

Module 9: Elastic Beanstalk Assignment

Problem Statement:

You work for XYZ Corporation. Your corporation wants to launch a new web-based application and they do not want their servers to be running all the time. It should also be managed by AWS. Implement suitable solutions.

Tasks To Be Performed:

1. Create an Elastic Beanstalk environment with the runtime as PHP.
2. Upload a simple PHP file to the environment once created.

1. Creating Elastic Beanstalk Environment and Selecting Web Server Env and Given Name as Salman-Web-App

The screenshot shows the 'Configure environment' page in the AWS Elastic Beanstalk console. On the left, a sidebar lists six steps: Step 1 (Configure environment), Step 2 (Configure service access), Step 3 (optional, Set up networking, database, and tags), Step 4 (optional, Configure instance traffic and scaling), Step 5 (optional, Configure updates, monitoring, and logging), and Step 6 (Review). The main content area is titled 'Configure environment' and includes an 'Info' link. It features two sections: 'Environment tier' and 'Application information'. The 'Environment tier' section explains that Amazon Elastic Beanstalk has two types of environment tiers and offers two options: 'Web server environment' (selected with a radio button) and 'Worker environment'. The 'Web server environment' description states it runs a website, web application, or web API that serves HTTP requests, with a 'Learn more' link. The 'Worker environment' description states it runs a worker application that processes long-running workloads on demand or performs tasks on a schedule, also with a 'Learn more' link. The 'Application information' section includes an 'Application name' field with the value 'Salman-Web-App' and a note that the maximum length is 100 characters. At the bottom, there is a section for 'Application tags (optional)' with a right-pointing arrow.

Step 1
Configure environment

Step 2
Configure service access

Step 3 - optional
Set up networking, database, and tags

Step 4 - optional
Configure instance traffic and scaling

Step 5 - optional
Configure updates, monitoring, and logging

Step 6
Review

Configure environment [Info](#)

Environment tier [Info](#)

Amazon Elastic Beanstalk has two types of environment tiers to support different types of web applications.

- ☒ **Web server environment**
Run a website, web application, or web API that serves HTTP requests. [Learn more](#)
- ☐ **Worker environment**
Run a worker application that processes long-running workloads on demand or performs tasks on a schedule. [Learn more](#)

Application information [Info](#)

Application name

Salman-Web-App

Maximum length of 100 characters.

► Application tags (optional)

2. Its Took Environment name Automatically and I Given Domain Name and its shown Available

Environment name

Salman-Web-App-env

Must be from 4 to 40 characters in length. The name can contain only letters, numbers, and hyphens. It can't start or end with a hyphen. This name must be unique within a region in your account.

Domain

salmanfarsi .us-east-1.elasticbeanstalk.com

[Check availability](#)

✓ salmanfarsi.us-east-1.elasticbeanstalk.com is available

Environment description

This is my First Elastic Beanstalk Web Application

3. By Default Its Selected Managed Platform for Webserver and runtime is PHP as per the task and branch and version and Currently not uploading custom file and using sample App file .

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

PHP

Platform branch

PHP 8.2 running on 64bit Amazon Linux 2023

Platform version

4.1.1 (Recommended)

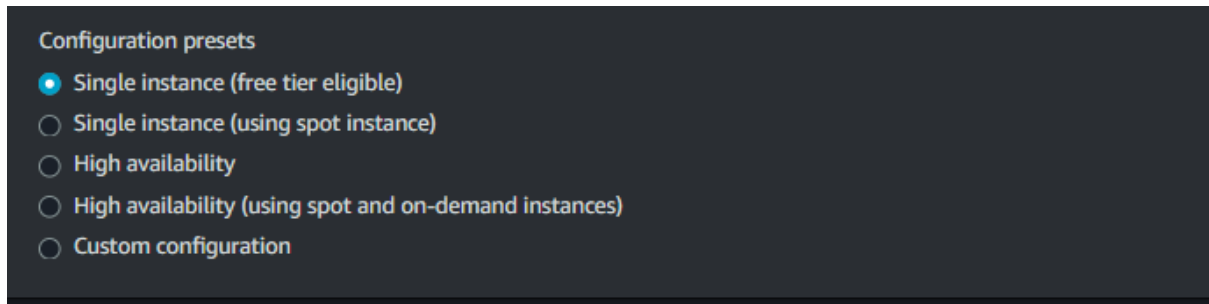
Application code [Info](#)

☒ 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.

