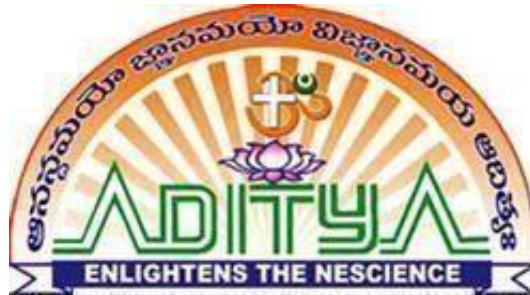# DEPLOY SIMPLE PYTHON WEB APPLICATION USING ELASTIC BEAN STALK IN AWS

A Summer Internship Report submitted in partial fulfillment of the requirements for the award of degree of

BACHELOR OF TECHNOLOGY
In

CSE(AI&ML)

Submitted by
M.Mary Shakeena
22MH1A42H3

ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY (A)

Approved by AICTE, Permanently affiliated to JNTUK & Accredited by NAAC with 'A$^+$' Grade

Recognized by UGC under the sections 2(f) and 12(B) of the UGC Act 1956

Aditya Nagar, ADB Road –Surampalem 533437, East Godavari Dist.,A.P.

2024-2025

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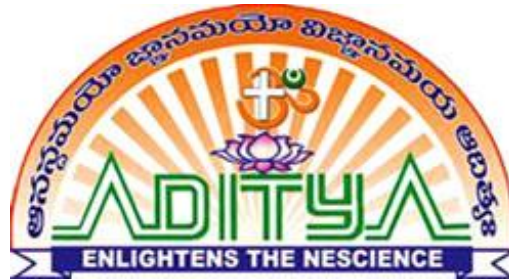**Aditya Nagar, ADB Road –Surampalem 533437, East Godavari Dist.,A.P.**

CERTIFICATE

This is to certify that the Internship report entitled *"***Deploy Simple Web Application using elastic bean in AWS Development***"*is being submitted by **M.MARY SHAKEENA(22MH1A42H3).**In partial fulfillment of the requirements for the award of the B.Tech degree in **CSE(AIML)** for the academic year 2024-2025.

InternshipCoordinator

Guide Name: Mrs. K. Padmavathi
Designation: Assistant Professor
Department: CSE-AIML

Head of the Department

DR. B. Kiran Kumar
Assoc.Professor,
CSE-AIML & IoT

22MH1A42H3

DECLARATION

I hereby declare that the Internship entitled **"Deploy Simple Python Web Application Using Elastic Bean Stalk in AWS"** is a genuine report. This work has been submitted to the **ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY (A),** Surampalem, permanently affiliated to **JNTUK, KAKINADA** in partial fulfillment of the **B.Tech** degree**.**

I also hereby declare that this internship report not submitted in full or partial any other university for any degree.

<div align="right">

M.MARY SHAKEENA
22MH1A42H3

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INSTITUTE VISION & MISSION

ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY
An AUTONOMOUS Institution
Approved by AICTE, Permanently Affiliated to JNTUK, Accredited by NBA & NAAC with A+ Grade
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To induce higher planes of learning by imparting technical education with

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- Applied research
- Creative Ability
- Value based instruction and to emerge as a premiere institute.

MISSION

Achieving academic excellence by providing globally acceptable technical education by forecasting technology through

- Innovative Research and development
- Industry Institute Interaction
- Empowered Manpower

PRINCIPAL

VISION & MISSION OF THE DEPARTMENT

VISION

To be a recognized Computer Science and Engineering hub striving to meet the growing needs of the Industry and Society.

MISSION

M1: Imparting Quality Education through state-of-the-art infrastructure with industry Collaboration

M2: Enhance Teaching Learning Process to disseminate knowledge.

M3: Organize Skill based, Industrial and Societal Events for overall Development.

HOD

22MH1A42H3

INTERNSHIP COMPLETION CERTIFICATE

TECHNICAL HUB™

Technical Hub Private Limited,
Andhra Pradesh, India - 533101.

CERTIFICATE OF INTERNSHIP

Date: 15/07/2024

This is to certify that **Ms. MEKA MARY SHAKEENA,** of the **Computer Science and Engineering (AIML)** department with Roll No:**22MH1A42H3** of **Aditya College of Engineering & Technology(A)** has successfully completed a summer internship with **Technical Hub Pvt Ltd** from **16-05-2024 to 15-07-2024**.

During this tenure, the trainee worked with the technology **AWS Development** and excelled in major concepts.

- Cloud9 IDE

- AWS SDKs and Boto3

- API Gateway

- Serverless Function

The trainee has a great amount of responsibility, sincerity, and a genuine willingness to learn new things.

We found the trainee's performance and conduct were satisfactory.

We wish you all the best and success in your future endeavours.

Intern ID – THSI240072
https://verify.technicalhub.io/

Babji Neelam
Founder & CEO
Technical Hub Pvt Ltd

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technicalhubio
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ACKNOWLEDGEMENT

I offer my sincere thanks to dynamic and beloved Principal, **Dr. A. Ramesh**, **Aditya College of Engineering & Technology(A)** for his co-operation.

