SRE Bootcamp

**Jai Chenchlani, Cloud Architect**

<https://www.linkedin.com/in/jaichenchlani/>

1. **Setup:**
   1. Open your Github account
   2. Open up GCP Free Tier Account
   3. Enable yourselves to use gcloud
   4. Clone the repository <https://github.com/jaichenchlani/srebootcamp>
   5. Create a folder with your name, and manage all of your code in this folder.
2. **NGINX Container Image in GCR:**
   1. Run the nginx web server using docker
   2. Run the nginx web server in background as a daemon
   3. Create your index.html, and copy it in the docker container path to replace the default index.html
   4. Build a new image my-web-server with the container with the base image, and your html
   5. Create the GCR Image to be pushed to GCP
   6. Push the Image my-web-server to GCP
3. **GCE:**
   1. Shell script to create a compute instance called sre-terminal with centos image. Get the instance name as an argument to the script. Have a startup-script to install terraform.
   2. Run my-web-server in sre-terminal, and access from the internet
   3. Shell script to delete the sre-terminal compute instance. Ask user for confirmation.
4. **GKE:**
   1. Shell script to create a GKE cluster called “my-cluster” with 2 nodes. Get the cluster name as an argument to the script.
   2. Create a Deployment my-web-server, with 2 min and 5 max replicas, using the image my-web-server
   3. Setup HPA to scale up if CPU goes beyond 50%.
   4. Expose a service(load balancer) to make your nginx server accessible on the internet.
   5. Setup alerts to send an email to your email id if autoscaling kicks in.
   6. Find a way to put load on the the nginx server, and validate auto-scaling kicking in.
   7. Shell script to delete the GKE cluster. Ask user for confirmation.
5. **GCP Console:**
   1. Review Stackdriver logs for sre-terminal and my-cluster.
   2. Create a sink to route the sre-terminal and my-cluster logs to BigQuery
6. **DataStudio: Practice**
   1. Access the Google Sheet [Legislators 2017](https://docs.google.com/spreadsheets/d/1KK432FFgQ18lP-juSq10ae1ZX1lfa7FTELQFY9bDC38/edit?usp=sharing).
   2. Import Legislators 2017 sheet as the data source.
   3. Create 3 pie charts : Gender, Type and Party Breakup.
   4. Create a Bar Chart showing the number of legislators by State
7. **DataStudio: sre-terminal and my-cluster:**
   1. Create sre-terminal dasbhaord with any 2 charts(1 pie and 1 bar) based on the data. Use sre-terminal BigQuery table as data source.
   2. Create my-cluster dasbhaord with any 2 charts(1 pie and 1 bar) based on the data. Use my-cluster BigQuery table as data source.
8. **Gcloud practice:**
   1. Get projects, regions, zones, machine\_types.
   2. Try various formatting options - json, csv.
   3. Filter the results using --filter flag.
9. **Kubectl practice:**
   1. Get deployments, pods, services, hpa, namespaces
   2. Explore jsonpath
   3. Explore --custom-columns
10. **Terraform:**
    1. Build compute infrastructure: Compute instance sre-terminal.
    2. Build GKE Infrastructure: Cluster my-cluster.
    3. Shell scripts to Deploy my-web-server to both sre-terminal and my-cluster.
    4. Create Log sink to BigQuery
    5. Create the DataStudio Dashboards for sre-terminal and my-cluster
11. **Jenkins:**
    1. Host a Jenkins instance in a Compute Instance in GCP.
    2. Create a pipeline that automates the entire #10.