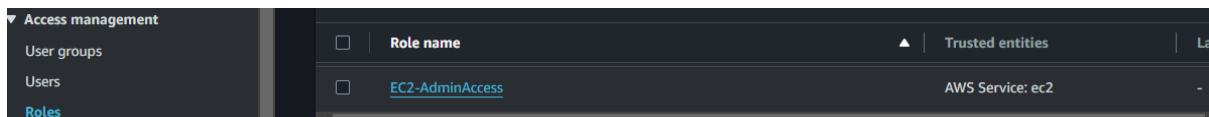
4. Choosing Free Tier eligible



Configuration presets

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

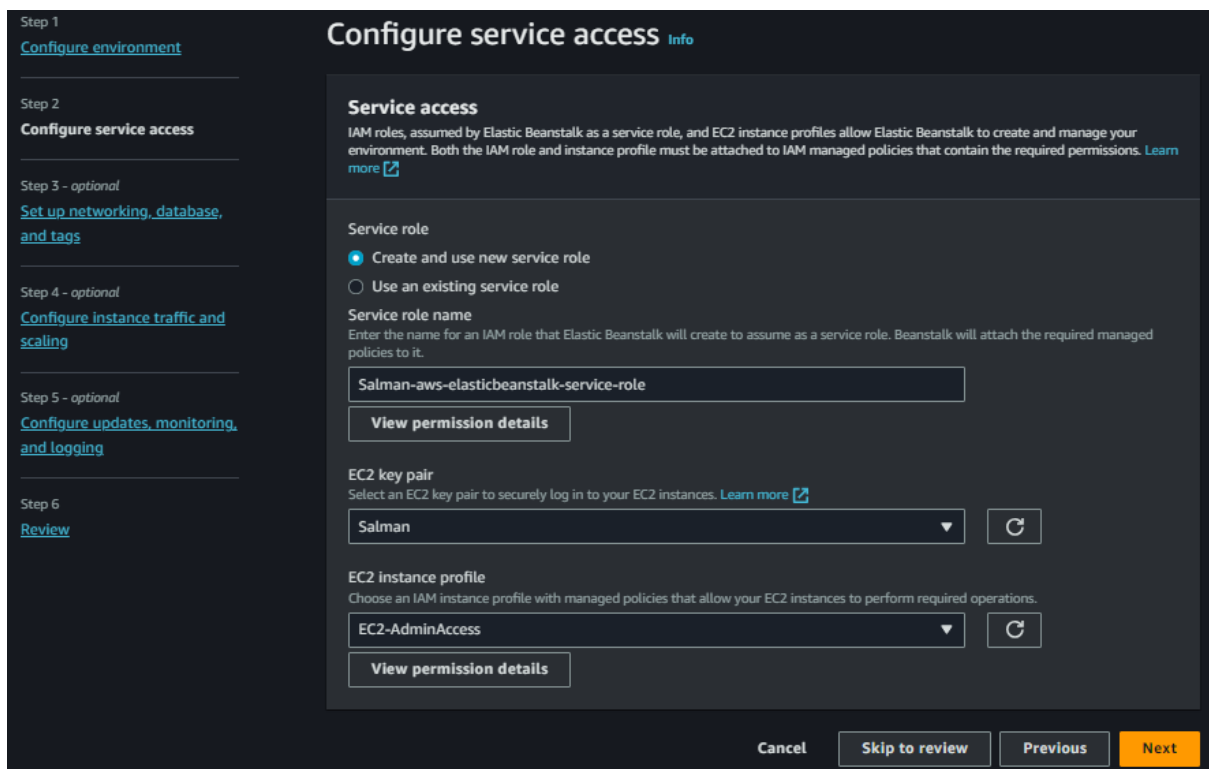
5. After That It Will Ask Role so I Came to IAM and Created EC2-AdminAccess to EC2 Instances



Access management

Role name	Trusted entities
EC2-AdminAccess	AWS Service: ec2

6. Create service role and using Existing EC2 Instance Profile which we previously Created



Step 1
[Configure environment](#)

Step 2
Configure service access

Step 3 - optional
[Set up networking, database, and tags](#)

Step 4 - optional
[Configure instance traffic and scaling](#)

Step 5 - optional
[Configure updates, monitoring, and logging](#)

Step 6
[Review](#)

Configure service access

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

Service role name
Enter the name for an IAM role that Elastic Beanstalk will create to assume as a service role. Beanstalk will attach the required managed policies to it.