My sincere thanks to **Dr. B. Kiran Kumar, M.Tech., Ph.D, Head of the department of CSE-Artificial Intelligence and Machine Learning** for his valuable support.

I express my sincere gratitude to my internship guide, **Mrs. K. Padmavathi, Assistant Professor, Department of CSE-Artificial Intelligence & Machine Learning**, for his/her valuable guidance and encouragement which has been helpful in successful completion of this internship.

With immense pleasure I would like to express my deep sense and heart full thanks to the management of Aditya College of Engineering & Technology (A).

Learning Objectives/Internship Objectives

1. Internships are generally thought of to be reserved for college students looking to gain experience in a particular field. However, a wide array of people can benefit from Training Internships in order to receive real world experience and develop their skills.

2. An objective for this position should emphasize the skills you already possess in the area and your interest in learning more

3. Internships are utilized in a number of different career fields, including architecture, engineering, healthcare, economics, advertising and many more.

4. Some internships are used to allow individuals to perform scientific research while others are specifically designed to allow people to gain first-hand experience working.

5. Utilizing internships is a great way to build your resume and develop skills that can be emphasized in your resume for future jobs. When you are applying for a Training Internship, make sure to highlight any special skills or talents that can make you stand apart from the rest of the applicants so that you have an improved chance of landing the position.

ABSTRACT

This report describes my internship at Technical Hub on AWS Development. Technical Hub is a leading IT company that provides internships to many engineering students in various domains such as Web Development, AI, Python, IoT, etc. The scope of this document is to identify and describe the analysis carried out, projects completed, and experience gained, focusing on the achievements as an AWS Development Intern. Technical Hub provides a glorious opportunity and flexibility to their interns by offering internships online.

During the internship at Technical Hub, I was introduced to new technologies and languages. The most amazing experience was working with the team and completing their projects.Overall, I am very satisfied with the results of my internship. I was able to use AWS services, tools, and best practices and apply them to real-world problems. I observed notable differences in the functioning of tasks due to my contributions. Despite the short time period spent with Technical Hub, I took this experience as an opportunity to provide Technical Hub with the skills I learned as an AWS Development student at Aditya College of Engineering and Technology.

Index

CHAPTER 1: Executive Summary

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CHAPTER 2: Overview of the Organization

Overview:

The demand-supply gap scenario, exponential opportunities and dynamic challenges in the 21st century call for a change in our thinking on engineering practice and education. A transformation on the current engineering education is the need of the hour. Growth of new knowledge together with rapidly evolving technological skills, the skill to communicate across disciplines, the ability to lead team-centered projects, contextualized problem formulation, and hands-on experience are the present demands of the global industry. On contrary to the present demands, students churned out from engineering colleges are not equipped to meet the current industry needs due to the growing gap between engineering practice, education and research which requires a lot of concern. As a timely response, it is this concern for the student that has led Aditya to initiate Technical Hub: a perfect launch pad to the job world. Technical Hub trains students in various disciplines beyond technological labels besides equipping them with skills and creativity required for advancement in their careers. Through its various programs Technical Hub provides adequate opportunities for an unmatched knowledge base by imparting all necessary skills to students and makes them job ready.

Website   :   https://technicalhub.io/

Company size :   51-200 employees

Headquarters   :   Surampalem, Andhra Pradesh

Founded   :   2016

Specialties:

Innovative Product Development, Recruitment, Business Software,. Educational Software, Virtual Reality, Machine Learning, Cyber Security, Digital Marketing, Android, Networking, Augmented Reality, Block Chain, Java, C, Gaming, Robotics, Machine Learning, IoT, Mean Stack, Python, Auto CAD, 3D Printing, and Drone Piloting

CHAPTER 3: INTERNSHIP PART

Description of the Activities/Responsibilities in the Intern Organization during Internship, which shall include - details of working conditions, weekly work schedule, equipment used, and tasks performed. This part could end by reflecting on what kind of skills the intern acquired.

WEEKLY OVERVIEW OF INTERNSHIP ACTIVITIES

ACTIVITY LOG FOR THE FIRST WEEK

	Date	Day	Brief Description of Daily Activity	Learning Outcomes
1st WEEK	16-05-2024	Thursday	On-boarding and introduction to company	About company, scope of internship and mentor introduction
	17-05-2024	Friday	Introduction to GitHub and Version Control System	Understanding concept of Version Control System using Git and GitHub
	18-05-2024	Saturday	Introduction to Operating Systems	Understanding the concept of Operating Systems in Servers

WEEKLY REPORT

WEEK – 1 (From Dt 16/05/2024 to Dt 18/05/2024)

Objective of the Activity Done: Version Control System & Operating Systems

Detailed Report: Since the technology of Cloud Computing requires knowledge of Operating Systems, the activity conducted based on OS concepts understood in Week-1. By doing this activity the I am able to define the benefits of Version Control System and basic and main functionalities of Operating Systems.

