Project 1 Architecture Document

Instances:
- The base instance is used to create a snapshot for future instances
- The snapshot is used to create images which are then used for image templates
- Image templates have start up script to add environment variables, start up a Python script to pull from the bucket, and start up the web page

Group instances:
- Uses the image templates to scale the number of instances there are
- Also does a health check on those instances

Load balancer:
- The load balancer directs traffic to instances to balance out the amount of work load each instance has
- Contains a certificate and allows only https from outside

Bastion/Firewall rules:
- Firewall rules blocks all tcp:22 traffic
- Firewall rule allows tcp:22 into the Bastion
    o Has a lower priority number than the first rule to override it
- Firewall rule allows health check and load balancer traffic to the server instances

VPC:
- All server instances and the bastion node are in the same network

Bucket:
- The bucket contains the web-content that the servers regularly pull from to update the website

Datastore:
- Contains data that the web page pulls from and pushes into

Cloud functions:
- All functions used are triggered by HTTP requests from the web site
- Interacts with the bucket and Datastore

VM Instance Group

+Instance Template

Admins

Bastion

+Port: 22

VM Instance

+Port: 22 Allow only Bastion

Load Balancer

+HTTPS
+External IP

1

1..*

1..*   1

1

1

1

1

0..*

Bucket

Cloud Functions

Web Page

+Port: 9090

Client

Datastore

Cloud Functions

Get Distance From Antarctica

+ANTARCTICA_COORD
+API_KEY

+distance_calc(source_lat, source_lng)

Get Bucket Image

+index

Get Data

Post Data

+Name
+Age
+Degree

Google Geocode API

+geocode(city)

Cloud Bucket

Datastore

Root Entity

+Kind: Revature
+Name: Antarctica

Entity

+Kind: Applicant
+id: random number
+str Name
+int Age
+str Degree