Batch: CCET-1	**Roll No.: 1911031**
Experiment No. 02	
Grade: AA / AB / BB / BC / CC / CD /DD	

Title: Create and Manage Cloud Resources and Hosting website using Google Cloud Platform (PaaS)

Objective: Create and Manage Cloud Resources and Hosting website using Google Cloud Platform (PaaS)

Expected Outcome of Experiment:

CO	Outcome
CO4	Analyse and apply cloud programming models to solve problems

Books/ Journals/ Websites referred:

1. https://www.hostinger.in/tutorials/what-is-web-hosting/
2. https://www.quicksprout.com/best-web-hosting/
3. https://www.godaddy.com/
4. https://cloud.google.com/solutions/web-hosting
5. https://try.digitalocean.com/google-vs-digitalocean/

Abstract:-

What Is Web Hosting?

Web hosting is an online service that enables you to publish your website or web application on the internet. When you sign up for a web hosting service, you basically

rent some space on a physical server where you can store all the files and data necessary for your website to work properly.

Related Theory: -

How Does Web Hosting Work?

The server that hosts your website is a physical computer that runs continuously to make the site available for visitors all the time. Buying servers for web hosting will allow you to store all the data of your website in the those servers of your provider. Once a user enters your domain name into their browser's address bar, the web host's server will transfer all the files necessary to load your website.

You can host a website yourself, but it requires extensive technical skills. Self-hosting entails setting up and configuring a web server from scratch, including the equipment, infrastructure, hardware, and software. Furthermore, you will also have to handle all the ongoing maintenance. A web hosting service provider ensures that your website performs optimally and with better security protocols. In addition, it simplifies the many complex aspects of hosting a website – from software installation to technical support.

Types of Web Hosting Services

With numerous web hosting options available, it can be challenging to determine which one is best for your website.

Most web hosts offer different hosting packages for different types of customers – from business website owners to personal blog creators.

Ideally, you should start with the simplest hosting solution. Once your site gets more traffic, you can upgrade to a more advanced plan. Feel free to check Hostinger's hosting prices to get a general idea of the different types of hosting and their costs.

Let's take a look at some of the most popular ones available.

Shared Hosting

With shared hosting, multiple users share the same server resources, including memory, processing power, and storage space.
Because of its simplicity and affordability, shared web hosting is an excellent solution for small businesses and personal websites that do not require advanced configuration or higher bandwidth. Hence, shared hosting is an excellent choice for beginners that need affordable hosting to start.

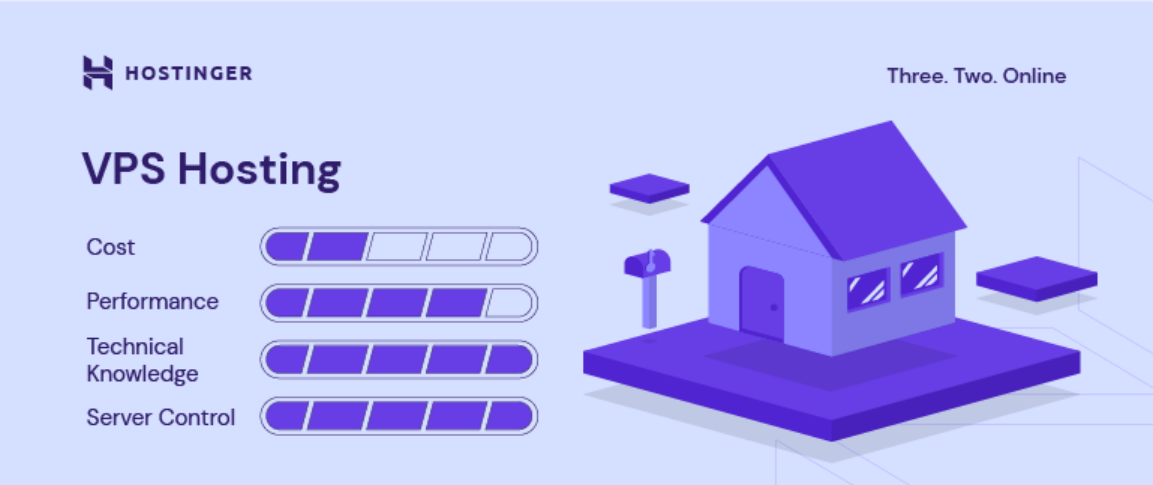
Pros

- Cost-effective, ideal for small-scale websites
- Technical expertise is not required
- Pre-configured server options
- No need to take care of maintenance and server administration

Cons

- Minimal access to server configuration
- Increased traffic on other websites can affect your website's speed

Virtual Private Server (VPS) Hosting



With this web hosting type, your website also shares a physical server with other users, but the web host creates a virtual partition for each user. Thus, a site hosted on a virtual private server get an allocated amount of resources.
VPS web hosting is a great option for medium-sized sites, eCommerce shops, and large blogs with a rapidly growing number of visitors.

Pros

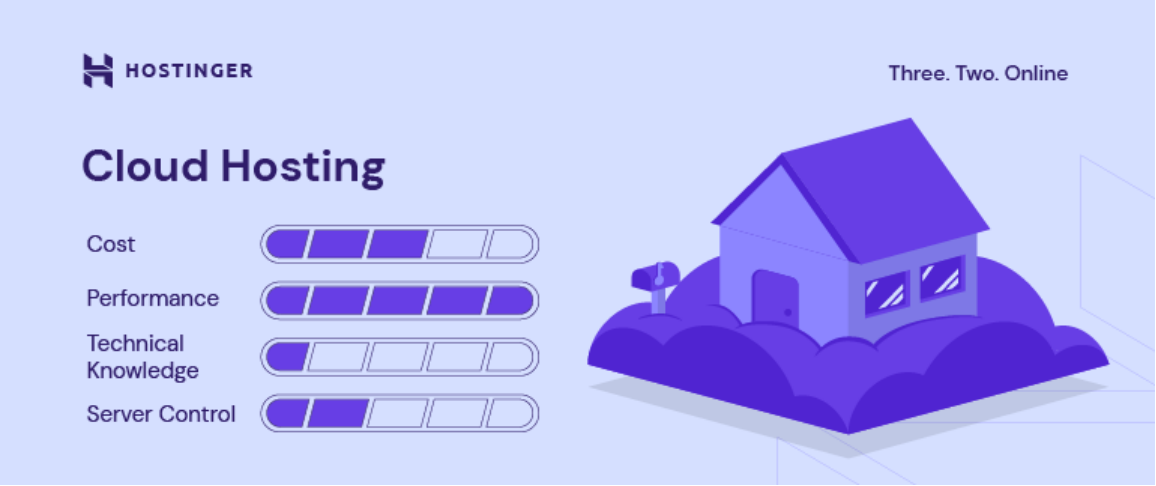
- Dedicated server space
- Increased traffic on other websites has no impact on your site's performance
- Root access to the server
- High customizability

Cons

- Users need technical expertise to manage it
- Even though it's relatively affordable, some users may have to hire a developer to manage the virtual server, increasing the overall costs

Related Theory (contd...): -

Cloud Hosting



This web hosting solution uses several virtual servers to host sites. Thus, if one server experiences high traffic or a problem, the remaining ones will take over and maintain the website operating.
Since cloud hosting relies on a cluster of web servers to function, businesses with multiple websites and large-scale sites like e-commerce shops can benefit the most from it, as it provides little to no downtime.

Pros

- Reduced likelihood of downtime and hardware failure
- Uses load balancing to handle high traffic and prevent DDoS attacks
- Scalability – your website is not limited to the resources of a single server

Cons

- Root access is not always provided
- It is more expensive than VPS and shared hosting

Dedicated Hosting

Dedicated hosting designates a physical server for each website. By going with dedicated hosting, you can configure the server, choose your desired operating system and software, and customize the entire hosting environment to your specifications. Renting a dedicated server is just as powerful as having your own on-site server, but with the added benefit of getting professional support from your web host. Thus, dedicated hosting is ideal for large online businesses that deal with heavy traffic.

Pros

- Complete control over the server's configuration
- High reliability
- Root access to the server

Cons

- High cost, more oriented towards large businesses
- Technical and server management knowledge is required

There's a lot of decision-making involved in creating a new website, including how and where to host it.

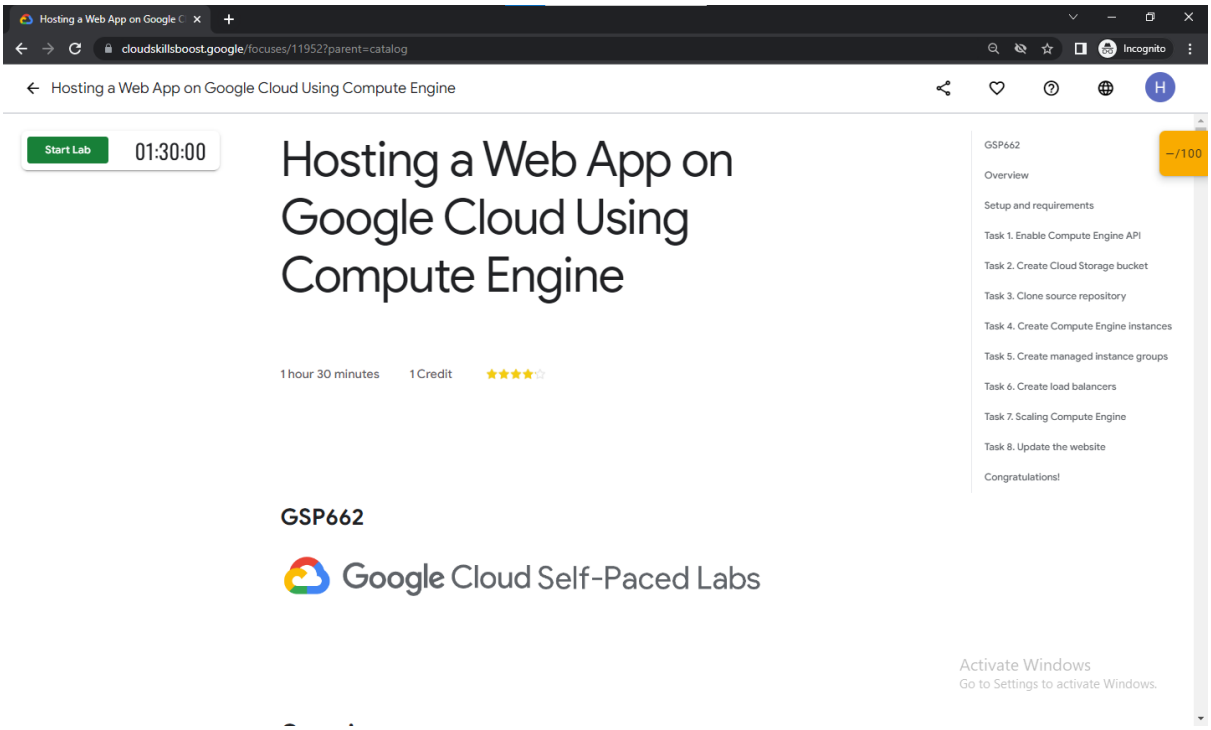
Whether it's an online business, blog, or another type of website, the first step to building your online presence is signing up for a hosting account. Web hosting is a service that enables your website to be available online.

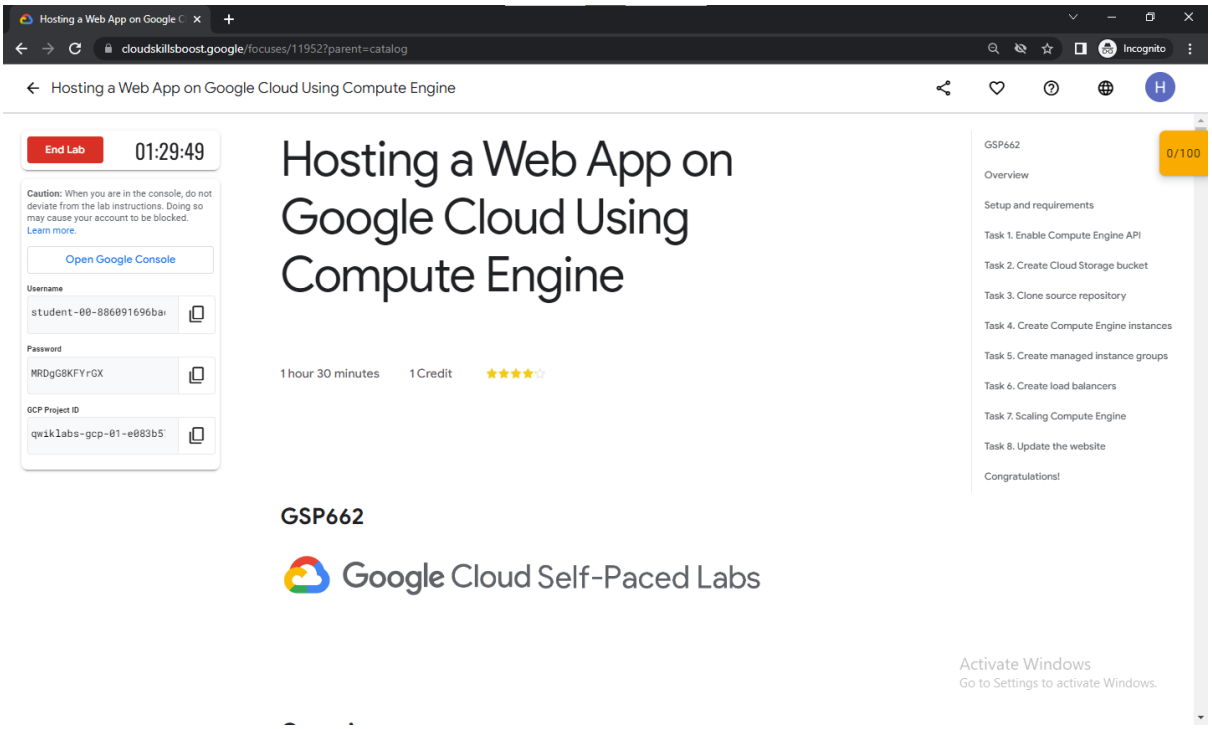
Learning the basics of web hosting and the types of web hosting services will help you find a cost-effective and reliable solution for your website.

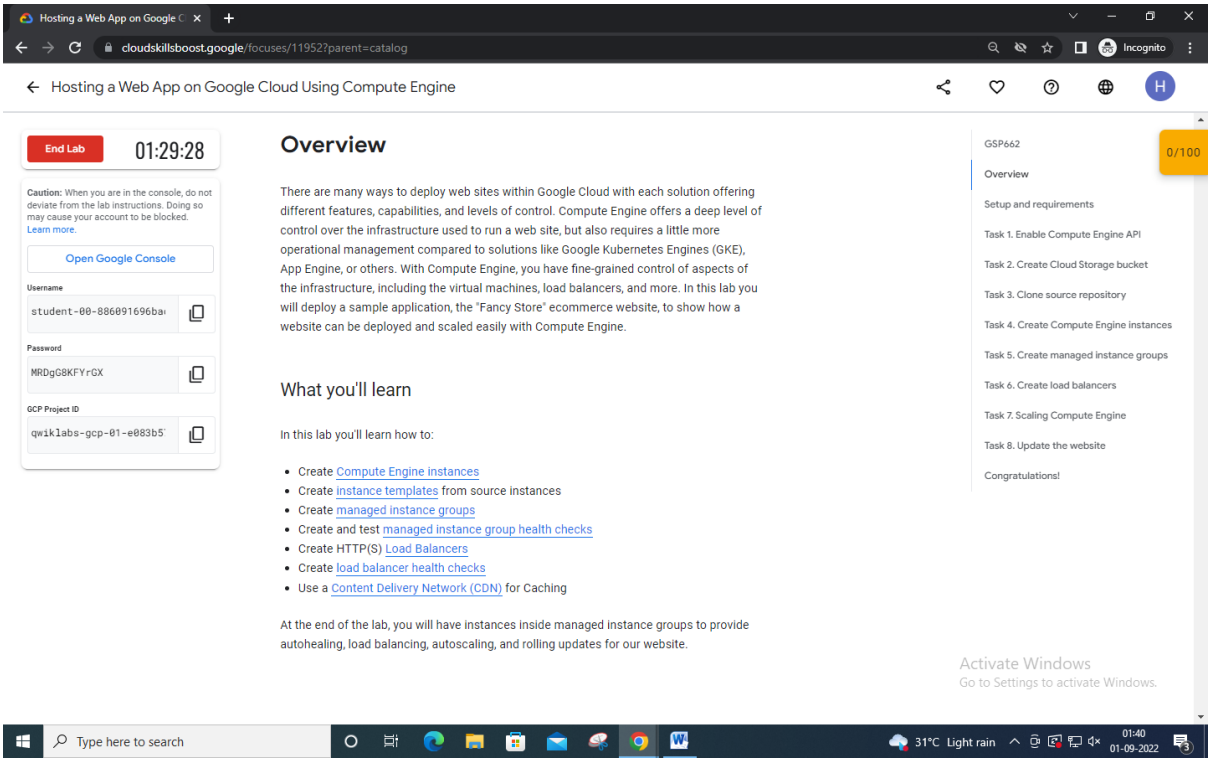
When you are considering different services and hosting providers, keep your needs in mind and analyze the advantages and disadvantages of the web hosting companies.

Implementation Details:

1. Enlist all the Steps followed and various options explored




Hosting a Web App on Google C
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:29:49
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Hosting a Web App on Google Cloud Using Compute Engine
1 hour 30 minutes
1 Credit
GSP662
Google Cloud Self-Paced Labs
GSP662
0/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google C
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:29:28
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Overview
There are many ways to deploy web sites within Google Cloud with each solution offering different features, capabilities, and levels of control. Compute Engine offers a deep level of control over the infrastructure used to run a web site, but also requires a little more operational management compared to solutions like Google Kubernetes Engines (GKE), App Engine, or others. With Compute Engine, you have fine-grained control of aspects of the infrastructure, including the virtual machines, load balancers, and more. In this lab you will deploy a sample application, the "Fancy Store" ecommerce website, to show how a website can be deployed and scaled easily with Compute Engine.
What you'll learn
In this lab you'll learn how to:
Create Compute Engine instances
Create instance templates from source instances
Create managed instance groups
Create and test managed instance group health checks
Create HTTP(S) Load Balancers
Create load balancer health checks
Use a Content Delivery Network (CDN) for Caching
At the end of the lab, you will have instances inside managed instance groups to provide autohealing, load balancing, autoscaling, and rolling updates for our website.
GSP662
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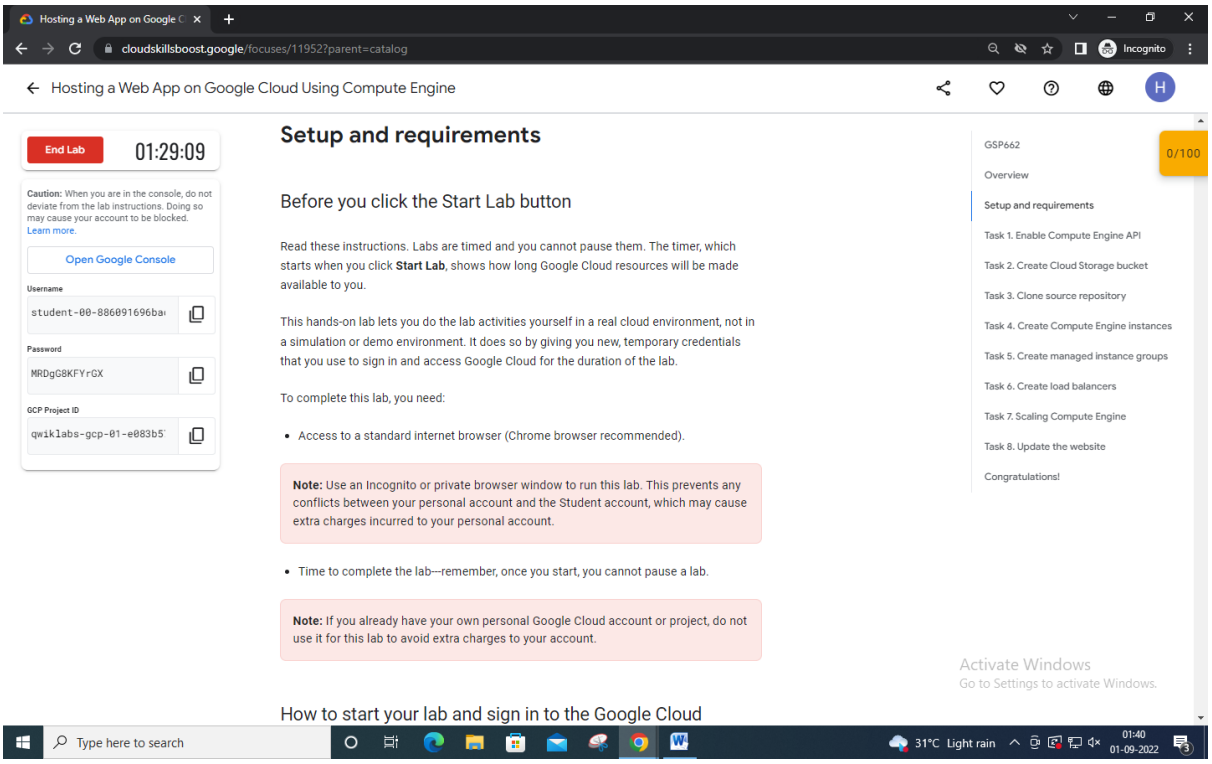
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:40
01-09-2022


Hosting a Web App on Google C
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:29:09
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Setup and requirements
Before you click the Start Lab button
Read these instructions. Labs are timed and you cannot pause them. The timer, which starts when you click Start Lab, shows how long Google Cloud resources will be made available to you.
This hands-on lab lets you do the lab activities yourself in a real cloud environment, not in a simulation or demo environment. It does so by giving you new, temporary credentials that you use to sign in and access Google Cloud for the duration of the lab.
To complete this lab, you need:
Access to a standard internet browser (Chrome browser recommended).
Note: Use an Incognito or private browser window to run this lab. This prevents any conflicts between your personal account and the Student account, which may cause extra charges incurred to your personal account.
Time to complete the lab---remember, once you start, you cannot pause a lab.
Note: If you already have your own personal Google Cloud account or project, do not use it for this lab to avoid extra charges to your account.
How to start your lab and sign in to the Google Cloud
GSP662
0/100
Overview
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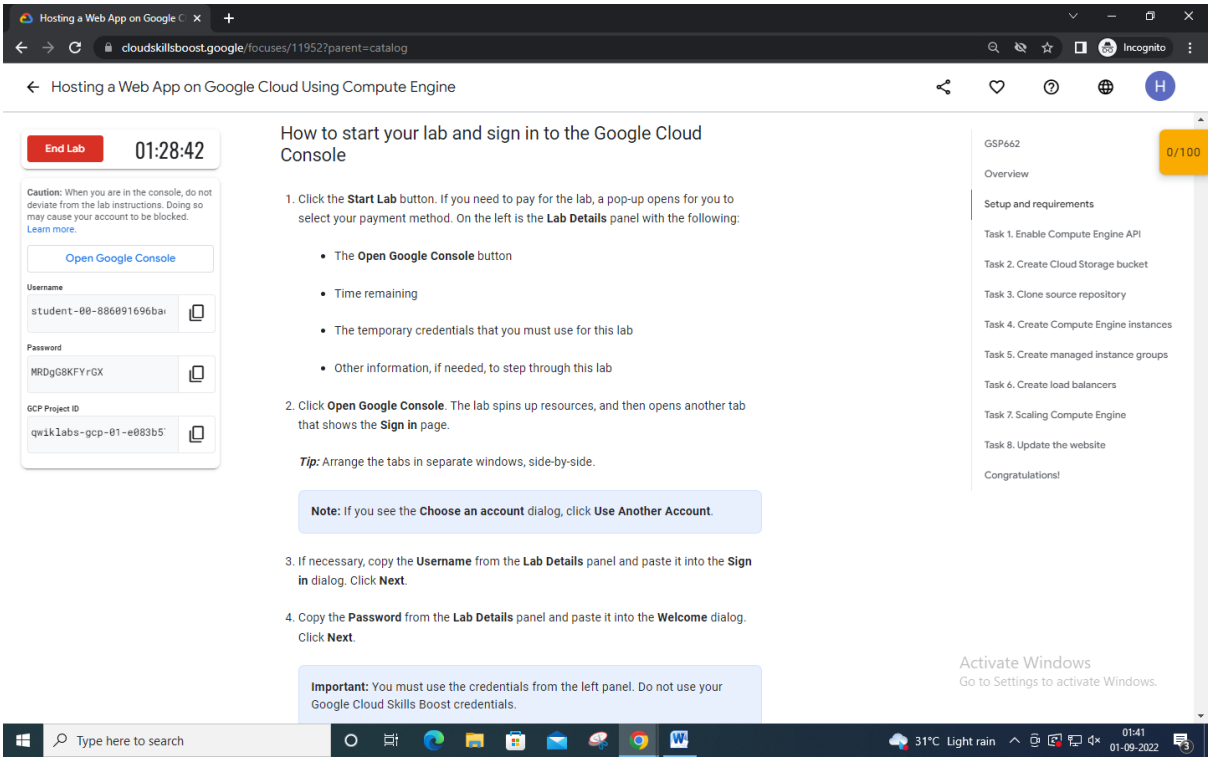
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:40
01-09-2022