ACTIVITY LOG FOR THE SECOND WEEK

	Date	Day	Brief Description of Daily Activity	Learning Outcomes
2nd WEEK	20-05-2024	Monday	Working with Different Operating Systems	Explore and work with Windows, Linux and Server versions of Operating Systems
	21-05-2024	Tuesday	Introduction to Client-Server Architecture	Understanding the Client and Server Architecture in real-time environments
	22-05-2024	Wednesday	Different types of Servers	Explore the usage and benefits of various servers such as Web, email, FTP, DHCP, FTP, SSH etc
	23-05-2024	Thursday	Introduction to Networking	Understanding role of Networking and Communication in Datacenters and Cloud
	24-05-2024	Friday	Datacenters and Servers	Exploring the Datacenter environment and infrastructure
	25-05-2024	Saturday	Activity on infrastructure connectivity	Practical knowledge check on topics covered in the 1st & 2nd Week

WEEKLY REPORT

WEEK – 2 (From Dt 20/05/2024 to Dt 25/05/2024)

Objective of the Activity Done: Understanding infrastructure connectivity

Detailed Report: In this activity, I was able to define and explore different types of servers and the way they connect to each other using IP Networking concepts. By the end of this activity, it is clearly understood that Client-Server architecture works, how the servers in datacenters placed and infrastructure of the cloud environment that is created by connecting multiple datacenters from different locations of the world

ACTIVITY LOG FOR THE THIRD WEEK

	Date	Day	Brief Description of Daily Activity	Learning Outcomes
3ʳᵈWEEK	27-05-2024	Monday	Introduction to Cloud Infrastructure	Understanding how the data centers connect in real-time
	28-05-2024	Tuesday	Cloud Computing Models	Explore Cloud computing models as per NIST
	29-05-2024	Wednesday	Cloud Services	Understanding Cloud services as per NIST
	30-05-2024	Thursday	Introduction To Virtualization	Exploring how the traditional computing transitioned to Virtualization
	31-05-2024	Friday	Virtual Severs of Linux	Understanding how the servers created in Virtual Environment
	01-06-2024	Saturday	Activity on Cloud and Virtualization	Practical knowledge check on topics covered until Week-3

WEEKLY REPORT

WEEK – 3 (From Dt 27/05/2024 to Dt 01/06/2024)

Objective of the Activity Done: Cloud and Virtualization

Detailed Report: This activity is based on understanding the concepts covered as per Virtualization. By the end of this activity, I was able to explore how the traditional Operating Systems and infrastructure transitioned to virtual environment. It is also understood that virtualization is the pillar of cloud computing concept and how the cloud is built using the various concepts of virtualization.

The infrastructure virtualization is the core concept behind cloud computing that give the customers to manage their resources flexibly considering High Availability, Scalability, Security and Reliability concepts of various server types and cloud services.

ACTIVITY LOG FOR THE FORTH WEEK

	Date	Day	Brief Description of Daily Activity	Learning Outcomes
4ᵗʰWEEK	03-06-2024	Monday	Introduction to Linux OS	Understanding why Linux is everywhere
	04-06-2024	Tuesday	Holiday	Holiday (AP Election Results)
	05-06-2024	Wednesday	Linux command syntax and basic commands	Understand the usage of Linux command syntax
	06-06-2024	Thursday	Linux User and Groups	Explore different types of users and groups in Linux
	07-06-2024	Friday	Basic file and directory permission in Linux	Exploring how the permissions work for file, directories, users & Groups
	08-06-2024	Saturday	Activity on Linux Operating System	Practical knowledge check on topics covered until Week-4

WEEKLY REPORT

WEEK – 4 (From Dt 03/06/2024 to Dt 08/06/2024)

Objective of the Activity Done: Working with Linux Operating system

Detailed Report: Linux Operating System is considered as a one of the best Open-Source platforms deployed on most the server applications used today. Because of the flexibility of using the applications with integrated security options in Linux, this OS became a widely used platform preferred by major application providers in the world.

By the end of this activity I explore the command syntax of Linux Operating System, OS file system and hierarchy, working with files and directories, applying file and directory level permissions, creating users and working with different types of editors etc.

ACTIVITY LOG FOR THE FIFTH WEEK

	Date	Day	Brief Description of Daily Activity	Learning Outcomes
5thWEEK	10-06-2024	Monday	Introduction to AWS Services and Service Categories	Understanding AWS offered services and its categories
	11-06-2024	Tuesday	Understanding AWS Management Console	Explore AWS Management console using sandbox
	12-06-2024	Wednesday	AWS Regions and Availability Zones	Explore and Switch between AWS Regions
	13-06-2024	Thursday	Introduction to AWS Compute Services	Understanding AWS Compute service EC2 and related components
	14-06-2024	Friday	Working with EC2 Service	Exploring various launching options of EC2
	15-06-2024	Saturday	Activity on AWS Management Console and EC2 Service	Practical knowledge check on topics covered until Week-5

WEEKLY REPORT

WEEK – 5 (From Dt 10/06/2024 to Dt 15/06/2024)

Objective of the Activity Done: AWS Management console and EC2 Service

Detailed Report: Since we understood the cloud infrastructure, Operating Systems, Server-Client and Linux OS concepts, we tried launching the server in AWS Cloud named EC2 instance using AWS Management console. By the end of this activity, I am able to explore and understand how the virtual server can be launched using AWS Cloud and connect to it using various connectivity methods.

