architecture is based on that reference architecture. The rest of this section will review the reasons behind the architectural choices.

The based AMI in the GitHub was changed from Amazon Linux1 to Amazon Linux2 in July 2021. However, deployment templates at S3 were not changed yet. It is recommended to use templates at GitHub if there is an issue to deploy the reference architecture with templates at S3.

The reference architecture illustrates a complete best practice deployment for a WordPress website on AWS.

- It starts with edge caching in **Amazon Cloud Front** (1) to cache content close to end users for faster delivery.
- Cloud Front pulls static content from an **S3 bucket** (2) and dynamic content from an **Application Load Balancer** (4) in front of the web instances.
- The web instances run in an **Auto Scaling group** of **Amazon EC2instances** (6).
- An **Elastic Cache** cluster (7) caches frequently queried data to speed up responses.

An **Amazon Aurora** MySQL instance (8) hosts the WordPress database.

- The WordPress EC2 instances access shared WordPress data on an **Amazon EFS** file system via an **EFS Mount Target** (9) in each Availability Zone.
- An **Internet Gateway** (3) enables communication between resources in your VPC and the internet.
- **NAT Gateways** (5) in each Availability Zone enable EC2 instances in private subnets (App and Data) to access the internet.

Chapter 4

METHODOLOGY

4.1. CONNECT TO YOUR WINDOWS INSTANCE

AWS provides a variety of services that can be used to host a WordPress website. Some of the popular services include Amazon Elastic Compute Cloud (EC2), Amazon Light sail, and AWS Elastic Beanstalk. It is available on most editions of Windows and is also available for Mac OS.

Once your instance is up and running, you can create a SSH session, there you need to enter the remote host and specify ubuntu and in advice settings you need to use your private key to access the terminal.

4.2 ACCESSING CLOUD WATCH

Amazon CloudWatch monitors your Amazon Web Services (AWS) resources and the applications you run on AWS in real time. You can use CloudWatch to collect and track metrics, which are variables you can measure for your resources and applications.

- The CloudWatch home page automatically displays metrics about every AWS service you use. You can additionally create custom dashboards to display metrics about your custom applications, and display custom collections of metrics that you choose.
- You can create alarms that watch metrics and send notifications or automatically make changes to the resources you are monitoring when a threshold is breached. With CloudWatch, you gain system-wide visibility into resource utilization, application performance, and operational health

4.3 ACCESING LIGHTSAIL COSOLE

- Open the Amazon Lightsail console.
- From the navigation pane, choose Instances.
- Select the instance and then choose Connect.

On the Connect to instance page, choose the option to Connect using Fleet Manager, then choose Fleet Manager Remote Desktop. This opens the Fleet Manager Remote Desktop page in the AWS Systems Manager cons

Chapter 5

CloudFront distribution creation

Create a CloudFront web distribution by following the Distribution, the default Origin and Behavior automatically created will be used for dynamic content. Create four additional behaviors to further customize the way both static and dynamic requests are treated.

The following table summarizes the configuration properties for the five behaviors. You can also skip this manual configuration and use the AWS for WordPress plugin covered in Appendix B: Plugins Installation and Configuration, which is the easiest way to configure CloudFront to accelerate your WordPress site.

For the default behavior, AWS recommends the following configuration:

- Allow the Origin Protocol Policy to Match Viewer, so that if viewers connect to CloudFront using HTTPS, CloudFront connects to your origin using HTTPS as well, achieving end-to-end encryption. Note that this requires you install a trusted SSL certificate on the load balancer. For details, refer to [Requiring HTTPS for Communication Between CloudFront and Your Custom Origin](#).

Allow all HTTP methods since the dynamic portions of the website require both GET and POST requests (for example, to support POST for the comment submission forms)

- Forward only the cookies that vary the WordPress output, for example, `wordpress_*`, `wp-settings-*` and `comment_*`. You must extend that list if you have installed any plugins that depend on other cookies not in the list.
- Forward only the HTTP headers that affect the output of WordPress, for example `CloudFront-Forwarded-Proto`, `CloudFront-is-Desktop-Viewer`, `CloudFront-is-Mobile-Viewer`, and `CloudFront-is-Tablet-Viewer`:
- Host allows multiple WordPress websites to be hosted on the same origin.
- `CloudFront-Forwarded-Proto` allows different versions of pages to be cached

depending on whether they are accessed via HTTP or HTTPS.

- CloudFront-is-Desktop-Viewer, CloudFront-is-Mobile-Viewer, and CloudFront-is-Tablet-Viewer allow you to customize the output of your themes based on the end user's device type.
- Forward all the query strings to cache based on their values because WordPress relies on these, they can also be used to invalidate cached objects.

If you want to serve your website under a custom domain name (not *.cloudfront.net), enter the appropriate URIs under **Alternate Domain Names** in the Distribution Settings. In this case, you also need an SSL certificate for your custom domain name. You can request SSL certificates via the AWS Certificate Manager and configure them against a CloudFront distribution.

Now, create two more cache behaviors for dynamic content: one for the login page (path pattern: wp-login.php) and one for the admin dashboard (path pattern: wp-admin/*). These two behaviors have the exact same settings, as follows:

- Enforce a Viewer Protocol Policy of HTTPS Only.
- Allow all HTTP methods.
- Cache based on all HTTP headers.
- Forward all cookies.
- Forward and cache based on all query strings.

The reason behind this configuration is that this section of the website is highly personalized and typically has just a few users, so caching efficiency isn't a primary concern. The focus is to keep the configuration simple to ensure maximum compatibility with any installed plugins by passing all cookies and headers to the origin.

The AWS for WordPress plugin covered in Appendix B automatically creates a CloudFront distribution that meets the preceding configuration.

By default, WordPress stores everything locally on the web server, which is block storage (Amazon EBS) for single server deployment, and file storage (Amazon EFS)

forelastic deployment. In addition to reducing storage and data transfer costs, moving static assets to Amazon S3 offers scalability, data availability, security and performance. There are several plugins that make it easy to move static content to Amazon S3; one of them is W3 Total Cache, also covered in Appendix B.

LightSail provides templates for commonly used applications such as WordPress. This template is a great starting point for running your own WordPress website, as it comes pre-installed with most of the software you need. You can install additional software or customize the software configuration by using the in-browser terminal or your own SSH client, or via the WordPress administration web interface.

Amazon LightSail has a partnership with GoDaddy Pro Sites product to help WordPress customers easily manage their instances for free. LightSail WordPress virtual servers are preconfigured and optimized for fast performance and security, making it easy to get your WordPress site up and running in no time. Customers running multiple WordPress instances find it challenging and time-consuming to update, maintain and manage all of their sites. With this integration, you can easily manage your multiple WordPress instances in minutes with only a few clicks.

For more information about managing WordPress on LightSail, refer to *Getting started using WordPress from your Amazon LightSail instance*. Once you are finished customizing your WordPress website, AWS recommends that you take a snapshot of your instance.

5.1 Recovering from failure

- A single web server is a single point of failure, so you must ensure that your website data is backed up. The snapshot mechanism described earlier can also be used for this purpose. To recover from failure, you can restore a new instance from your most recent. To reduce the amount of data that could be lost during a restore, your snapshots must be as recent as possible.

- To minimize the potential for data loss, ensure that snapshots are taken on a regular basis. You can schedule automatic snapshots of your Lightsail Linux/Unix instances. For instructions, refer to [Enabling or disabling automatic snapshots for instances or disks in Amazon Lightsail](#).

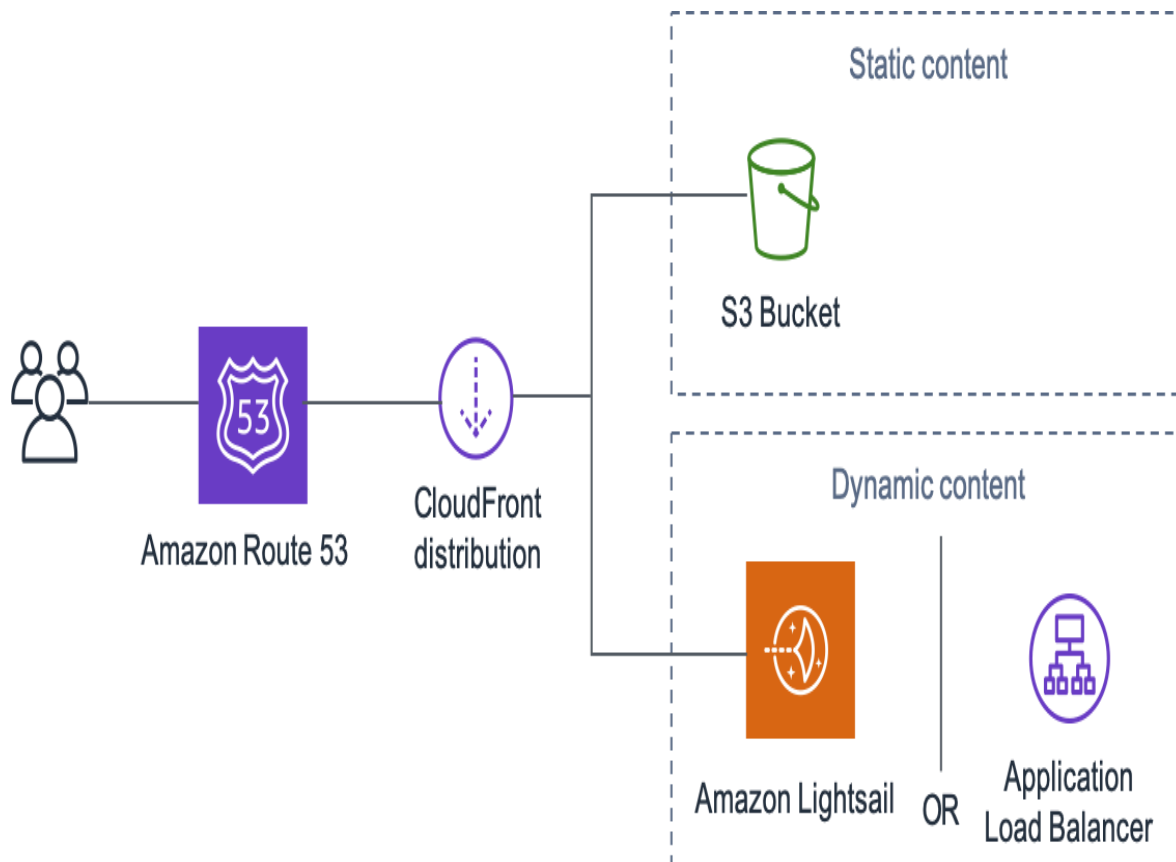
- AWS recommends that you use a static IP—a fixed, public IP address that is dedicated to your Lightsail account. If you need to replace your instance with another one, you can reassign the static IP to the new instance. In this way, you don't have to reconfigure any external systems (such as DNS records) to point to a new IP address every time you want to replace your instance

- A number of options that can improve aspects of your WordPress website's performance and scalability. Some can be applied to a single-server deployment, whereas others take advantage of the scalability of multiple servers. Many of those modifications require the use of one or more WordPress plugins.