Salman-aws-elasticbeanstalk-service-role

[View permission details](#)

EC2 key pair
Select an EC2 key pair to securely log in to your EC2 instances. [Learn more](#)

Salman

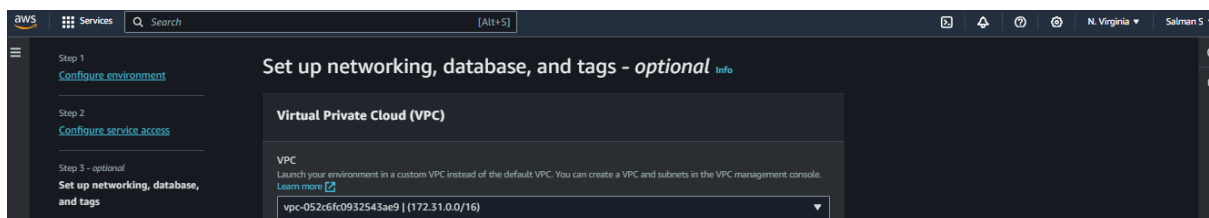
EC2 instance profile
Choose an IAM instance profile with managed policies that allow your EC2 instances to perform required operations.

EC2-AdminAccess

[View permission details](#)

[Cancel](#) [Skip to review](#) [Previous](#) [Next](#)

7. In Step 3 Selecting VPC



Step 1
[Configure environment](#)

Step 2
[Configure service access](#)

Step 3 - optional
Set up networking, database, and tags

Set up networking, database, and tags - optional

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-052c6fc0932543ae9 | (172.31.0.0/16)

8. Currently Not Activating Public IP and **Selecting All Subnets.**

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

<input checked="" type="checkbox"/>	Availability Zone	Subnet	CIDR	Name
<input checked="" type="checkbox"/>	us-east-1a	subnet-0034526f7...	172.31.16.0/20	
<input checked="" type="checkbox"/>	us-east-1e	subnet-02ac3ec86...	172.31.48.0/20	
<input checked="" type="checkbox"/>	us-east-1b	subnet-0a488bbcd...	172.31.32.0/20	
<input checked="" type="checkbox"/>	us-east-1f	subnet-0b0da25d1...	172.31.64.0/20	
<input checked="" type="checkbox"/>	us-east-1c	subnet-0d7bcde4d...	172.31.0.0/20	
<input checked="" type="checkbox"/>	us-east-1d	subnet-0e3fec1cb...	172.31.80.0/20	

9. **Not Able to Enable Database Because Its not supported to Free Tier Single Instances**

Database Info

Integrate an RDS SQL database with your environment. [Learn more](#)

Database subnets
If your Elastic Beanstalk environment is attached to an Amazon RDS, choose subnets for your database instances. [Learn more](#)

Choose database subnets (6)

<input type="checkbox"/>	Availability Zone	Subnet	CIDR	Name
<input type="checkbox"/>	us-east-1a	subnet-0034526f7...	172.31.16.0/20	
<input type="checkbox"/>	us-east-1e	subnet-02ac3ec86...	172.31.48.0/20	
<input type="checkbox"/>	us-east-1b	subnet-0a488bbcd...	172.31.32.0/20	
<input type="checkbox"/>	us-east-1f	subnet-0b0da25d1...	172.31.64.0/20	
<input type="checkbox"/>	us-east-1c	subnet-0d7bcde4d...	172.31.0.0/20	
<input type="checkbox"/>	us-east-1d	subnet-0e3fec1cb...	172.31.80.0/20	

☐ Enable database

10. I Captured the Database Settings for Future Understanding Purpose

Database settings
Choose an engine and instance type for your environment's database.

Engine
▼

Engine version
▼

Instance class
▼

Storage
Choose a number between 5 GB and 1024 GB.
▼ GB

Username
▼

Password
▼

Availability
Low (one AZ) ▼

Database deletion policy
This policy applies when you decouple a database or terminate the environment coupled to it.