It is clear that how the EC2 instances can be connected to on-premises to copy and migrate the data from on-premises servers to cloud instances.

ACTIVITY LOG FOR THE SIXTH WEEK

	Date	Day	Brief Description of Daily Activity	Learning Outcomes
6thWEEK	17-06-2024	Monday	Holiday	Holiday (Bakrid)
	18-06-2024	Tuesday	Web application deployment on Windows Server	Deploying sample web application on Windows EC2 server
	19-06-2024	Wednesday	EC2Web application deployment on Linux Server	Deploying sample web application on Ubuntu and Amazon EC2 server
	20-06-2024	Thursday	EC2 Managing options for EC2 instance	EC2 managing options such as stop, start, terminate etc.
	21-06-2024	Friday	Ways of connecting to Linux EC2 instances using SSH. Sharing data between local and cloud EC2 instances	Exploring different ways of securely connecting to EC2 instance
	22-06-2024	Saturday	Activity on web application deployment using EC2 compute service	Practical knowledge check on topics covered until Week-6

WEEKLY REPORT

WEEK – 6 (From Dt 17/06/2024 to Dt 22/06/2024)

Objective of the Activity Done: Web application deployment in cloud servers

Detailed Report: Deploying the applications in cloud is an easy and flexible task after understanding the EC2 instance concepts. I obtain practical knowledge on how the applications will be deployed in cloud instances and can be accessed using security groups created.

In this activity, I launched Linux and Windows server instances and deployed various kinds of web applications. Used the security groups to allow and deny access to some of the ports and IP Addresses.

ACTIVITY LOG FOR THE SEVENTH WEEK

	Date	Day	Brief Description of Daily Activity	Learning Outcomes
7ᵗʰWEEK	24-06-2024	Monday	Introduction to Storage technologies	Explore and understand various storage technologies
	25-06-2024	Tuesday	Block vs Object Storage serives	Understanding difference between Block and Object storage
	26-06-2024	Wednesday	Working with AWS S3	Understanding S3 buckets and objects
	27-06-2024	Thursday	Volumes and Snapshots using AWS Elastic Block Storage	Exploring EBS volume and snapshot concepts
	28-06-2024	Friday	Working with EBS Snapshots	Create, Delete and reconnect EBS volume snapshots
	29-06-2024	Saturday	Activity on AWS Object and Block Storage	Practical knowledge check on topics covered until Week-7

WEEKLY REPORT

WEEK – 7 (From Dt 24/06/2024 to Dt 29/06/2024)

Objective of the Activity Done: Working with AWS Object and block storage services

Detailed Report: Data backup and recovery is vital process in server management. Backing up the data and volumes of servers in proper scheduling makes the task of Disaster Recovery an easier one. In this activity, explored on AWS Block storage service that allows the customer to take snapshots of volumes easily for backup purposes.

Also, deployed the static website using AWS S3 object storage service that is an unlimited storage service offered.

ACTIVITY LOG FOR THE EIGHTH WEEK

	Date	Day	Brief Description of Daily Activity	Learning Outcomes
8th WEEK	01-07-2024	Monday	Introduction to AWS Networking Service	Understanding AWS VPC Service
	02-07-2024	Tuesday	AWS Virtual Private Cloud and its components	Explore Subnet and Routing table components of AWS VPC
	03-07-2024	Wednesday	IPv4 Addressing and Subnetting	Understanding IPv4 vs IPv6. Subnetting IPv4 Addressing
	04-07-2024	Thursday	Launching and Connecting resources in AWS VPC	Exploring AWS VPC by launching and connecting resources in it
	05-07-2024	Friday	Web deployment using AWS Elastic Beanstalk	Understanding serverless deployment using AWS Elastic Beanstalk
	06-07-2024	Saturday	Activity on AWS VPC and Elastic Beanstalk	Practical knowledge check on topics covered until Week-8

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WEEKLY REPORT

WEEK – 8 (From Dt 01/07/2024 to Dt 06/07/2024)

Objective of the Activity Done: AWS VPC and Elastic Beanstalk

Detailed Report: Deployed the sample web application using serverless technology. Elastic Beanstalk is the serverless service offered by AWS to deploy web applications on the go without focusing much on virtual infrastructure. This service comes under the category of Platform as a Service (PaaS).

Created an isolated network in cloud that is Virtual Private Cloud, as network service offered by AWS to create networks within regions. Launched the ec2 server resources in VPC and used concepts of Subnet, Internet Gateway, Routing Tables etc to connect successfully to these services.