Hosting a Web App on Google C
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:28:42
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
How to start your lab and sign in to the Google Cloud Console
1. Click the Start Lab button. If you need to pay for the lab, a pop-up opens for you to select your payment method. On the left is the Lab Details panel with the following:
The Open Google Console button
Time remaining
The temporary credentials that you must use for this lab
Other information, if needed, to step through this lab
2. Click Open Google Console. The lab spins up resources, and then opens another tab that shows the Sign in page.
Tip: Arrange the tabs in separate windows, side-by-side.
Note: If you see the Choose an account dialog, click Use Another Account.
3. If necessary, copy the Username from the Lab Details panel and paste it into the Sign in dialog. Click Next.
4. Copy the Password from the Lab Details panel and paste it into the Welcome dialog. Click Next.
Important: You must use the credentials from the left panel. Do not use your Google Cloud Skills Boost credentials.
GSP662
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Overview
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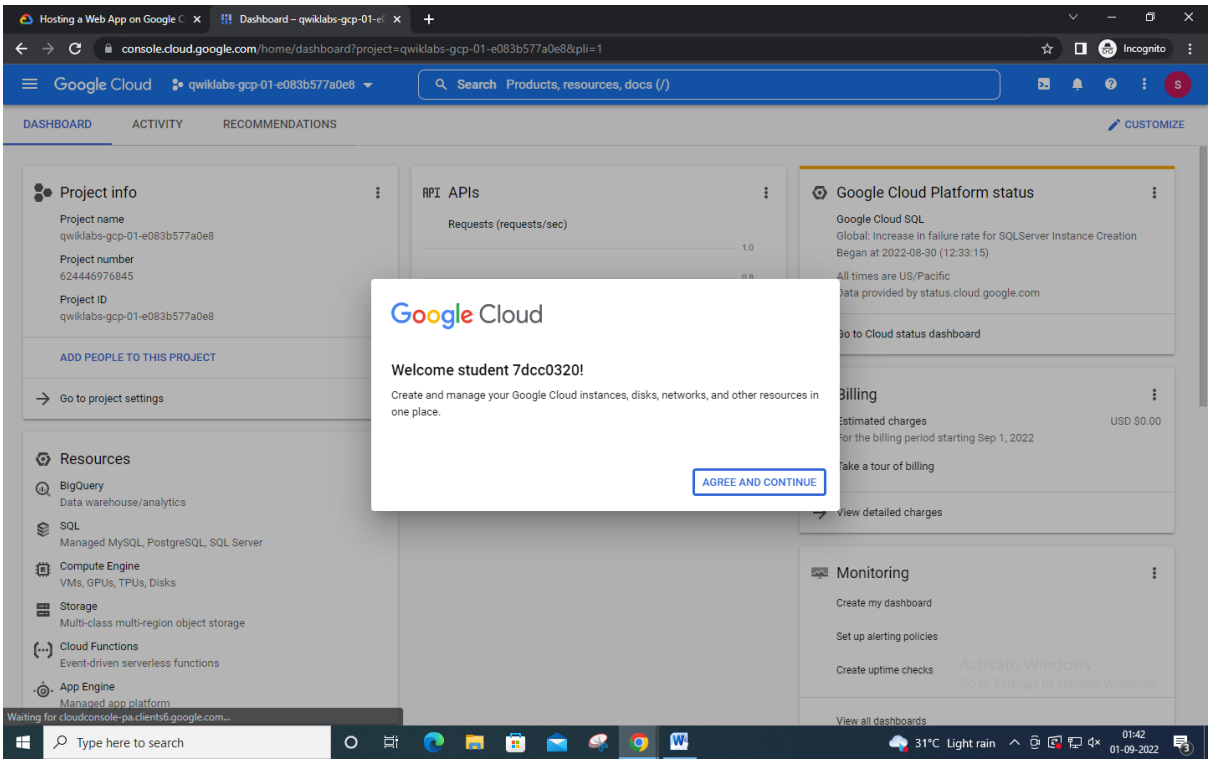
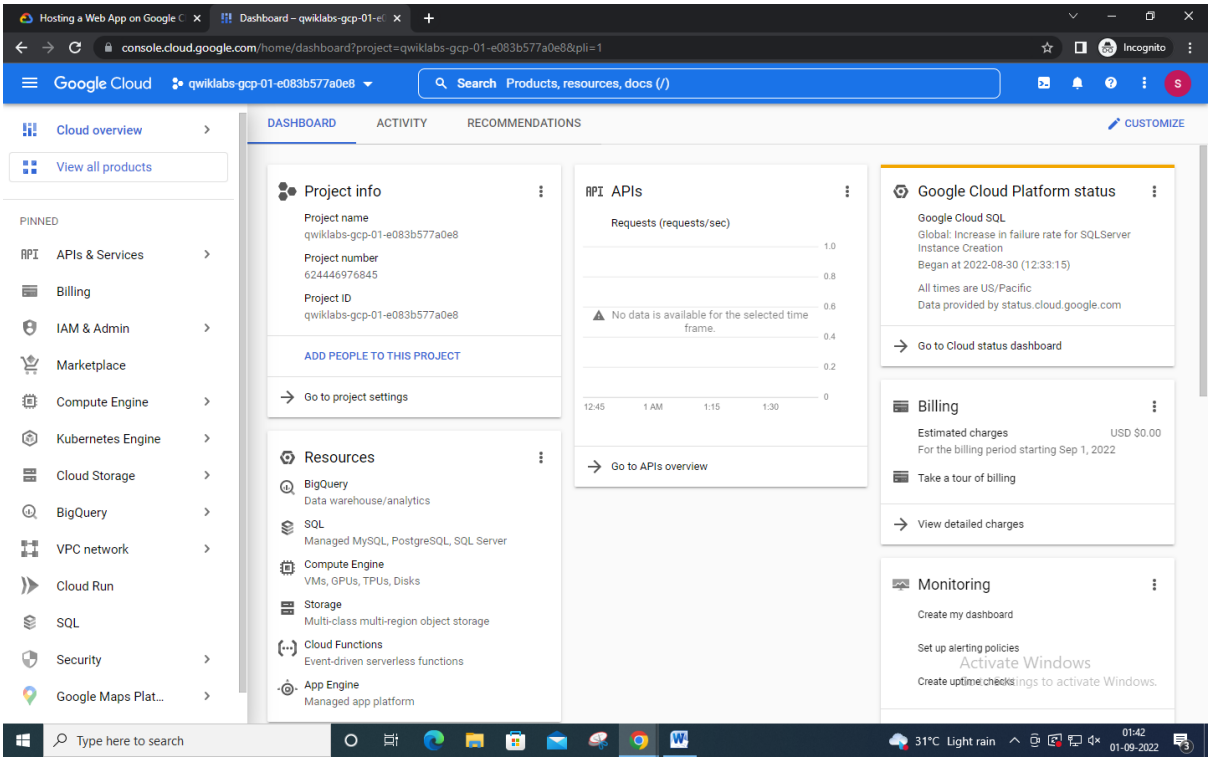
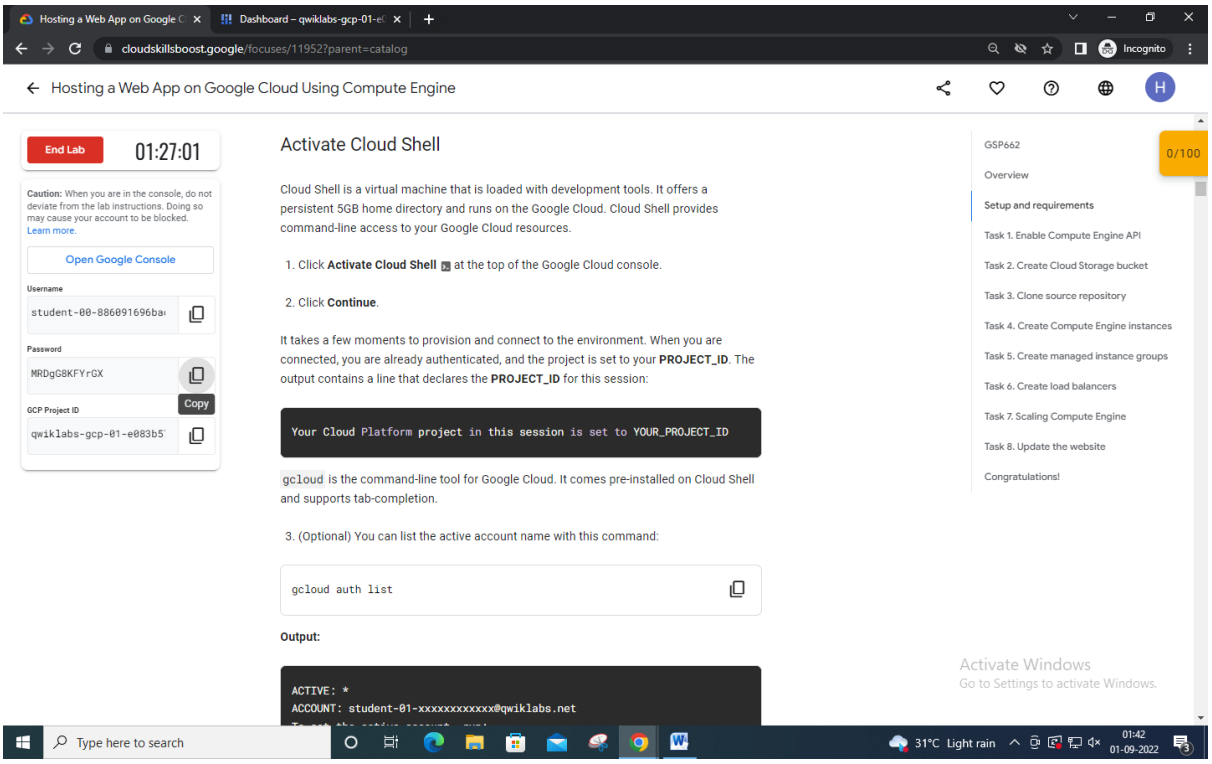
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:41
01-09-2022


Google Cloud
Welcome student 7dcc0320!
Create and manage your Google Cloud instances, disks, networks, and other resources in one place.
AGREE AND CONTINUE
Project info
APIs
Google Cloud Platform status
Billing
Monitoring
Resources


Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
APIs
Google Cloud Platform status
Billing
Monitoring
Resources


Hosting a Web App on Google Cloud Using Compute Engine
cloudskillsboost.google/focuses/11952?parent=catalog
End Lab
01:27:01
Activate Cloud Shell
Cloud Shell is a virtual machine that is loaded with development tools. It offers a persistent 5GB home directory and runs on the Google Cloud. Cloud Shell provides command-line access to your Google Cloud resources.
1. Click Activate Cloud Shell at the top of the Google Cloud console.
2. Click Continue.
It takes a few moments to provision and connect to the environment. When you are connected, you are already authenticated, and the project is set to your PROJECT_ID. The output contains a line that declares the PROJECT_ID for this session:
Your Cloud Platform project in this session is set to YOUR_PROJECT_ID
gcloud is the command-line tool for Google Cloud. It comes pre-installed on Cloud Shell and supports tab-completion.
3. (Optional) You can list the active account name with this command:
gcloud auth list
Output:
ACTIVE: *
ACCOUNT: student-01-xxxxxxxxxxxx@qwiklabs.net
GSP662
0/100
Overview
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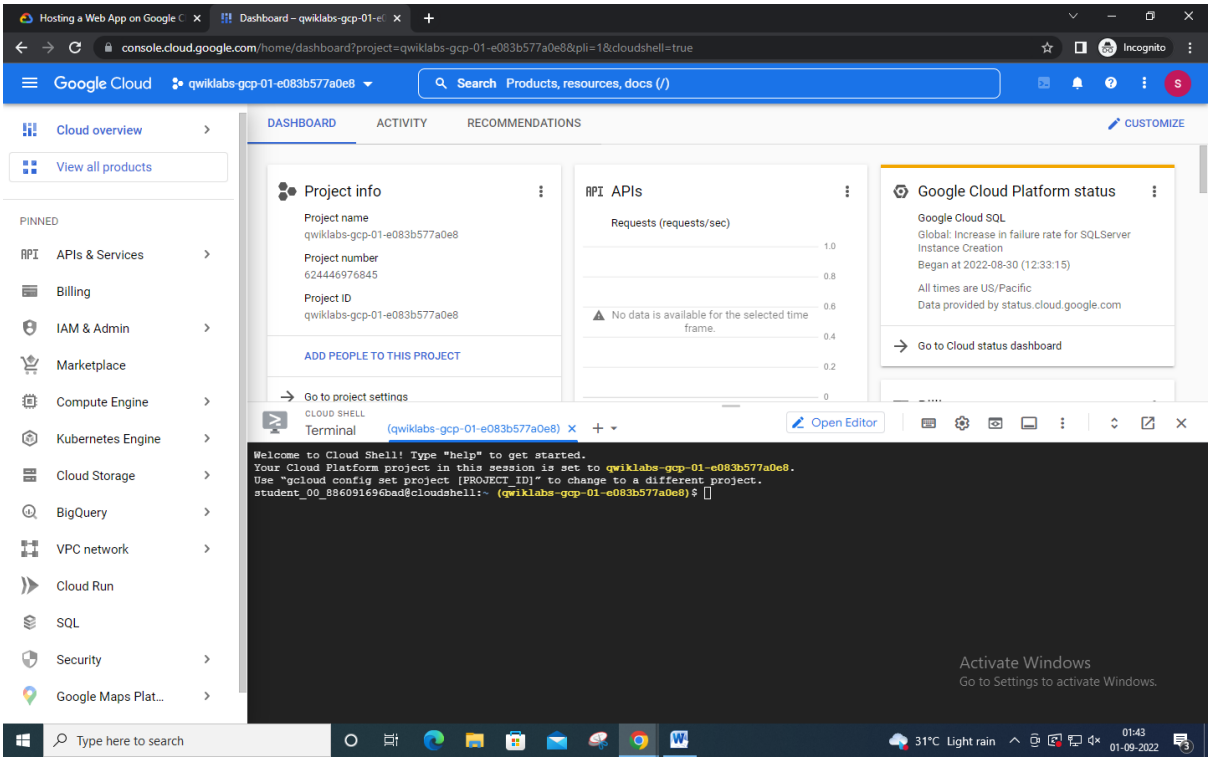
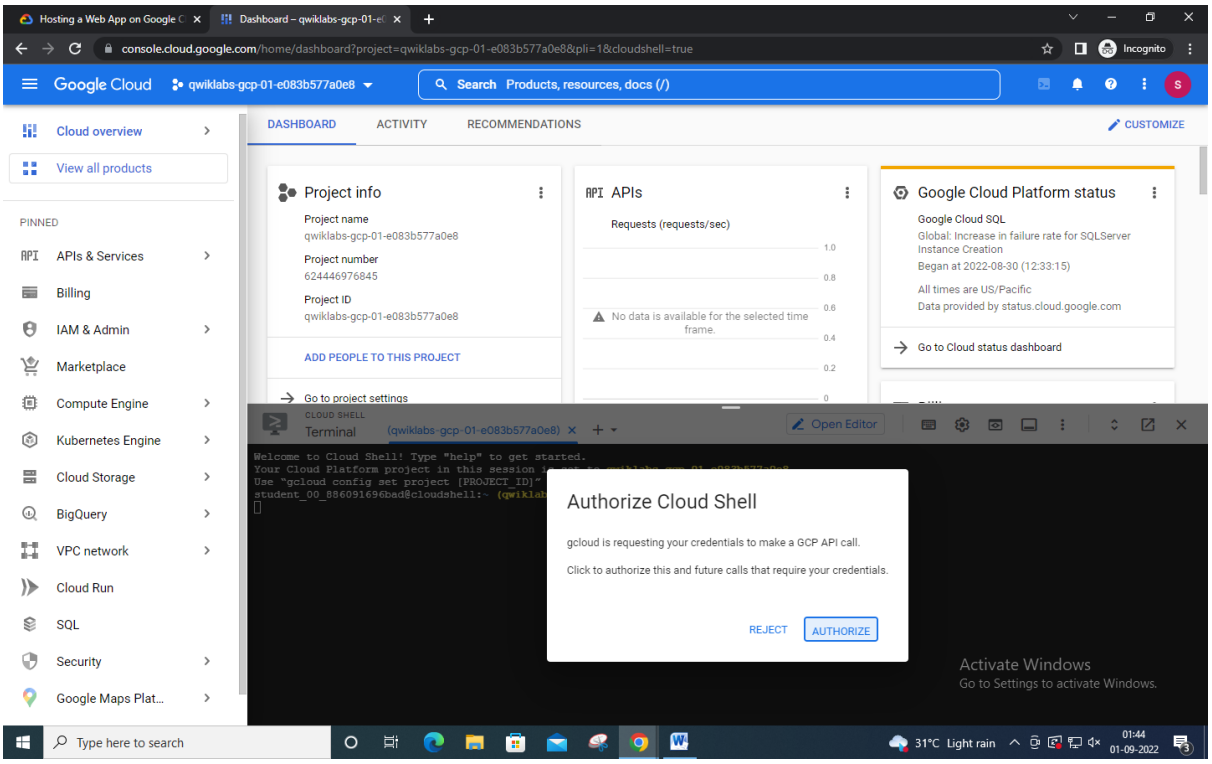
Congratulations!
Activate Windows
Go to Settings to activate Windows.


console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
Go to project settings
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to qwiklabs-gcp-01-e083b577a0e8.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
Go to project settings
APIs
Requests (requests/sec)
No data is available for the selected time frame.
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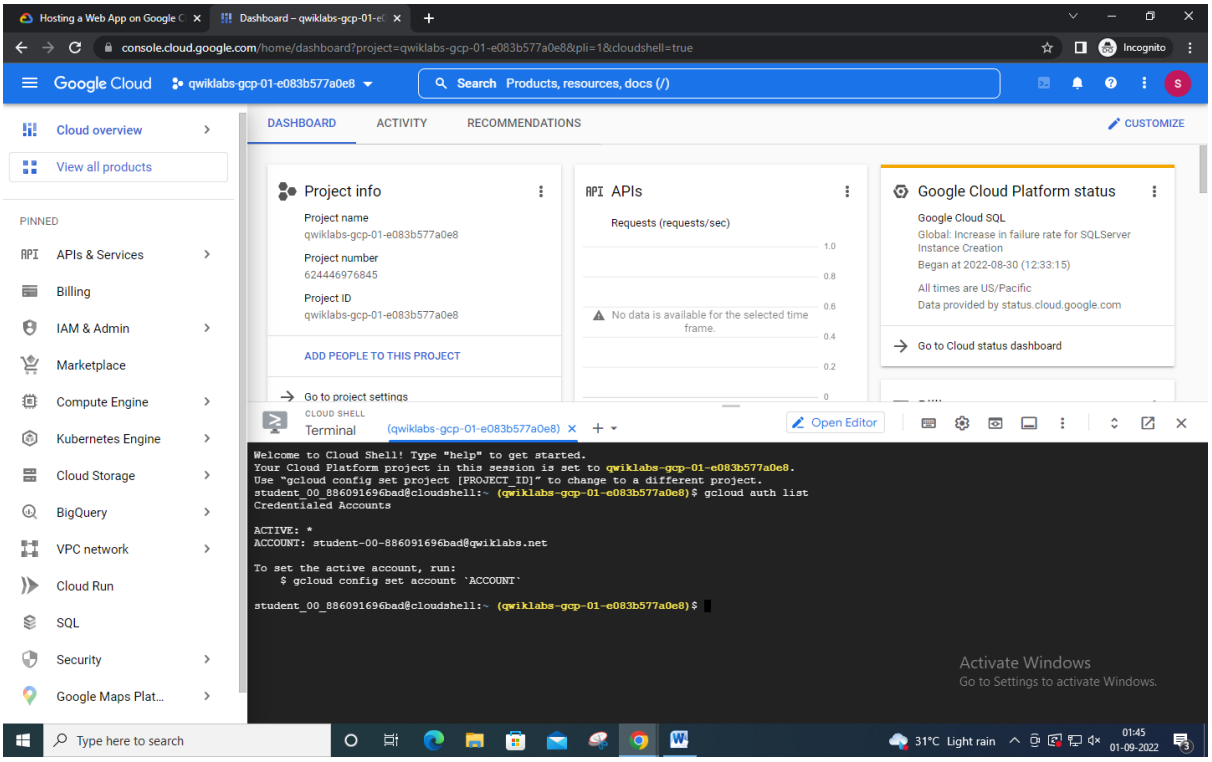
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
Welcome to Cloud Shell! Type "help" to get started.
Authorize Cloud Shell
gcloud is requesting your credentials to make a GCP API call.
Click to authorize this and future calls that require your credentials.
REJECT
AUTHORIZE
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:44
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
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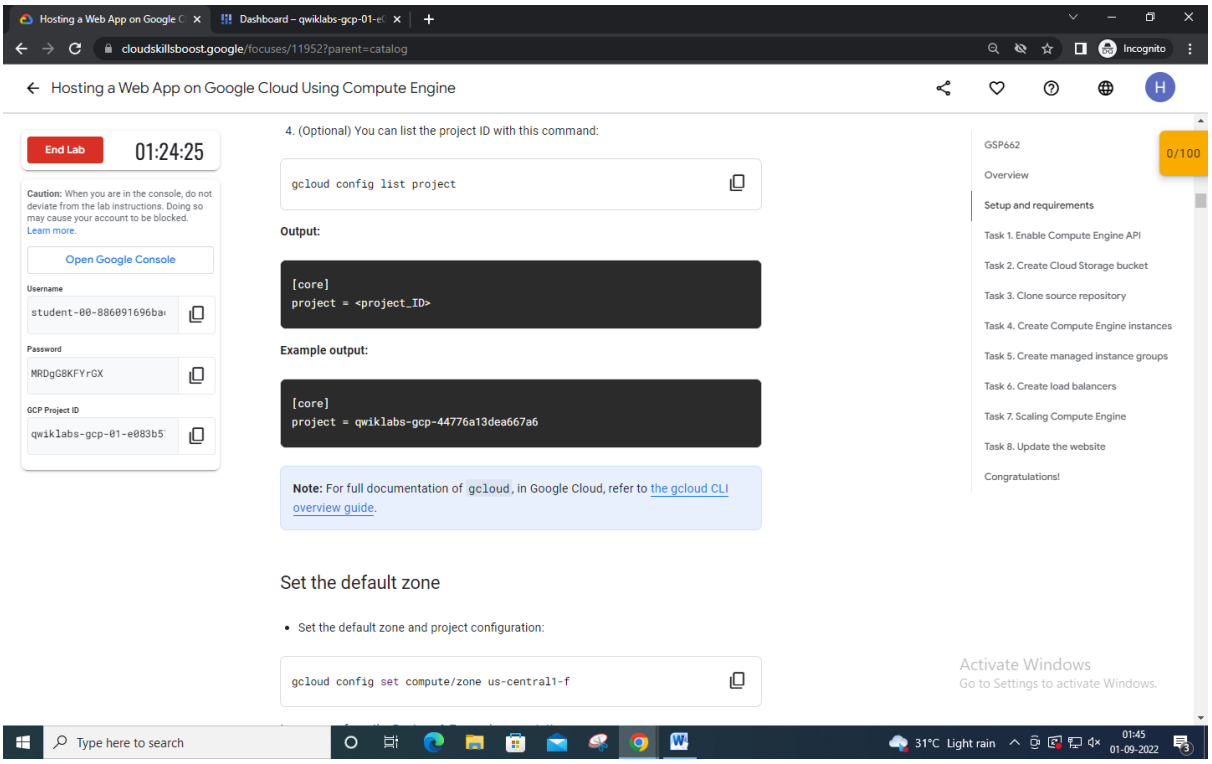
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to qwiklabs-gcp-01-e083b577a0e8.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud auth list
Credentialed Accounts
ACTIVE: *
ACCOUNT: student-00-886091696bad@qwiklabs.net
To set the active account, run:
$ gcloud config set account `ACCOUNT`
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:45
01-09-2022


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:24:25
Open Google Console
4. (Optional) You can list the project ID with this command:
gcloud config list project
Output:
[core]
project = <project_ID>
Example output:
[core]
project = qwiklabs-gcp-44776a13dea667a6
Note: For full documentation of gcloud, in Google Cloud, refer to the gcloud CLI overview guide.
Set the default zone
Set the default zone and project configuration:
gcloud config set compute/zone us-central1-f
GSP662
0/100
Overview
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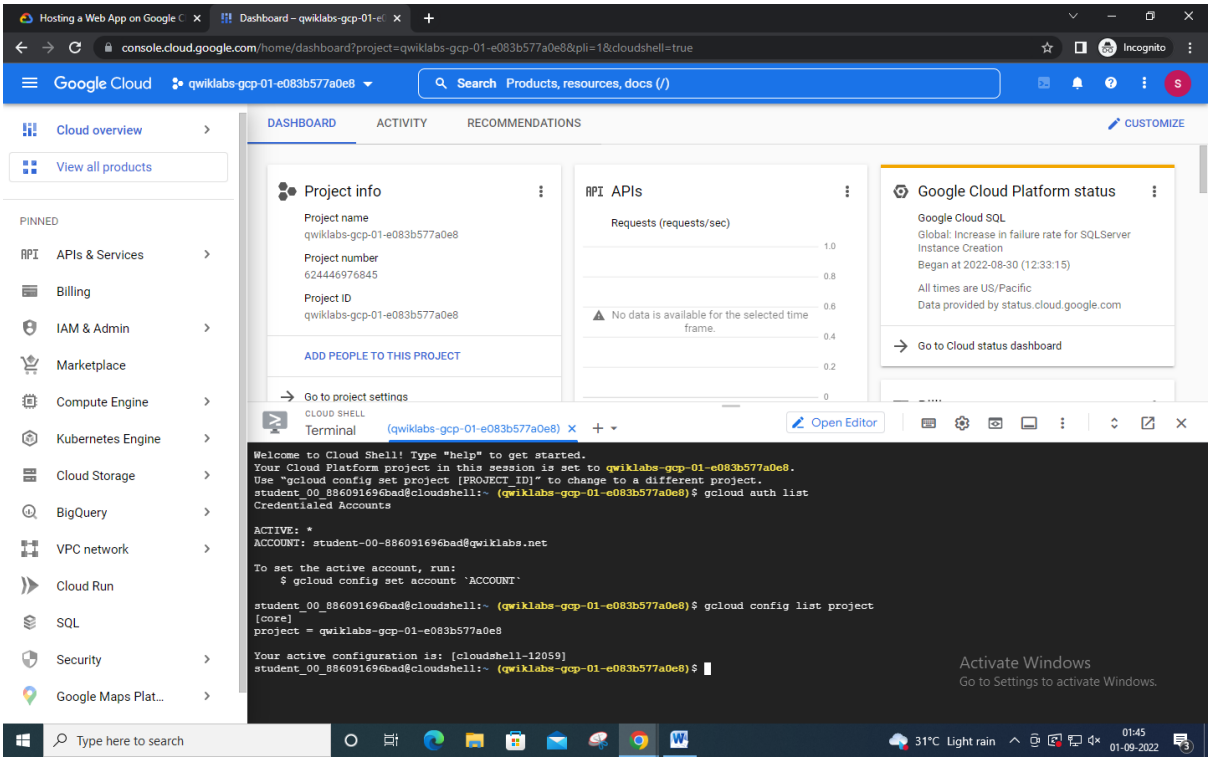
Congratulations!


