**\*\*Lab 3: Running Docker Containers on AWS Elastic Container Service (ECS)\*\***

**Objective:**

The objective of the lab "Running Docker Containers on AWS Elastic Container Service (ECS)" is to learn how to deploy and manage Docker containers using AWS ECS.

**Tasks:**

1. Create a Docker Image
2. Create ECS Cluster
3. Create ECS Task Definition
4. Create an ECS Task
5. Launching the ECS Task

**Prerequisites:**

Ensure you have an AWS account.

Install and configure the AWS Command Line Interface (CLI).

Install and configure the Docker CLI.

Create an ECS cluster if one doesn't already exist.

**Create a Docker Image:**

Write a Dockerfile to define your container image.

Build the Docker image using the docker build command.

**Bash syntax:**

*Docker build -t <name> .*

Optionally, push the Docker image to a container registry like Amazon Elastic Container Registry **(ECR)** or Docker Hub.

**Configure ECS Cluster:**

Ensure that your ECS cluster has the necessary resources (instances) to run your tasks.

If not, configure the cluster to auto-scale or manually add instances.

**Create an ECS Task Definition:**

Define the task definition that describes your container and its resources.

Specify container image details, CPU, memory, environment variables, and more in the task definition.

**Create an ECS Task:**

Create an ECS service based on the task definition.

Define the desired number of tasks to run.

Configure the service with load balancing if needed (e.g., Application Load Balancer or Network Load Balancer).

**Launch ECS Tasks:**

Use the AWS CLI or AWS Management Console to start the ECS tasks.

Verify that your containers are running successfully.

*The purpose of the lab "Running Docker Containers on AWS Elastic Container Service (ECS)" is to provide hands-on experience and practical knowledge of deploying and managing containerized applications in a cloud environment using AWS ECS. This lab enables participants to:*

1. *Gain familiarity with containerization using Docker.*
2. *Learn how to leverage AWS ECS for orchestrating container deployments at scale.*
3. *Understand key ECS concepts, including task definitions and services.*
4. *Explore best practices for deploying, scaling, and monitoring containers.*
5. *Enhance skills in AWS cloud computing, infrastructure management, and DevOps practices.*
6. *Prepare for real-world scenarios involving containerized applications and cloud-based deployment.*

*Ultimately, this lab empowers individuals and teams to efficiently deploy and manage containerized applications in a flexible and scalable manner within the AWS ecosystem, supporting modern software development and deployment workflows.*