ACTIVITY LOG FOR THE NINTH WEEK

	Date	Day	Brief Description of Daily Activity	Learning Outcomes
9ᵗʰWEEK	08-07-2024	Monday	Introduction to Development on AWS	Exploring development services in AWS
	09-07-2024	Tuesday	Working with AWS Cloud Shell, AWS CLI & AWS Cloud9 IDE	Understanding CLI access and AWS Cloud9 IDE environments
	10-07-2024	Wednesday	Static website deployment in AWS S3 using Python for AWS SDK (boto3)	Understanding how to deploy the AWS services using boto3
	11-07-2024	Thursday	Secure access to cloud resources using AWS Identity and Access Management	Understanding how the access to cloud resources can be controlled using AWS IAM
	12-07-2024	Friday	Working with AWS NoSQL services and AWS DynamoDB	Differentiate between SQL and NoSQL databases and explore on NoSQL based AWS DynamoDB service
	13-07-2024	Saturday	Project Deployment	Hand-on project with use case applying knowledge of all topics covered until Week-9

WEEKLY REPORT

WEEK – 9 (From Dt 08/07/2024 to Dt 13/07/2024)

Objective of the Activity Done: Working with AWS Development Services

Detailed Report: After going through the development services available in AWS, able to work with then by deploying and creating web applications and databases in cloud.

Worked with AWS SDK, AWS Cloud9, AWS CLI and AWS Code Whisperer to deploy the applications and database services. Used AWS SDK for Python that is also known as boto3 in AWS to deploy the static website in s3.

Configured the users and groups to access resources securely using IAM service. Used the NoSQL based AWS DynamoDB service to create tables and items related to web applications.

ACTIVITY LOG FOR THE TENTH WEEK

	Date	Day	Brief Description of Daily Activity	Learning Outcomes
10thWEEK	15-07-2024	Monday	Project Deployment	Hand-on project with use case applying knowledge of all topics covered until Week-9

WEEKLY REPORT

WEEK – 10 From Dt 13/07/2024 to Dt 15/07/2024)

Objective of the Activity Done:
The primary objectives for the eighth week were to finalize the project, ensure its performance and reliability, and complete the submission process. This week aimed to make final adjustments, verify the project's compliance with requirements, and submit the completed project.

Detailed Report:
On Monday, the focus was on making final changes to the project. This included addressing any last-minute adjustments and improvements to ensure the project met all specifications and requirements. The goal was to polish the project and prepare it for the final stages of evaluation and submission.

Tuesday's activities were dedicated to ensuring the performance of the project. This involved checking various aspects of the project to ensure reliability and effectiveness.

On Wednesday, I continued with checking of the project to make sure it met all the requirements to ensure the project's optimal functionality. The focus was on refining the project and ensuring it met all performance criteria.

Thursday's activities involved a final verification of the project. This verification process was crucial for confirming the project's readiness for submission and ensuring that all deliverables were complete and accurate.

On Friday, I completed the project submission process. This involved finalizing all documentation, preparing deliverables, and submitting the project according to the specified guidelines. The submission marked the conclusion of the project work and demonstrated the successful completion of the project objectives.

CHAPTER 5: Outcomes Description

Work Environment Experience
During my internship at Technical Hub, I experienced a work environment that was both professional and supportive, tailored to foster both individual and team growth.

People Interactions: Interactions with colleagues and supervisors were positive and collaborative. The team was approachable, with frequent opportunities for one-on-one discussions, feedback, and mentoring. There was a strong culture of mutual respect, where everyone was encouraged to share ideas and seek assistance when needed.

Discipline and Time Management: Discipline was emphasized through a structured work schedule and regular check-ins. Time management was a key focus, with daily stand-up meetings and weekly progress reviews helping to keep projects on track. The balance between task deadlines and project milestones was well-managed, allowing for efficient progress.

Protocols, Procedures, and Processes: The organization followed well-established protocols and procedures, especially in areas related to network security and project management. There was a structured approach to task execution, including documented processes for configuring VPCs, implementing NAT gateways, and integrating OpenVPN. This structure ensured consistency and quality in all work performed.

Mutual Support and Teamwork: Teamwork was a fundamental aspect of the internship. Colleagues readily offered support and collaborated on various aspects of network design and implementation. The emphasis on mutual support enhanced problem-solving and innovation, contributing to successful project outcomes.

In summary, the work environment at Technical Hub was designed to support a productive and positive internship experience. The combination of effective people interactions, well-maintained facilities, clear job roles, structured processes, and a supportive culture contributed significantly to my overall learning and professional development.

1.Introduction:

AWS (Amazon Web Services): Amazon Web Services (AWS) is a comprehensive cloud computing platform offered by Amazon. It provides a broad range of cloud-based services, including:

1) Computing Power: Services like Amazon EC2 (Elastic Compute Cloud) allow users to run virtual servers and manage scalable computing resources.
2) Storage: Services such as Amazon S3 (Simple Storage Service) offer scalable and durable storage solutions.
3) Databases: Managed database services like Amazon RDS (Relational Database Service) support various database engines.
4) Networking: AWS includes services for networking and content delivery, such as Amazon VPC (Virtual Private Cloud) and CloudFront.
5) Machine Learning: AWS provides tools for machine learning and artificial intelligence, including Amazon Sage Maker.

AWS is known for its scalability, flexibility, and global infrastructure, making it a popular choice for businesses of all sizes to build, deploy, and manage applications and services.