Although various options are available, W3 Total Cache is a popular choice that combines many of those modifications in a single plugin.

5.2 Dynamic content

Dynamic content includes the output of server-side WordPress PHP scripts. Dynamic content can also be served via CloudFront by configuring the WordPress website as an origin. Since dynamic content includes personalized content, you need to configure CloudFront to forward certain HTTP cookies and HTTP headers as part of a request to your custom origin server. CloudFront uses the forwarded cookie values as part of the key that identifies a unique object in its cache. To ensure that you maximize the caching efficiency, configure CloudFront to forward only those HTTP cookies and HTTP headers that actually vary the content (not cookies that are only used on the client side or by third-party applications, for example, for web analytics).



Chapter 6

INSTANCES

What is Amazon EC2 Instance?

Amazon EC2 (Elastic Compute Cloud) is a web service that provides scalable computing capacity in the cloud. An Amazon EC2 instance is a virtual server in the cloud that can be used to run applications and services.

EC2 instances come in a variety of sizes and configurations, each optimized for specific use cases such as general computing, memory-intensive applications, or high-performance computing. Instances can be launched in multiple regions and availability zones, providing users with flexibility in terms of geographic location and redundancy.

EC2 instances can be managed using the AWS Management Console, command line tools, or through the AWS SDKs. Users can choose from a variety of operating systems, including Amazon Linux, Ubuntu, Windows Server, and more, and can also configure instances to meet specific security and compliance requirements.

One of the key benefits of using Amazon EC2 instances is their scalability. Instances can be easily scaled up or down to meet changing demands, providing users with the flexibility to scale their infrastructure based on workload and traffic patterns.

Additionally, EC2 instances can be integrated with other AWS services such as Elastic Load Balancing, Auto Scaling, and Elastic Block Store, providing users with a complete solution for running applications and services in the cloud.

Overall, Amazon EC2 instances provide users with a flexible and scalable infrastructure for running applications and services in the cloud, with a wide range of configuration options and integration with other AWS services.

