Lab#3 – Develop Cloud Native Applications

Due Date: Midnight of Nov 3, 2023 (Friday)

Purpose: The purpose of this assignment is to help you:

- Become familiar with AWS Elastic Beanstalk, RDS, DynamoDB, S3, IAM, etc.
- Become familiar with ASP.NET Core MVC Web App

Instructions: Be sure to read the following general instructions carefully:

This lab can be completed **in group of two** or **individually**. You can demo your solution in person or create a demonstration video. If you treat it as group lab, only one group member needs to submit your package **through the dropbox**. Your submission must be named following the pattern of **studentID(yourlastnames)_LABnumber.zip**. e.g., 300123456(**smith&Lee)_Lab#3**.zip

Rubric

Functionality	**Marks**
GUI	2
User registration/user login 1. User registration information is stored in RDS (Microsoft SQL Server) 2. Registration (1 mark) 3. Login (1 mark)	2
Modeling ***one DynamoDB table*** to store data 1. Movie (i.e., video) itself should be stored in S3 2. Primary key (1 mark) 3. Movie metadata (e.g., title, genre, director(s), release time, etc.) (1 marks) 4. Movie comments and movie rating (1 mark) 5. Create a proper secondly index to facilitate searching movies based on movie rating, for example, list all movies with rating>9 (1 mark) 6. Create a proper secondly index to facilitate searching movies based on genre (https://www.studiobinder.com/blog/movie-genres-list/). For example, list all Science Fiction movies (1 mark)	5
Manage movie 1. Add new movie (2 marks) 2. Delete a movie which the logged in user uploaded; in other words, only the one who uploaded movie can delete it (2 marks) 3. Modify existing movie (2 marks) 4. Download movie (the video which is stored in S3) (1 mark) 5. List movies based on ratings, e.g., all movies with overall rating>9 (1 mark) 6. List movies based on genre (1 mark)	9
Manage the comments and ratings 1. Add comments to a specific movie (1 mark) 2. Rating a specific movie (1 mark) 3. List all comments about a specific movie (1 mark)	5

4. Modify a comment if the comment was written within 24 hours. Please bear in mind that only the one who wrote the comments can modify the comment(s) (2 marks)	
Use parameter store to store credentials 1. Store credentials in parameter store (1 marks) 2. Update the code correspondingly (1 marks)	2
Publish application to elastic Beanstalk	2
Non-functional requirements (e.g., readability, maintainability, performance, etc..)	1

Question [28 marks]

A start-up wants to provide streaming services (please refer to https://www.pcmag.com/picks/the-best-video-streaming-services and https://businessmodelanalyst.com/netflix-competitors-alternatives/). It allows registered users to upload/delete/download/ movie, write movie comments, rate the movie, etc. Users can view all comments on a specific movie and its average rating, but can only modify his/her own comments and ratings if the comments and ratings are written within 24 hours.

You are asked to implement a ASP.NET Core MVC Web application and deploy the app using AWS Elastic Beanstalk.