2. AWS History:

Amazon Web Services (AWS) has a rich history marked by significant milestones:

1) 2002:   AWS was officially launched with the release of Amazon's first web services, including Amazon S3 (Simple Storage Service) and Amazon EC2 (Elastic Compute Cloud). These initial services aimed to provide scalable storage and computing capabilities over the internet.

2) 2006:   The introduction of Amazon EC2 marked a significant development in cloud computing, allowing users to rent virtual servers on-demand. This innovation played a crucial role in the evolution of cloud infrastructure.

3) 2008:   AWS introduced Amazon S3's "Availability Zones," improving reliability and fault tolerance by distributing data across multiple data centers within a region.

4) 2010:   The launch of AWS Elastic Beanstalk provided a platform-as-a-service (PaaS) solution, simplifying the deployment and management of applications.

5) 2014:   AWS announced Amazon Aurora, a high-performance, MySQL-compatible relational database engine. This year also saw the introduction of Amazon Lambda, which pioneered serverless computing by allowing users to run code without provisioning or managing servers.

6) 2016:   AWS made significant strides with the introduction of Amazon Polly (text-to-speech) and Amazon Rekognition (image and video analysis), expanding its suite of artificial intelligence and machine learning services.

7) 2018:   AWS reached a major milestone with the opening of its AWS Outposts, allowing customers to extend AWS infrastructure and services to on-premises locations, blending cloud and on-premises environments.

8. 2021:   AWS expanded its global infrastructure with new regions and availability zones, reinforcing its commitment to global presence and low-latency services.

3. Definition of AWS:

AWS (Amazon Web Services) is a comprehensive cloud computing platform provided by Amazon. It offers a wide range of services, including computing power, storage, and databases, delivered on-demand to businesses and individuals. AWS enables scalable and flexible IT infrastructure through its global network of data centers. It supports a variety of workloads, from web applications to machine learning. With a pay-as-you-go pricing model, AWS allows users to optimize costs and resources effectively.

4.Deploying a Python Web Application Using AWS Elastic BeanStalk

AWS Elastic Beanstalk is a versatile Platform-as-a-Service (PaaS) provided by Amazon Web Services (AWS). It simplifies the deployment, management, and scaling of web applications by handling much of the underlying infrastructure management. This allows developers to focus on building and refining their applications without worrying about server management, scaling issues, or load balancing.

Key Components:

- **Application**: This represents the collection of code and related configuration files that make up your web application. Elastic Beanstalk allows you to manage different versions of your application and deploy them as needed.

- **Environment**: Each environment is a separate deployment of your application. Environments can be used for various stages of development, such as development, testing, and production. They are fully configurable to meet the specific needs of each stage.

- **Platform**: Elastic Beanstalk supports multiple platforms, including Python. A platform provides the runtime environment that your application runs on. For Python, it includes the necessary runtime and web server software to execute your application.

6.<u>Deploying Your Application</u>:

Preparing Deployment:

Before deploying, package your application into a format compatible with Elastic Beanstalk, typically a ZIP file. This package should include all necessary files, such as application scripts and dependency lists.

Deployment Process:

Deploy your application using the Elastic Beanstalk console, AWS CLI, or EB CLI. Elastic Beanstalk will handle the deployment process, including:

- **Provisioning Resources**: Allocating the necessary infrastructure, such as virtual servers and databases.
- **Configuring Services**: Setting up services required by your application, including load balancers and auto-scaling groups.
- **Deploying Code**: Installing your application code and dependencies on the provisioned resources.