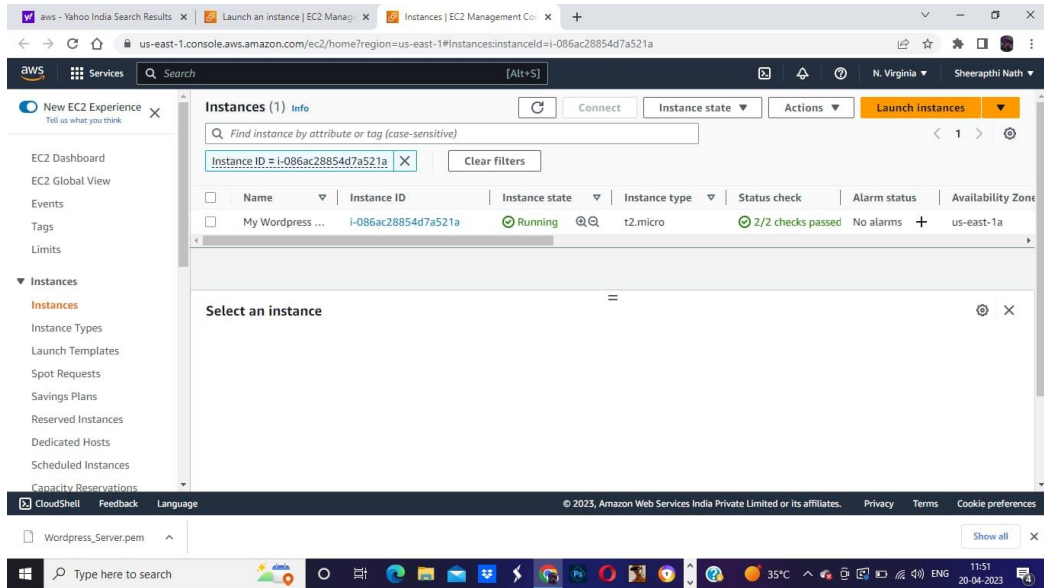


Fig 6.1: SELECTING AN INSTANCE

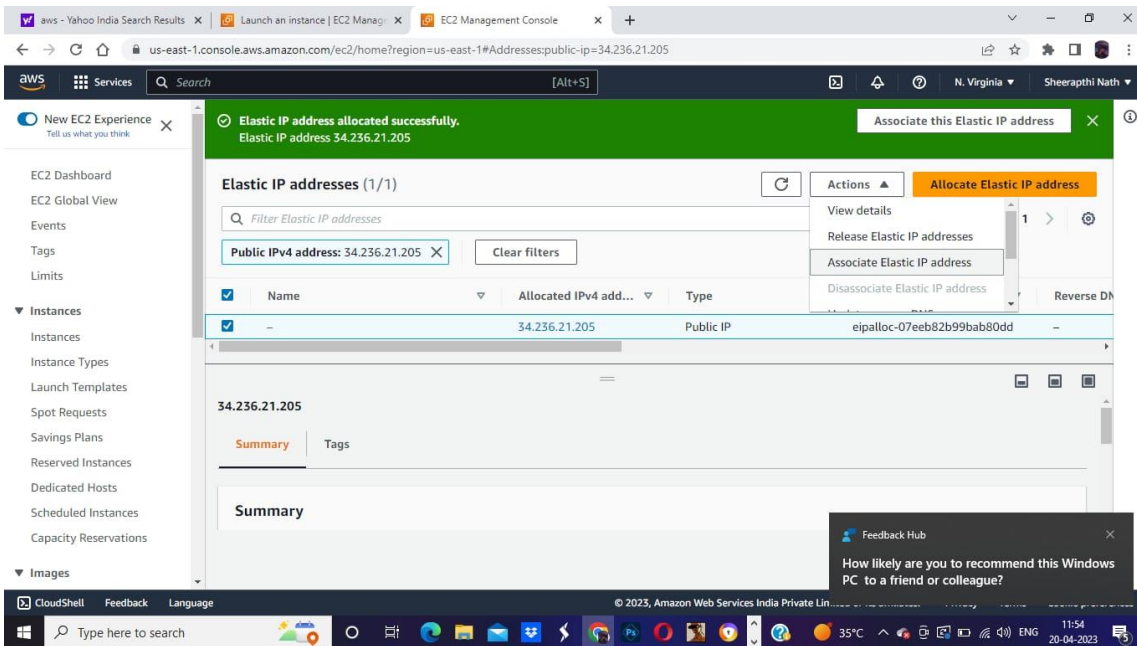


Fig 6.2: ELASTIC IP ADDRESS RUNNING SUCCESSFULLY

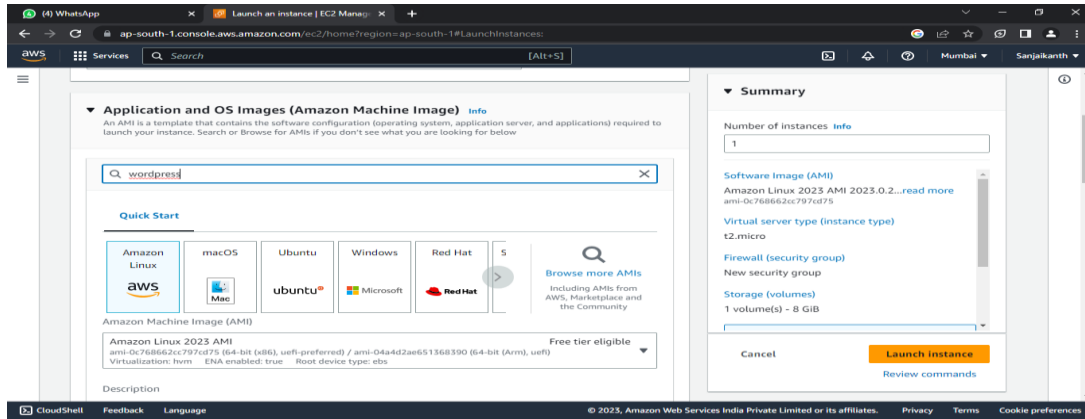


Fig 6.3 : CREATING INSTANCE

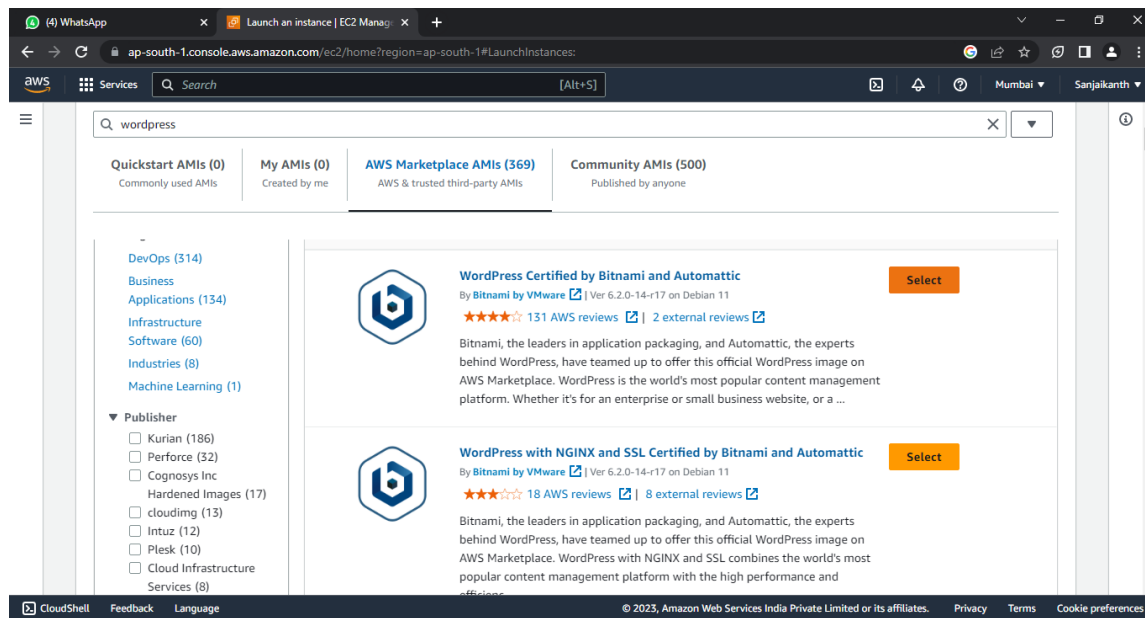


Fig 6.4: AWS MARKETPLACE

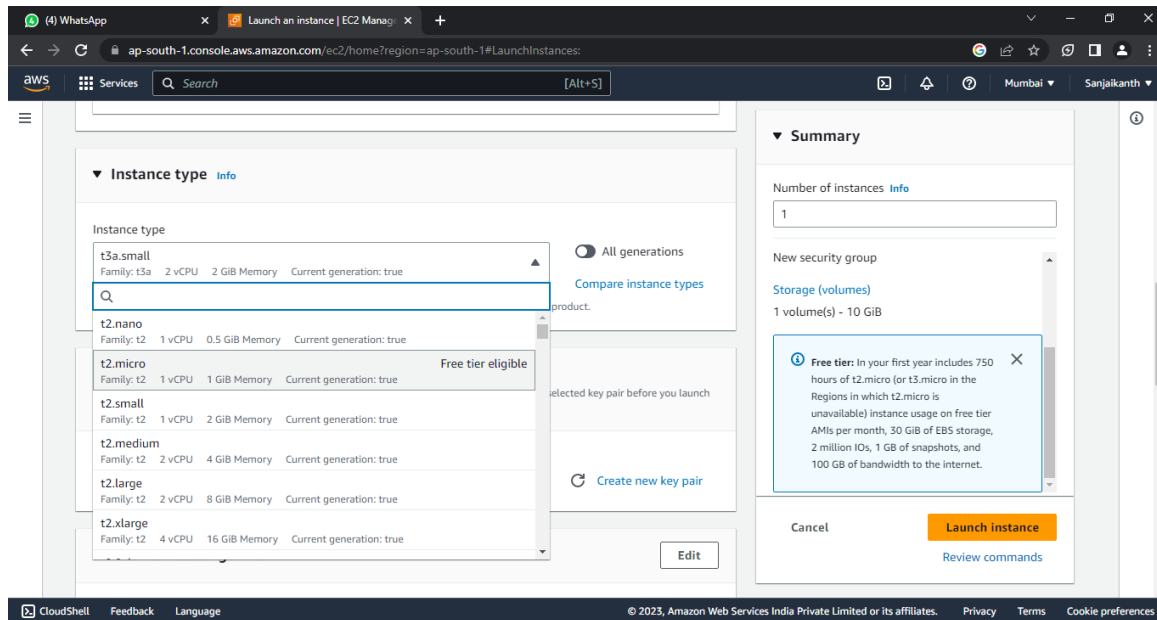


Fig 6.5: SELECTING INSTANCE TYPE

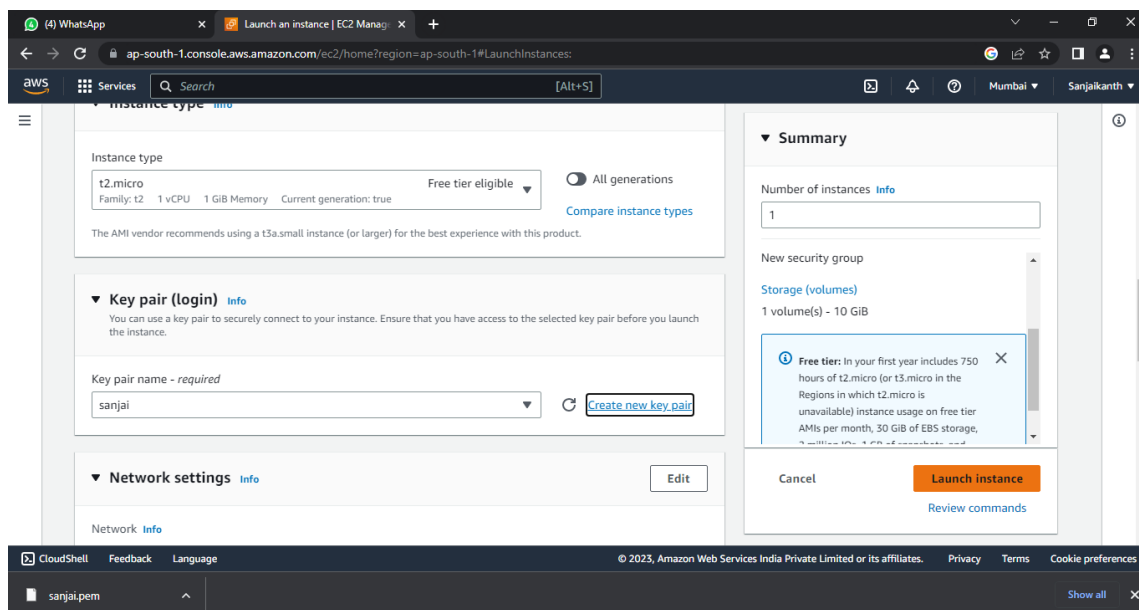


Fig 6.6: KEYPAIR

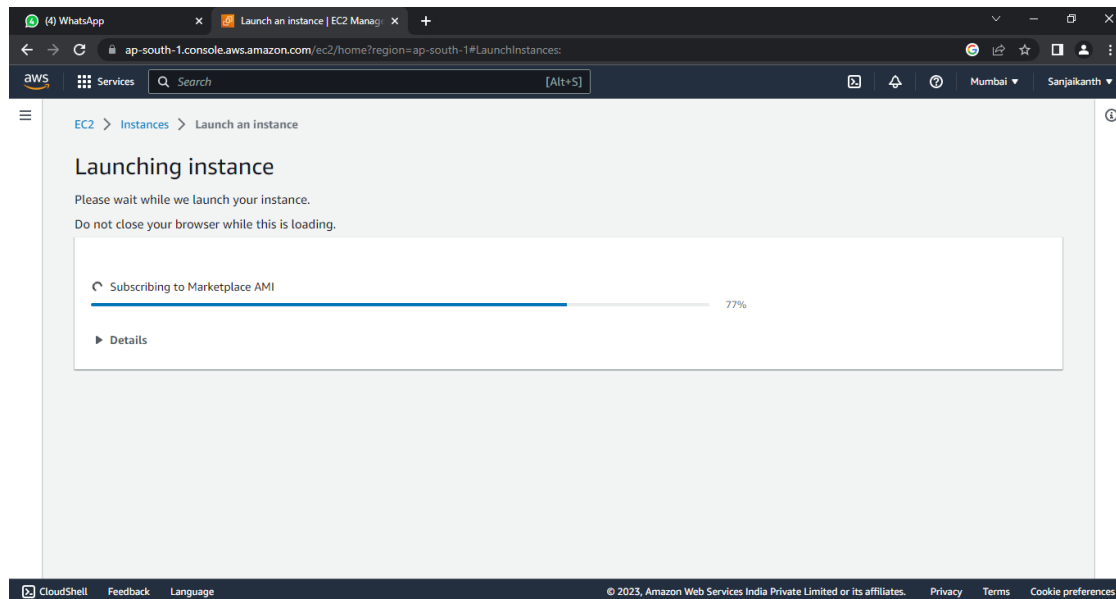


Fig 6.7: LAUNCHING INSTANCE

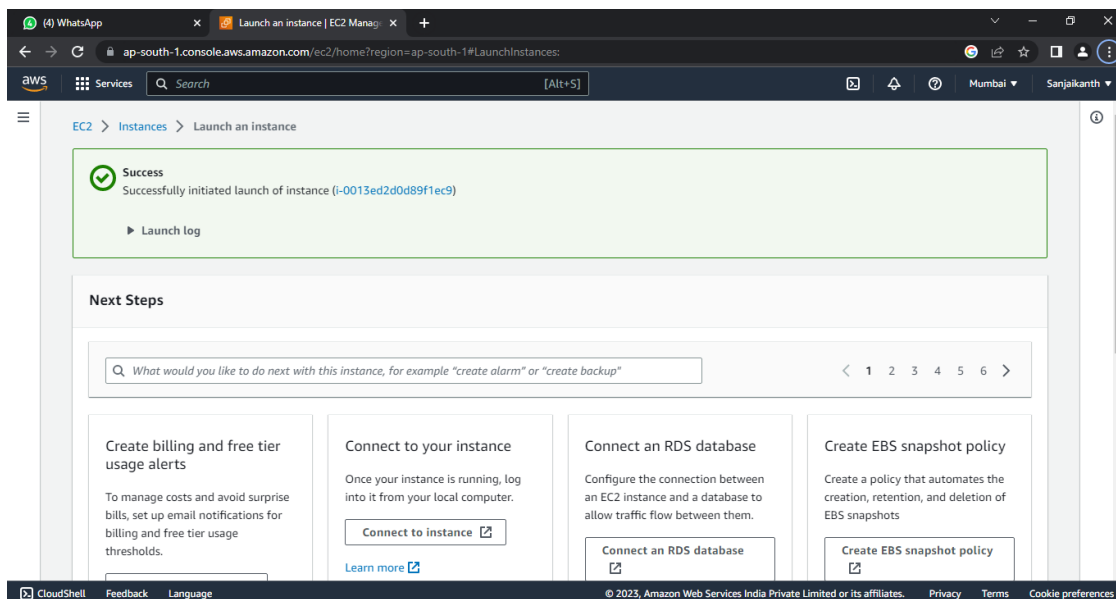


Fig 6.8: SUCCESSFULLY LAUNCHED

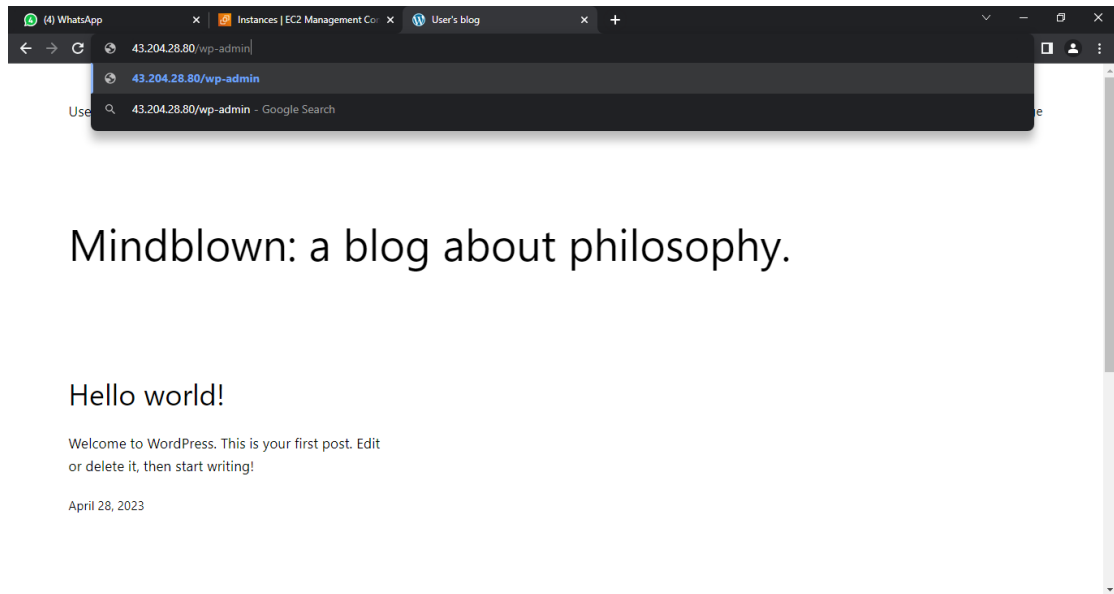


Fig 6.9: LOCAL HOST

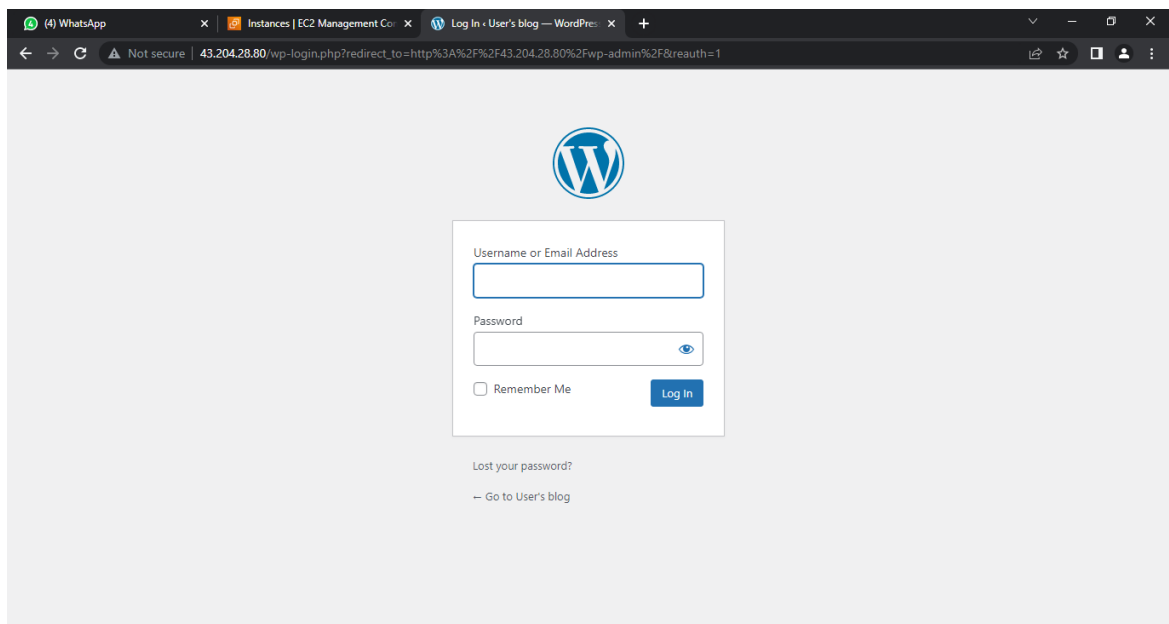


Fig:6.10: WORDPRESS LOGIN PAGE

6.1 LAUNCHING AMAZON LIGHTSAIL

What is Amazon Lightsail Instance ?

Amazon Lightsail is a service offered by Amazon Web Services (AWS) that provides a simplified way to launch and manage virtual private servers (VPS) or instances. An Amazon Lightsail instance is a virtual machine that can run applications and services on the cloud, similar to a physical server but without the associated hardware maintenance and management.

Lightsail instances are pre-configured with a set amount of CPU, RAM, and storage, making them easy to set up and use. They also come with a set of pre-installed software stacks, including popular applications such as WordPress, LAMP stack, MEAN stack, and more.

One of the key benefits of using Lightsail instances is their ease of use, as users can launch instances with just a few clicks and manage them through a simple web-based console.

Additionally, Lightsail instances are designed to be cost-effective, with predictable pricing and no hidden fees.

Lightsail instances are ideal for small to medium-sized websites, web applications, and small projects that require a scalable and secure hosting solution. They can be easily scaled up or down to meet changing demands and can also be integrated with other AWS services for added functionality and flexibility.

