COMSATS UNIVERSITY, ISLAMABAD
Department of Computer Science
Assignment - 1, Fall - 2022

[CLO1]: Characterize the fundamentals of cloud computing along with its service models
[CLO2]: Enumerate virtualization and containerization techniques used in cloud computing

Course: CSC483 – Topics in Computer Science II (DevOps) **Class: BCS-VII / BSE VIII**
Submission Deadline: October 30, 2022 **Total Marks: 10**

1- [CLO1, CLO2] Amazon Web Services (AWS) is a Public Cloud Platform and is currently the market leader based on various surveys conducted in 2022. It offers around 200 products and services. In this assignment, you are going to get the flavor of using Cloud Computing Platform and its various service models. Specifically, you are required to build or reuse any previously built web application and deploy it over the Public Cloud, AWS. Since building web application is out of the scope of this course, so it can be any simple web application with the only requirement being that it uses some Database Server for storing application's data.

You are required to deploy the web application using the following IaaS and PaaS based services offered by AWS:

- Amazon Elastic Compute Cloud (Amazon EC2): An IaaS based service offering the broadest and deepest compute platform
- Amazon Simple Storage Service (Amazon S3): A PaaS/SaaS based object storage service
- AWS Elastic Beanstalk: A PaaS based service for easy deployments of web applications

Upon completion of this assignment, you will be able to:

- Configure servers and applications using virtualized infrastructure
- Configure and Deploy application over an Infrastructure as a Service (IaaS) server in the cloud
- Configure and Deploy application using Platform as a Service model in the cloud

Part-I

In the first part, you will deploy the application using IaaS model and will use EC2 for it. Roughly, following steps would be needed for the deployment:

- Create an Ubuntu based virtual machine, an EC2 instance
- Add security rules to EC2 instance allowing various accesses (e.g., SSH, http etc.)
- Generate keys pair and use an SSH client to access the EC2 instance.
- Use package manager to install the required servers and start them
- Configure the permissions
- Upload your application code and make your web application up and running

Part-II

In the second part, you will deploy the application using PaaS model and will use S3 to store the application code and Elastic Beanstalk to easily setup the environment for your application.

What to submit

It's an individual assignment and you need to submit a well formatted report describing your application, documenting all the micro steps, along with the screenshots, you follow for both the parts, and listing urls for both the parts that can be used to access your deployed web application.