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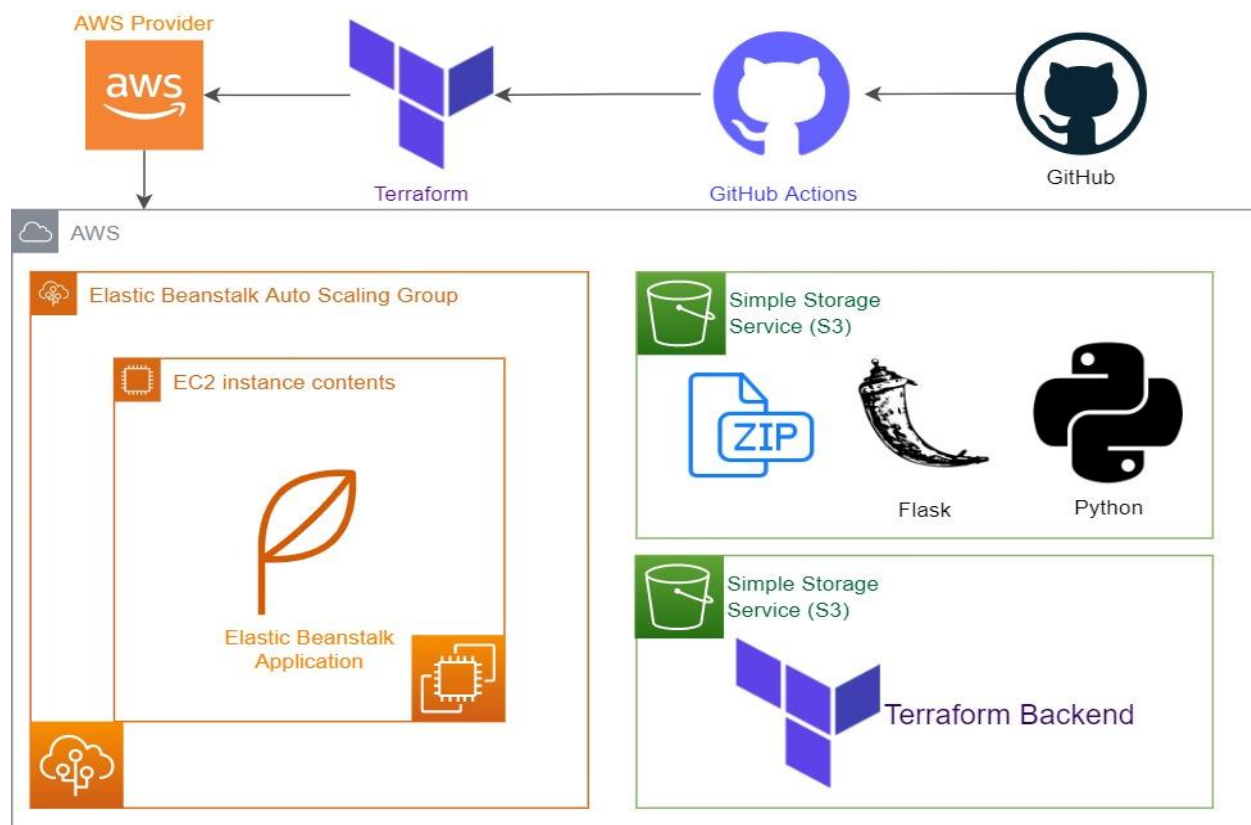
7.Monitoring and Managing Your Application:

7.1 Log Management

Elastic Beanstalk provides integrated logging capabilities, allowing you to access and view logs related to application performance and errors. This is essential for diagnosing issues and ensuring your application runs smoothly.

7.2 Health Monitoring

Monitor the health of your application through the Elastic Beanstalk console. The service provides real-time insights into application performance, including metrics on resource usage, error rates, and application response times. This helps you proactively manage and address any issues that arise.

7.3 Updating Your Application

To update your application, simply deploy a new version of your application package. Elastic Beanstalk handles the update process, which includes replacing the old version with the new one while minimizing downtime.

7.4 Ongoing Maintenance

Regularly maintain your application environment by applying updates and patches. Monitor for performance issues and security vulnerabilities, and adjust configurations as necessary to ensure optimal performance and security.

8. Benefits of AWS Elastic Beanstalk:

8.1 Managed Infrastructure

Elastic Beanstalk automates many aspects of infrastructure management, such as provisioning, scaling, and load balancing. This reduces the need for manual intervention and allows developers to focus on building and improving their applications.

8.2 Simplified Deployment

The deployment process is streamlined with Elastic Beanstalk's management tools and interfaces. Developers can deploy applications with minimal configuration, making it easier to get applications up and running quickly.

8.3 Scalability

Elastic Beanstalk automatically scales your application based on traffic and load. This ensures that your application remains responsive and available during peak usage periods, without requiring manual intervention.

8.4 Integration with AWS Services

Elastic Beanstalk integrates seamlessly with other AWS services, such as RDS for databases, S3 for storage, and CloudWatch for monitoring. This provides a cohesive and comprehensive environment for managing and operating web applications.

Student Self Evaluation of the Short-Term Internship

Student Name: M.Mary Shakeena

Registration No: 22MH1A42H3

Duration of Internship:

From: **To:**

Date of Evaluation:

Organization Name & Address:

Please rate your performance in the following areas:

Rating Scale: Letter grade of CGPA calculation to be provided

1	Oral communication	1	2	3	4	5
2	Written communication	1	2	3	4	5
3	Interaction ability with community	1	2	3	4	5
4	Positive Attitude	1	2	3	4	5
5	Self-confidence	1	2	3	4	5
6	Ability to learn	1	2	3	4	5
7	Work Plan and organization	1	2	3	4	5
8	Quality of work done	1	2	3	4	5
9	Time Management	1	2	3	4	5
10	Achievement of Desired Outcomes	1	2	3	4	5
	OVERALL PERFORMANCE					

M.Mary Shakeena
Student Signature

22MH1A42H3

Evaluation by the Supervisor of the Intern Organization

Student Name: M.Mary Shakeena

Registration No: 22MH1A42H3

Duration of Internship: 10 Weeks

From: **To:**

Date of Evaluation:

Organization Name & Address:

Name & Address of the Supervisor with Mobile Number

Please rate the student's performance in the following areas:

Please note that your evaluation shall be done independent of the Student's selfevaluation

Rating Scale: 1 is lowest and 5 is highest rank

1	Oral communication	1	2	3	4	5
2	Written communication	1	2	3	4	5
3	Interaction ability with community	1	2	3	4	5
4	Positive Attitude	1	2	3	4	5
5	Self-confidence	1	2	3	4	5
6	Ability to learn	1	2	3	4	5
7	Work Plan and organization	1	2	3	4	5
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9	Time Management	1	2	3	4	5
10	Achievement of Desired Outcomes	1	2	3	4	5
	OVERALL PERFORMANCE					

Signature of the Supervisor

22MH1A42H3

PHOTOS & VIDEO LINK

Platform Info

Platform type

◉ Managed platform
Platforms published and maintained by Amazon Elastic Beanstalk. Learn more ↗

○ Custom platform
Platforms created and owned by you. This option is unavailable if you have no platforms.