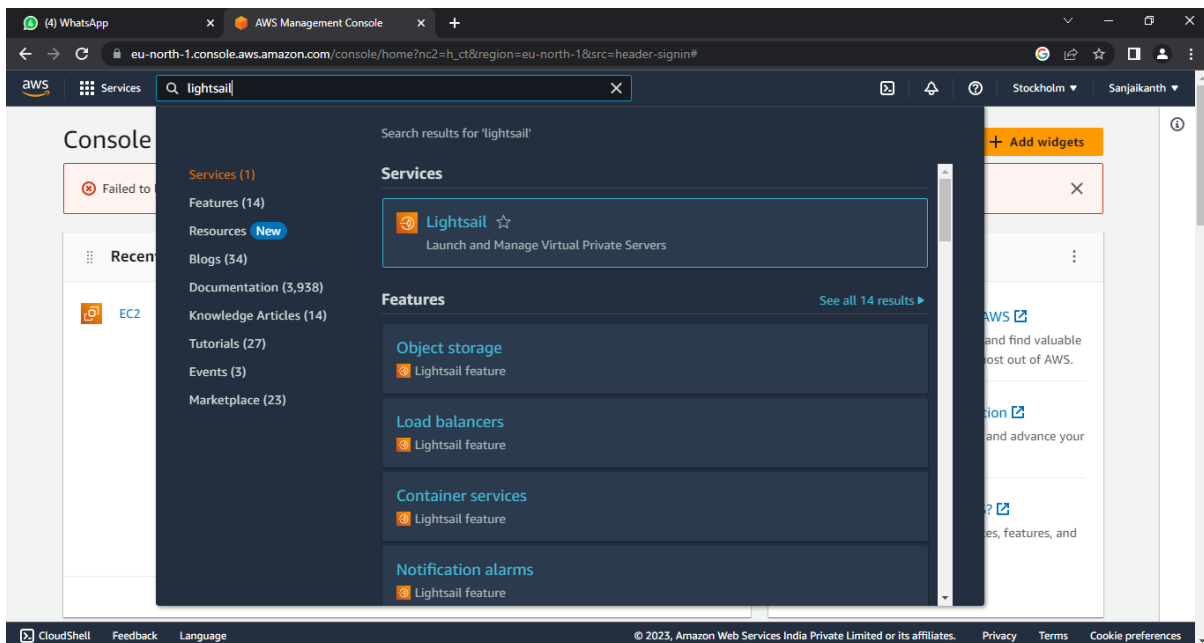


Fig 7.1: SELECTING LIGHTSAIL

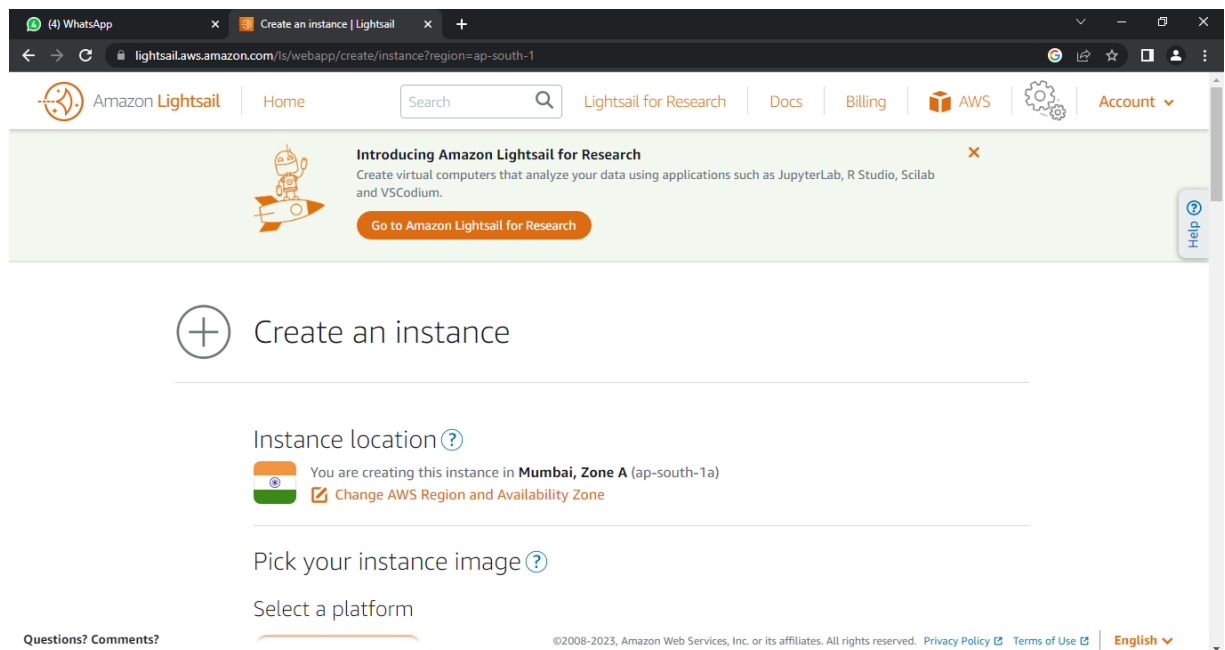


Fig 7.2: CREATING INSTANCE

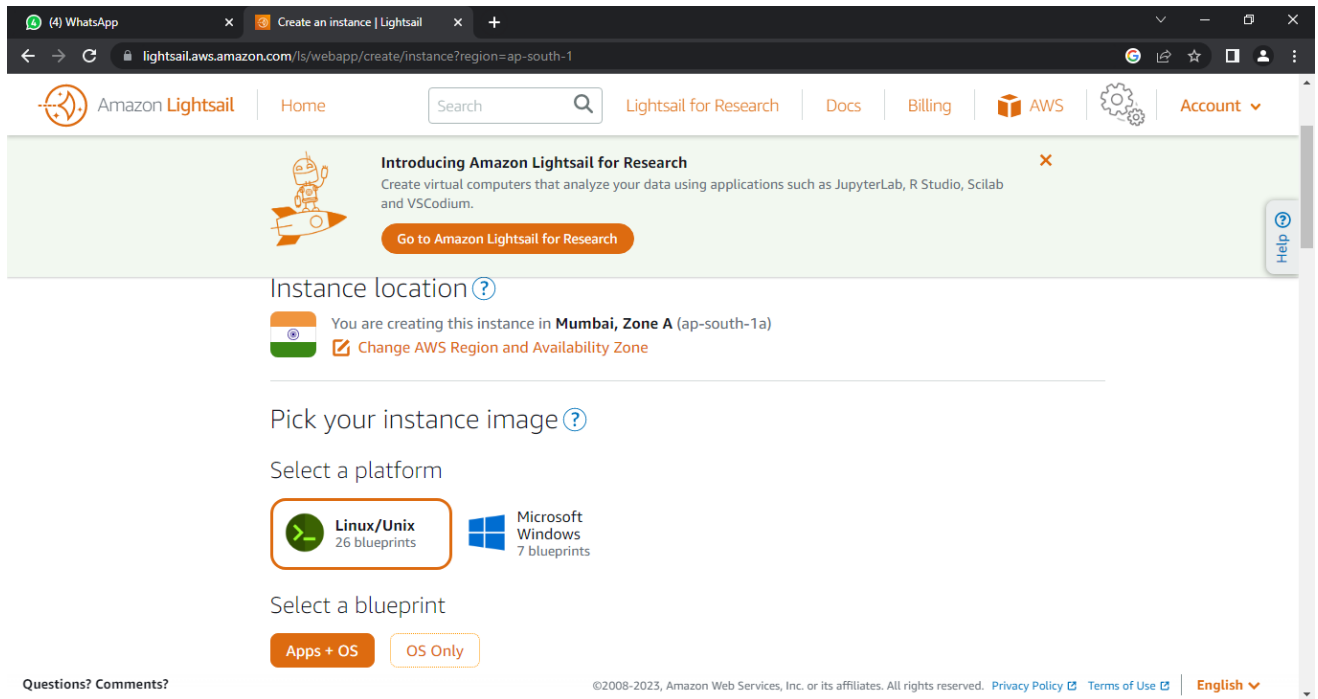


Fig 7.3: CHOOSING PLATFORM

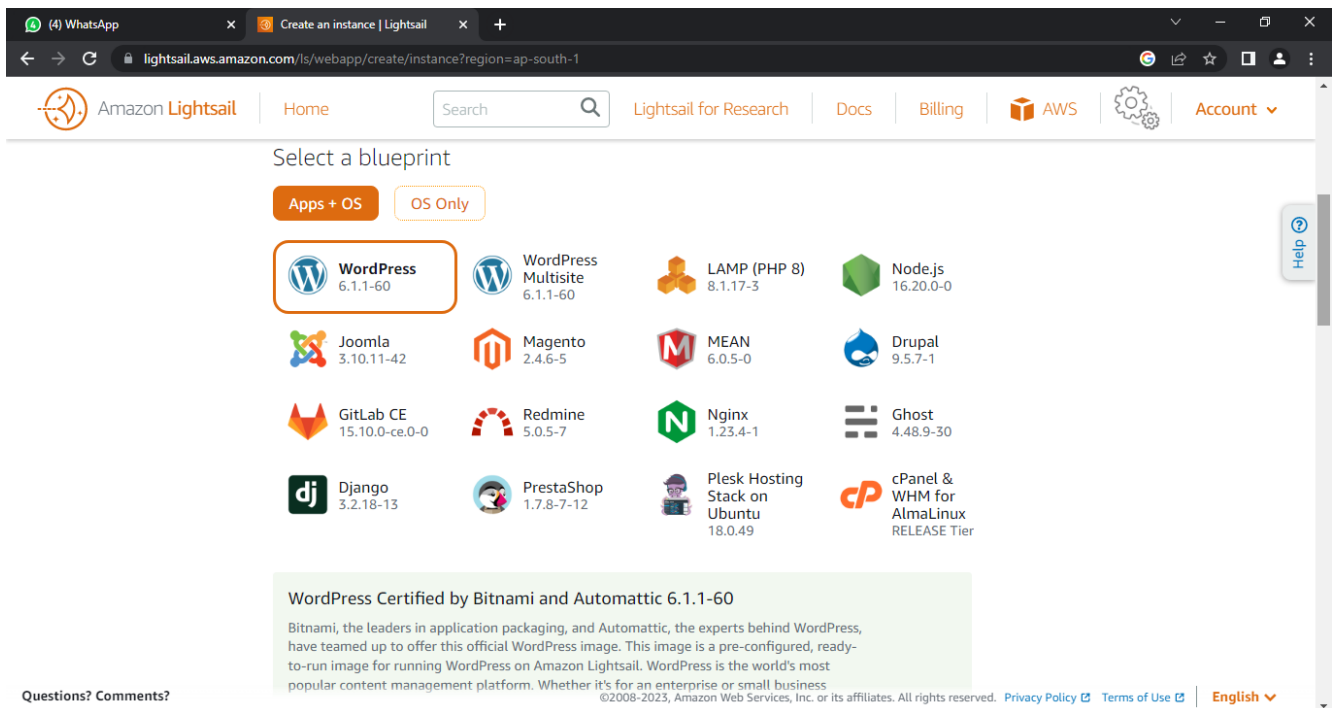


Fig 7.4: SELECTING APPLICATION

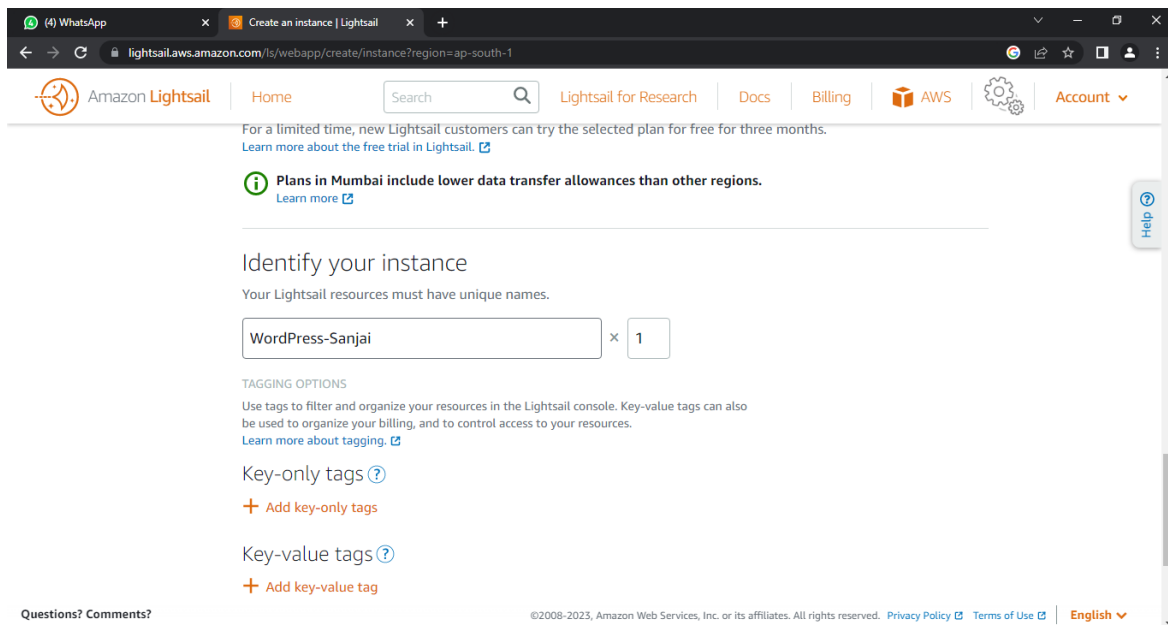


Fig 7.5: NAMING INSTANCE

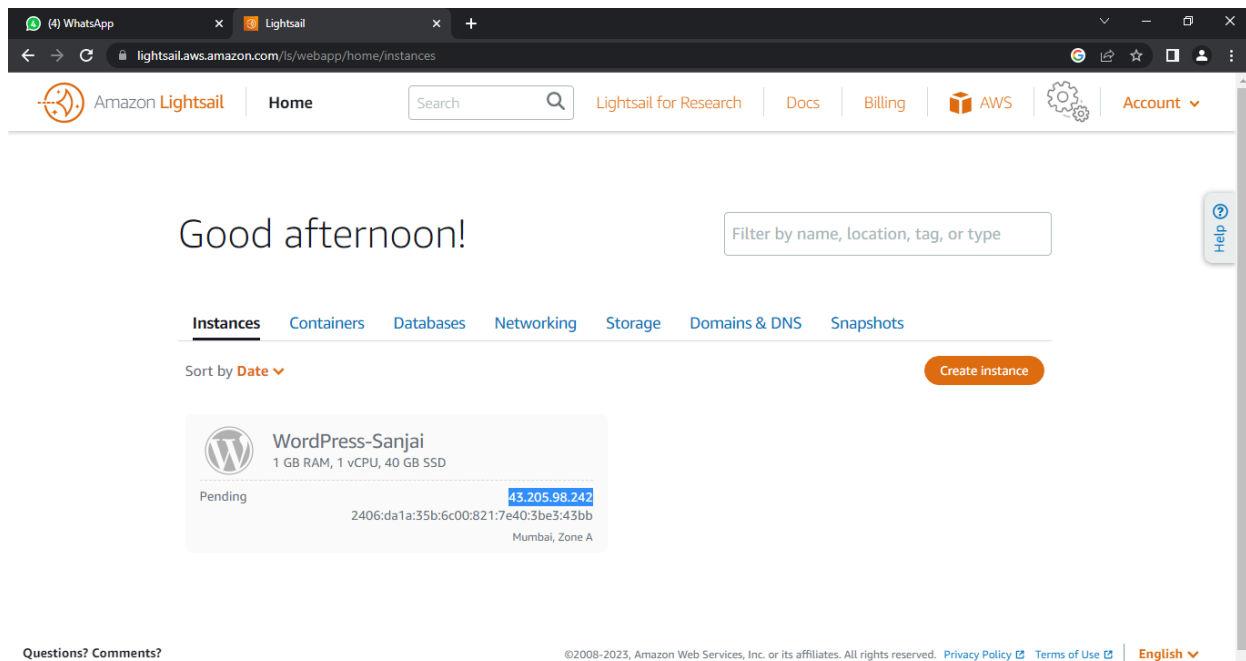


Fig 7.6: PUBLIC IP

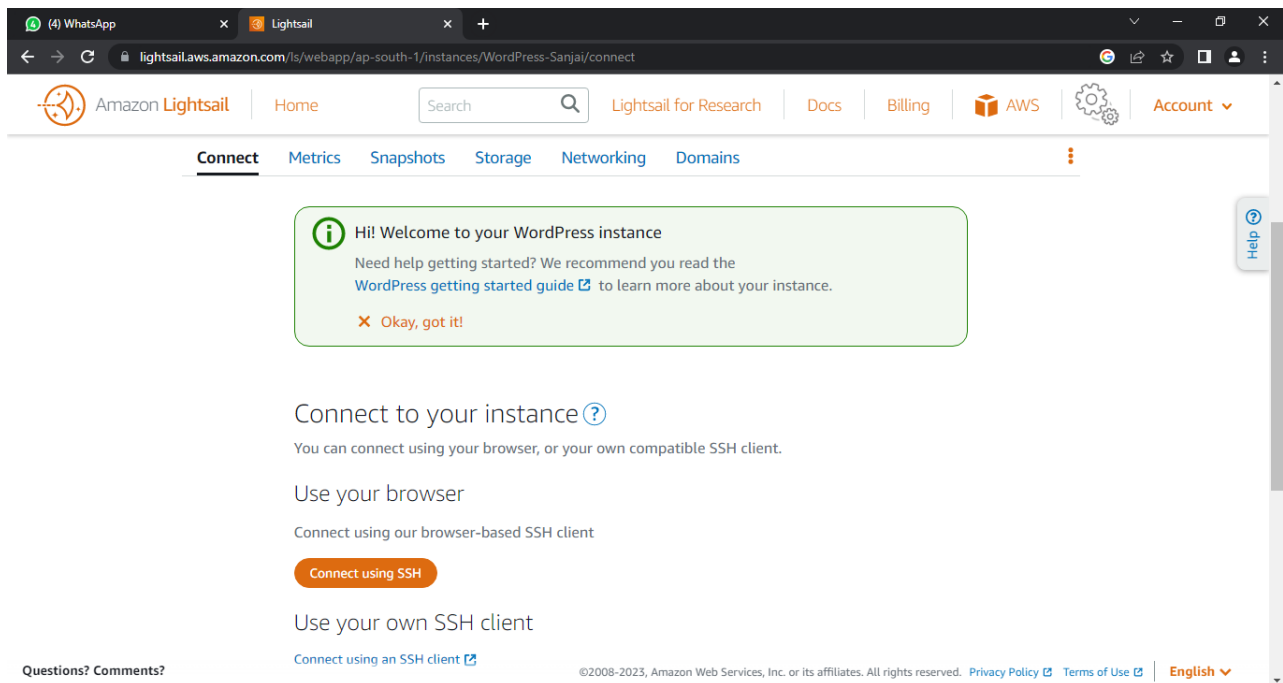


Fig 7.7: SUCCESSFULLY CREATED INSTANCE

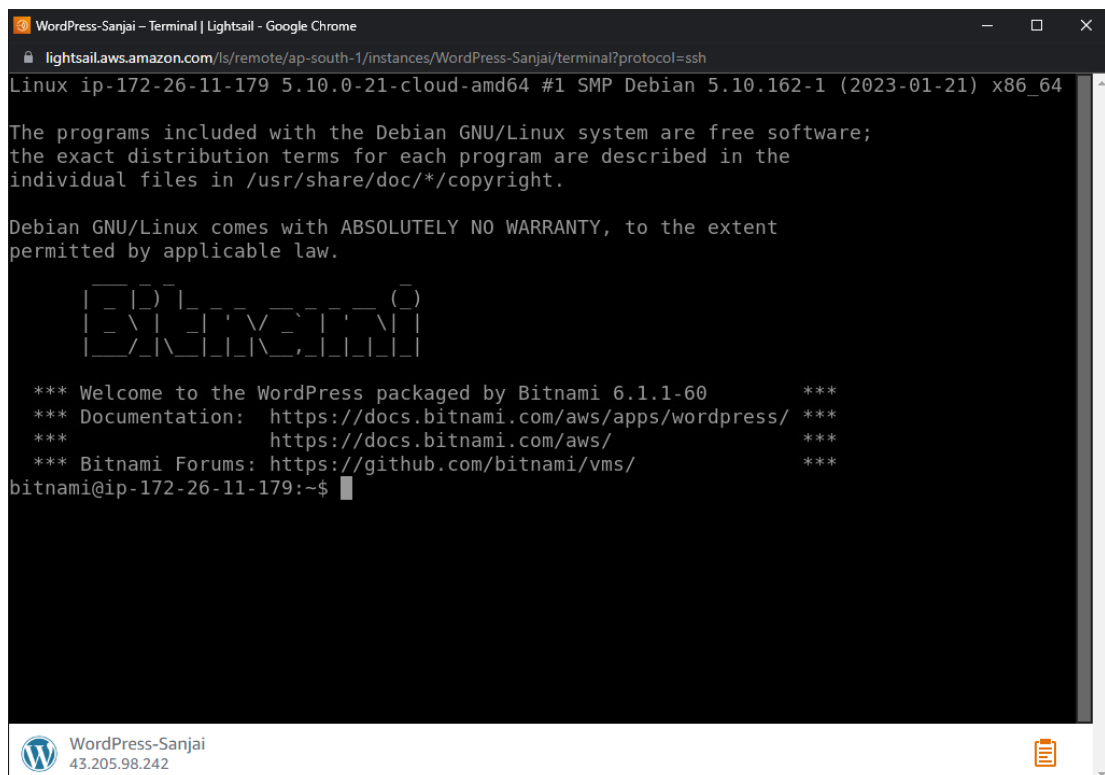


Fig 7.8: BITNAMI TERMINAL

```
WordPress-Sanjai - Terminal | Lightsail - Google Chrome
lightsail.aws.amazon.com/ls/remote/ap-south-1/instances/WordPress-Sanjai/terminal?protocol=ssh
Linux ip-172-26-11-179 5.10.0-21-cloud-amd64 #1 SMP Debian 5.10.162-1 (2023-01-21) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

  _ _ _ _ _
 | _ | _ | _ | _ | _ | _ |
 | _ | _ | _ | _ | _ | _ |
 | _ | _ | _ | _ | _ | _ |

*** Welcome to the WordPress packaged by Bitnami 6.1.1-60 ***
*** Documentation: https://docs.bitnami.com/aws/apps/wordpress/ ***
*** https://docs.bitnami.com/aws/ ***
*** Bitnami Forums: https://github.com/bitnami/vms/ ***
bitnami@ip-172-26-11-179:~$ cd /opt/bitnami/
bitnami@ip-172-26-11-179:/opt/bitnami$ ls
apache      bndiagnostic-regex.ini  gonit      peclapcu    stats
apache2     bndiagnostic-tool       licenses   php         var
bncert      brotli                 mariadb    phpmyadmin  varnish
bncert-tool common                 mysql      properties.ini wordpress
bndiagnostic ctlscrip.sh            nami       scripts     wp-cli
bitnami@ip-172-26-11-179:/opt/bitnami$
```

Fig 7.9: cd /opt/bitnami/

```
WordPress-Sanjai - Terminal | Lightsail - Google Chrome
lightsail.aws.amazon.com/ls/remote/ap-south-1/instances/WordPress-Sanjai/terminal?protocol=ssh
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

  _ _ _ _ _
 | _ | _ | _ | _ | _ | _ |
