CS 524 Lab Assignment #3

Due: April 21, 2020

In this assignment, you will develop your own Content Delivery Network (SDN) service. This will build on the material of the past two lectures, in which you have learned about the network storage and SDN. as well as the implementation of these concepts in the AWS.

To start, you will need to read and understand the description of the following two services provided by AWS:

(1) **S3** (Simple Storage Service) https://aws.amazon.com/s3/ - A Service used for storing files in the cloud.
(2) **Cloud Front** https://aws.amazon.com/cloudfront/ - Setting up a Content Delivery Network.

You need to understand well each of the above services and the way Amazon supports them. Specifically to S3, you need to understand the concepts of **Bucket Policy** and **Access Control Lists** (ACLs). As for Cloud Front, you need to understand the terms **Origin**, **Edge, Location** and **Distribution** and learn all the parameters associated with **"Behaviors"** in web distribution.

A total of 100 points will be assigned if you successfully implement the outlined steps. In addition, at the discretion of course assistants, you can be given extra points (up to the maximum of 10) for devising your own mechanisms at various stages of the assignment. Use your ingenuity!

As before, remember to double-check the Amazon SLAs and ensure that you take all the necessary steps not to exceed the resource use beyond $100 free credits.

Note that Cloud Front is *not* a free tier service.

By now, everyone in the class has to be enrolled in AWS educate and have successfully redeemed the code for $100 free credits.

Please take the following steps:

1) **Create an S3 bucket**

   You need to create a S3 bucket and name it. After creating the bucket, upload an image of your choice and make it publicly accessible. To make sure that you have followed the steps correctly, try clicking on the "Object URL" of the image by going inside overview and the image that you uploaded should be displayed-

2) **Create a Web Distribution in Cloud Front.**

   You need to create a web distribution using the Amazon Cloud Front service. As you have successfully created the S3 bucket, you should be able to see its Amazon Resource Name (ARN) when you click on the text box (which is a drop down) for the *Origin Domain Name.* Select your bucket name from the drop-down list, and do not forget to restrict the *Bucket Access.* You need to create the access identity, and you will also need to learn about the rest of the parameters, whose values you may set or leave as default. **Note: You can earn up to 10 extra points by demonstrating your knowledge of the parameters by setting their respective values to improve your service.**

3) **Once the distribution is deployed, note its domain name.**

4) **Go back to your S3 Bucket and disable the public read access.**

5) **Click again on the Object URL of the image** and capture the output (you should not be able to see the image now). Write a brief paragraph explaining the reason why you got the output.

6) Nowchange the Object URL to replace some part of it by your distribution's domain name so that that it displasy the image.

After completing the lab successfully, write one or two paragraphs about your observations regarding the differences in the speed of the image display before and after creating CDN. Also write about the reasons for and benefits of using CDN.