Platform

Python ▾

Platform branch

Python 3.11 running on 64bit Amazon Linux 2023 ▾

Platform version

4.1.1 (Recommended) ▾

Application code Info

○ Sample application

○ Existing version
Application versions that you have uploaded.

◉ Upload your code
Upload a source bundle from your computer or copy one from Amazon S3.

Version label
Unique name for this version of your application code.

internship

Source code origin. Maximum size 500 MB

◉ Local file

Upload application

⤴ Choose file

⊘ File name: **Procfile.zip**
File must be less than 500MB max file size

○ Public S3 URL

Presets Info

Start from a preset that matches your use case or choose custom configuration to unset recommended values and use the service's default values.

Configuration presets

- ⦿ Single instance (free tier eligible)
- ○ Single instance (using spot instance)
- ○ High availability
- ○ High availability (using spot and on-demand instances)
- ○ Custom configuration

Configure service access Info

Service access

IAM roles, assumed by Elastic Beanstalk as a service role, and EC2 instance profiles allow Elastic Beanstalk to create and manage your environment. Both the IAM role and instance profile must be attached to IAM managed policies that contain the required permissions. Learn more 🔗

Service role

- ○ Create and use new service role
- ⦿ Use an existing service role

Existing service roles

Choose an existing IAM role for Elastic Beanstalk to assume as a service role. The existing IAM role must have the required IAM managed policies.

| EC2InstanceRole ▼ | ↻ |

EC2 key pair

Select an EC2 key pair to securely log in to your EC2 instances. Learn more 🔗

| vockey ▼ | ↻ |

EC2 instance profile

Choose an IAM instance profile with managed policies that allow your EC2 instances to perform required operations.

| LabInstanceProfile ▼ | ↻ |

View permission details

Cancel   Skip to review   Previous   **Next**

Set up networking, database, and tags - *optional* Info

Virtual Private Cloud (VPC)

VPC
Launch your environment in a custom VPC instead of the default VPC. You can create a VPC and subnets in the VPC management console.
Learn more ⎘

vpc-0f512f2e231260206 | (172.31.0.0/16)　　　　▼

Create custom VPC ⎘

Instance settings
Choose a subnet in each AZ for the instances that run your application. To avoid exposing your instances to the Internet, run your instances in private subnets and load balancer in public subnets. To run your load balancer and instances in the same public subnets, assign public IP addresses to the instances. Learn more ⎘

Public IP address
Assign a public IP address to the Amazon EC2 instances in your environment.
☐ Activated

Instance subnets

🔍 Filter instance subnets

☐	Availability Zone	Subnet ▲	CIDR	Name
☑	us-east-1a	subnet-00df24bb5...	172.31.32.0/20	
☐	us-east-1f	subnet-017cb62a1...	172.31.64.0/20	
☐	us-east-1b	subnet-02c5ba08d...	172.31.0.0/20	
☐	us-east-1c	subnet-05c7314bd	172.31.80.0/20	

EC2 security groups
Select security groups to control traffic.

EC2 security groups (1)　　　　　　↻

🔍 Filter security groups

☑	Group name ▲	Group ID ▽	Name ▽
☑	default	sg-03d7c95dbf67623bf	

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Review Info

Step 1: Configure environment

Edit

Environment information

Environment tier
Web server environment

Application name
Iship

Environment name
Iship-env

Application code
Procfile.zip

Platform
arn:aws:elasticbeanstalk:us-east-1::platform/Python 3.11
running on 64bit Amazon Linux 2023/4.1.1

Step 2: Configure service access

Edit

Service access Info

Configure the service role and EC2 instance profile that Elastic Beanstalk uses to manage your environment. Choose an EC2 key pair to securely log in to your EC2 instances.

Service role
arn:aws:iam::758535529104:role/EC2
InstanceRole

EC2 key pair
vockey

EC2 instance profile
LabInstanceProfile

Step 3: Set up networking, database, and tags

Edit

Networking, database, and tags Info

Configure VPC settings, and subnets for your environment's EC2 instances and load balancer. Set up an Amazon RDS database that's integrated with your environment.

Network

VPC
vpc-0f512f2e231260206

Public IP address
false

Instance subnets
subnet-00df24bb54a2972c1

Tags

Key ▲	Value ▼
No tags	
There are no tags defined	

Environment properties

Key ▲	Value ▽
PYTHONPATH	/var/app/venv/staging-LQM1lest/bin

Cancel | Previous | Submit