 | _ | _ | _ | _ | _ | _ |
 | _ | _ | _ | _ | _ | _ |

*** Welcome to the WordPress packaged by Bitnami 6.1.1-60 ***
*** Documentation: https://docs.bitnami.com/aws/apps/wordpress/ ***
*** https://docs.bitnami.com/aws/ ***
*** Bitnami Forums: https://github.com/bitnami/vms/ ***
bitnami@ip-172-26-11-179:~$ cd /opt/bitnami/
bitnami@ip-172-26-11-179:/opt/bitnami$ ls
apache      bndiagnostic-regex.ini  gonit      peclapcu    stats
apache2     bndiagnostic-tool       licenses   php         var
bncert      brotli                 mariadb    phpmyadmin  varnish
bncert-tool common                 mysql      properties.ini wordpress
bndiagnostic ctlscrip.sh            nami       scripts     wp-cli
bitnami@ip-172-26-11-179:/opt/bitnami$ ls wordpress/
index.php      wp-admin          wp-cron.php      wp-settings.php
licenses       wp-blog-header.php wp-includes      wp-signup.php
license.txt    wp-comments-post.php wp-links-opml.php wp-trackback.php
readme.html    wp-config.php     wp-load.php      xmlrpc.php
tmp            wp-config-sample.php wp-login.php
wp-activate.php wp-content        wp-mail.php
bitnami@ip-172-26-11-179:/opt/bitnami$
```

Fig 7.10: worpress ls/

```
WordPress-Sanjai - Terminal | Lightsail - Google Chrome
lightsailaws.amazon.com/ls/remote/ap-south-1/instances/WordPress-Sanjai/terminal?protocol=ssh
Linux ip-172-26-11-179 5.10.0-21-cloud-amd64 #1 SMP Debian 5.10.162-1 (2023-01-21) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

  _ _ _ _ _
 | | | | |
 | | | | |
 | | | | |
 | | | | |

*** Welcome to the WordPress packaged by Bitnami 6.1.1-60 ***
*** Documentation: https://docs.bitnami.com/aws/apps/wordpress/ ***
*** https://docs.bitnami.com/aws/ ***
*** Bitnami Forums: https://github.com/bitnami/vms/ ***
Last login: Fri Apr 28 17:11:38 2023 from 52.95.72.68
bitnami@ip-172-26-11-179:~$ cat $HOME/bitnami_application_password
hDKYemEEF4wR
bitnami@ip-172-26-11-179:~$
```