- ☒ **Create snapshot**
Elastic Beanstalk saves a snapshot of the database and then deletes it. You can restore a database from a snapshot when you add a DB to an Elastic Beanstalk environment or when you create a standalone database. You might incur charges for storing database snapshots.
- ☐ **Retain**
The decoupled database will remain available and operational external to Elastic Beanstalk.
- ☐ **Delete**
Elastic Beanstalk terminates the database. The database will no longer be available.

11. Root Volume is Selected by Default

Step 1
[Configure environment](#)

Step 2
[Configure service access](#)

Step 3 - optional
[Set up networking, database, and tags](#)

Step 4 - optional
Configure instance traffic and scaling

Configure instance traffic and scaling

▼ **Instances** [Info](#)
Configure the Amazon EC2 instances that run your application.

Root volume (boot device)

Root volume type
(Container default) ▼

Size
The number of gigabytes of the root volume attached to each instance.

12. Default 8 GB and 100 IOPS and Throughput 125 MiB/s for Free Tier

Size
The number of gigabytes of the root volume attached to each instance.

8 GB

IOPS
Input/output operations per second for a provisioned IOPS (SSD) volume.

100 IOPS

Throughput
The desired throughput to provision for the Amazon EBS root volume attached to your environment.

125 MiB/s

13. Monitoring Interval 5 minute once and Selected Default SG which Allowed All Traffic
Defaultly

Monitoring interval


5 minute ▼

Instance metadata service (IMDS)
Your environment's platform supports both IMDSv1 and IMDSv2. To enforce IMDSv2, deactivate IMDSv1. [Learn more](#)


IMDSv1
With the current setting, the environment enables only IMDSv2.

☒ Deactivated

EC2 security groups
Select security groups to control traffic.

EC2 security groups (5) 

Q Filter security groups

	Group name ▲	Group ID ▼	Name ▼
<input checked="" type="checkbox"/>	default	sg-0f3245b0ce1ce713f	
<input type="checkbox"/>	launch-wizard-3	sg-0a9bb37fb12663cd1	
<input type="checkbox"/>	nfs	sg-0c10ed06ddfd3367b	
<input type="checkbox"/>	Salman	sg-008d5bc38fefbde08	

14. Configuration for Autoscaling Group Currently No Changes

▼ Capacity [Info](#)

Configure the compute capacity of your environment and auto scaling settings to optimize the number of instances used.

Auto scaling group

Environment type

Select a single-instance or load-balanced environment. You can develop and test an application in a single-instance environment to save costs and then upgrade to a load-balanced environment when the application is ready for production. [Learn more](#)

Single instance ▼

Instances

1

Min

1

Max

Fleet composition

Spot instances are launched at the lowest available price. [Learn more](#)

☒ On-Demand instance

☐ Spot instance

Maximum spot price

The maximum price per instance-hour, in USD, that you're willing to pay for a Spot Instance. Setting a custom price limits your chances to fulfill your target capacity using Spot instances.

☒ Default

☐ Set your maximum price

15. Using On Demand Base and Selected Architecture

On-Demand base

The minimum number of On-Demand Instances that your Auto Scaling group provisions before considering Spot Instances as your environment scales out.

0

On-Demand above base

The percentage of On-Demand Instances as part of any additional capacity that your Auto Scaling group provisions beyond the On-Demand base instances.

0

%

Capacity rebalancing

Specifies whether to enable the capacity rebalancing feature for Spot Instances in your Auto Scaling Group. This option is only relevant when EnableSpot is true in the aws.ec2:instances namespace, and there is at least one Spot Instance in your Auto Scaling group.

☐ Turn on capacity rebalancing

Architecture

The processor architecture determines the instance types that are made available. You can't change this selection after you create the environment. [Learn more](#)

☒ x86_64

This architecture uses x86 processors and is compatible with most third-party tools and libraries.

☐ arm64 - new

This architecture uses AWS Graviton2 processors. You might have to recompile some third-party tools and libraries.

Instance types

Add instance types for your fleet. Change the order that the instances are in to set the preferred launch order. This only affects On-Demand instances. We recommend you include at least two instance types. [Learn more](#)

Choose x86 instance types ▼

t2.small ✕

16. Free Tier AMI ID

AMI ID

Elastic Beanstalk selects a default Amazon Machine Image (AMI) for your environment based on the Region, platform version, and processor architecture that you choose. [Learn more](#)

ami-0e38b869b8063a534

Availability Zones

Number of Availability Zones (AZs) to use.

