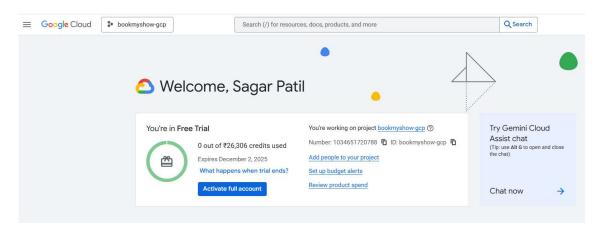


BookMyShow GCP Project

Task 1 – Setup GCP Project

- Console Steps
- 1. Open Google Cloud Console.
- 2. Click **Select Project** → **New Project**
 - Name: bookmyshow-gcp
 - Save the Project ID (e.g., bookmyshow-gcp).
- 3. Enable required APIs:
 - Compute Engine
 - Cloud Run
 - Cloud SQL Admin
 - Artifact Registry
 - Cloud Build



- Create Bucket:
- 4. Using console CLI

gsutil mb -p bookmyshow-gcp -c STANDARD -l asia-south1 -b on gs://bookmyshow-terraform-state/

• Install Google Cloud CLI on windows.

https://cloud.google.com/sdk/docs/install

Install Terraform on Windows

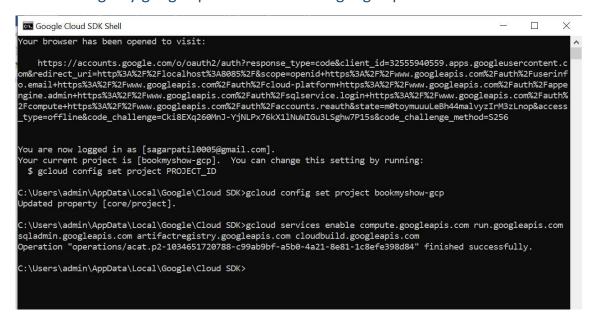
https://developer.hashicorp.com/terraform/install#windows

Install Git on Windows

https://git-scm.com/downloads/win

5. Google CLI Project Configuration

gcloud auth login
gcloud config set project bookmyshow-gcp
gcloud services enable compute.googleapis.com \
run.googleapis.com sqladmin.googleapis.com \
artifactregistry.googleapis.com cloudbuild.googleapis.com



Task 2 – Clone Repo & Init Terraform

Google CLI

git clone https://github.com/sagarpatilbox/bookmyshow-project-gcp.git cd bookmyshow-project-gcp\terraform

Authentication :

gcloud auth application-default login --project=bookmyshow-gcp

Terraform INIT

terraform init

C:\Users\admin\AppData\Local\Google\Cloud SDK\bookmyshow-project-gcp\terraform>terraform init Initializing the backend... use this backend unless the backend configuration changes. Initializing provider plugins... Finding hashicorp/google versions matching ">= 4.0.0"... Installing hashicorp/google v7.1.0... Installed hashicorp/google v7.1.0 (signed by HashiCorp) Terraform has created a lock file .terraform.lock.hcl to record the provider selections it made above. Include this file in your version control repository so that Terraform can guarantee to make the same selections by default when you run "terraform init" in the future. Terraform has been successfully initialized! You may now begin working with Terraform. Try running "terraform plan" to see any changes that are required for your infrastructure. All Terraform commands hould now work. If you ever set or change modules or backend configuration for Terraform, rerun this command to reinitialize your working directory. If you forget, other C:\Users\admin\AppData\Local\Google\Cloud SDK\bookmyshow-project-gcp\terraform>

Task 3 – Configure Variables

• Edit terraform.tfvars:

```
project_id = "bookmyshow-gcp"

region = "asia-south1"

app_image = "asia-south1-docker.pkg.dev/bookmyshow-gcp/bookmyshow-repo/app:latest"

db_password = "ChangeMe123!"

use_read_replica = true
```

• Repo Create:

```
sagarpatil0005&cloudshell:-/bookmyshow-project-gcp/app (bookmyshow-gcp)$ gcloud artifacts repositories create bookmyshow-repo \
--repository-format=docker \
--location=asia-southl \
--description="Docker repo for BookMyShow project"

Create request issued for: [bookmyshow-repo]

Maiting for operation [projects/bookmyshow-gcp/locations/asia-southl/operations/b76b55ae-7063-467b-bcfa-04b9754db022] to complete...done.

Created repository [bookmyshow-repo].

sagarpatil0005&cloudshell:-/bookmyshow-project-gcp/app (bookmyshow-gcp)$ [
```