Google Cloud
Search Products, resources, docs (/)
Cloud overview
View all products
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
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Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
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All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
Terminal
Open Editor
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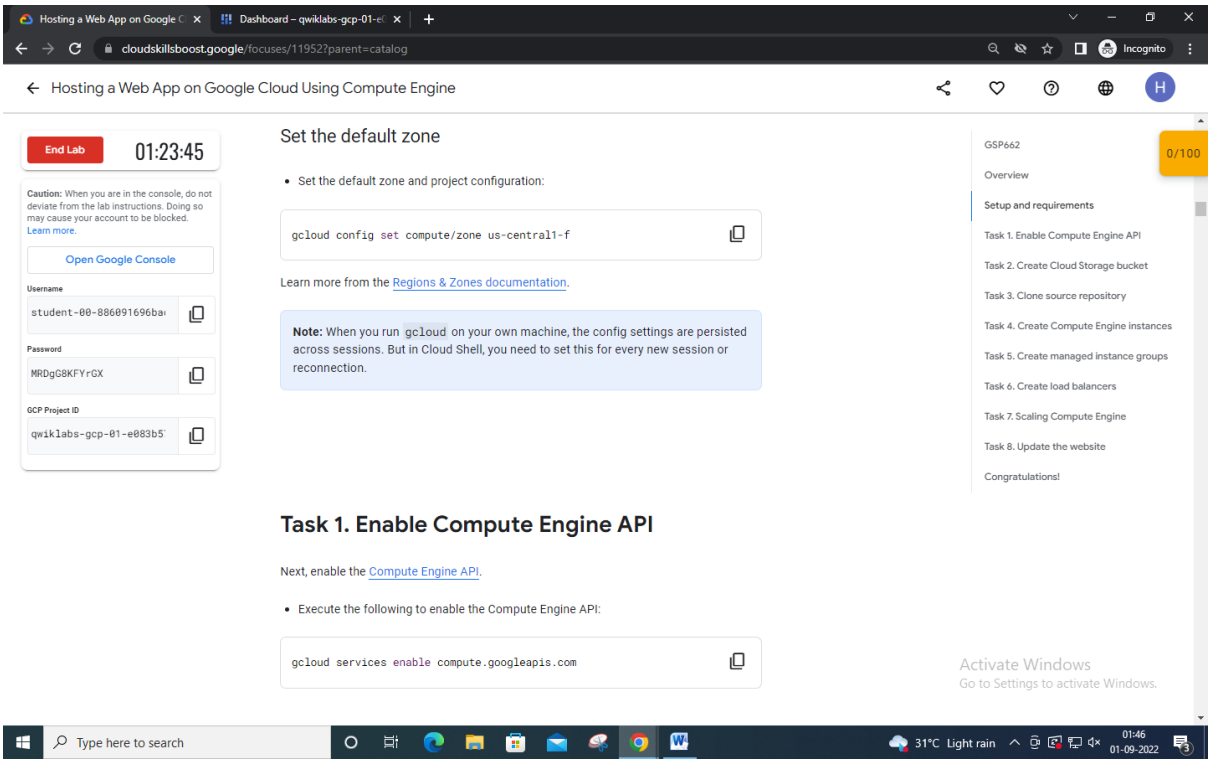
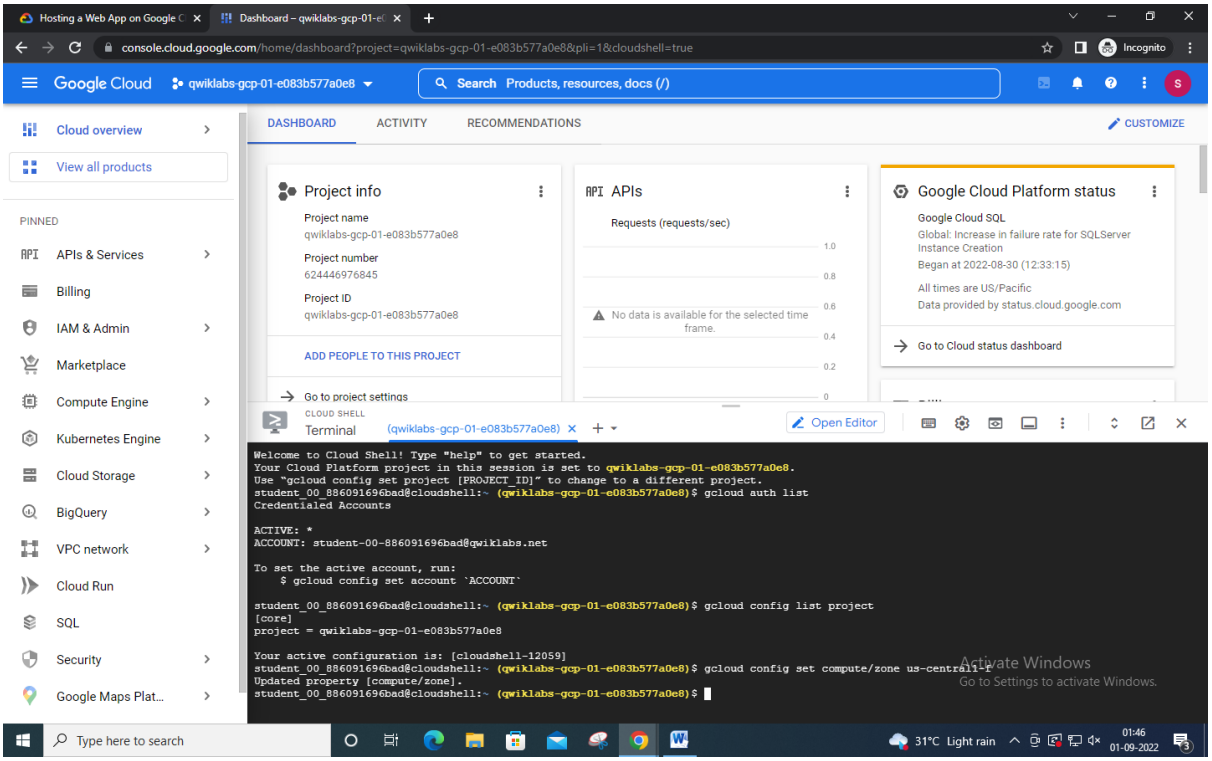
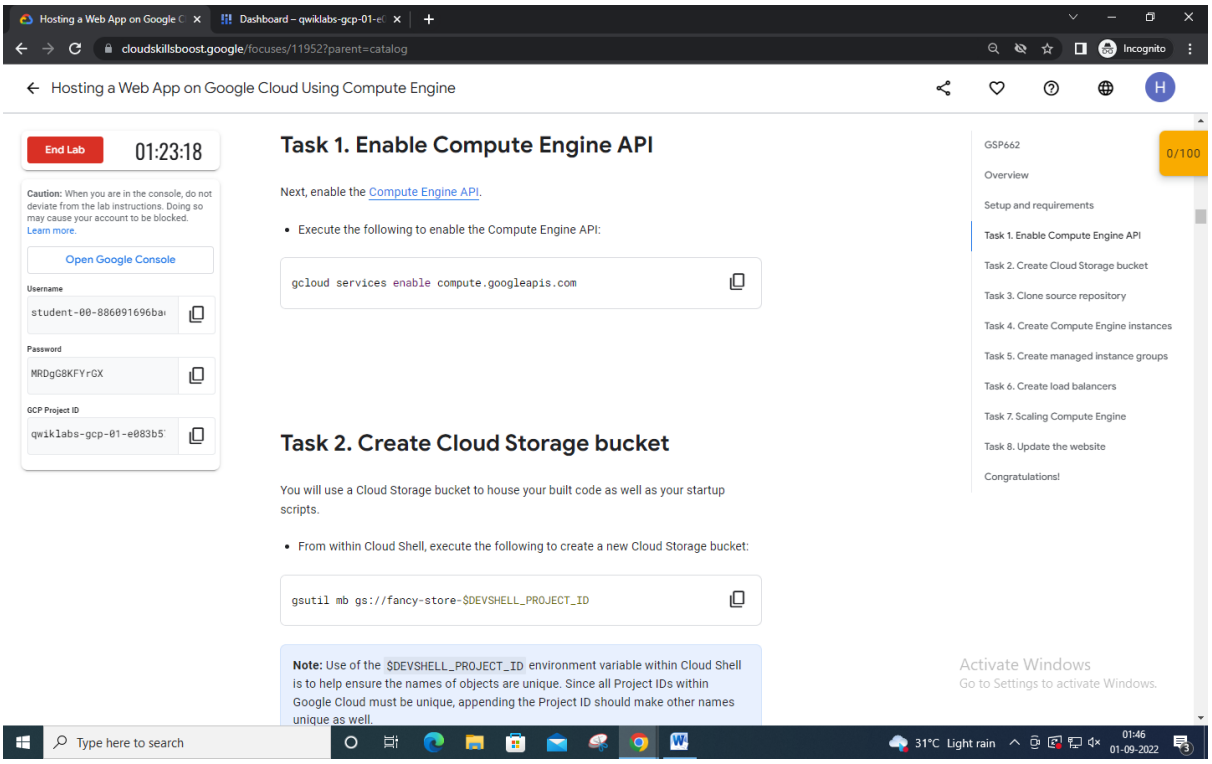
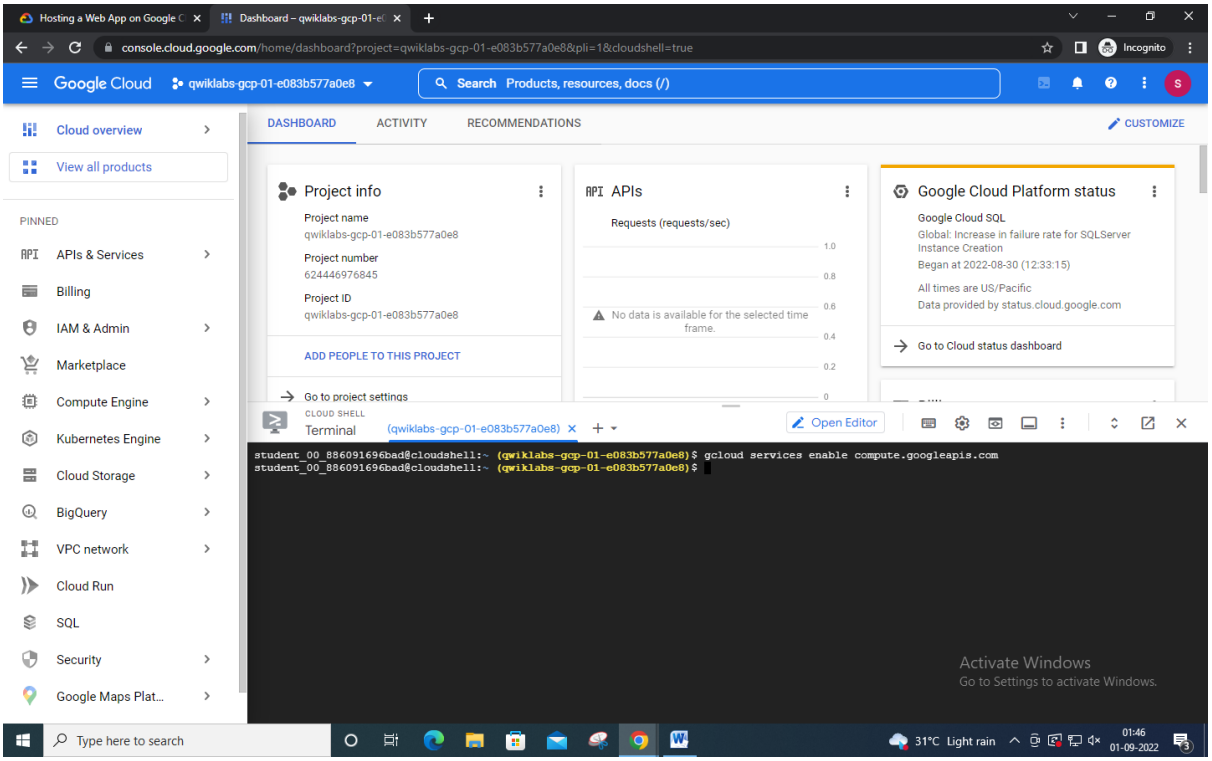
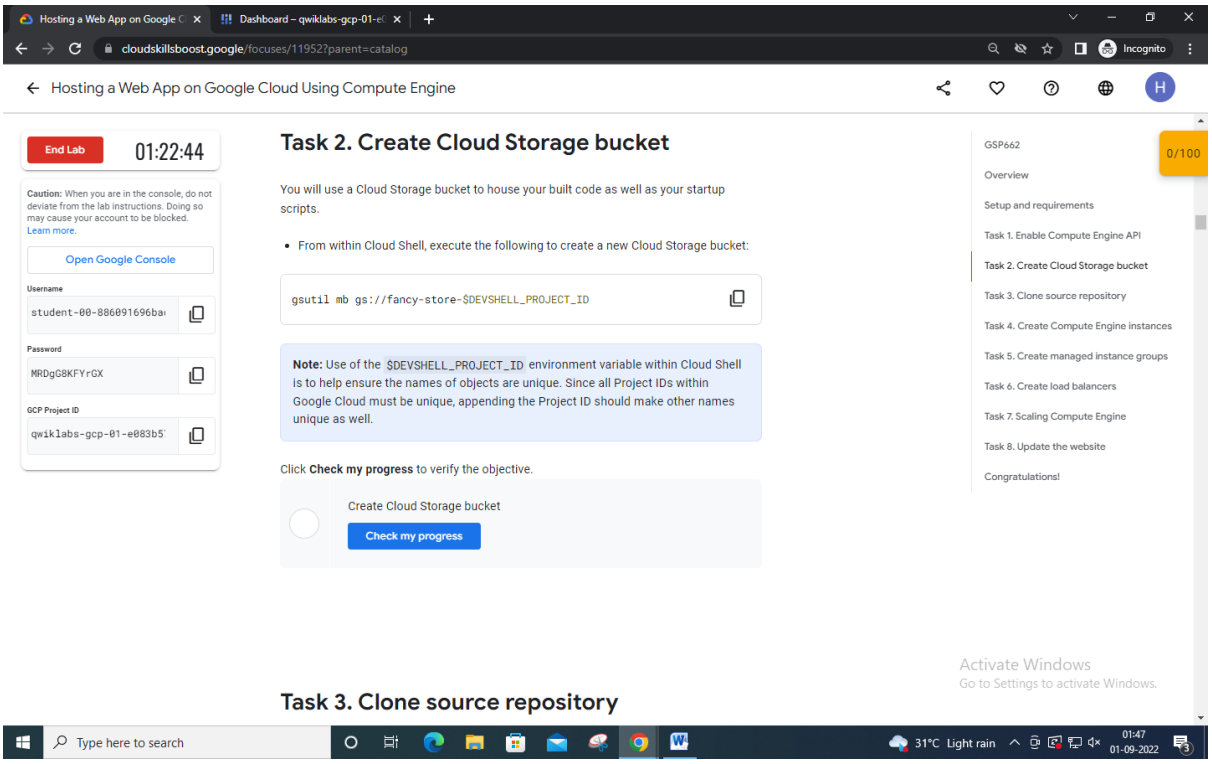
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud auth list
Credentialed Accounts
ACTIVE: *
ACCOUNT: student-00-886091696bad@qwiklabs.net
To set the active account, run:
$ gcloud config set account `ACCOUNT`
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud config list project
[core]
project = qwiklabs-gcp-01-e083b577a0e8
Your active configuration is: [cloudshell-12059]
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...

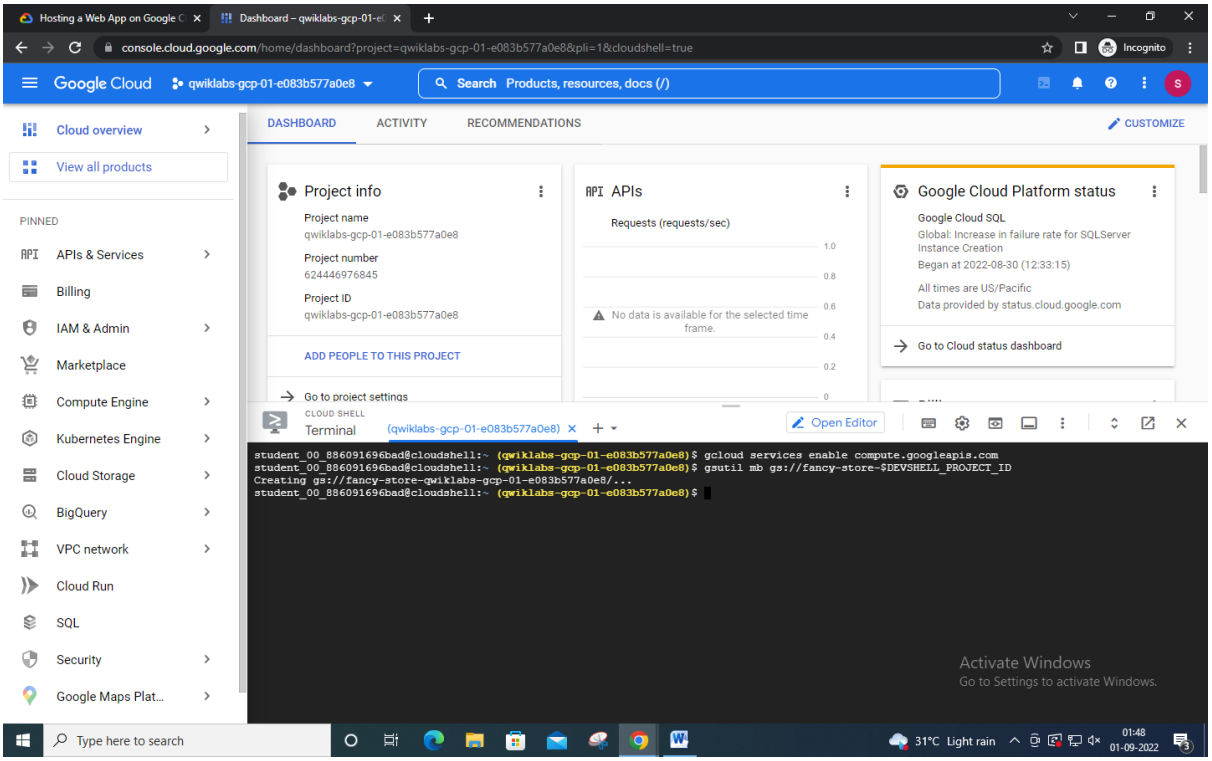

Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:23:45
Set the default zone
gcloud config set compute/zone us-central1-f
Task 1. Enable Compute Engine API
gcloud services enable compute.googleapis.com

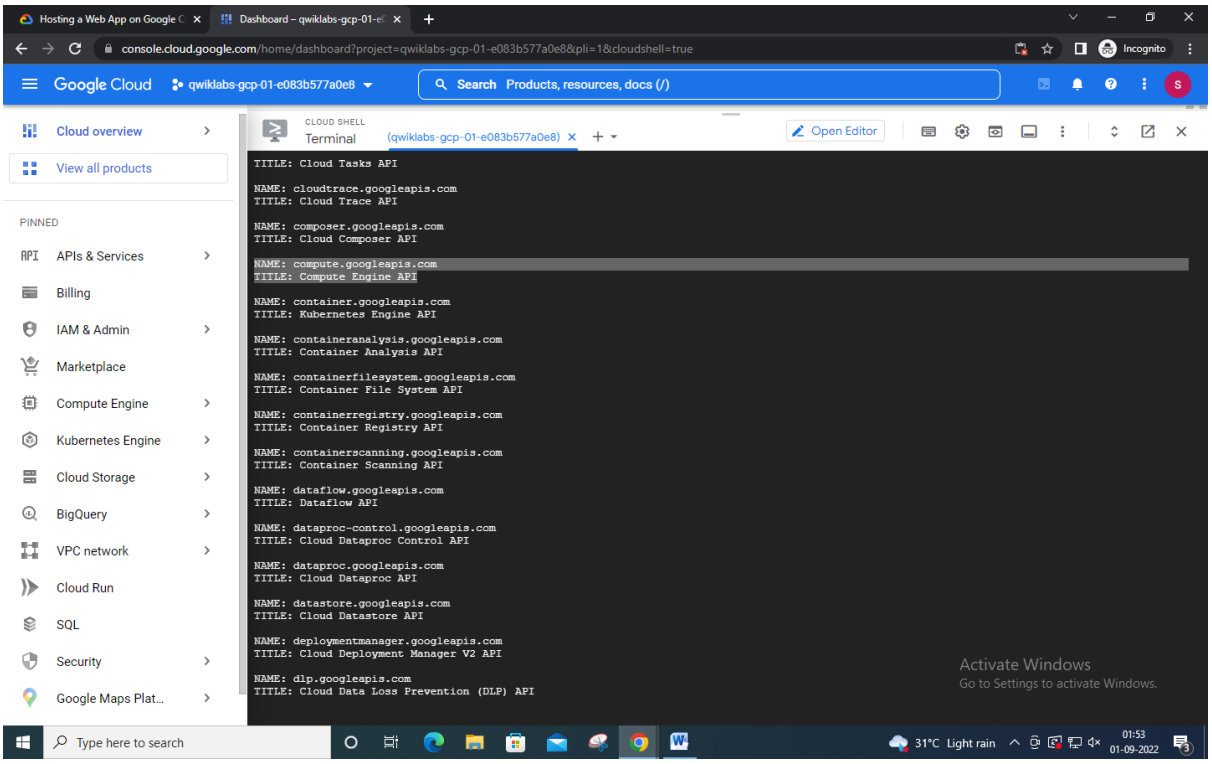

Google Cloud
Project info
APIs
Google Cloud Platform status
Terminal
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to qwiklabs-gcp-01-e083b577a0e8.
Updated property [compute/zone].

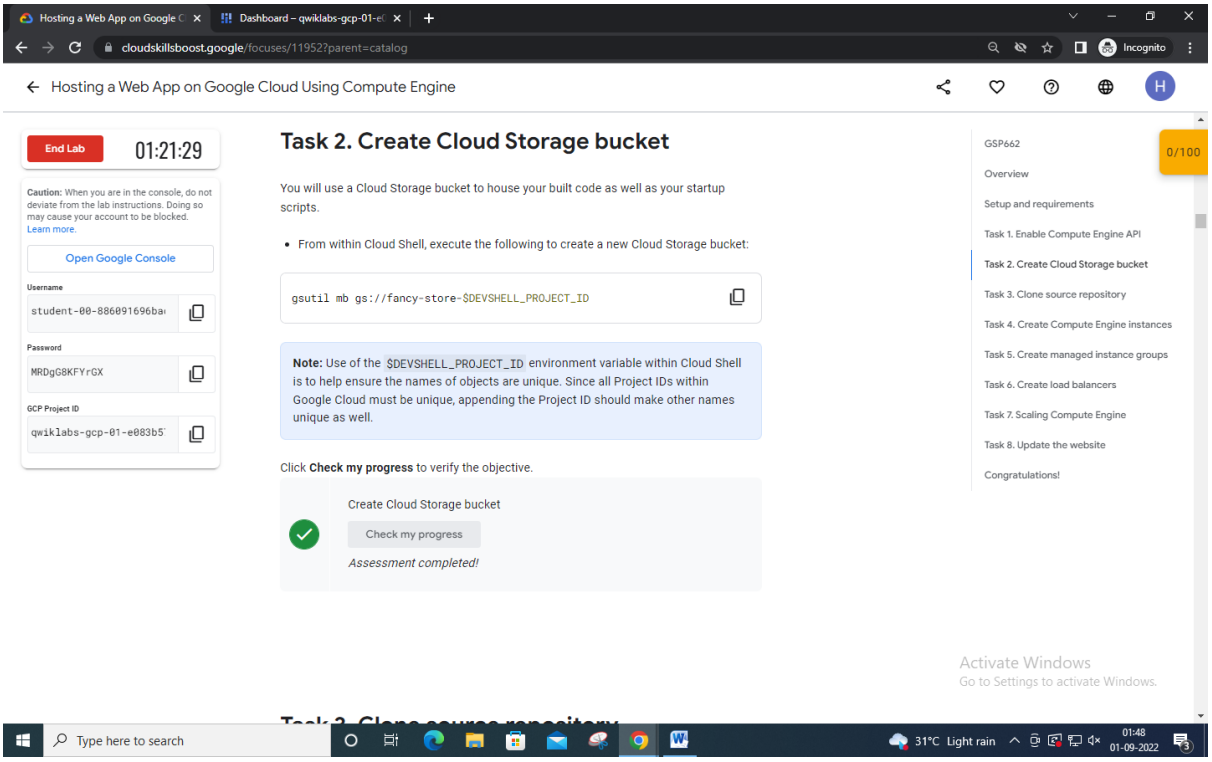

Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:23:18
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Task 1. Enable Compute Engine API
Next, enable the Compute Engine API.
Execute the following to enable the Compute Engine API:
gcloud services enable compute.googleapis.com
Task 2. Create Cloud Storage bucket
You will use a Cloud Storage bucket to house your built code as well as your startup scripts.
From within Cloud Shell, execute the following to create a new Cloud Storage bucket:
gsutil mb gs://fancy-store-$DEVSHELL_PROJECT_ID
Note: Use of the $DEVSHELL_PROJECT_ID environment variable within Cloud Shell is to help ensure the names of objects are unique. Since all Project IDs within Google Cloud must be unique, appending the Project ID should make other names unique as well.
GSP662
0/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.


Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
Go to project settings
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud services enable compute.googleapis.com
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:22:44
Task 2. Create Cloud Storage bucket
You will use a Cloud Storage bucket to house your built code as well as your startup scripts.
From within Cloud Shell, execute the following to create a new Cloud Storage bucket:
gsutil mb gs://fancy-store-$DEVSHELL_PROJECT_ID
Note: Use of the $DEVSHELL_PROJECT_ID environment variable within Cloud Shell is to help ensure the names of objects are unique. Since all Project IDs within Google Cloud must be unique, appending the Project ID should make other names unique as well.
Click Check my progress to verify the objective.
Create Cloud Storage bucket
Check my progress
Task 3. Clone source repository


Google Cloud
Project info
APIs
Google Cloud Platform status
Terminal
gcloud services enable compute.googleapis.com
gsutil mb gs://fancy-store-$DEVSHELL_PROJECT_ID


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
TITLE: Cloud Tasks API
NAME: cloudtrace.googleapis.com
TITLE: Cloud Trace API
NAME: composer.googleapis.com
TITLE: Cloud Composer API
NAME: compute.googleapis.com
TITLE: Compute Engine API
NAME: container.googleapis.com
TITLE: Kubernetes Engine API
NAME: containeranalysis.googleapis.com
TITLE: Container Analysis API
NAME: containerfilesystem.googleapis.com
TITLE: Container File System API
NAME: containerregistry.googleapis.com
TITLE: Container Registry API
NAME: containerscanning.googleapis.com
TITLE: Container Scanning API
NAME: dataflow.googleapis.com
TITLE: Dataflow API
NAME: dataproc-control.googleapis.com
TITLE: Cloud Dataproc Control API
NAME: dataproc.googleapis.com
TITLE: Cloud Dataproc API
NAME: datastore.googleapis.com
TITLE: Cloud Datastore API
NAME: deploymentmanager.googleapis.com
TITLE: Cloud Deployment Manager V2 API
NAME: dlp.googleapis.com
TITLE: Cloud Data Loss Prevention (DLP) API
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:53
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:21:29
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Task 2. Create Cloud Storage bucket
You will use a Cloud Storage bucket to house your built code as well as your startup scripts.
From within Cloud Shell, execute the following to create a new Cloud Storage bucket:
gsutil mb gs://fancy-store-$DEVSHELL_PROJECT_ID
Note: Use of the $DEVSHELL_PROJECT_ID environment variable within Cloud Shell is to help ensure the names of objects are unique. Since all Project IDs within Google Cloud must be unique, appending the Project ID should make other names unique as well.
Click Check my progress to verify the objective.
Create Cloud Storage bucket
Check my progress
Assessment completed!
GSP662
0/100
Overview
Setup and requirements
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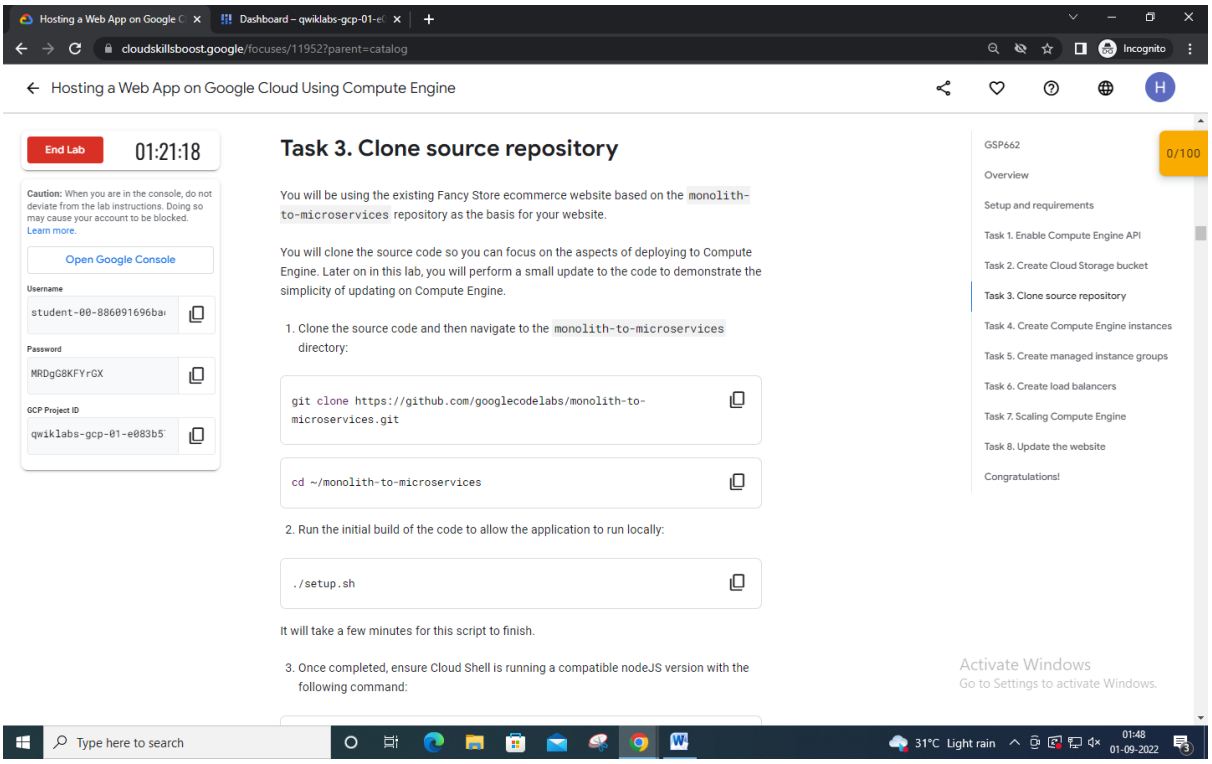
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:48
01-09-2022


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:21:18
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Task 3. Clone source repository
You will be using the existing Fancy Store ecommerce website based on the monolith-to-microservices repository as the basis for your website.
You will clone the source code so you can focus on the aspects of deploying to Compute Engine. Later on in this lab, you will perform a small update to the code to demonstrate the simplicity of updating on Compute Engine.
1. Clone the source code and then navigate to the monolith-to-microservices directory:
git clone https://github.com/googlecodelabs/monolith-to-microservices.git
cd ~/monolith-to-microservices
2. Run the initial build of the code to allow the application to run locally:
./setup.sh
It will take a few minutes for this script to finish.
3. Once completed, ensure Cloud Shell is running a compatible nodeJS version with the following command:
GSP662
0/100
Overview
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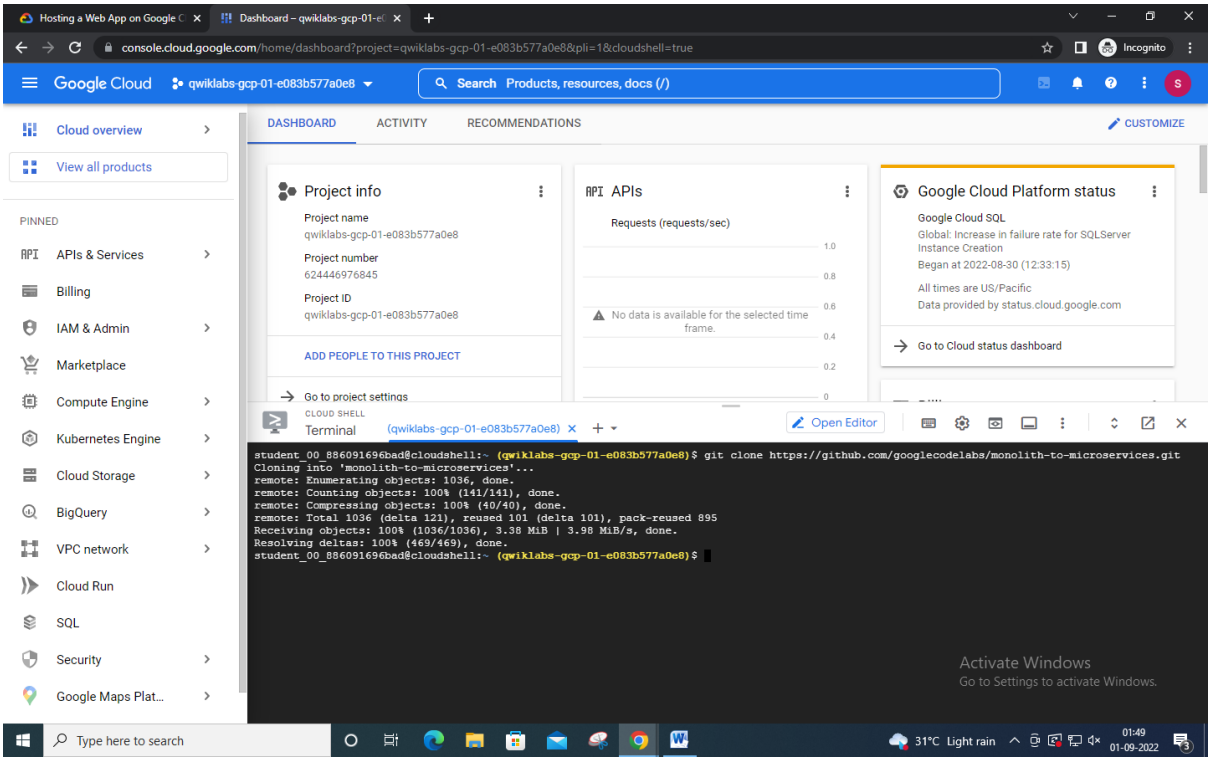
Congratulations!
Activate Windows
Go to Settings to activate Windows.


Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
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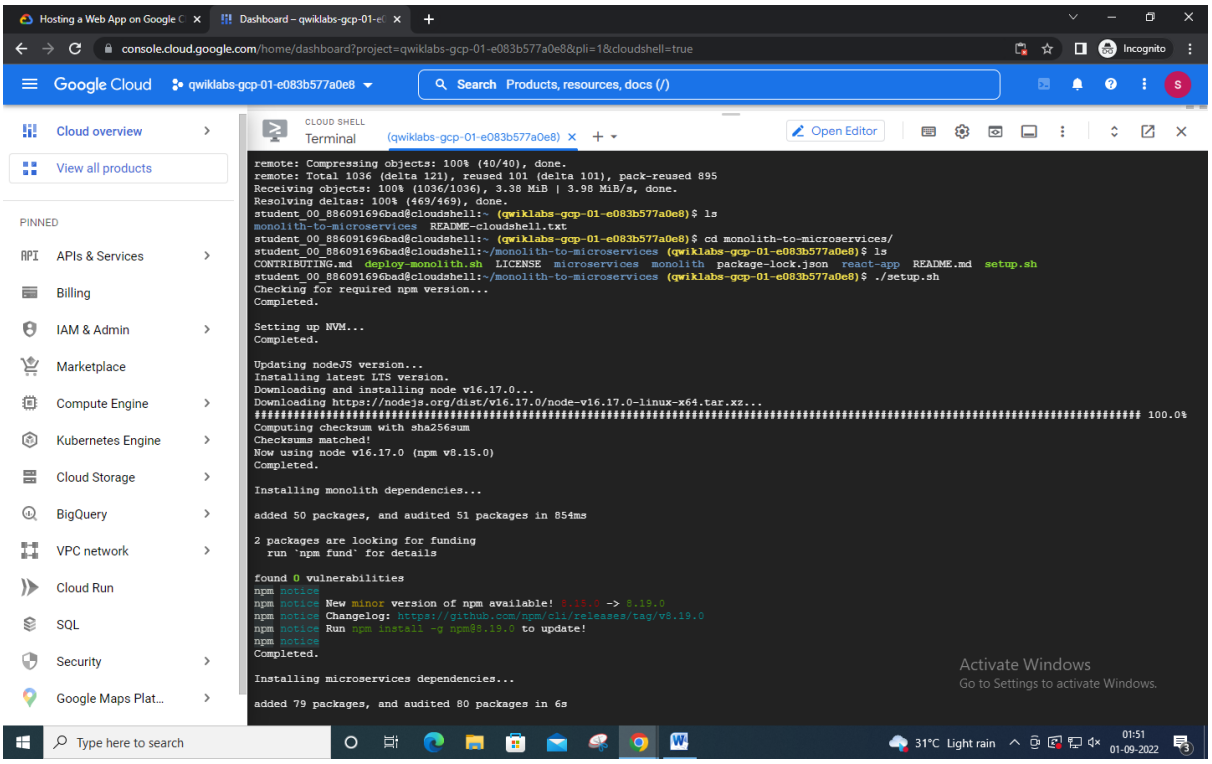
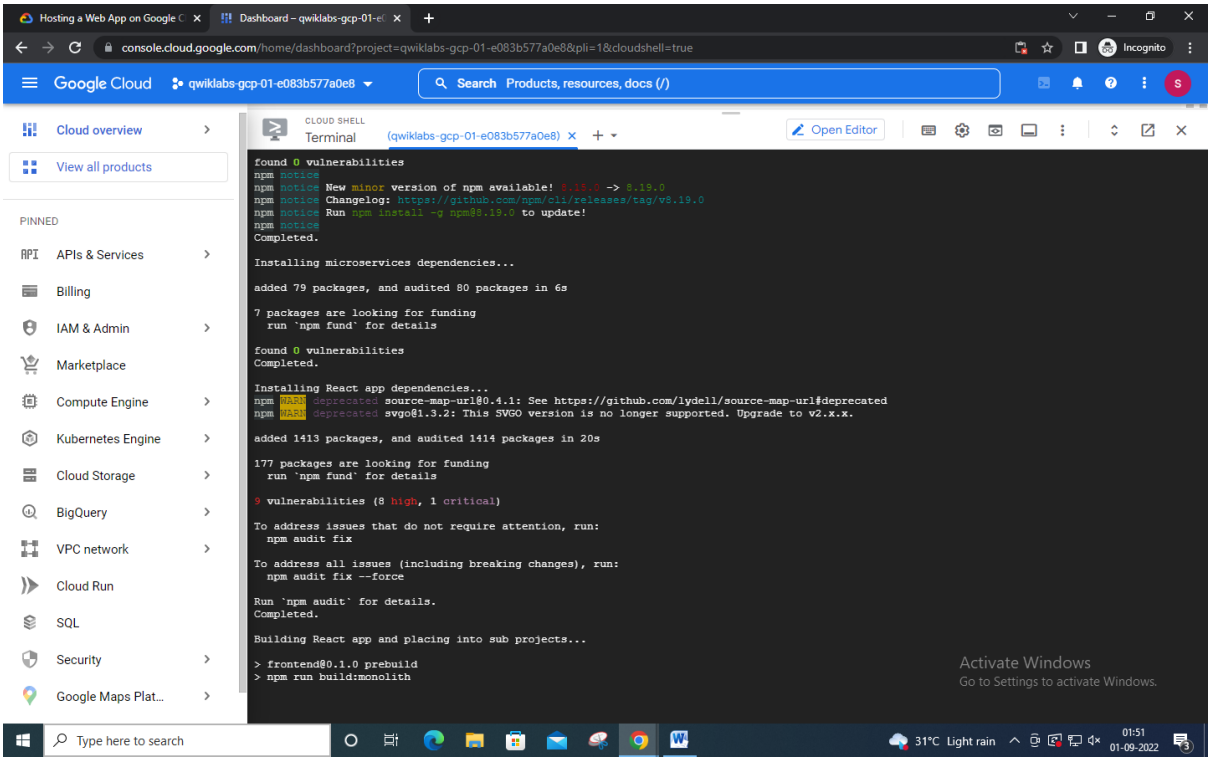
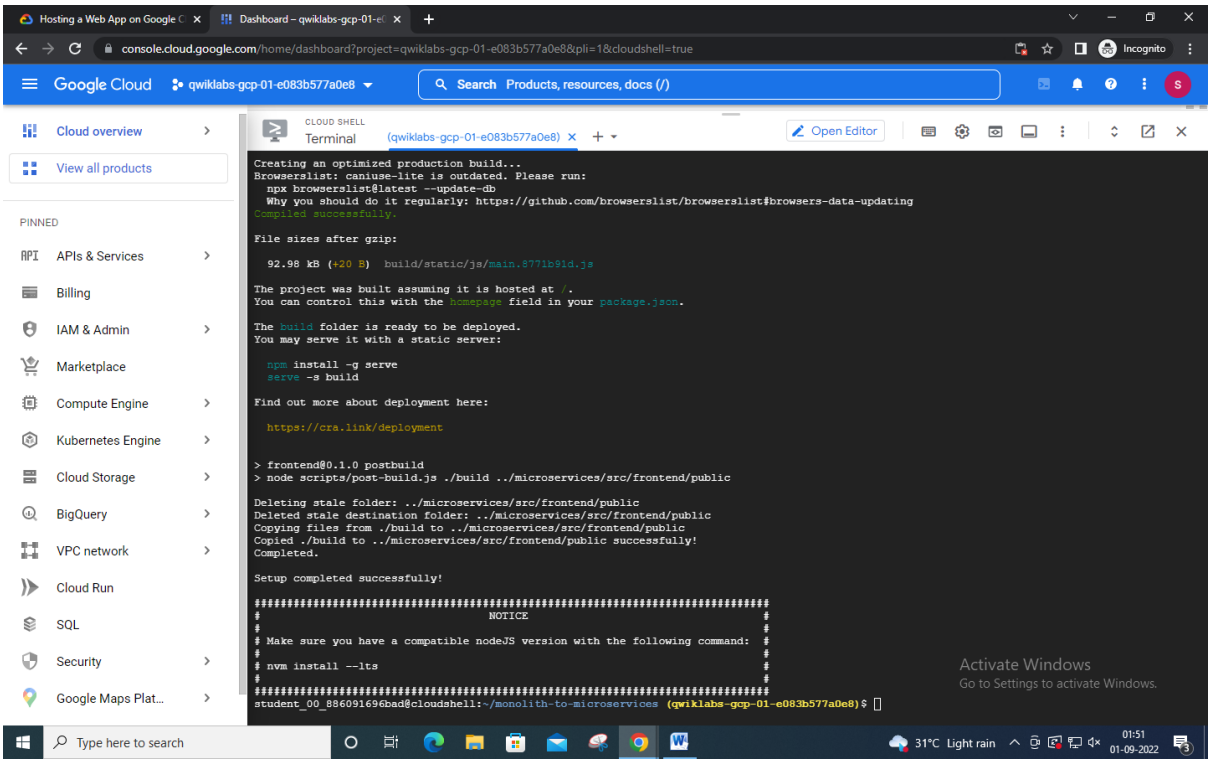
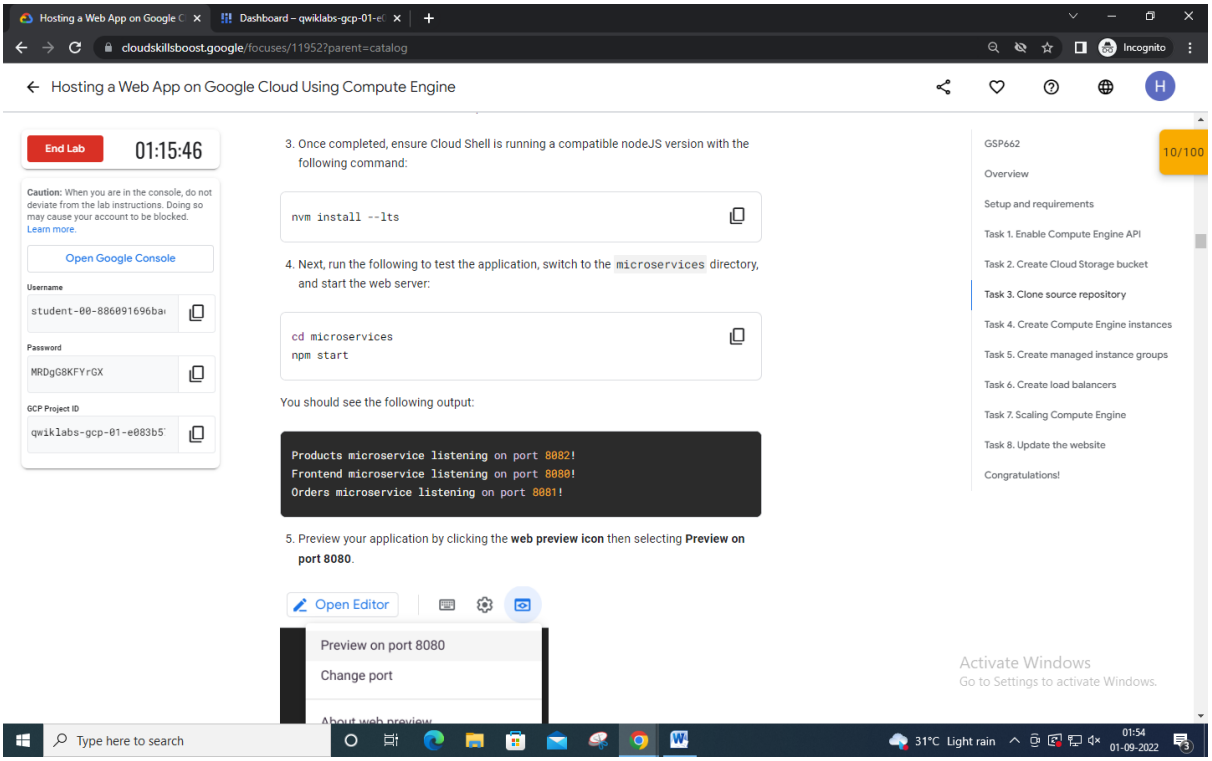
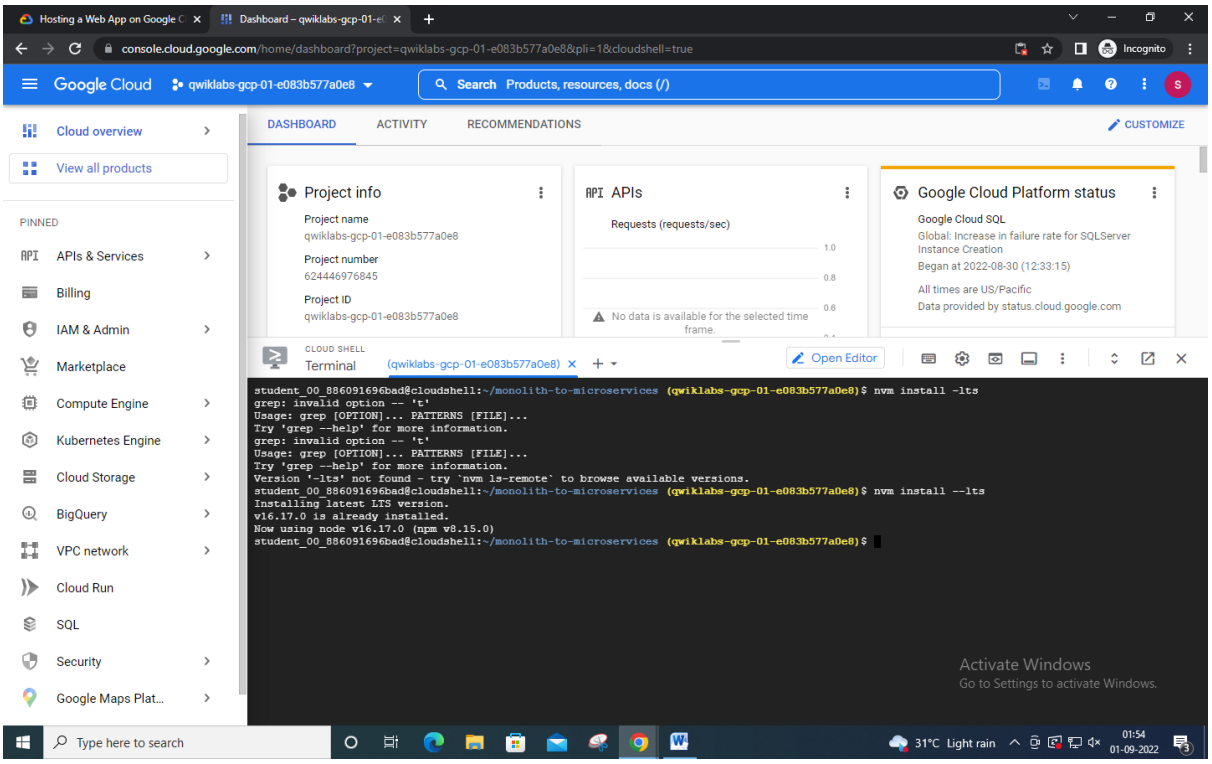
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
Go to project settings
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ git clone https://github.com/googlecodelabs/monolith-to-microservices.git
Cloning into 'monolith-to-microservices'...
remote: Enumerating objects: 1036, done.
remote: Counting objects: 100% (141/141), done.
remote: Compressing objects: 100% (40/40), done.
remote: Total 1036 (delta 121), reused 101 (delta 101), pack-reused 895
Receiving objects: 100% (1036/1036), 3.38 MiB | 3.98 MiB/s, done.
Resolving deltas: 100% (469/469), done.
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
remote: Compressing objects: 100% (40/40), done.
remote: Total 1036 (delta 121), reused 101 (delta 101), pack-reused 895
Receiving objects: 100% (1036/1036), 3.38 MiB | 3.98 MiB/s, done.
Resolving deltas: 100% (469/469), done.
student_00_86091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ ls
monolith-to-microservices README-cloudshell.txt
student_00_86091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ cd monolith-to-microservices/
student_00_86091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ ls
CONTRIBUTING.md deploy-monolith.sh LICENSE microservices monolith package-lock.json react-app README.md setup.sh
student_00_86091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ ./setup.sh
Checking for required npm version...
Completed.
Setting up NVM...
Completed.
Updating nodeJS version...
Installing latest LTS version.
Downloading and installing node v16.17.0...
Downloading https://nodejs.org/dist/v16.17.0/node-v16.17.0-linux-x64.tar.xz...
100.0%
Computing checksum with sha256sum
Checksums matched!
Now using node v16.17.0 (npm v8.15.0)
Completed.
Installing monolith dependencies...
added 50 packages, and audited 51 packages in 854ms
2 packages are looking for funding
run `npm fund` for details
found 0 vulnerabilities
npm notice
npm notice New minor version of npm available! 8.15.0 -> 8.19.0
npm notice Changelog: https://github.com/npm/cli/releases/tag/v8.19.0
npm notice Run npm install -g npm@8.19.0 to update!
npm notice
Completed.
Installing microservices dependencies...
added 79 packages, and audited 80 packages in 6s
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:51
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
found 0 vulnerabilities
npm notice
npm notice New minor version of npm available! 8.15.0 -> 8.19.0
npm notice Changelog: https://github.com/npm/cli/releases/tag/v8.19.0
npm notice Run npm install -g npm@8.19.0 to update!
npm notice
Completed.
Installing microservices dependencies...
added 79 packages, and audited 80 packages in 6s
7 packages are looking for funding
run `npm fund` for details
found 0 vulnerabilities
Completed.
Installing React app dependencies...
npm WARN deprecated source-map-url@0.4.1: See https://github.com/lydell/source-map-url#deprecated
npm WARN deprecated svgo@1.3.2: This SVGO version is no longer supported. Upgrade to v2.x.x.
added 1413 packages, and audited 1414 packages in 20s
177 packages are looking for funding
run `npm fund` for details
9 vulnerabilities (8 high, 1 critical)
To address issues that do not require attention, run:
npm audit fix
To address all issues (including breaking changes), run:
npm audit fix --force
Run `npm audit` for details.
Completed.
Building React app and placing into sub projects...
> frontend@0.1.0 prebuild
> npm run build:monolith
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:51
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
Creating an optimized production build...
Browserslist: caniuse-lite is outdated. Please run:
npx browserslist@latest --update-db
Why you should do it regularly: https://github.com/browserslist/browserslist#browsers-data-updating
Compiled successfully.
File sizes after gzip:
92.98 kB (+20 B) build/static/js/main.8771b91d.js
The project was built assuming it is hosted at /.
You can control this with the homepage field in your package.json.
The build folder is ready to be deployed.
You may serve it with a static server:
npm install -g serve
serve -s build
Find out more about deployment here:
https://cra.link/deployment
> frontend@0.1.0 postbuild
> node scripts/post-build.js ./build ../microservices/src/frontend/public
Deleting stale folder: ../microservices/src/frontend/public
Deleted stale destination folder: ../microservices/src/frontend/public
Copying files from ./build to ../microservices/src/frontend/public
Copied ./build to ../microservices/src/frontend/public successfully!
Completed.
Setup completed successfully!
NOTICE
Make sure you have a compatible nodeJS version with the following command:
nvm install --lts
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:51
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:15:46
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
3. Once completed, ensure Cloud Shell is running a compatible nodeJS version with the following command:
nvm install --lts
4. Next, run the following to test the application, switch to the microservices directory, and start the web server:
cd microservices
npm start
You should see the following output:
Products microservice listening on port 8082!
Frontend microservice listening on port 8080!
Orders microservice listening on port 8081!
5. Preview your application by clicking the web preview icon then selecting Preview on port 8080.
Open Editor
Preview on port 8080
Change port
GSP662
10/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:54
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
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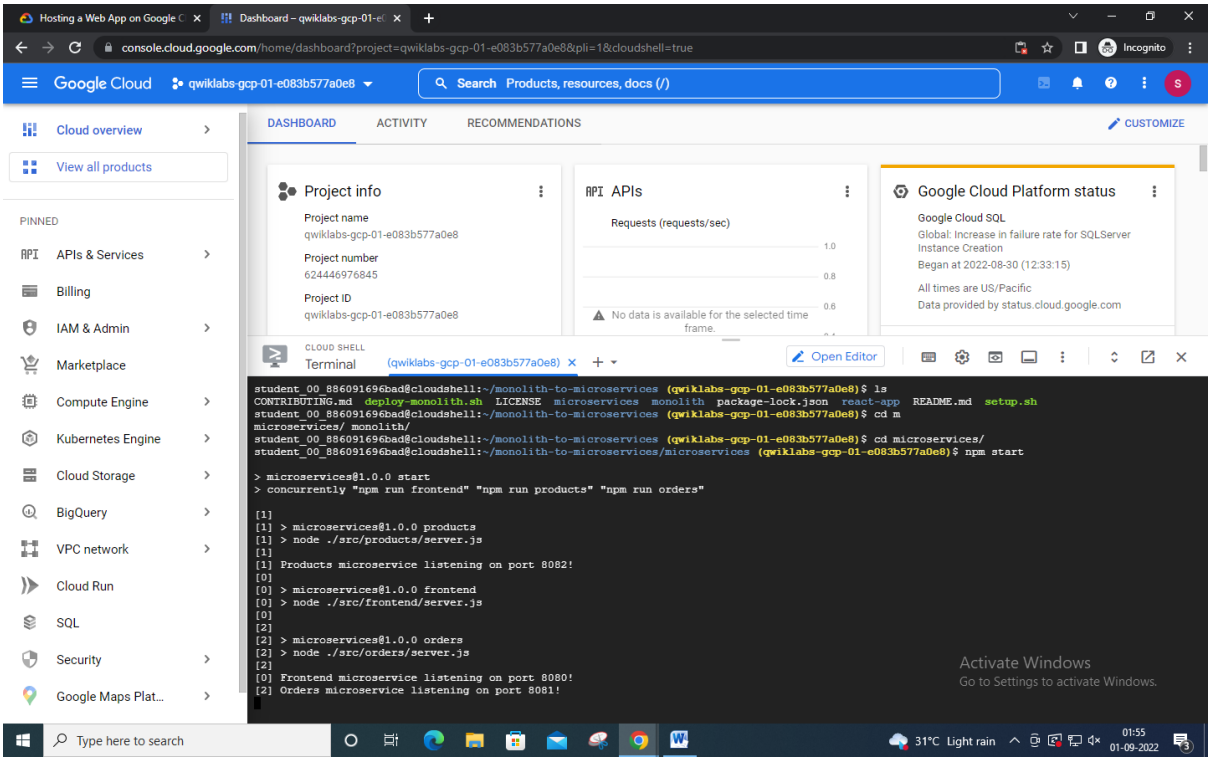
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ nvm install -lts
grep: invalid option -- 't'
Usage: grep [OPTION]... PATTERNS [FILE]...
Try 'grep --help' for more information.
grep: invalid option -- 't'
Usage: grep [OPTION]... PATTERNS [FILE]...
Try 'grep --help' for more information.
Version '-lts' not found - try `nvm ls-remote` to browse available versions.
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ nvm install --lts
Installing latest LTS version.
v16.17.0 is already installed.
Now using node v16.17.0 (npm v8.15.0)
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:54
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
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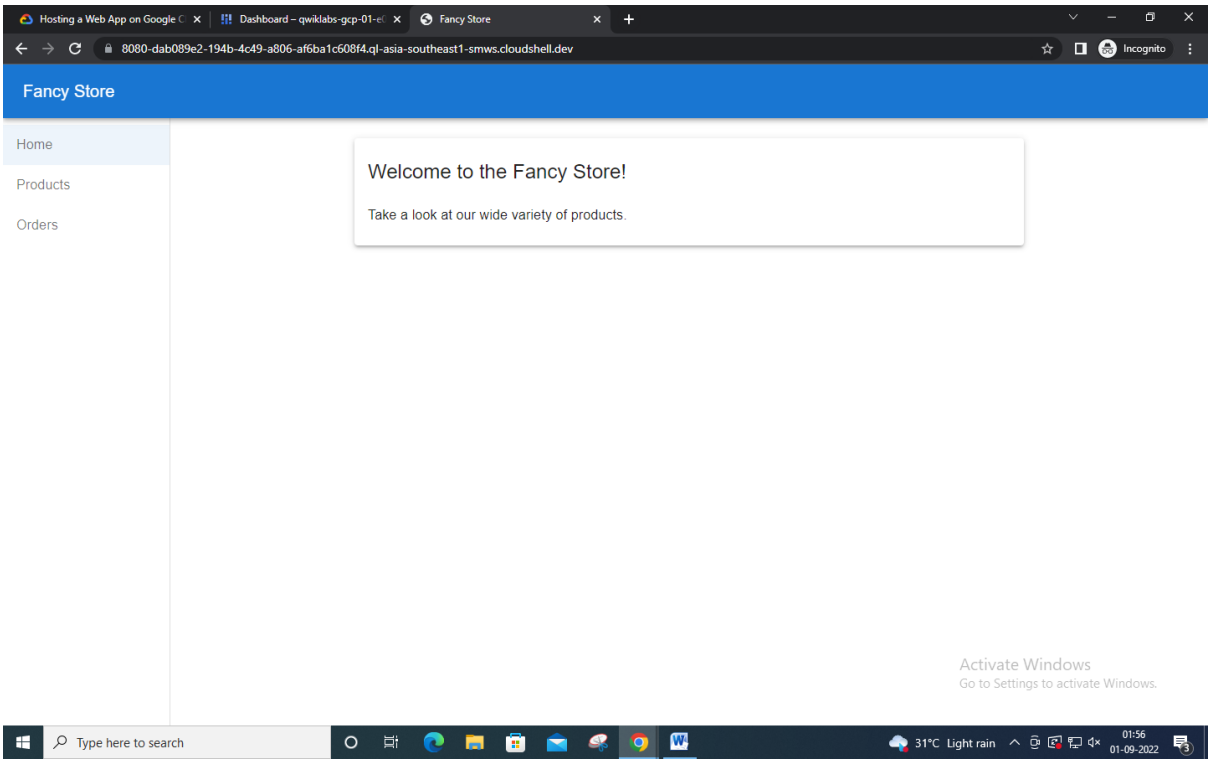
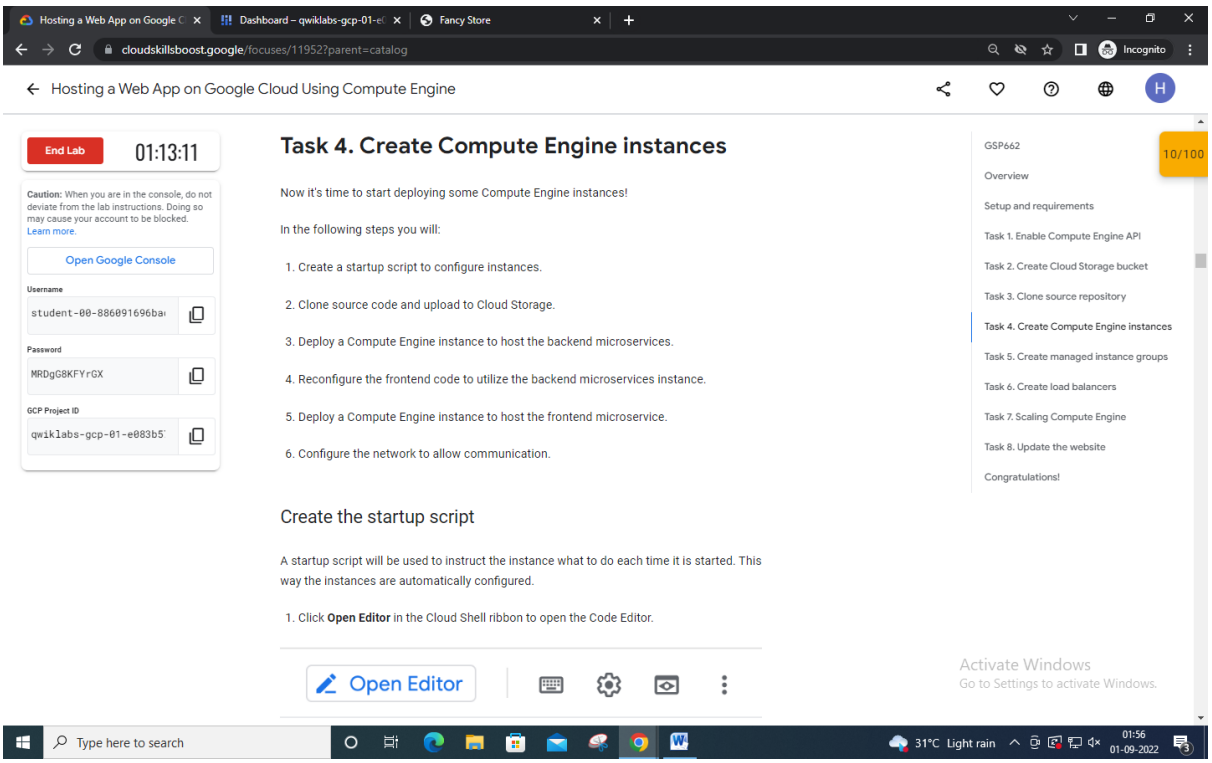
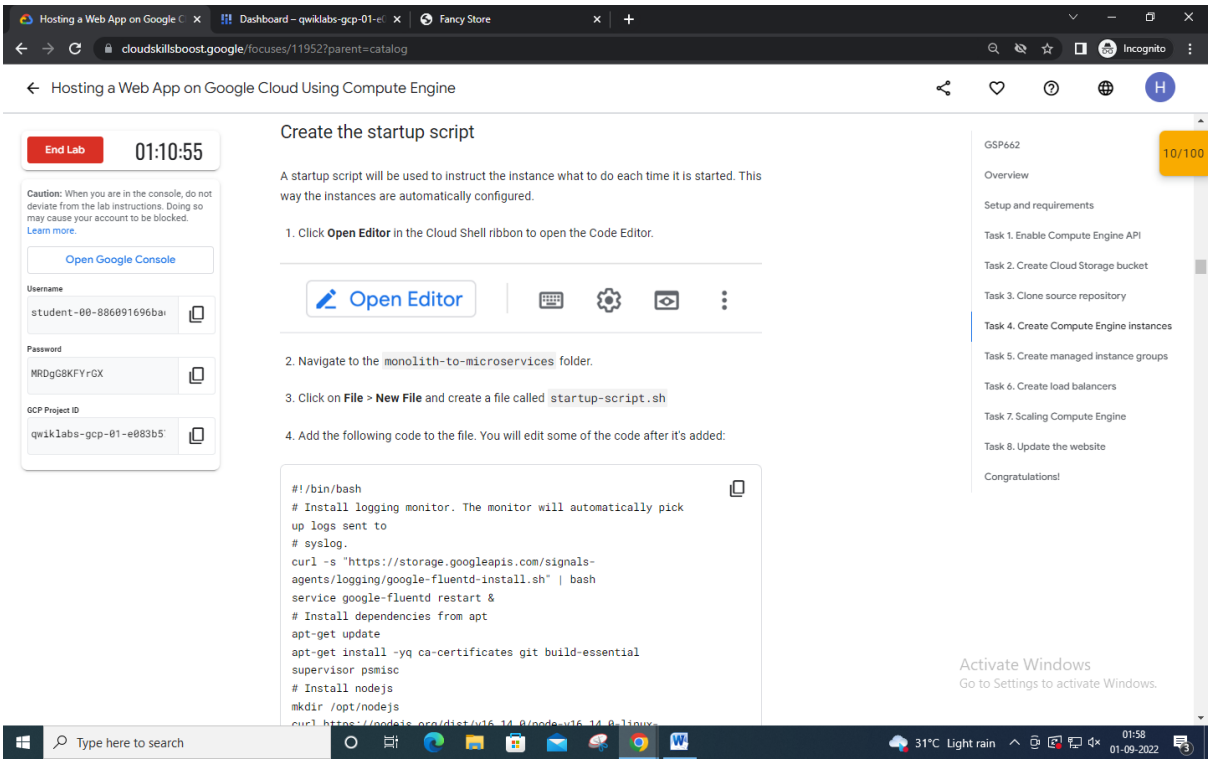
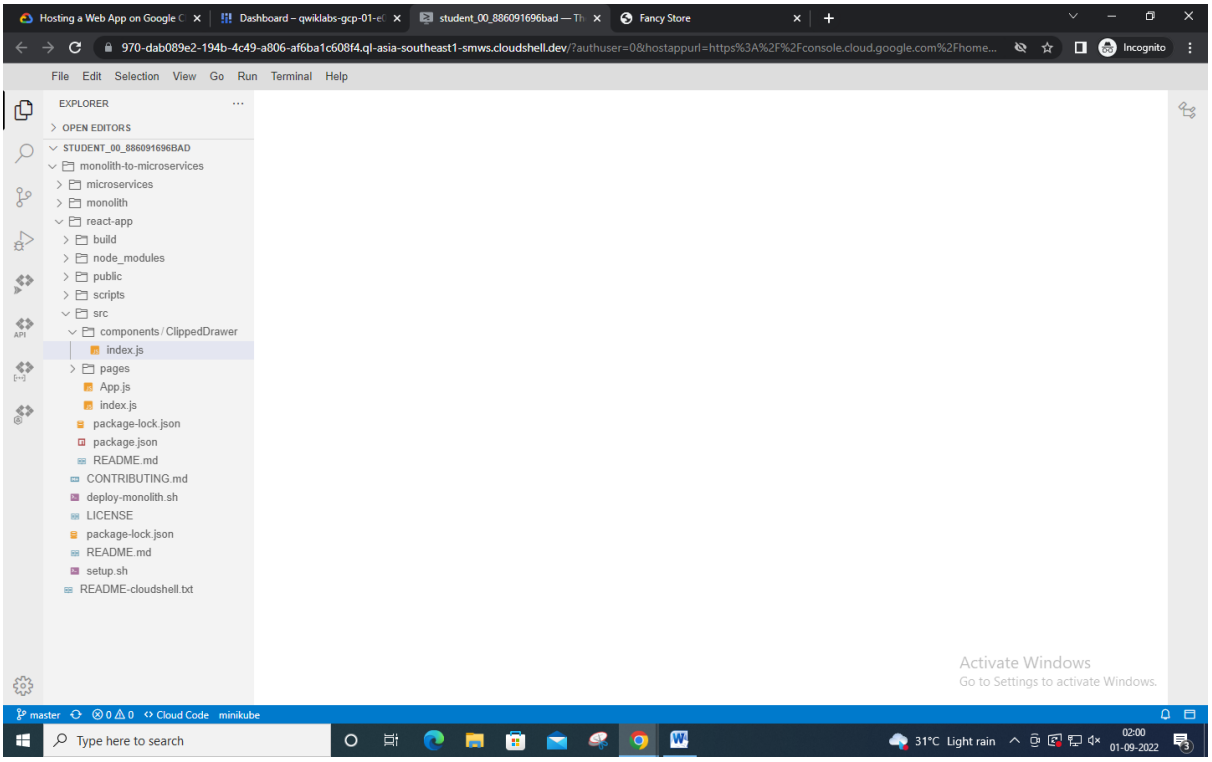
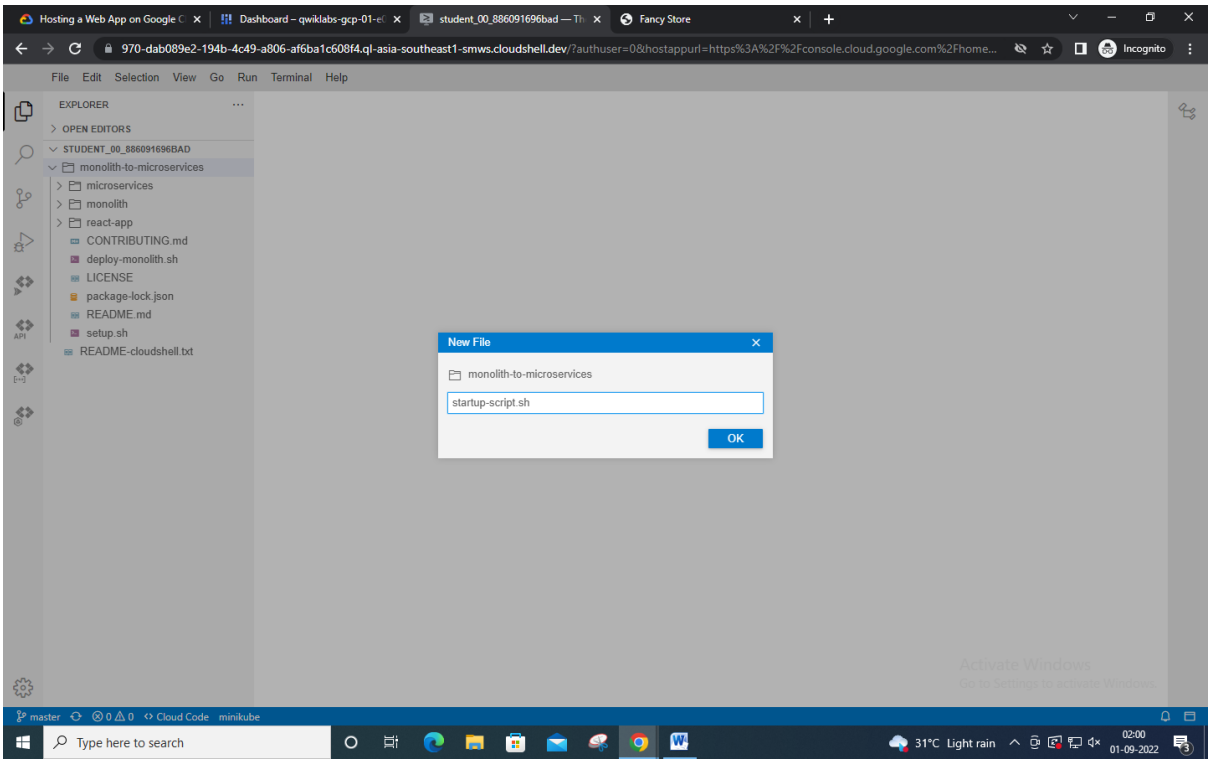
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ ls
CONTRIBUTING.md deploy-monolith.sh LICENSE microservices monolith package-lock.json react-app README.md setup.sh
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ cd m
microservices/ monolith/
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ cd microservices/
student_00_886091696bad@cloudshell:~/monolith-to-microservices/microservices (qwiklabs-gcp-01-e083b577a0e8)$ npm start
> microservices@1.0.0 start
> concurrently "npm run frontend" "npm run products" "npm run orders"
[1]
[1] > microservices@1.0.0 products
[1] > node ./src/products/server.js
[1]
[1] Products microservice listening on port 8082!
[0]
[0] > microservices@1.0.0 frontend
[0] > node ./src/frontend/server.js
[0]
[2]
[2] > microservices@1.0.0 orders
[2] > node ./src/orders/server.js
[2]
[0] Frontend microservice listening on port 8080!
[2] Orders microservice listening on port 8081!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:55
01-09-2022

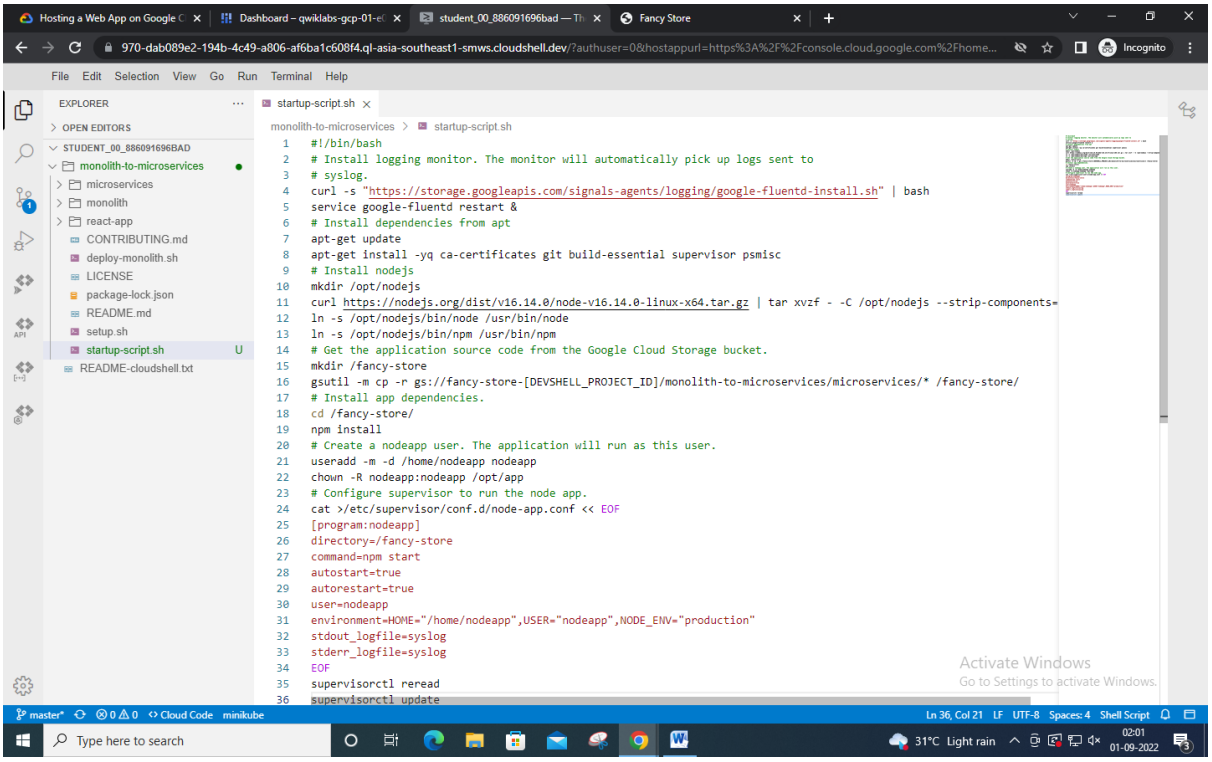

Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
Fancy Store
8080-dab089e2-194b-4c49-a806-af6ba1c608f4.ql-asia-southeast1-smws.cloudshell.dev
Incognito
Fancy Store
Home
Products
Orders
Welcome to the Fancy Store!
Take a look at our wide variety of products.
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:56
01-09-2022

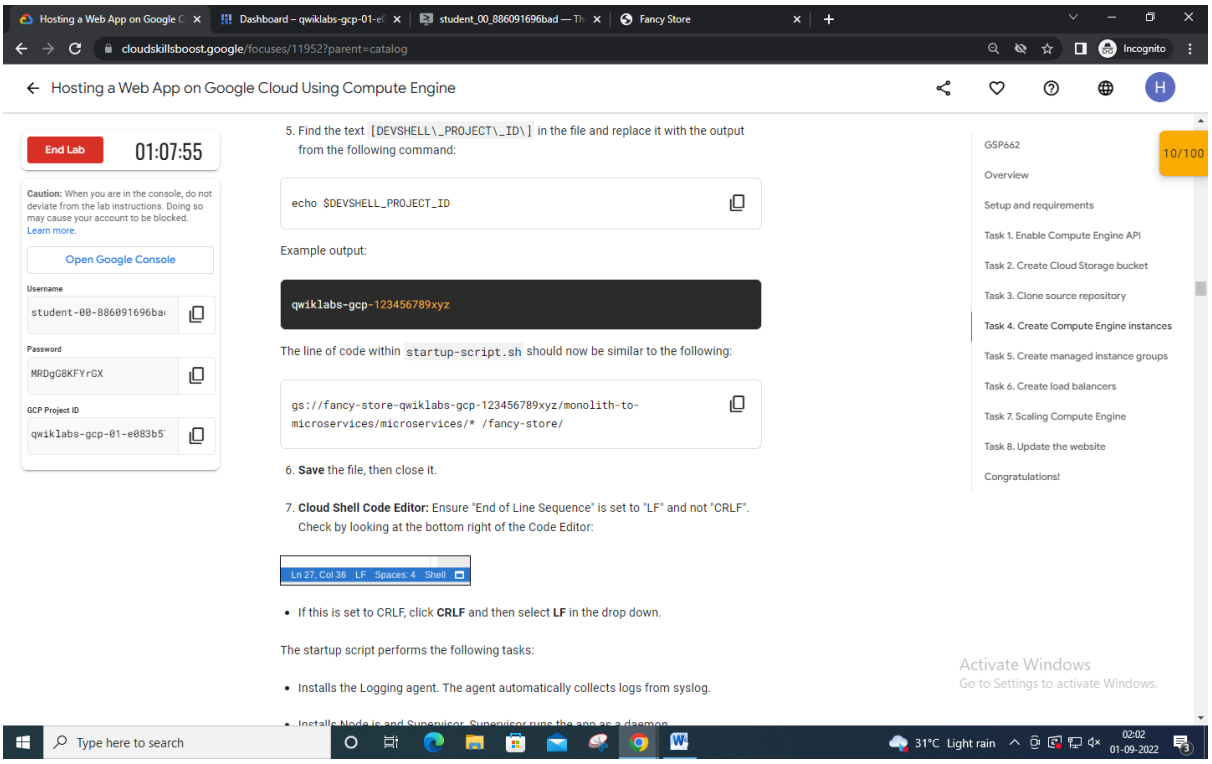

Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
Fancy Store
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:13:11
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Task 4. Create Compute Engine instances
Now it's time to start deploying some Compute Engine instances!
In the following steps you will:
1. Create a startup script to configure instances.
2. Clone source code and upload to Cloud Storage.
3. Deploy a Compute Engine instance to host the backend microservices.
4. Reconfigure the frontend code to utilize the backend microservices instance.
5. Deploy a Compute Engine instance to host the frontend microservice.
6. Configure the network to allow communication.
Create the startup script
A startup script will be used to instruct the instance what to do each time it is started. This way the instances are automatically configured.
1. Click Open Editor in the Cloud Shell ribbon to open the Code Editor.
Open Editor
GSP662
10/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:56
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
Fancy Store
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:10:55
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Create the startup script
A startup script will be used to instruct the instance what to do each time it is started. This way the instances are automatically configured.
1. Click Open Editor in the Cloud Shell ribbon to open the Code Editor.
Open Editor
2. Navigate to the monolith-to-microservices folder.
3. Click on File > New File and create a file called startup-script.sh
4. Add the following code to the file. You will edit some of the code after it's added:
#!/bin/bash
Install logging monitor. The monitor will automatically pick
up logs sent to
syslog.
curl -s "https://storage.googleapis.com/signals-
agents/logging/google-fluentd-install.sh" | bash
service google-fluentd restart &
Install dependencies from apt
apt-get update
apt-get install -yq ca-certificates git build-essential
supervisor psmisc
Install nodejs
mkdir /opt/nodejs
GSP662
10/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
01:58
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
Fancy Store
970-dab089e2-194b-4c49-a806-af6ba1c608f4.ql-asia-southeast1-smws.cloudshell.dev/?authuser=0&hostappurl=https%3A%2F%2Fconsole.cloud.google.com%2Fhome...
Incognito
File Edit Selection View Go Run Terminal Help
EXPLORER
OPEN EDITORS
STUDENT_00_886091696BAD
monolith-to-microservices
microservices
monolith
react-app
build
node_modules
public
scripts
src
components / ClippedDrawer
index.js
pages
App.js
index.js
package-lock.json
package.json
README.md
CONTRIBUTING.md
deploy-monolith.sh
LICENSE
package-lock.json
README.md
setup.sh
README-cloudshell.txt
Activate Windows
Go to Settings to activate Windows.
master
Cloud Code
minikube
Type here to search
31°C Light rain
02:00
01-09-2022