Any ▼

Placement

Specify Availability Zones (AZs) to use.

Choose Availability Zones (AZs) ▼

Scaling cooldown

360

seconds

17. Monitoring Using Enhanced by default I am leaving this

This screenshot shows the 'Configure updates, monitoring, and logging' step in the AWS IAM console. The left sidebar lists steps 1 through 6, with step 5, 'Configure updates, monitoring, and logging', currently selected. The main panel is titled 'Configure updates, monitoring, and logging - optional' and contains a 'Monitoring' section. Under 'Health reporting', the 'System' is set to 'Enhanced'. Below this, there are two dropdown menus for 'CloudWatch Custom Metrics - Instance' and 'CloudWatch Custom Metrics - Environment', both currently showing 'Choose metrics'. The 'Health event streaming to CloudWatch Logs' section includes a 'Log streaming' checkbox (unchecked), a 'Retention' dropdown (set to '7'), and a 'Lifecycle' dropdown (set to 'Keep logs after terminating environment').

18. Managed Platform Updates it will Update Weekly Selected Day and time and we can choose Email Notifications to if we need currently not using it

This screenshot shows the 'Managed platform updates' and 'Email notifications' sections of the AWS IAM console. The 'Managed platform updates' section has a 'Managed updates' checkbox that is checked and labeled 'Activated'. Below it, the 'Weekly update window' is set to 'Sunday' at '07' : '57' UTC. The 'Update level' dropdown is set to 'Minor and patch'. The 'Instance replacement' section has an 'Activated' checkbox that is unchecked. The 'Email notifications' section has a text input field for an email address, which currently contains 'user@example.com'.

19. Rolling Updates and Deployments All At Once

▼ Rolling updates and deployments [Info](#)

Application deployments
Choose how Amazon Elastic Beanstalk propagates source code changes and software configuration updates. [Learn more](#)

Deployment policy
All at once

Batch size type
☒ Percentage
☐ Fixed

Deployment batch size
100
No instances at a time

Configuration updates
Changes to virtual machine settings and VPC configuration trigger rolling updates to replace the instances in your environment without downtime. [Learn more](#)

Rolling update type
Deactivated

Deployment preferences
Customize health check requirements and deployment timeouts.

Ignore health check
Don't fail deployments due to health check failures.
False

Health threshold
Lower the threshold for an instance in a batch to pass health checks during an update or deployment.
Ok

Command timeout
Change the amount of time in seconds that Amazon Elastic Beanstalk allows an instance to complete deployment commands.
600 seconds

20. Using Nginx Server and memory unit and Allow URL

Container options

Proxy server
Nginx

Document root
The child directory of your project that acts as the public facing web root. If your root document is stored in your project directory, leave this set to /. If your root document is in a child directory (e.g., /public), set this value to match the child directory. Values should begin with a / character, and may NOT begin with a . (period).

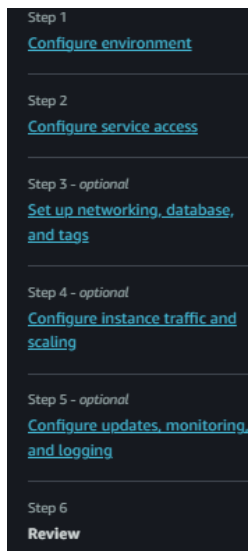
Memory limit
The amount of memory allocated to the PHP environment. This value is written to a .ini configuration file located in the/etc/php.d/ directory.
256M

Zlib output compression
Whether PHP should use compression for output. This value is written to a .ini configuration file located in the/etc/php.d/ directory.
Off

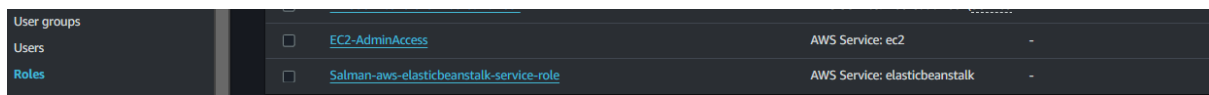
Allow URL fopen
Whether the PHP's file functions are allowed to retrieve data from remote locations, such as websites or FTP servers. This value is written to a .ini configuration file located in the/etc/php.d/ directory.
On

Display errors
Whether error messages should be part of the output. This value is written to a .ini configuration file located in the/etc/php.d/ directory.
Off