Project Deployment Steps

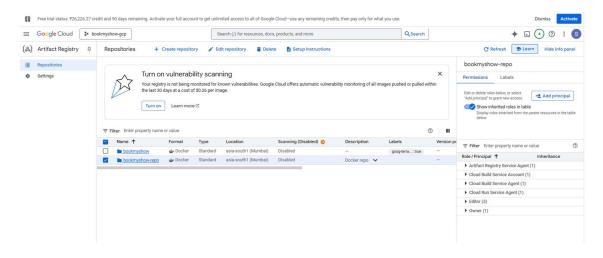
Task 4 – Provision Core Infra

• Run the following command:

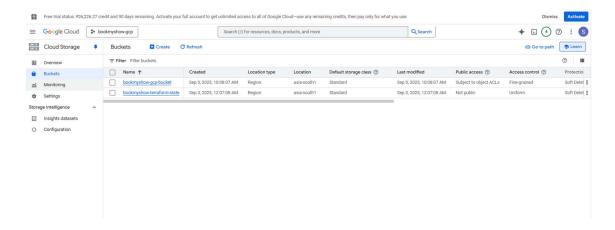
terraform apply -auto-approve

This provisions all core infrastructure defined in the following .tf files:

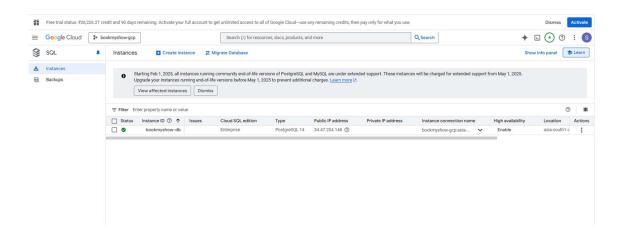
- artifact.tf → Artifact Registry
- bucket.tf → GCS Bucket
- sql.tf → Cloud SQL (Postgres)
- redis.tf → Redis (MemoryStore)
- connector.tf → VPC Access Connector
- cloudrun.tf → Cloud Run Service
- Artifact Registry repo



GCS bucket



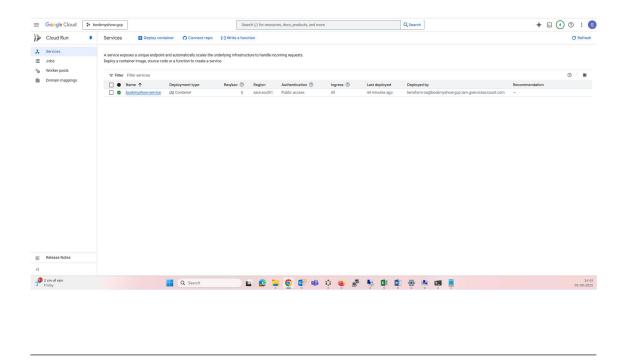
Cloud SQL instance



Redis instance



• Cloud Run service running

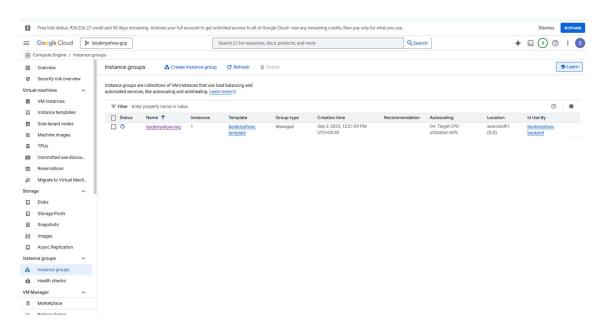


Task 5 – VM Scaling (MIG + Load Balancer)