Fig 7.11: cat \$HOME/bitnami_application_password

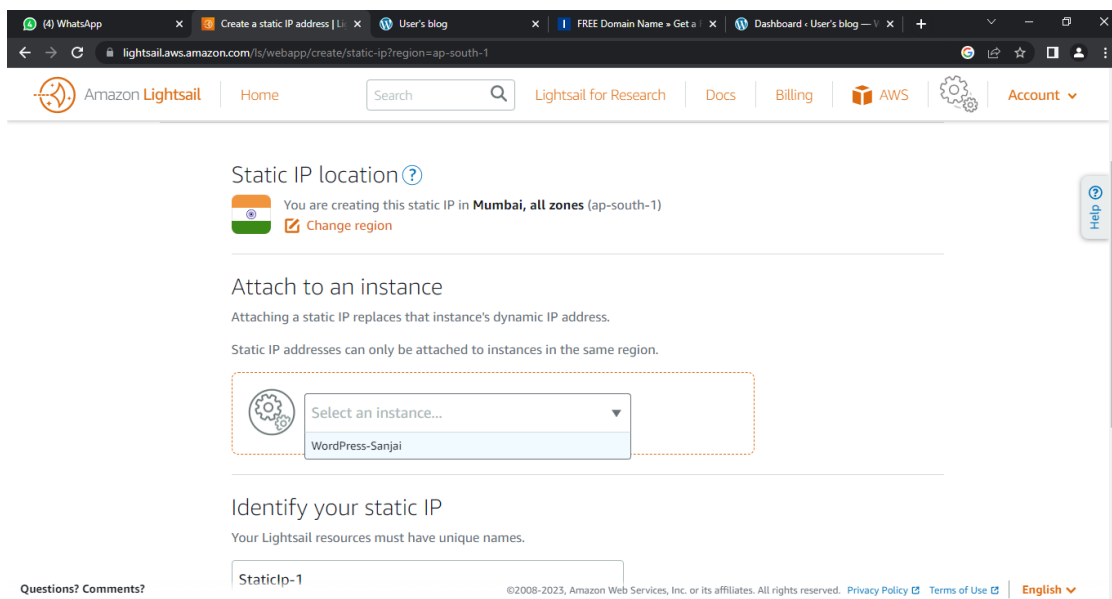


Fig 7.12: STATIC IP LOCATION

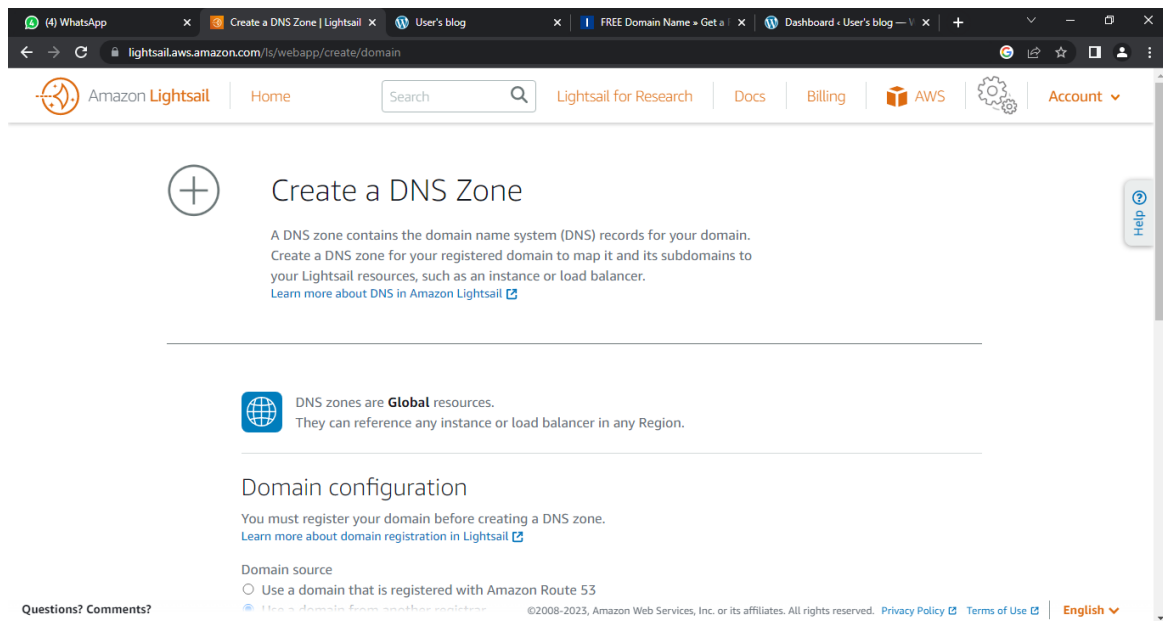


Fig 7.13: CREATING DNS ZONE

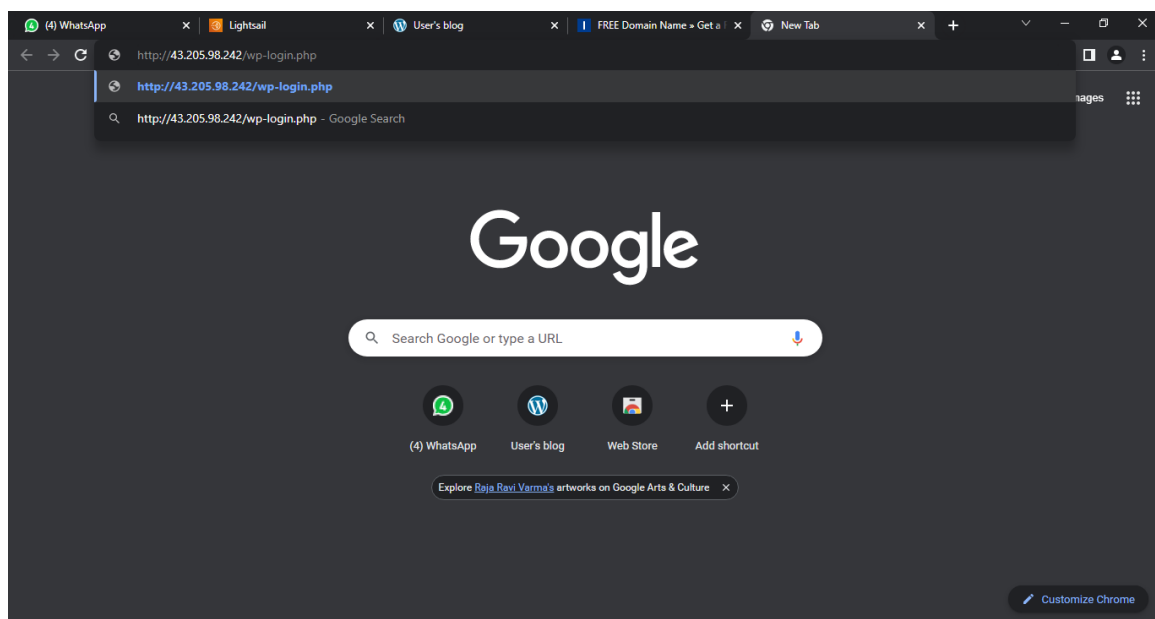


Fig 7.14: PUBLIC IP ADDRESS

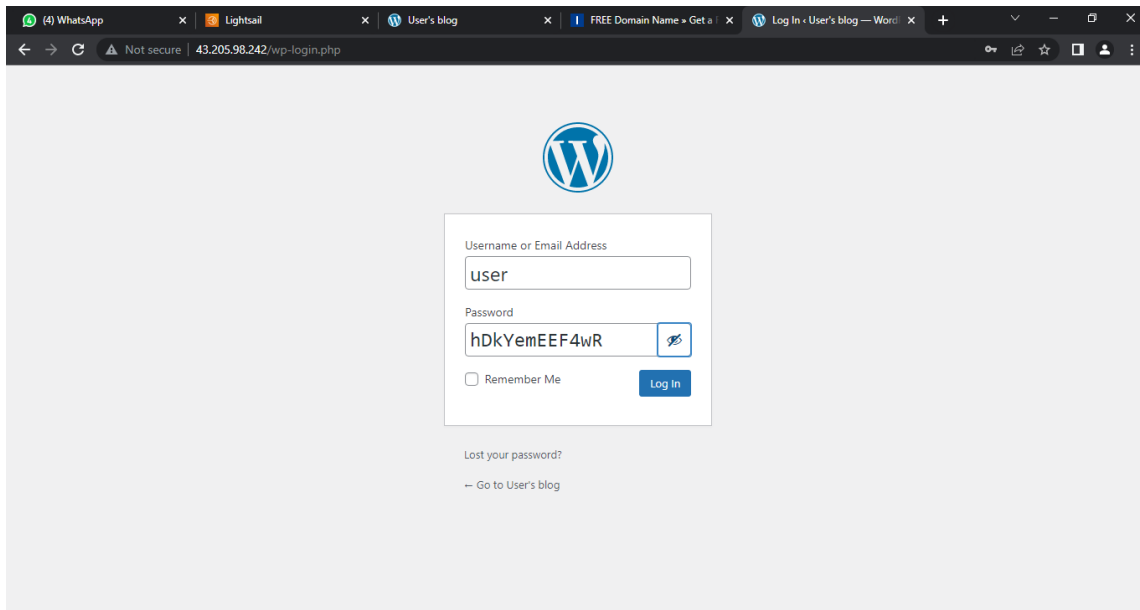


Fig 7.15: WORDPRESS LOGIN PAGE

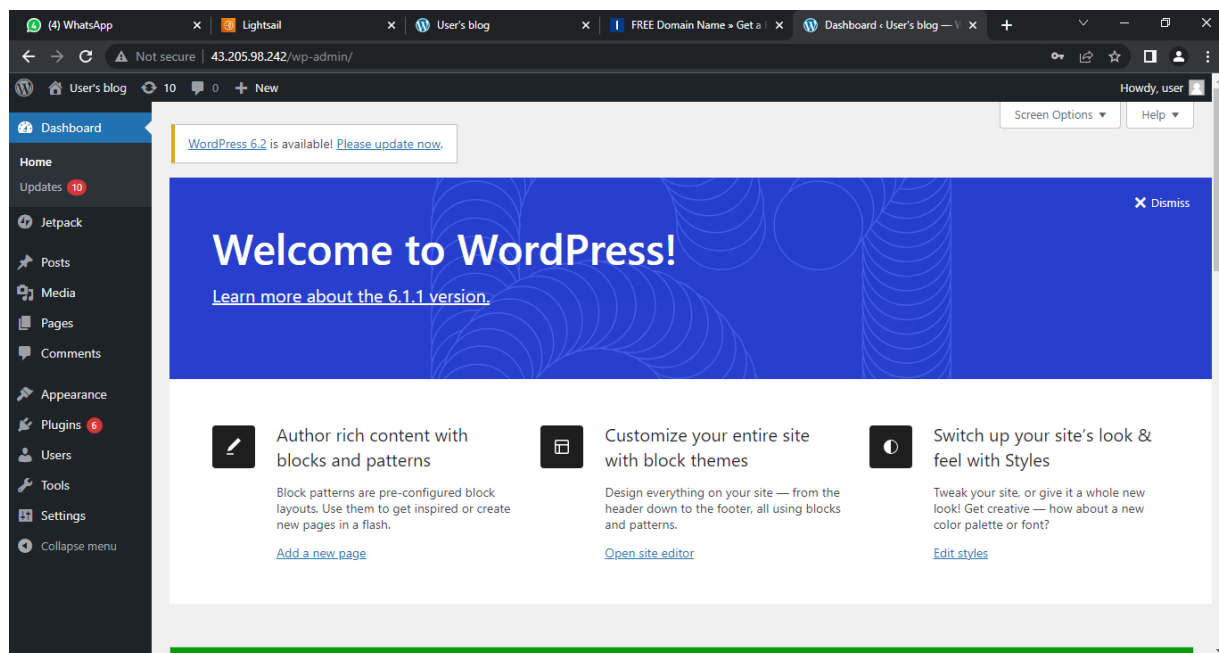


Fig 7.16: WORDPRESS WEBSITE

CHAPTER 7

RESULT AND DISCUSSION

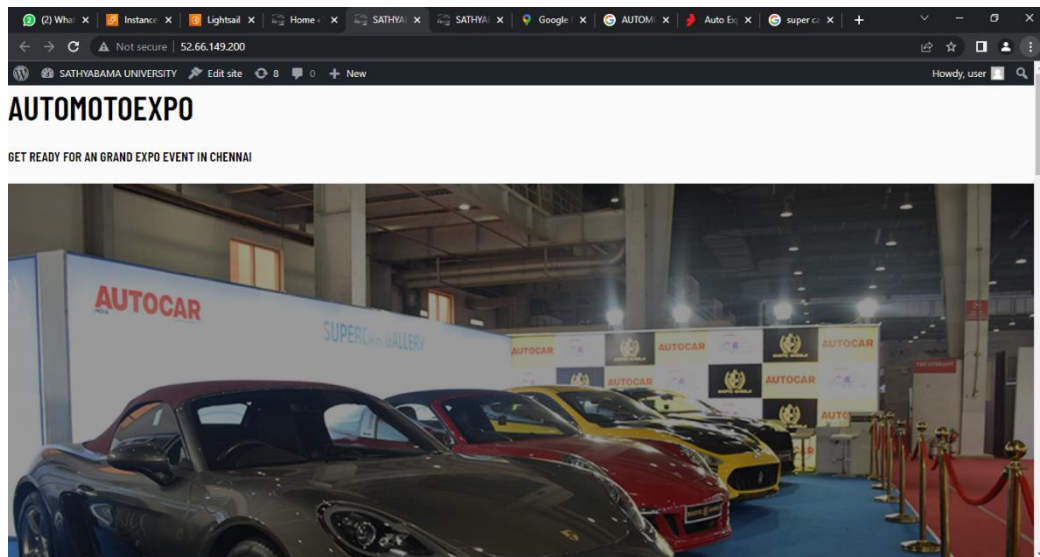


Fig 8.1: OUTPUT 1

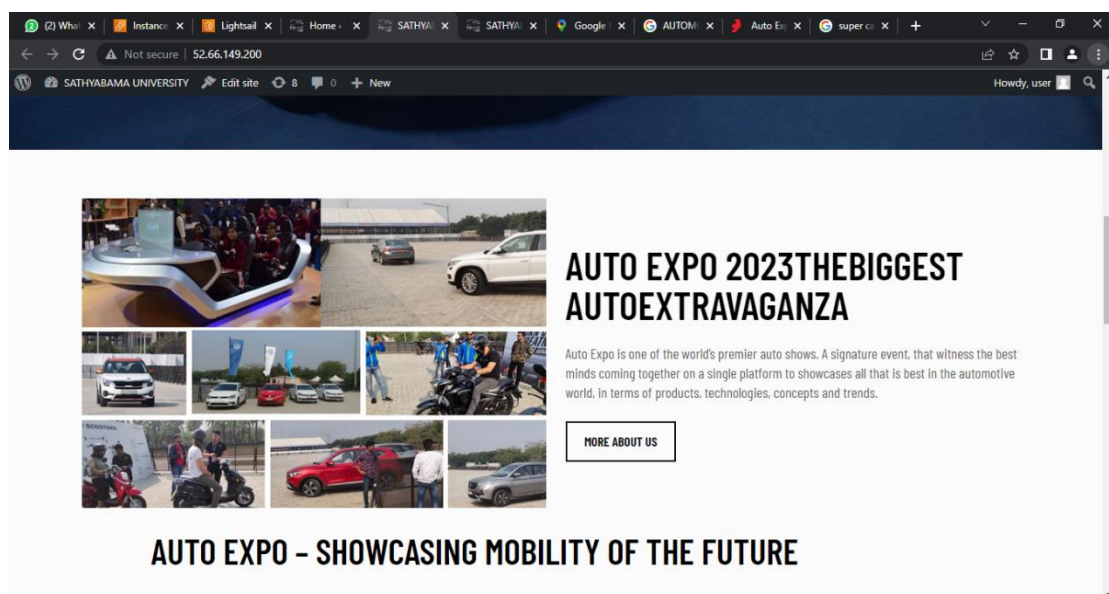


Fig 8.2: OUTPUT 2

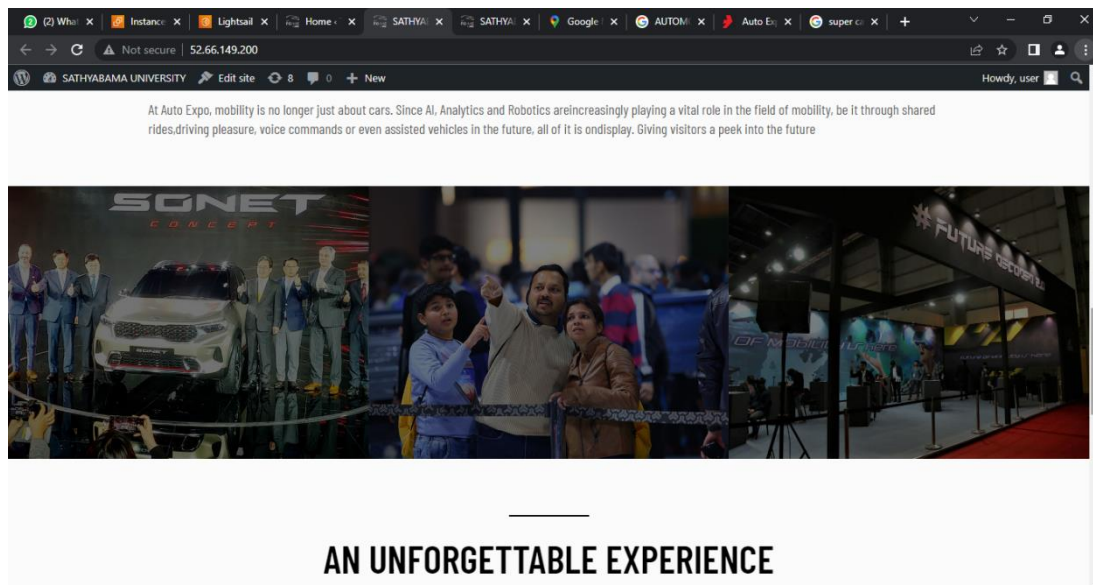


Fig 8.3

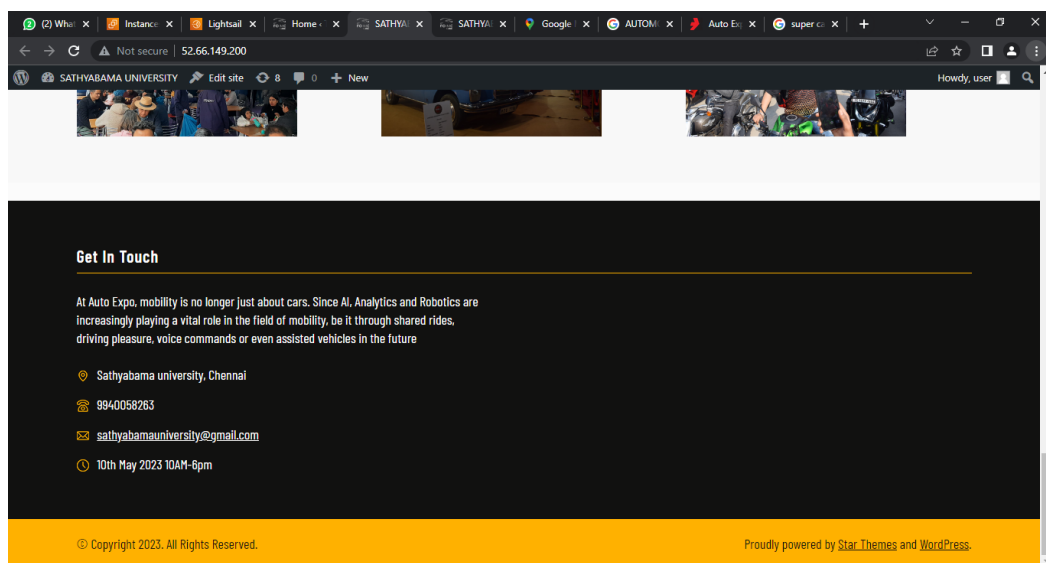


Fig 8.4

CHAPTER 8

SSH INTO THE LIGHTSAIL INSTANCE YOU WANT TO MONITOR

Log in to the Lightsail console at <https://lightsail.aws.amazon.com>.

Click on the name of the instance you want to connect to.

Scroll down to the "Connect" tab, and click on the "Connect using SSH" button.

Follow the instructions on the screen to connect to the instance using an SSH client. If you don't have an SSH client installed on your local machine, you can use the Lightsail web-based SSH client by clicking on the "Launch SSH client" button.

Once connected, you will be prompted to enter your Lightsail instance username and password.

After logging in, you can use the command line interface to monitor your Lightsail instance. Some of the useful commands that you can use to monitor your instance include:

top: This command shows the processes that are currently running on the instance, and provides information about CPU and memory usage.

df: This command shows the disk usage of the instance, including the total, used, and available disk space.

free: This command shows the amount of free and used memory on the instance.

netstat: This command shows network statistics for the instance, including open ports and active connections.

tail: This command allows you to monitor log files in real-time, which can be useful for troubleshooting issues on the instance.

By monitoring your Lightsail instance regularly, you can ensure that it is running smoothly and address any issues before they become major problems.

CHAPTER 9

FUTURE WORK AND CONCLUSION

10.1. FUTURE WORK

Amazon Web Services (AWS) provides a variety of services to help businesses manage their cloud infrastructure. One such service is the ability to send notifications via email from an Elastic Compute Cloud (EC2) instance. This can be useful for a variety of purposes, such as sending alerts when a certain threshold is exceeded, or notifying administrators when a critical process has completed. There are a few best practices to keep in mind when setting up email notifications from an EC2 instance. First, it's important to ensure that your SES account is properly secured. This means using strong passwords and enabling multi-factor authentication (MFA) to prevent unauthorized access. Additionally, you should use SSL/TLS encryption when sending emails to ensure that they are not intercepted or tampered with. Another best practice is to limit the number of emails that are sent from your EC2 instance. This can help prevent your SES account from being flagged as a spammer, which can result in your emails being blocked by recipient email servers. To limit the number of emails sent, you can use a rate limiter or a queueing system to ensure that emails are sent at a controlled pace. Overall, setting up email notifications from an EC2 instance using AWS SES is a straightforward process that can be extremely useful for a variety of purposes. By following best practices and ensuring that your SES account is properly secured, you can ensure that your notifications are delivered reliably and securely.

10.2. CONCLUSION

In conclusion, AWS push notifications of email from LIGHTSNAIL provide numerous benefits to businesses and individuals using the AWS platform. These notifications offer real-time alerts and notifications, making it easy to identify and address issues quickly, which can help to minimize downtime and improve overall reliability. The notifications are easy to configure and highly customizable, allowing users to tailor them to their specific needs and preferences. Push notifications are also cost-effective, meaning that businesses of all sizes can implement and use them without having to worry about high costs. Furthermore, push notifications can improve productivity by reducing the time and effort required to troubleshoot and resolve issues. Overall, AWS push notifications of email from LIGHTSNAIL are a powerful tool that can help businesses stay informed and responsive, improving their overall performance and success in the cloud.

REFERENCES

1. Amazon Lightsail documentation:
https://lightsail.aws.amazon.com/ls/docs/en_us/articles/amazon-lightsail-wordpress-docs
2. YouTube tutorials:
 - How to Install WordPress on Amazon Lightsail:
https://www.youtube.com/watch?v=gxH_kD20Z8w
 - How to create a WordPress website on Amazon Lightsail:
<https://www.youtube.com/watch?v=2ODM7hpyJv8>
 - Deploying WordPress on Amazon Lightsail:
https://www.youtube.com/watch?v=XT0xUxKW6_k
3. Blog posts:
 - How to Install WordPress on Amazon Lightsail: A Step-by-Step Guide:
<https://www.wpbeginner.com/wp-tutorials/how-to-install-wordpress-on-amazon-lightsail/>
 - How to Deploy a WordPress Site on Amazon Lightsail:
<https://kinsta.com/blog/amazon-lightsail-wordpress/>
 - How to Install WordPress on Amazon Lightsail: The Ultimate Guide:
<https://www.cloudways.com/blog/install-wordpress-on-amazon-lightsail/>
4. Official WordPress documentation:
<https://wordpress.org/support/article/how-to-install-wordpress/>
5. .Amazon Lightsail forums:
<https://forums.aws.amazon.com/forum.jspa?forumID=297>