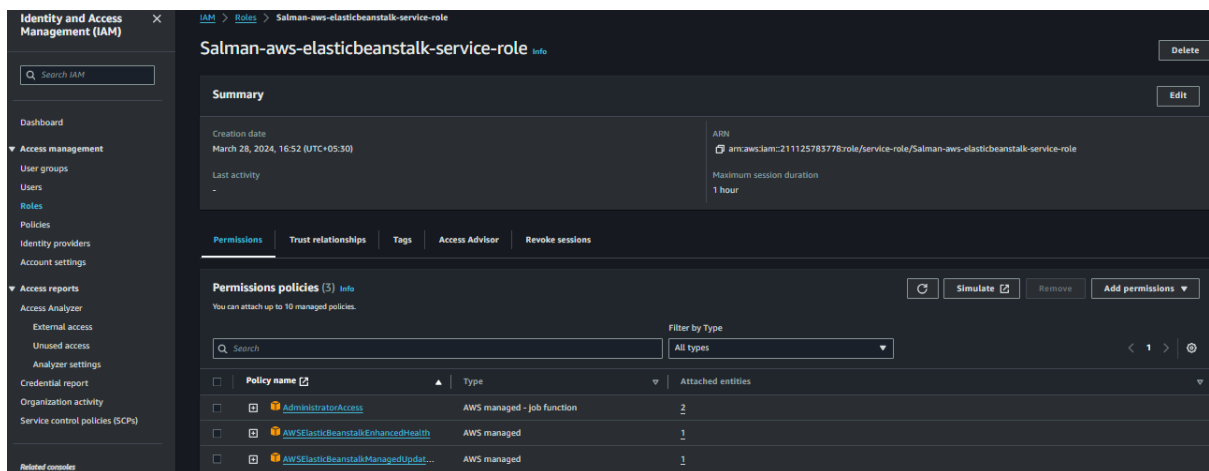
21. After **Completing** This all Steps **Review it** and **Submit**



22. We Created **Salman-aws-EBstalk-role** so Need to give **Admin Access**. Go to **IAM** and **Modify it**



23. Added **Admin Permission** to Elasticbeanstalk environment



24. See Our **Elastic Beanstalk Env Created Successfully** and also we can see the events which are running and now **Click Domain Name**

The screenshot displays the AWS Elastic Beanstalk console for the 'Salman-Web-App-env' environment. The left sidebar shows navigation options like Applications, Environments, and Configuration. The main content area includes an 'Environment overview' section with 'Health' status 'OK' and 'Domain' 'salmanfarsi.us-east-1.elasticbeanstalk.com'. The 'Platform' section indicates 'PHP 8.2 running on 64bit Amazon Linux 2023/4.1.1'. The 'Events' tab is active, showing a list of events with columns for Time, Type, and Details. The events include 'Added instance', 'Environment health has transitioned from Pending to OK', 'Successfully launched environment', 'Application available', 'Instance deployment completed successfully', and 'Instance deployment: You didn't include a 'composer.json' file'.

25. **By Default PHP Runtime** we Selected and Its **showing the version name** and were its **running**

The screenshot shows the AWS Elastic Beanstalk console for the 'Salman-Web-App-env' environment. The 'Environment overview' section displays 'Health' as 'OK' and 'Domain' as 'salmanfarsi.us-east-1.elasticbeanstalk.com'. The 'Platform' section shows 'PHP 8.2 running on 64bit Amazon Linux 2023/4.1.1'. The 'Events' tab is selected, showing a list of events with columns for Time, Type, and Details. The events include 'Added instance', 'Environment health has transitioned from Pending to OK', 'Successfully launched environment', 'Application available', 'Instance deployment completed successfully', and 'Instance deployment: You didn't include a 'composer.json' file'.

26. Now I am Using our **Customize PHP Document in Zip File Format**

The screenshot shows the 'Upload and deploy' dialog box in the AWS Elastic Beanstalk console. The dialog box has a title bar 'Upload and deploy' and a close button. It contains a message: 'To deploy a previous version, go to the Application versions page'. Below this, there is a section 'Upload application' with a 'Choose file' button. The 'File name' is 'index.zip'. Below that, there is a 'Version label' section with a text input field containing 'Salman-Web-App-version-1'. At the bottom, there is a 'Current number of EC2 Instances: 1' and two buttons: 'Cancel' and 'Deploy'.