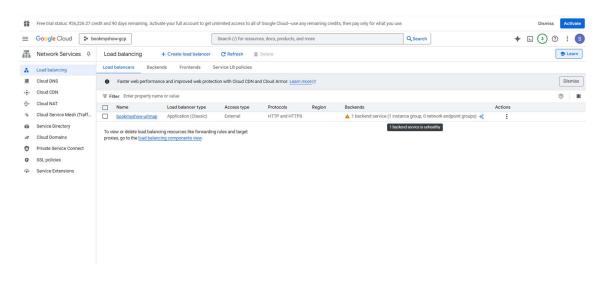
- The following files handle compute scaling and external access:
- mig.tf →
 - Instance Template (with startup script to run app)
 - Managed Instance Group (multi-zone)
 - Autoscaler (based on CPU utilization)
 - Health Check
- lb.tf \rightarrow
 - HTTPS Load Balancer (with SSL certs)
 - o Backend service
 - o URL Map & Forwarding Rules (HTTP → HTTPS redirect)
- Deploy (if core infra is already applied):

terraform apply -auto-approve

Managed Instance Group scaling instances

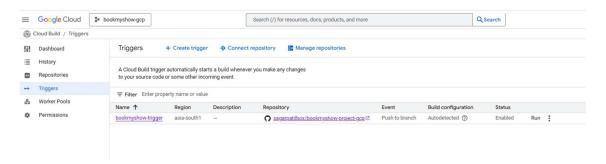


Load Balancer frontend IP



Task 6 – CI/CD Pipeline

- Install GitHub App for Cloud Build & Create Cloud Build trigger
- 1. Go to GCP Cloud Build GitHub App page
- 2. Select "Connect Repository" → GitHub
- 3. Authenticate with GitHub and **install the Cloud Build GitHub App** on your repository (bookmyshow-project-gcp)
- 4. Grant read & write permissions to triggers



Task 7 – Outputs & Verification

terraform output

• Check URLs:

gcloud run services describe bookmyshow-service --region asia-south1 -- format "value(status.url)"

c:\Users\patil.sagar\bookmyshow-project-gcp\terraform>gcloud run services describe bookmyshow-service --region asia-sout h1 --format "value(status.url)" https://bookmyshow-service-h7zo37jscq-el.a.run.app
c:\Users\patil.sagar\bookmyshow-project-gcp\terraform>

Task 8 – Testing & Upload

Step 1 – Push App Image to Artifact Registry

1. Authenticate Docker with Artifact Registry:

gcloud auth configure-docker asia-south1-docker.pkg.dev

2. Build the container image:

docker build -t asia-south1-docker.pkg.dev/bookmyshow-gcp/bookmyshow-repo/app:latest .

3. Push the image:

docker push asia-south1-docker.pkg.dev/bookmyshow-gcp/bookmyshow-repo/app:latest

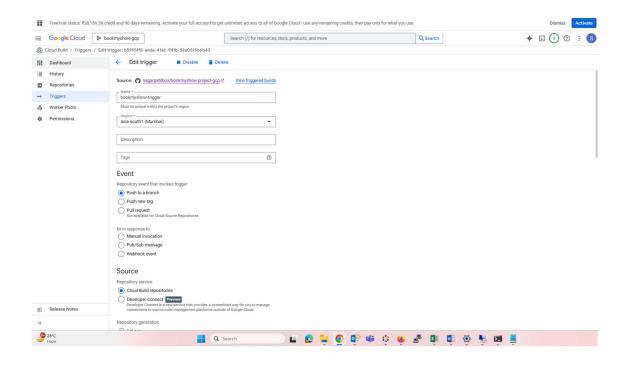
Step 2 – Upload Static Assets to GCS

• Upload frontend/static assets to the storage bucket:

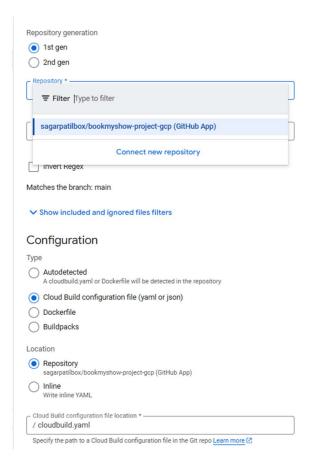
gsutil cp -r public/* gs://bookmyshow-gcp-bucket/

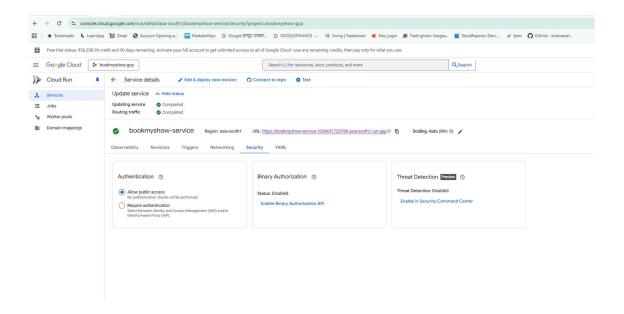
Step 3 – Configure Cloud Build Trigger (GCP Console UI)

