# Load Balancer Project Documentation

## Index

1. Project Summary

2. Functionality

3. Architecture Drawing

# Project Summary

The Load Balancer project was designed to demonstrate the deployment of a scalable and highly available web application using AWS EC2 instances behind a load balancer. The primary goal was to ensure zero downtime, optimal resource utilization, and seamless traffic distribution across multiple instances.

## Objectives:

* To implement a web application hosted on multiple EC2 instances.
* To configure a Load Balancer that distributes incoming traffic evenly.
* To achieve fault tolerance and high availability.
* To demonstrate automatic health checks and instance failover.

## Tools & Technologies Used:

* AWS EC2: For hosting web servers.
* AWS Elastic Load Balancer (ELB): To distribute incoming traffic.

# Functionality

## Traffic Distribution

The load balancer effectively distributes incoming HTTP/HTTPS traffic to the available EC2 instances based on round-robin routing policy.

## High Availability

The application remains online and accessible even if one or more EC2 instances fail. This is achieved by running instances in multiple availability zones.

## Health Checks

The load balancer continuously monitors the health of each EC2 instance. If any instance is found unhealthy, traffic is rerouted to the healthy instances.

## Auto Recovery

When an unhealthy instance is restored or replaced, the load balancer automatically adds it back into the rotation after passing health checks.

# System Architecture Drawing

