Assignment 2 – GCP Pipelines

In this assignment you will deploy a continuous Integration/Continuous Delivery (CI/CD) pipeline using the google cloud platform.

All GCP resources should be created in the us-central1 (Iowa) region. Provide screenshots as appropriate.

1. Create a new repository in your personal GitHub account and upload the provided files or clone them from the provided repository. (1 mark)

2. In the google cloud console, search for, and enable the Cloud Run, and Cloud Build, and Secret Manager APIs. In the Cloud Build settings, enable the Cloud Run Admin role and Service Account user role and, if requested, grant access to all service accounts.

3. In the artifact registry create a new docker registry region called firstname-studentid. (1 mark)

4. In Cloud Build create a new host connection to your GitHub account and link it to a firstname-studentID repository. (1 mark)

5. Create a build config file for your repository. Include the following requirements: (5 marks)
   - Use the docker cloud builder image.
   - Build your docker image, use your artifact registry as the name and tag it with the commit SHA.
   - Push the image to your artifact registry.
   - Set the following options:
     - Set the defaultLogsBucketBehavior to REGIONAL_USER_OWNED_BUCKET
       - Note: this will create a new bucket in the same region as your build project that will be used to store build logs.

     - Create a Cloud Build Trigger called dc-firstname-studentid. It should use your cloud build config and it should trigger when a push occurs to the branch. **It is strongly recommended that you require approval before build execution to prevent accidental builds.**

6. Manually trigger your Cloud Build trigger to run the build. Once completed you should see a docker container in your artifact registry.

7. Create a new Cloud Run service using the newly created docker image. Ensure that you enter the correct container port for your service. (2 marks)

8. Verify that your application is running by visiting the URL provided by cloud run. (2 marks)

At this point, your application has *continuous integration* with your github repository. Any commits will trigger the cloud build to automatically build your application as a docker image and upload it to your artifact repository. The next step in this process is to implement *continuous deployment*. With continuous deployment your cloud run deployment will be updated whenever a new build finishes.

9. Update your build config file with the following. (5 marks)
    - Add a new step that uses the google cloud-sdk container image.
    - Run and deploy your docker container on your google run service.
        - Hint: the google cloud-sdk container image can run google cloud CLI commands.

10. Update your index.html title (src/static/index.html) to Assignment 2 – studentID and commit the changes to your repository.

11. Show the execution details of the newly triggered build (2 marks)

12. Verify that your cloud run deployment has been updated and that your changes have been implemented in the new deployment. (2 marks)