- 1. Navigate to GCP Console → Cloud Build → Triggers → Create Trigger
- 2. Fill in:
 - Name: bookmyshow-trigger
 - Event: Push to a branch
 - Source: Connect to GitHub → select repo bookmyshow-projectgcp
 - o Branch (regex): ^main\$
 - Build config file: cloudbuild.yaml
- 3. Under Advanced Settings:
 - Service Account: X Leave empty (Cloud Build uses default SA)
 - Logging:
 ✓ Select Cloud Logging only (default option)
- 4. Save trigger.

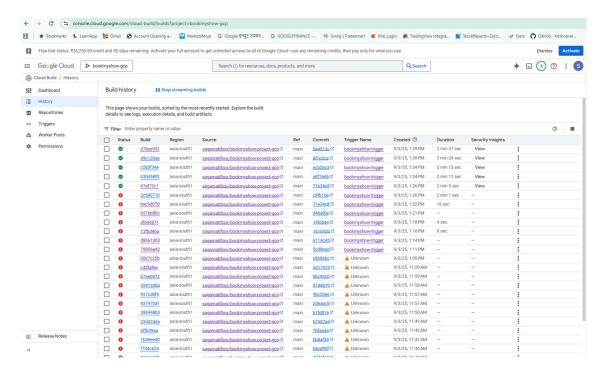


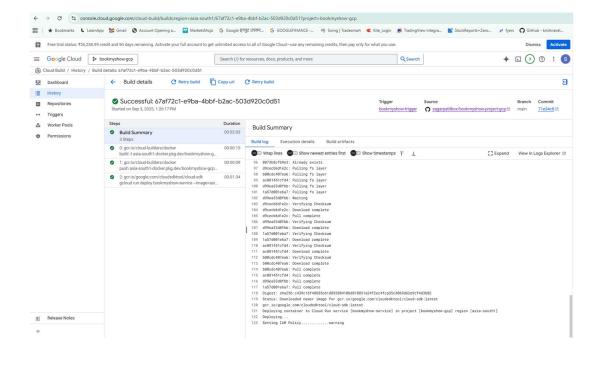
Step 4 - Trigger Build



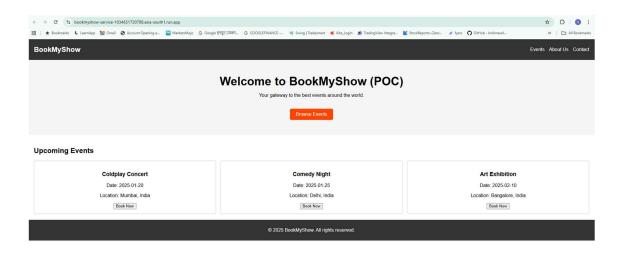


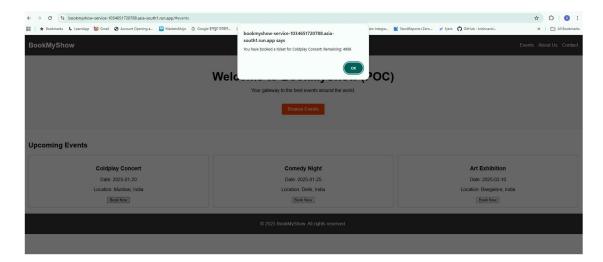
• Cloud Build Running:





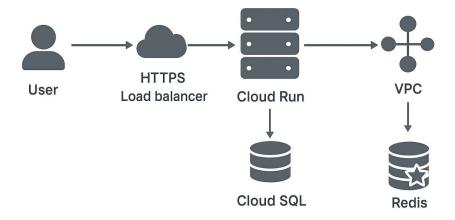
• Application Running on cloud run





Final Deliverables:

• Simple Architecture Diagram



• Project Link:

Github: https://github.com/sagarpatilbox/bookmyshow-project-gcp

Googel Drive:

https://drive.google.com/drive/folders/1Rv0g1dSHwRaysRv2ewGeCh9NGCKEn3zF?usp=sharing