27. This Program which we Uploaded in Beanstalk and Deploying it

```
C: > Users > shaik > AppData > Local > Temp > 9e1e7f94-1b0a-4ee6-9894-685cb7a9c557_index.zip.557 > index.php
1  <html>
2  <head>
3  <title>PHP Test</title>
4  </head>
5  <body>
6  <?php echo '<p>Hello AWS Learner</p>'; ?>
7  </body>
8  </html>
```

28. This Are the Events are running in Environment

March 28, 2024 16:58:14 (UTC+5:30)	INFO	Deploying new version to Instance(s).
March 28, 2024 16:57:55 (UTC+5:30)	INFO	Updating environment Salman-Web-App-env's configuration settings.
March 28, 2024 16:57:48 (UTC+5:30)	INFO	Environment update is starting.
March 28, 2024 16:54:57 (UTC+5:30)	INFO	Added instance [i-0ac90b49eaa7b5876] to your environment.
March 28, 2024 16:54:57 (UTC+5:30)	INFO	Environment health has transitioned from Pending to Ok. Initialization completed 16 seconds ago and took 2 minutes.
March 28, 2024 16:54:51 (UTC+5:30)	INFO	Successfully launched environment: Salman-Web-App-env
March 28, 2024 16:54:49 (UTC+5:30)	INFO	Application available at salmanfarsi.us-east-1.elasticbeanstalk.com.
March 28, 2024 16:54:34 (UTC+5:30)	INFO	Instance deployment completed successfully.
March 28, 2024 16:54:30 (UTC+5:30)	INFO	Instance deployment: You didn't include a 'composer.json' file in your source bundle. The deployment didn't install Composer dependencies.
March 28, 2024 16:54:10 (UTC+5:30)	INFO	Waiting for EC2 Instances to launch. This may take a few minutes.
March 28, 2024 16:53:20 (UTC+5:30)	INFO	Created EIP: 44.221.88.176
March 28, 2024 16:53:04 (UTC+5:30)	INFO	Created security group named: sg-0b491d8a888be8409
March 28, 2024 16:52:57 (UTC+5:30)	INFO	Environment health has transitioned to Pending. Initialization in progress (running for 10 seconds). There are no instances.
March 28, 2024 16:52:38 (UTC+5:30)	INFO	Using elasticbeanstalk-us-east-1-211125783778 as Amazon S3 storage bucket for environment data.
March 28, 2024 16:52:37 (UTC+5:30)	INFO	createEnvironment is starting.

29. Refresh it, Now are able to see the Changes in the Web Application as per the Doc we uploaded

← → ↺ Not secure salmanfarsi.us-east-1.elasticbeanstalk.com ☆ ≡ ⬇

Hello AWS Learner

30. See Now we terminating the Environment and Its Started Terminating and Updating in the Events

March 28, 2024 17:03:02 (UTC+5:30)	INFO	terminateEnvironment completed successfully.
March 28, 2024 17:03:01 (UTC+5:30)	INFO	Deleting SNS topic for environment Salman-Web-App-env.
March 28, 2024 17:02:59 (UTC+5:30)	INFO	Deleted security group named: sg-0b491d8a888be8409
March 28, 2024 17:02:59 (UTC+5:30)	INFO	Deleted EIP: 44.221.88.176
March 28, 2024 17:01:57 (UTC+5:30)	INFO	Environment health has transitioned from Ok to Pending. Terminate in progress (running for 2 minutes).
March 28, 2024 17:01:57 (UTC+5:30)	INFO	Removed instance [i-0ac90b49eaa7b5876] from your environment.
March 28, 2024 16:59:57 (UTC+5:30)	INFO	Environment health has transitioned from Info to Ok. Terminate in progress (running for 11 seconds).
March 28, 2024 16:59:56 (UTC+5:30)	INFO	Waiting for EC2 instances to terminate. This may take a few minutes.
March 28, 2024 16:59:39 (UTC+5:30)	INFO	Finished validating environment's EC2 instances for termination protection.
March 28, 2024 16:59:39 (UTC+5:30)	INFO	Validating environment's EC2 instances have termination protection disabled before performing termination.
March 28, 2024 16:59:38 (UTC+5:30)	INFO	terminateEnvironment is starting.