New File
monolith-to-microservices
startup-script.sh
OK


#!/bin/bash
Install logging monitor. The monitor will automatically pick up logs sent to
syslog.
curl -s "https://storage.googleapis.com/signals-agents/logging/google-fluentd-install.sh" | bash
service google-fluentd restart &
Install dependencies from apt
apt-get update
apt-get install -yq ca-certificates git build-essential supervisor psmisc
Install nodejs
mkdir /opt/nodejs
curl https://nodejs.org/dist/v16.14.0/node-v16.14.0-linux-x64.tar.gz | tar xvzf - -C /opt/nodejs --strip-components=
ln -s /opt/nodejs/bin/node /usr/bin/node
ln -s /opt/nodejs/bin/npm /usr/bin/npm
Get the application source code from the Google Cloud Storage bucket.
mkdir /fancy-store
gsutil -m cp -r gs://fancy-store-[DEVSHELL_PROJECT_ID]/monolith-to-microservices/microservices/* /fancy-store/
Install app dependencies.
cd /fancy-store/
npm install
Create a nodeapp user. The application will run as this user.
useradd -m -d /home/nodeapp nodeapp
chown -R nodeapp:nodeapp /opt/app
Configure supervisor to run the node app.
cat >/etc/supervisor/conf.d/node-app.conf << EOF
[program:nodeapp]
directory=/fancy-store
command=npm start
autostart=true
autorestart=true
user=nodeapp
environment=HOME="/home/nodeapp",USER="nodeapp",NODE_ENV="production"
stdout_logfile=syslog
stderr_logfile=syslog
EOF
supervisorctl reread
supervisorctl update


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:07:55
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
5. Find the text [DEVSHELL_PROJECT_ID\] in the file and replace it with the output from the following command:
echo $DEVSHELL_PROJECT_ID
Example output:
qwiklabs-gcp-123456789xyz
The line of code within startup-script.sh should now be similar to the following:
gs://fancy-store-qwiklabs-gcp-123456789xyz/monolith-to-microservices/microservices/* /fancy-store/
6. Save the file, then close it.
7. Cloud Shell Code Editor: Ensure "End of Line Sequence" is set to "LF" and not "CRLF". Check by looking at the bottom right of the Code Editor:
Ln 27, Col 36 LF Spaces: 4 Shell
If this is set to CRLF, click CRLF and then select LF in the drop down.
The startup script performs the following tasks:
Installs the Logging agent. The agent automatically collects logs from syslog.
GSP662
10/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
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Task 3. Clone source repository
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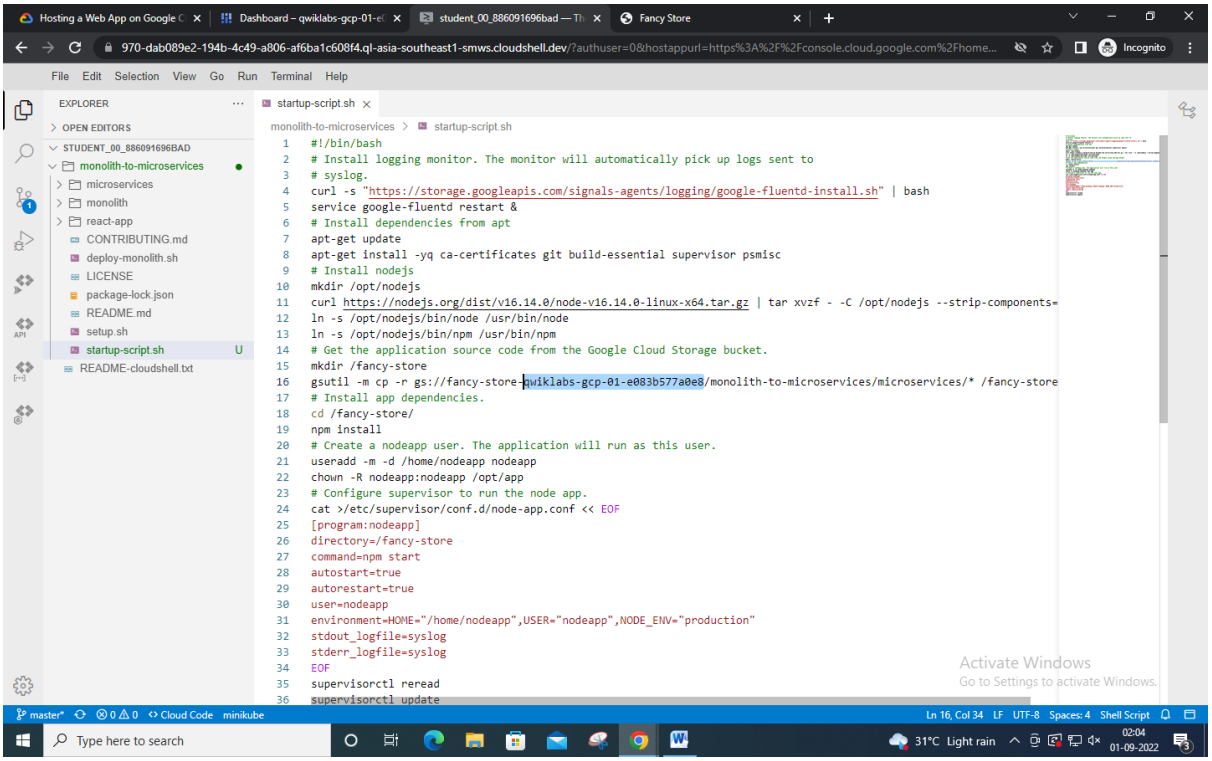
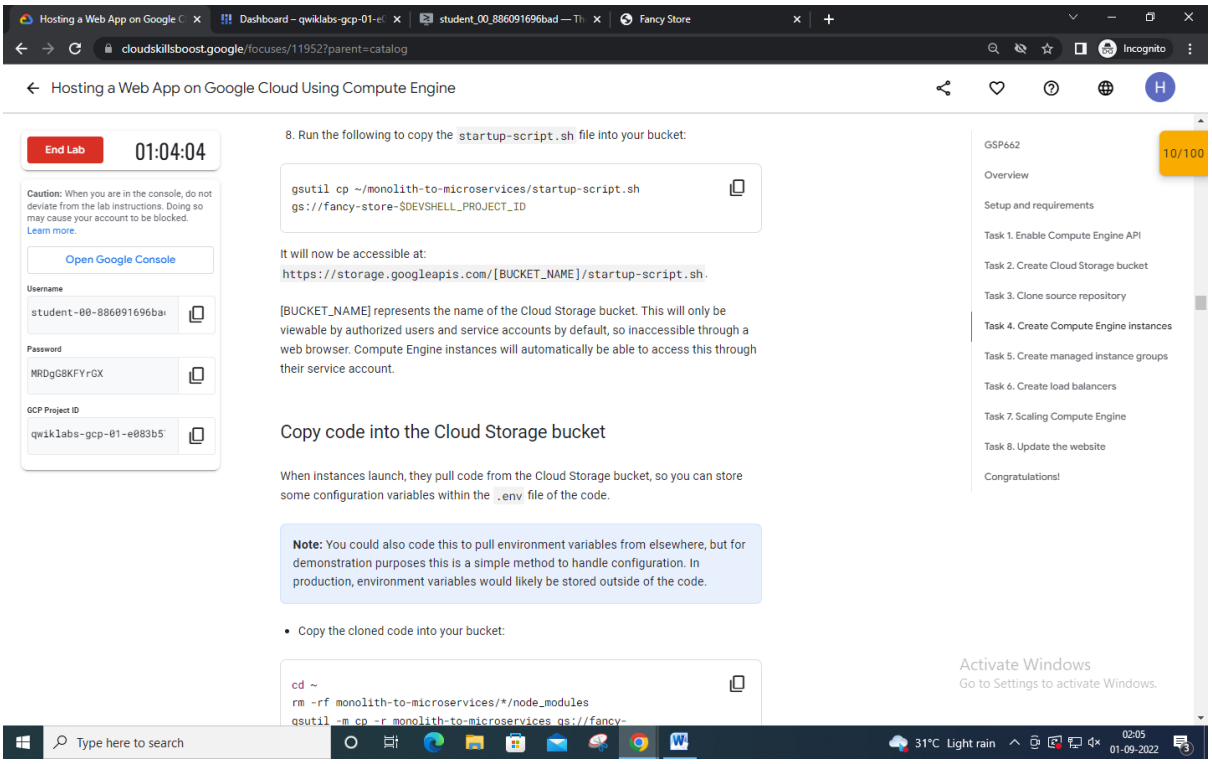
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:02
01-09-2022


File Edit Selection View Go Run Terminal Help
EXPLORER
OPEN EDITORS
STUDENT_00_886091696BAD
monolith-to-microservices
microservices
monolith
react-app
CONTRIBUTING.md
deploy-monolith.sh
LICENSE
package-lock.json
README.md
setup.sh
startup-script.sh
README-cloudshell.txt
startup-script.sh
monolith-to-microservices > startup-script.sh
#!/bin/bash
Install logging monitor. The monitor will automatically pick up logs sent to
syslog.
curl -s "https://storage.googleapis.com/signals-agents/logging/google-fluentd-install.sh" | bash
service google-fluentd restart &
Install dependencies from apt
apt-get update
apt-get install -yq ca-certificates git build-essential supervisor psmisc
Install nodejs
mkdir /opt/nodejs
curl https://nodejs.org/dist/v16.14.0/node-v16.14.0-linux-x64.tar.gz | tar xvzf - -C /opt/nodejs --strip-components=
ln -s /opt/nodejs/bin/node /usr/bin/node
ln -s /opt/nodejs/bin/npm /usr/bin/npm
Get the application source code from the Google Cloud Storage bucket.
mkdir /fancy-store
gsutil -m cp -r gs://fancy-store-qwiklabs-gcp-01-e083b577a0e8/monolith-to-microservices/microservices/* /fancy-store
Install app dependencies.
cd /fancy-store/
npm install
Create a nodeapp user. The application will run as this user.
useradd -m -d /home/nodeapp nodeapp
chown -R nodeapp:nodeapp /opt/app
Configure supervisor to run the node app.
cat >/etc/supervisor/conf.d/node-app.conf << EOF
[program:nodeapp]
directory=/fancy-store
command=npm start
autostart=true
autorestart=true
user=nodeapp
environment=HOME="/home/nodeapp",USER="nodeapp",NODE_ENV="production"
stdout_logfile=syslog
stderr_logfile=syslog
EOF
supervisorctl reread
supervisorctl update
Activate Windows
Go to Settings to activate Windows.
master*
Cloud Code
minikube
Ln 16, Col 34 LF UTF-8 Spaces: 4 Shell Script
Type here to search
31°C Light rain
02:04
01-09-2022


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:04:04
Open Google Console
8. Run the following to copy the startup-script.sh file into your bucket:
gsutil cp ~/monolith-to-microservices/startup-script.sh gs://fancy-store-$DEVSHELL_PROJECT_ID
It will now be accessible at:
https://storage.googleapis.com/[BUCKET_NAME]/startup-script.sh
[BUCKET_NAME] represents the name of the Cloud Storage bucket. This will only be viewable by authorized users and service accounts by default, so inaccessible through a web browser. Compute Engine instances will automatically be able to access this through their service account.
Copy code into the Cloud Storage bucket
When instances launch, they pull code from the Cloud Storage bucket, so you can store some configuration variables within the .env file of the code.
Note: You could also code this to pull environment variables from elsewhere, but for demonstration purposes this is a simple method to handle configuration. In production, environment variables would likely be stored outside of the code.
Copy the cloned code into your bucket:
cd ~
rm -rf monolith-to-microservices/*/node_modules
GSP662
10/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
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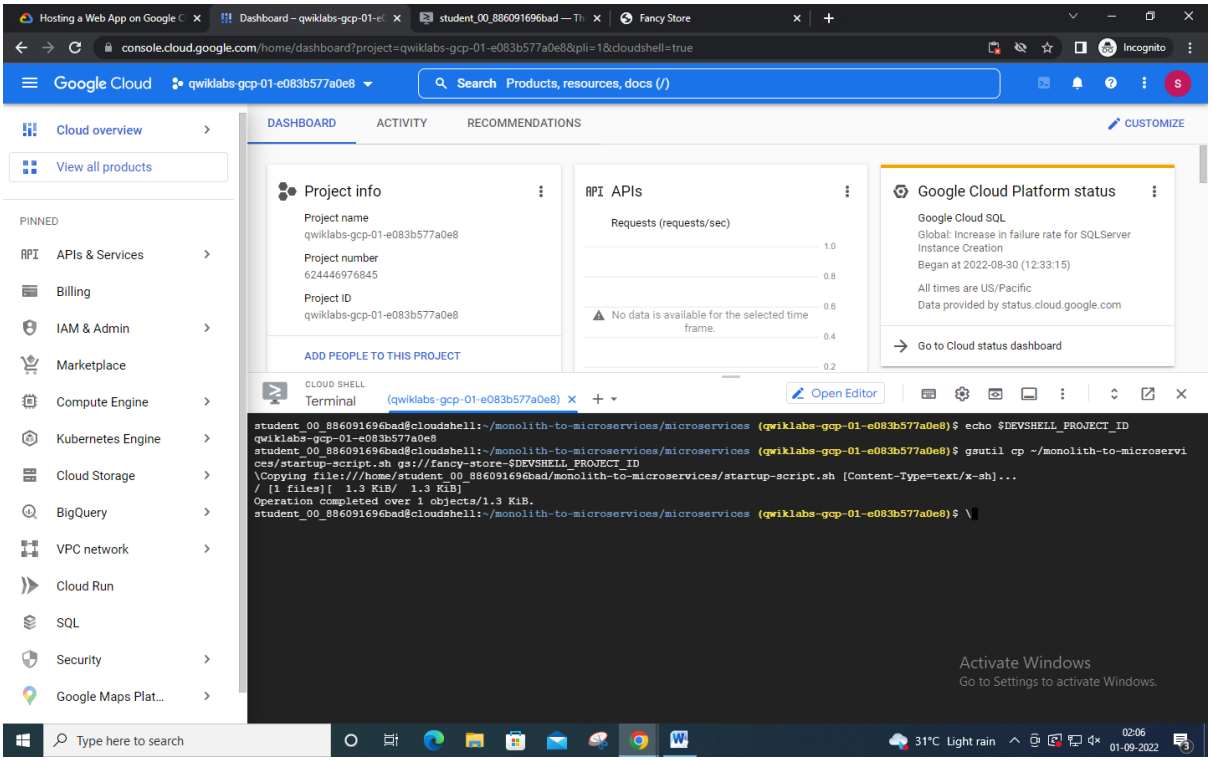
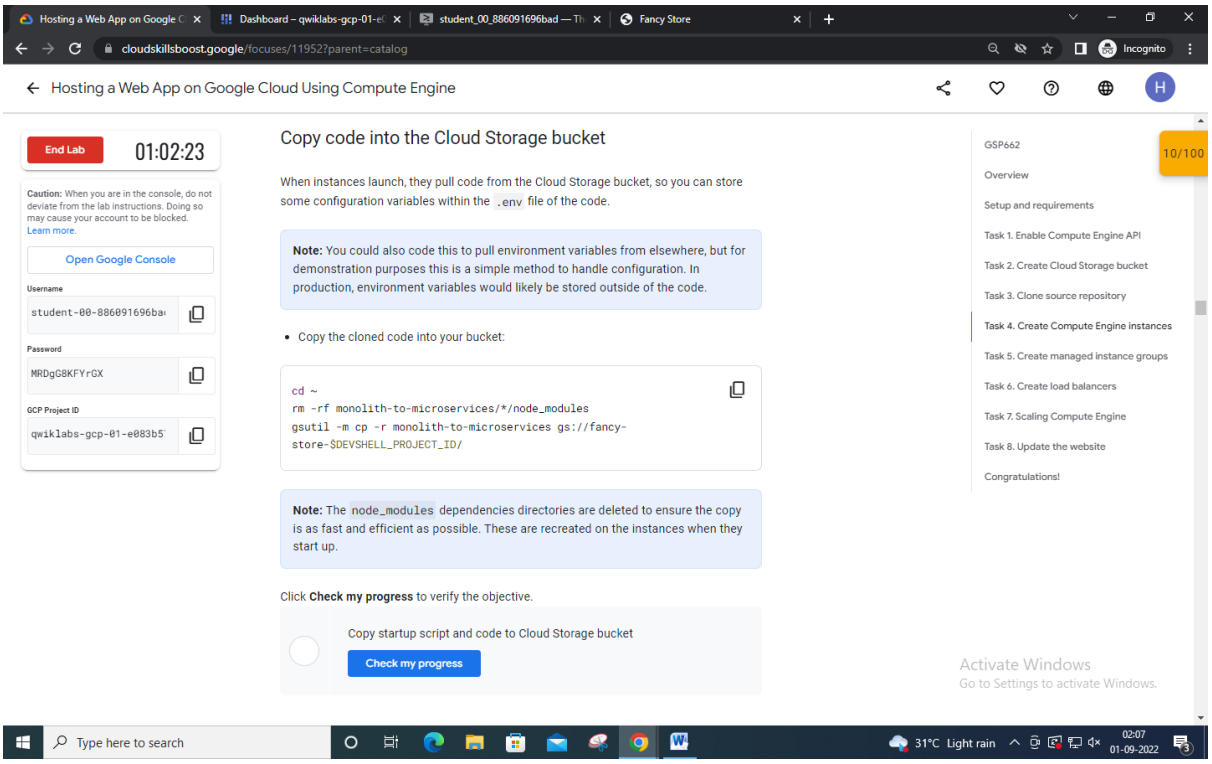
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.


Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices/microservices (qwiklabs-gcp-01-e083b577a0e8)$ echo $DEVSHELL_PROJECT_ID
qwiklabs-gcp-01-e083b577a0e8
student_00_886091696bad@cloudshell:~/monolith-to-microservices/microservices (qwiklabs-gcp-01-e083b577a0e8)$ gsutil cp ~/monolith-to-microservices/startup-script.sh gs://fancy-store-$DEVSHELL_PROJECT_ID
\Copying file:///home/student_00_886091696bad/monolith-to-microservices/startup-script.sh [Content-Type=text/x-sh]...
/ [1 files][1.3 KiB/ 1.3 KiB]
Operation completed over 1 objects/1.3 KiB.
student_00_886091696bad@cloudshell:~/monolith-to-microservices/microservices (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:02:23
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Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Copy code into the Cloud Storage bucket
When instances launch, they pull code from the Cloud Storage bucket, so you can store some configuration variables within the .env file of the code.
Note: You could also code this to pull environment variables from elsewhere, but for demonstration purposes this is a simple method to handle configuration. In production, environment variables would likely be stored outside of the code.
Copy the cloned code into your bucket:
cd ~
rm -rf monolith-to-microservices/*/node_modules
gsutil -m cp -r monolith-to-microservices gs://fancy-store-$DEVSHELL_PROJECT_ID/
Note: The node_modules dependencies directories are deleted to ensure the copy is as fast and efficient as possible. These are recreated on the instances when they start up.
Click Check my progress to verify the objective.
Copy startup script and code to Cloud Storage bucket
Check my progress
GSP662
10/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
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Activate Windows
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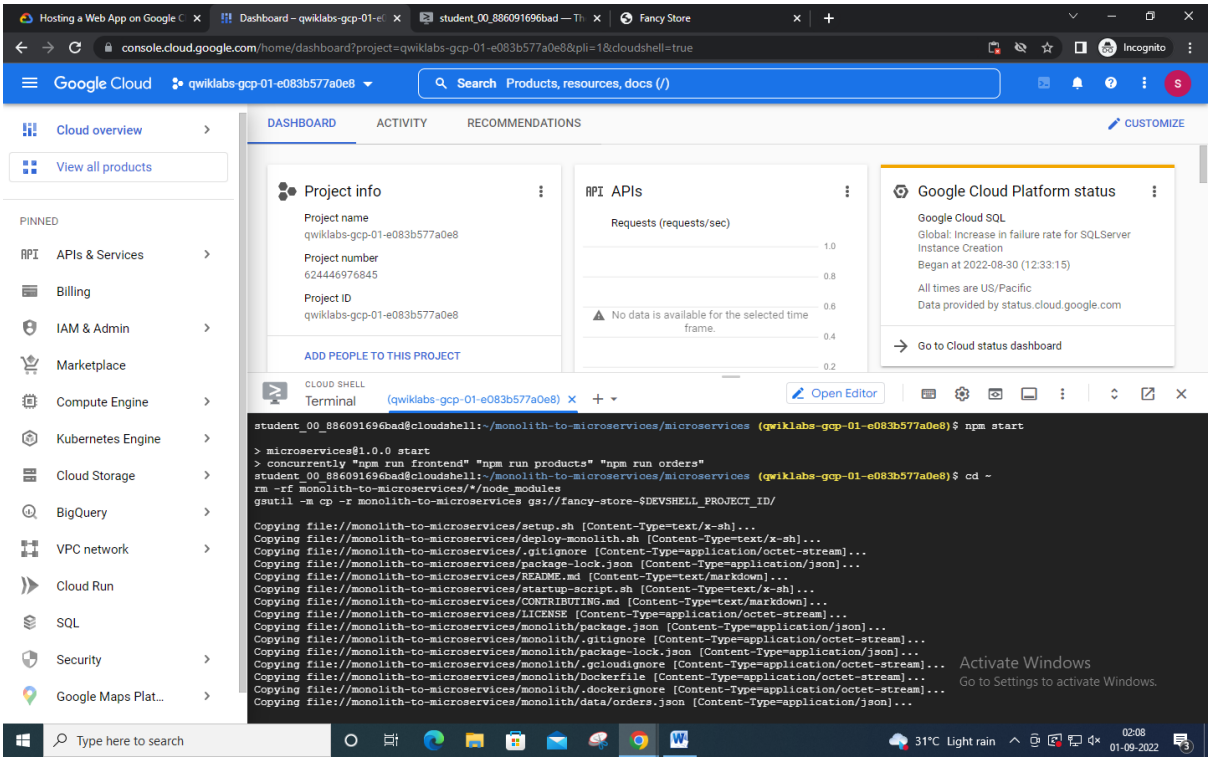
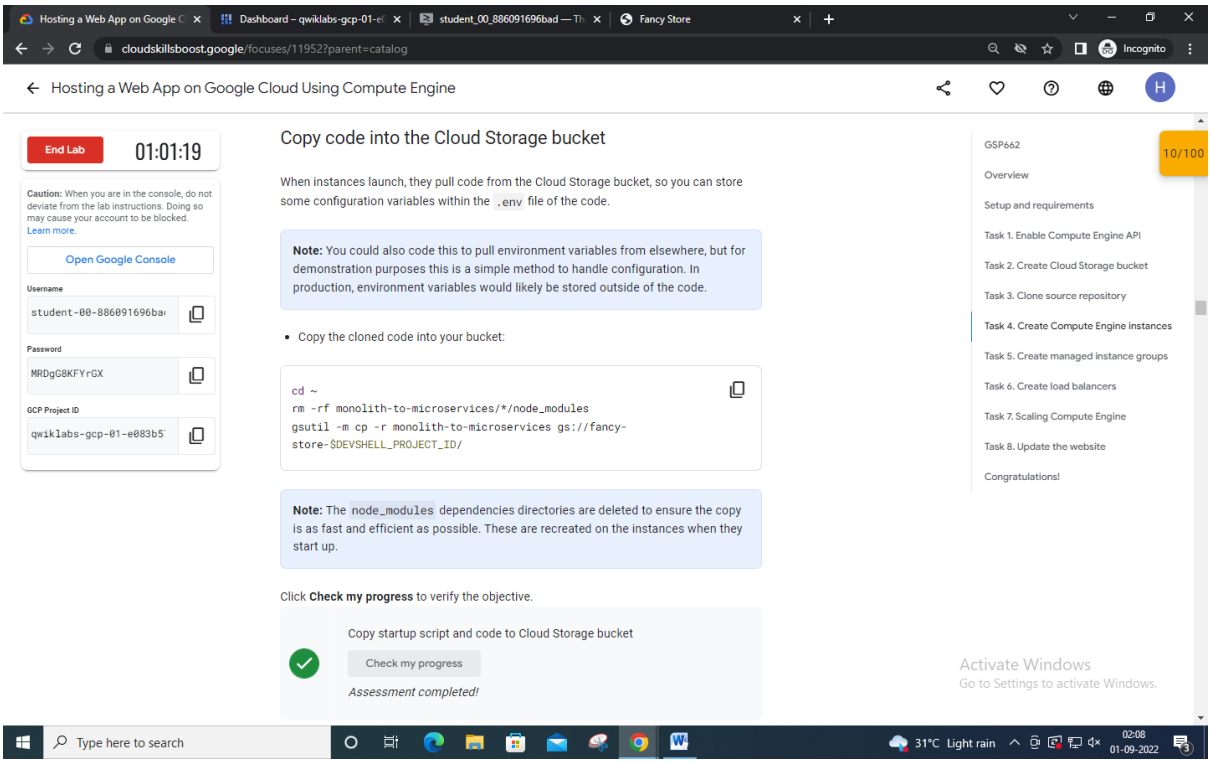
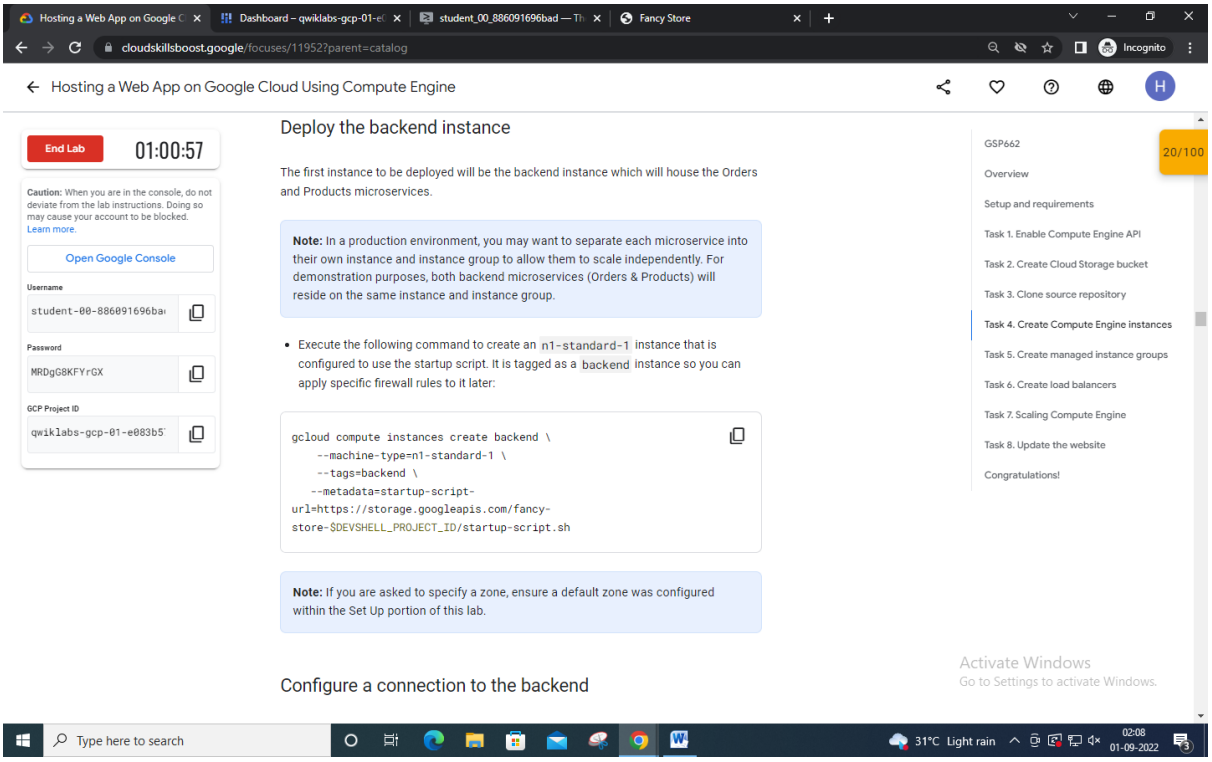

Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices/microservices (qwiklabs-gcp-01-e083b577a0e8)$ npm start
> microservices@1.0.0 start
> concurrently "npm run frontend" "npm run products" "npm run orders"
student_00_886091696bad@cloudshell:~/monolith-to-microservices/microservices (qwiklabs-gcp-01-e083b577a0e8)$ cd ~
rm -rf monolith-to-microservices/*/node_modules
gsutil -m cp -r monolith-to-microservices gs://fancy-store-$DEVSHELL_PROJECT_ID/
Copying file://monolith-to-microservices/setup.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/deploy-monolith.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/.gitignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/package-lock.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/README.md [Content-Type=text/markdown]...
Copying file://monolith-to-microservices/startup-script.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/CONTRIBUTING.md [Content-Type=text/markdown]...
Copying file://monolith-to-microservices/LICENSE [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/package.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/.gitignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/package-lock.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/.gcloudignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/Dockerfile [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/.dockerignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/data/orders.json [Content-Type=application/json]...
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
Fancy Store
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:01:19
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Copy code into the Cloud Storage bucket
When instances launch, they pull code from the Cloud Storage bucket, so you can store some configuration variables within the .env file of the code.
Note: You could also code this to pull environment variables from elsewhere, but for demonstration purposes this is a simple method to handle configuration. In production, environment variables would likely be stored outside of the code.
Copy the cloned code into your bucket:
cd ~
rm -rf monolith-to-microservices/*/node_modules
gsutil -m cp -r monolith-to-microservices gs://fancy-store-$DEVSHELL_PROJECT_ID/
Note: The node_modules dependencies directories are deleted to ensure the copy is as fast and efficient as possible. These are recreated on the instances when they start up.
Click Check my progress to verify the objective.
Copy startup script and code to Cloud Storage bucket
Check my progress
Assessment completed!
GSP662
10/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:08
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
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Fancy Store
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
01:00:57
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Deploy the backend instance
The first instance to be deployed will be the backend instance which will house the Orders and Products microservices.
Note: In a production environment, you may want to separate each microservice into their own instance and instance group to allow them to scale independently. For demonstration purposes, both backend microservices (Orders & Products) will reside on the same instance and instance group.
Execute the following command to create an n1-standard-1 instance that is configured to use the startup script. It is tagged as a backend instance so you can apply specific firewall rules to it later:
gcloud compute instances create backend \
--machine-type=n1-standard-1 \
--tags=backend \
--metadata=startup-script-url=https://storage.googleapis.com/fancy-store-$DEVSHELL_PROJECT_ID/startup-script.sh
Note: If you are asked to specify a zone, ensure a default zone was configured within the Set Up portion of this lab.
Configure a connection to the backend
GSP662
20/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
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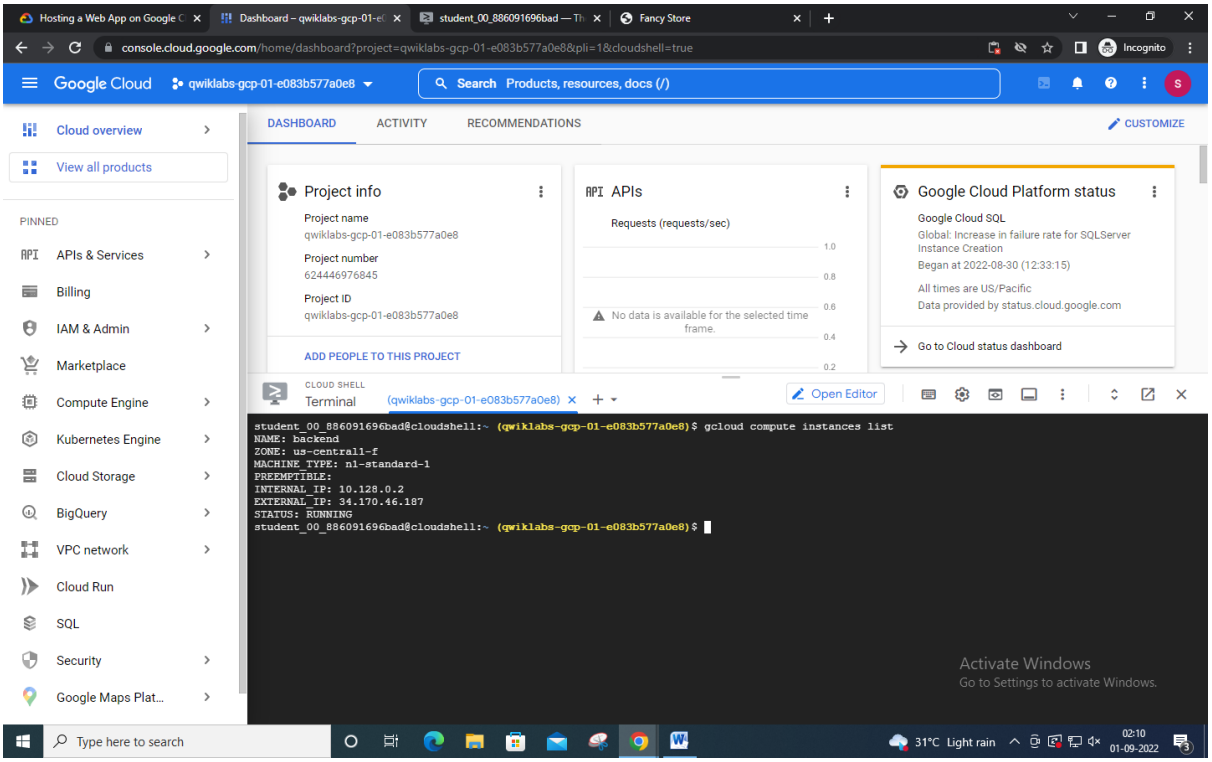
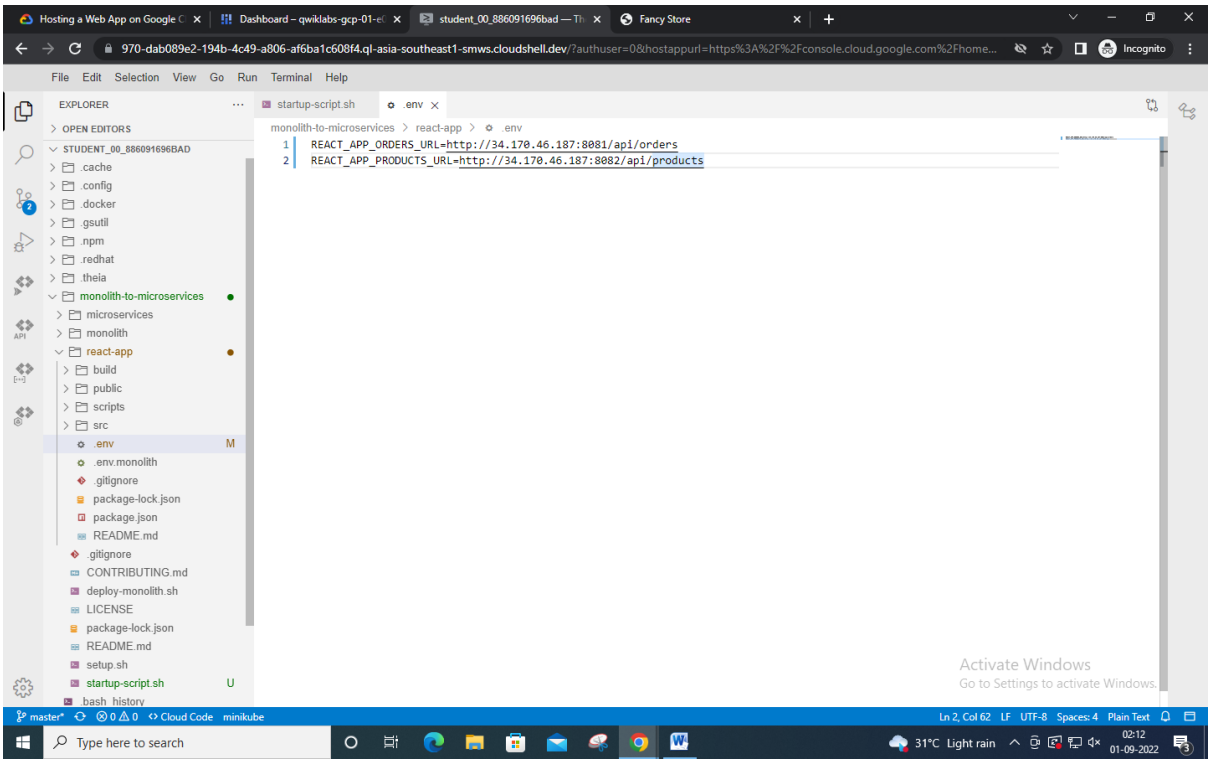
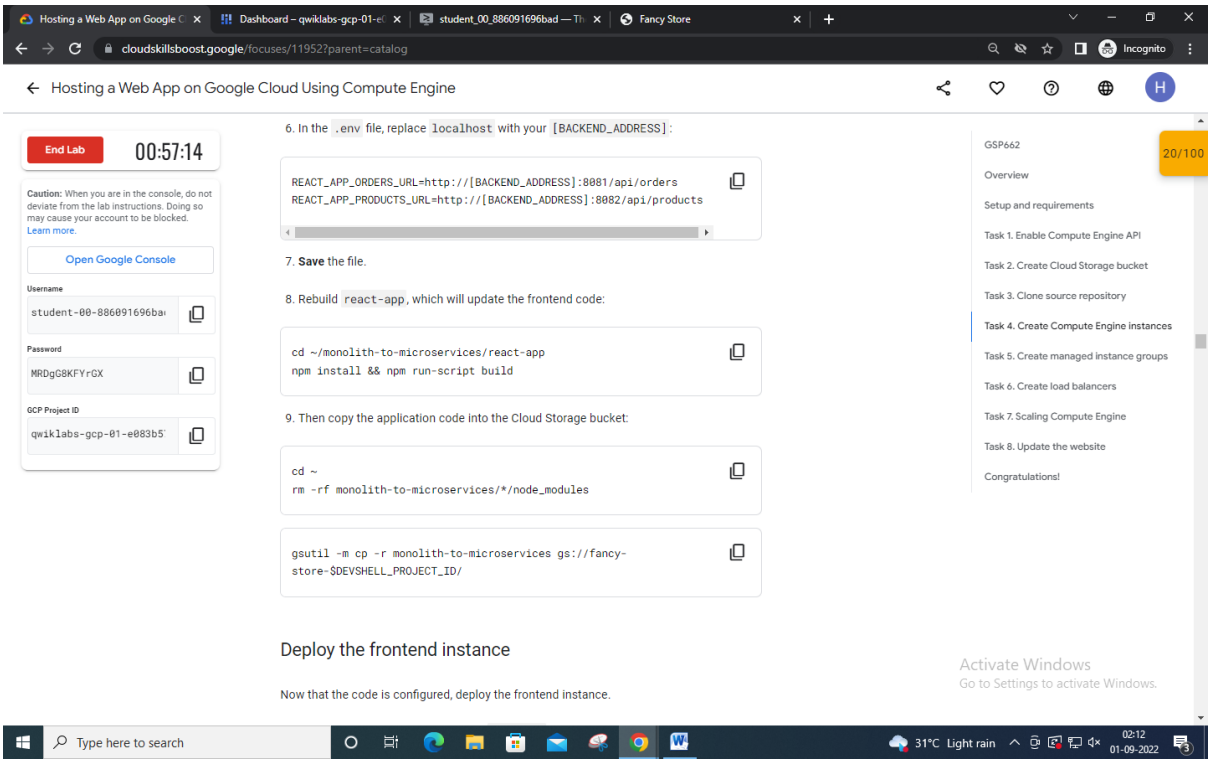
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:08
01-09-2022


Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instances list
NAME: backend
ZONE: us-central1-f
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
INTERNAL_IP: 10.128.0.2
EXTERNAL_IP: 34.170.46.187
STATUS: RUNNING
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:10
01-09-2022


970-dab089e2-194b-4c49-a806-af6ba1c608f4.ql-asia-southeast1-smws.cloudshell.dev
File Edit Selection View Go Run Terminal Help
EXPLORER
OPEN EDITORS
STUDENT_00_886091696BAD
.cache
.config
.docker
.gsutil
.npm
.redhat
.theia
monolith-to-microservices
microservices
monolith
react-app
build
public
scripts
src
.env
.env.monolith
.gitignore
package-lock.json
package.json
README.md
.gitignore
CONTRIBUTING.md
deploy-monolith.sh
LICENSE
package-lock.json
README.md
setup.sh
startup-script.sh
.bash_history
startup-script.sh
.env
monolith-to-microservices > react-app > .env
1 REACT_APP_ORDERS_URL=http://34.170.46.187:8081/api/orders
2 REACT_APP_PRODUCTS_URL=http://34.170.46.187:8082/api/products
Activate Windows
Go to Settings to activate Windows.
master*
Cloud Code
minikube
Ln 2, Col 62
LF
UTF-8
Spaces: 4
Plain Text
Type here to search
31°C Light rain
02:12
01-09-2022


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:57:14
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
6. In the .env file, replace localhost with your [BACKEND_ADDRESS]:
REACT_APP_ORDERS_URL=http://[BACKEND_ADDRESS]:8081/api/orders
REACT_APP_PRODUCTS_URL=http://[BACKEND_ADDRESS]:8082/api/products
7. Save the file.
8. Rebuild react-app, which will update the frontend code:
cd ~/monolith-to-microservices/react-app
npm install && npm run-script build
9. Then copy the application code into the Cloud Storage bucket:
cd ~
rm -rf monolith-to-microservices/*/node_modules
gsutil -m cp -r monolith-to-microservices gs://fancy-store-$DEVSHELL_PROJECT_ID/
Deploy the frontend instance
Now that the code is configured, deploy the frontend instance.
GSP662
20/100
Overview
Setup and requirements
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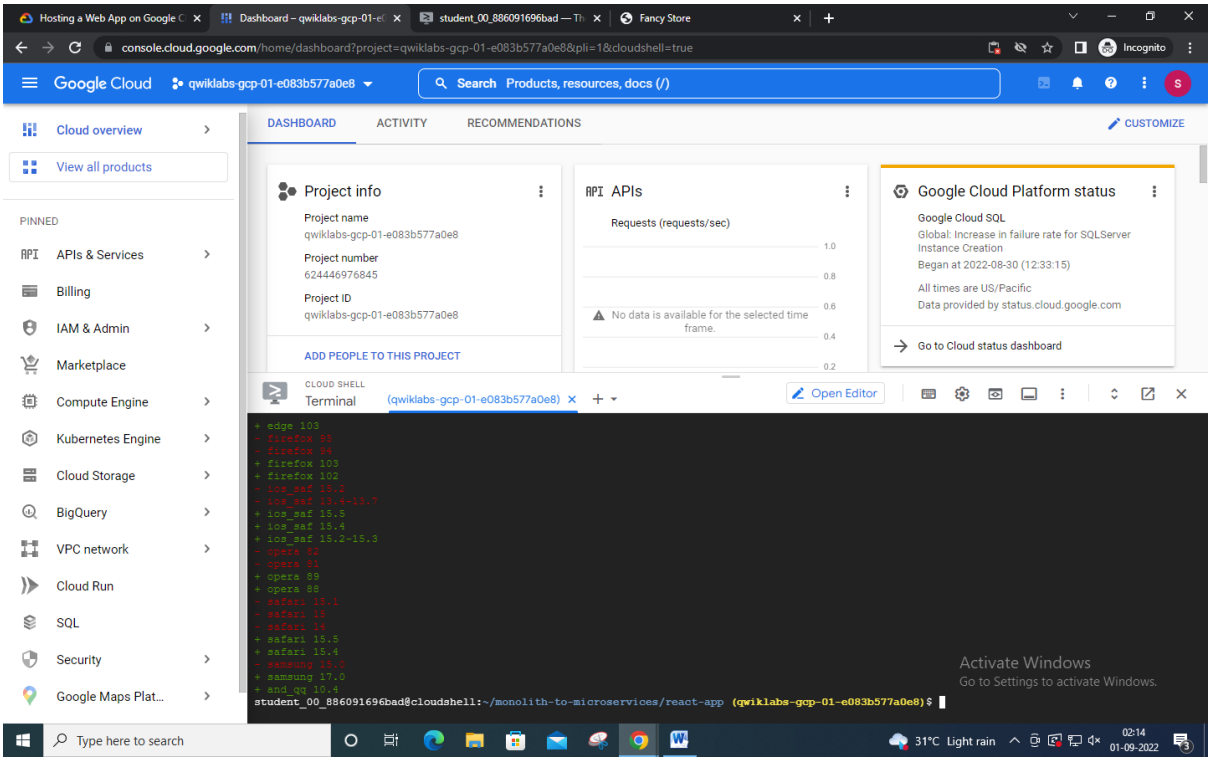
02:12
01-09-2022


Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
APIs
Requests (requests/sec)
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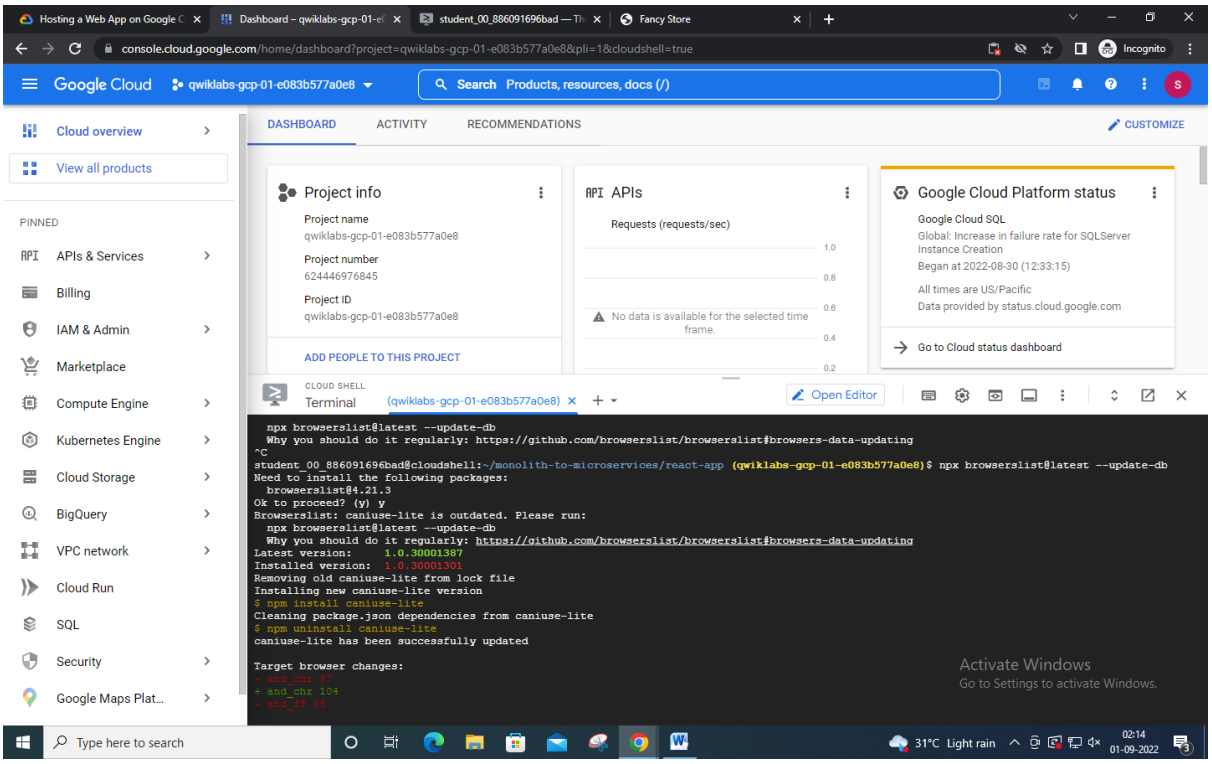
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:14
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
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Fancy Store
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
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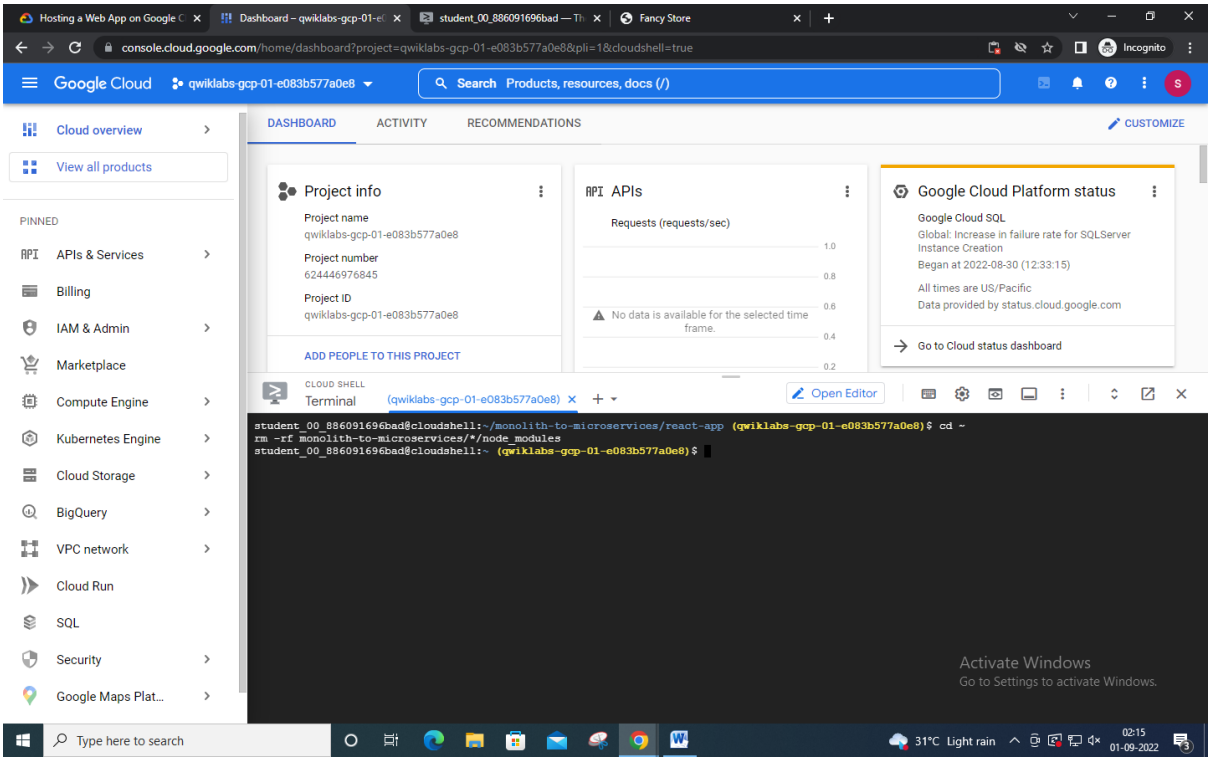
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
npx browserslist@latest --update-db
Why you should do it regularly: https://github.com/browserslist/browserslist#browsers-data-updating
^C
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ npx browserslist@latest --update-db
Need to install the following packages:
browserslist@4.21.3
Ok to proceed? (y) y
Browserslist: caniuse-lite is outdated. Please run:
npx browserslist@latest --update-db
Why you should do it regularly: https://github.com/browserslist/browserslist#browsers-data-updating
Latest version: 1.0.30001387
Installed version: 1.0.30001301
Removing old caniuse-lite from lock file
Installing new caniuse-lite version
$ npm install caniuse-lite
Cleaning package.json dependencies from caniuse-lite
$ npm uninstall caniuse-lite
caniuse-lite has been successfully updated
Target browser changes:
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:14
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
Fancy Store
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
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Google Cloud SQL
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Began at 2022-08-30 (12:33:15)
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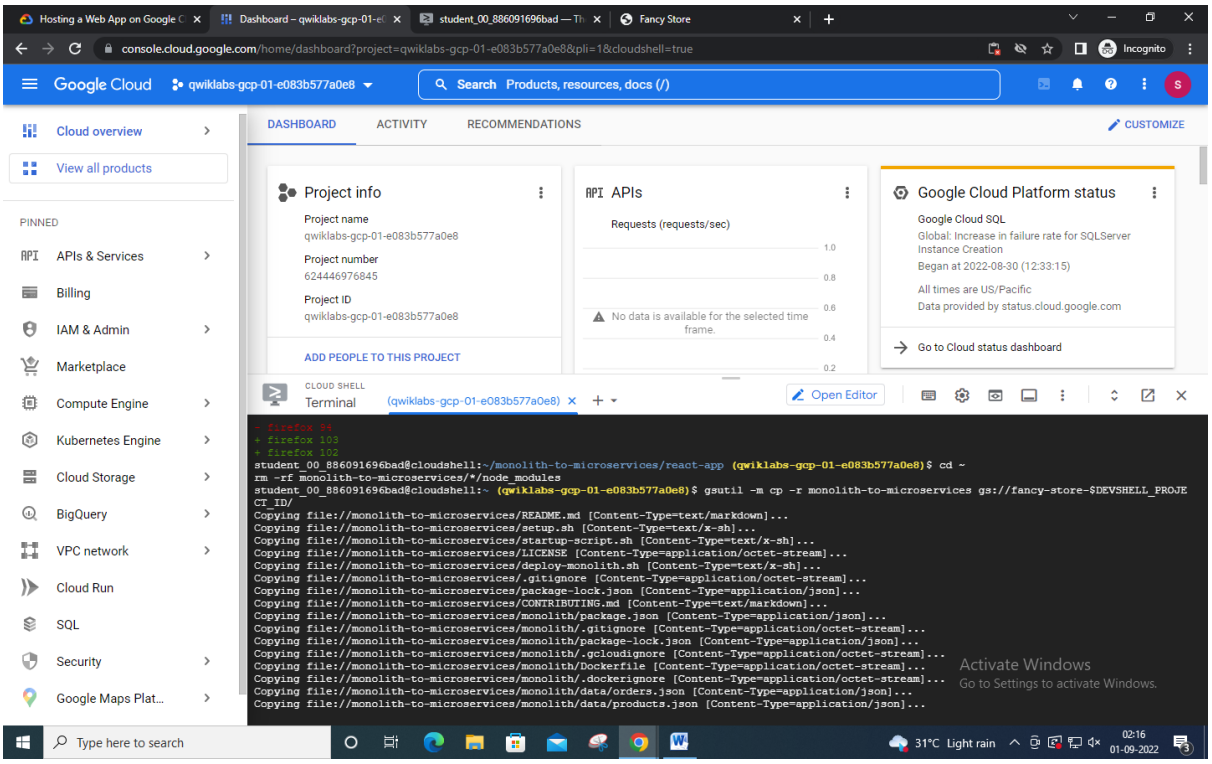
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ cd ~
rm -rf monolith-to-microservices/*/node_modules
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:15
01-09-2022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Fancy Store
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
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qwiklabs-gcp-01-e083b577a0e8
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Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
+ firefox 96
+ firefox 103
+ firefox 102
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ cd ~
rm -rf monolith-to-microservices/*/node_modules
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gsutil -m cp -r monolith-to-microservices gs://fancy-store-$DEVSHELL_PROJECT_ID/
Copying file://monolith-to-microservices/README.md [Content-Type=text/markdown]...
Copying file://monolith-to-microservices/setup.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/startup-script.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/LICENSE [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/deploy-monolith.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/.gitignore [Content-Type=application/octet-stream]...
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Copying file://monolith-to-microservices/CONTRIBUTING.md [Content-Type=text/markdown]...
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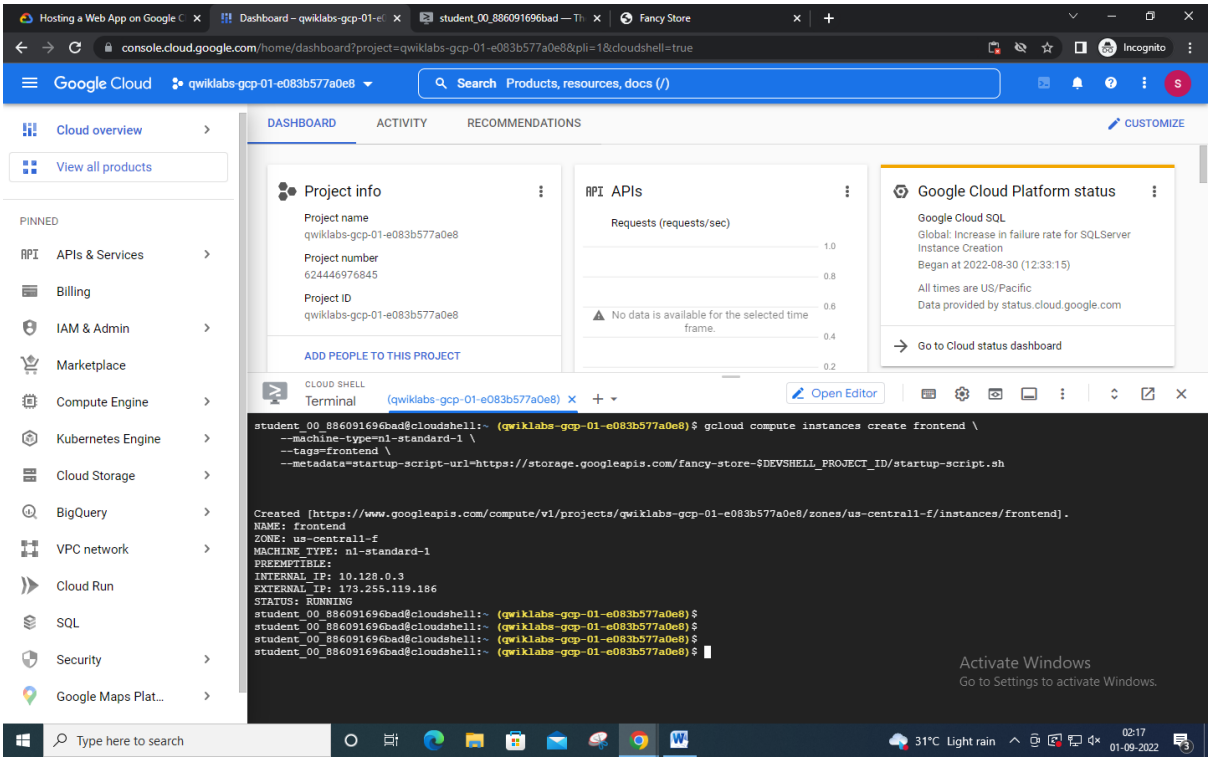
Copying file://monolith-to-microservices/monolith/.gcloudignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/Dockerfile [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/.dockerignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/data/orders.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/data/products.json [Content-Type=application/json]...
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:16
01-09-2022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console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
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Project number
624446976845
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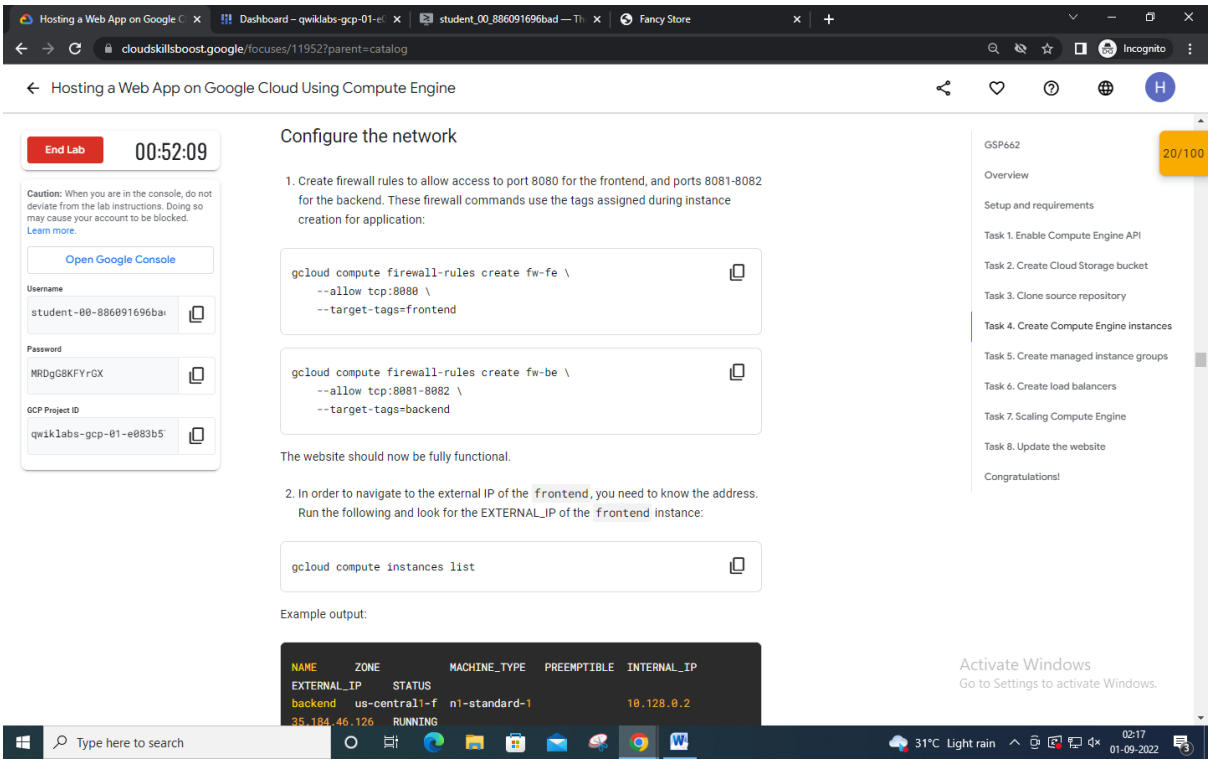
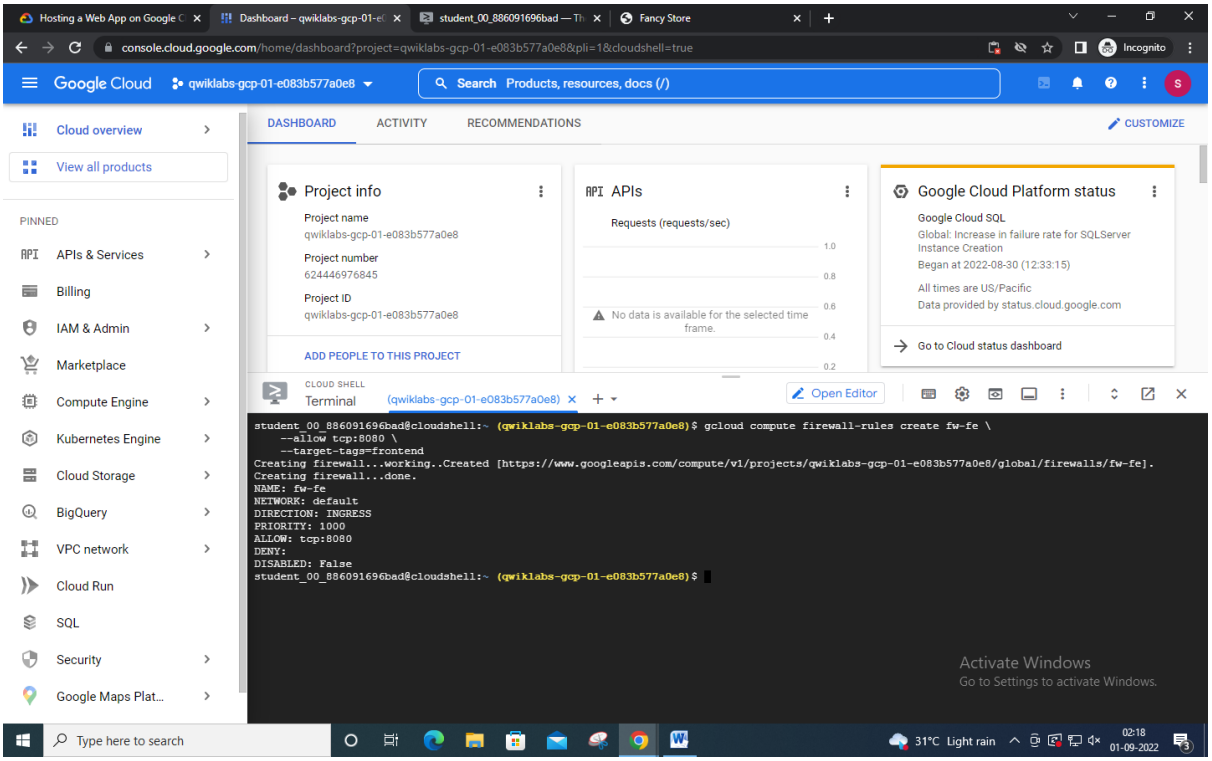
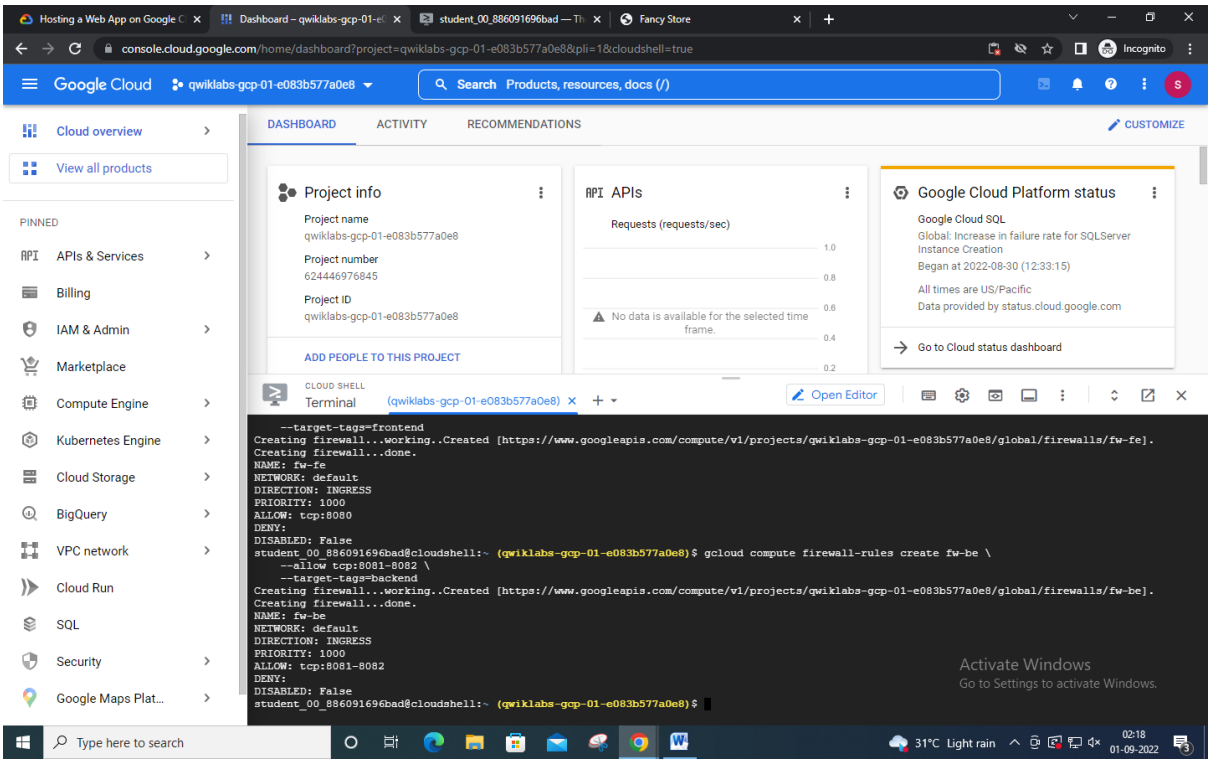
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instances create frontend \
--machine-type=n1-standard-1 \
--tags=frontend \
--metadata=startup-script-url=https://storage.googleapis.com/fancy-store-$DEVSHELL_PROJECT_ID/startup-script.sh
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instances/frontend].
NAME: frontend
ZONE: us-central1-f
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
INTERNAL_IP: 10.128.0.3
EXTERNAL_IP: 173.255.119.186
STATUS: RUNNING
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:17
01-09-2022


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:52:09
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Configure the network
1. Create firewall rules to allow access to port 8080 for the frontend, and ports 8081-8082 for the backend. These firewall commands use the tags assigned during instance creation for application:
gcloud compute firewall-rules create fw-fe \
--allow tcp:8080 \
--target-tags=frontend
gcloud compute firewall-rules create fw-be \
--allow tcp:8081-8082 \
--target-tags=backend
The website should now be fully functional.
2. In order to navigate to the external IP of the frontend, you need to know the address. Run the following and look for the EXTERNAL_IP of the frontend instance:
gcloud compute instances list
Example output:
NAME ZONE MACHINE_TYPE PREEMPTIBLE INTERNAL_IP
EXTERNAL_IP STATUS
backend us-central1-f n1-standard-1 10.128.0.2
35.184.46.126 RUNNING
GSP662
20/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.


Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute firewall-rules create fw-fe \
--allow tcp:8080 \
--target-tags=frontend
Creating firewall...working..Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/firewalls/fw-fe].
Creating firewall...done.
NAME: fw-fe
NETWORK: default
DIRECTION: INGRESS
PRIORITY: 1000
ALLOW: tcp:8080
DENY:
DISABLED: False
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
Fancy Store
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
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Project number
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Google Cloud Platform status
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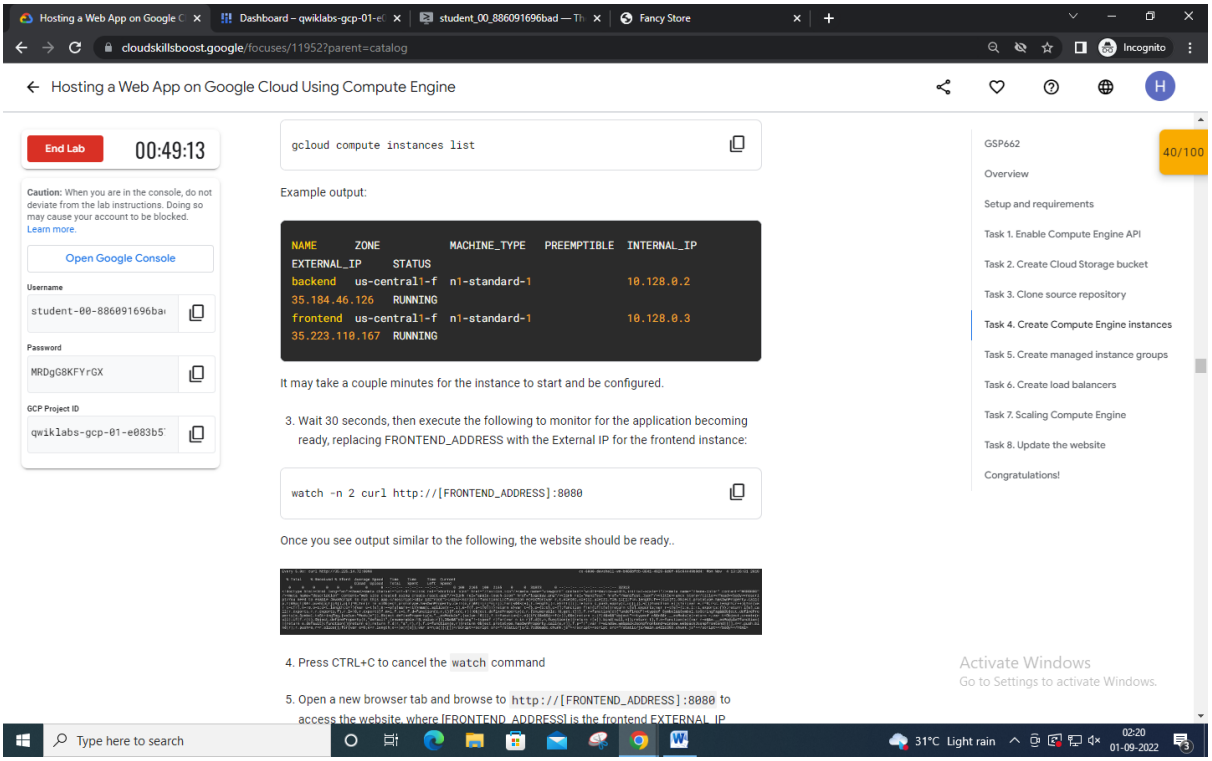
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
--target-tags=frontend
Creating firewall...working..Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/firewalls/fw-fe].
Creating firewall...done.
NAME: fw-fe
NETWORK: default
DIRECTION: INGRESS
PRIORITY: 1000
ALLOW: tcp:8080
DENY:
DISABLED: False
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute firewall-rules create fw-be \
--allow tcp:8081-8082 \
--target-tags=backend
Creating firewall...working..Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/firewalls/fw-be].
Creating firewall...done.
NAME: fw-be
NETWORK: default
DIRECTION: INGRESS
PRIORITY: 1000
ALLOW: tcp:8081-8082
DENY:
DISABLED: False
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:18
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
Fancy Store
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:49:13
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
gcloud compute instances list
Example output:
NAME ZONE MACHINE_TYPE PREEMPTIBLE INTERNAL_IP
EXTERNAL_IP STATUS
backend us-central1-f n1-standard-1 10.128.0.2
35.184.46.126 RUNNING
frontend us-central1-f n1-standard-1 10.128.0.3
35.223.110.167 RUNNING
It may take a couple minutes for the instance to start and be configured.
3. Wait 30 seconds, then execute the following to monitor for the application becoming ready, replacing FRONTEND_ADDRESS with the External IP for the frontend instance:
watch -n 2 curl http://[FRONTEND_ADDRESS]:8080
Once you see output similar to the following, the website should be ready..
4. Press CTRL+C to cancel the watch command
5. Open a new browser tab and browse to http://[FRONTEND_ADDRESS]:8080 to access the website, where [FRONTEND_ADDRESS] is the frontend EXTERNAL_IP
GSP662
40/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
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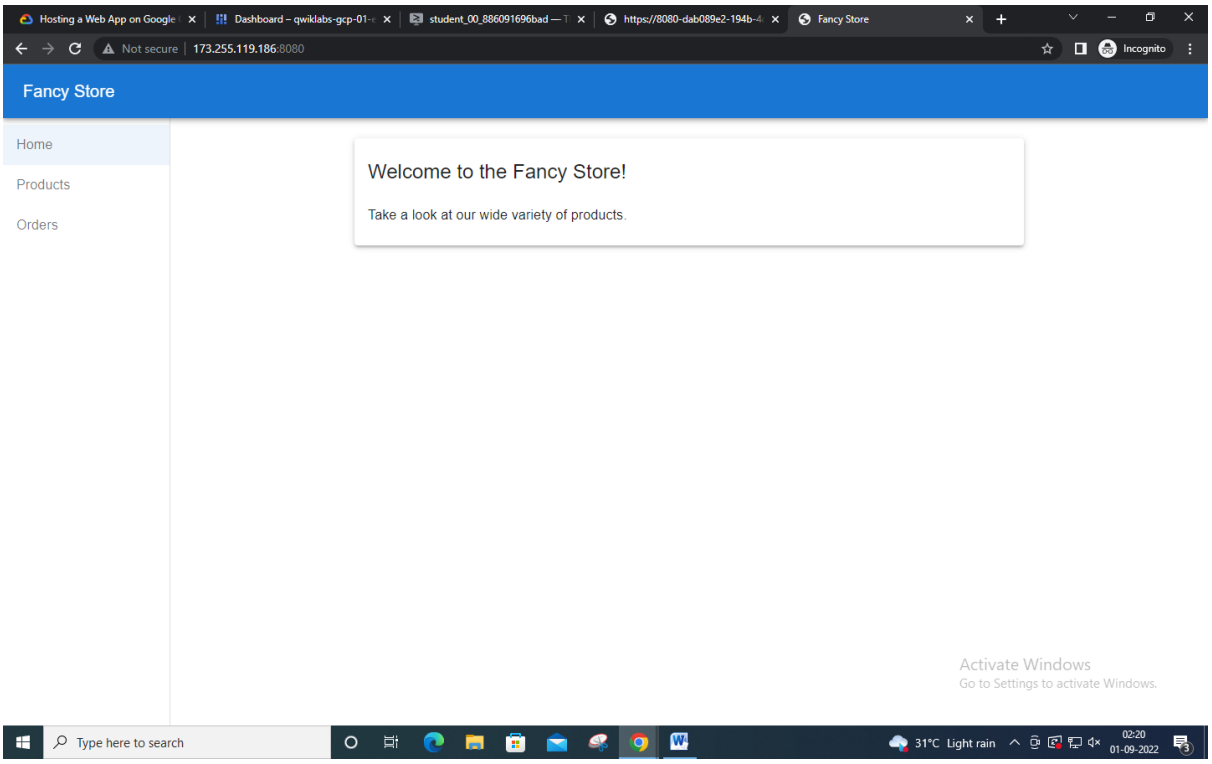
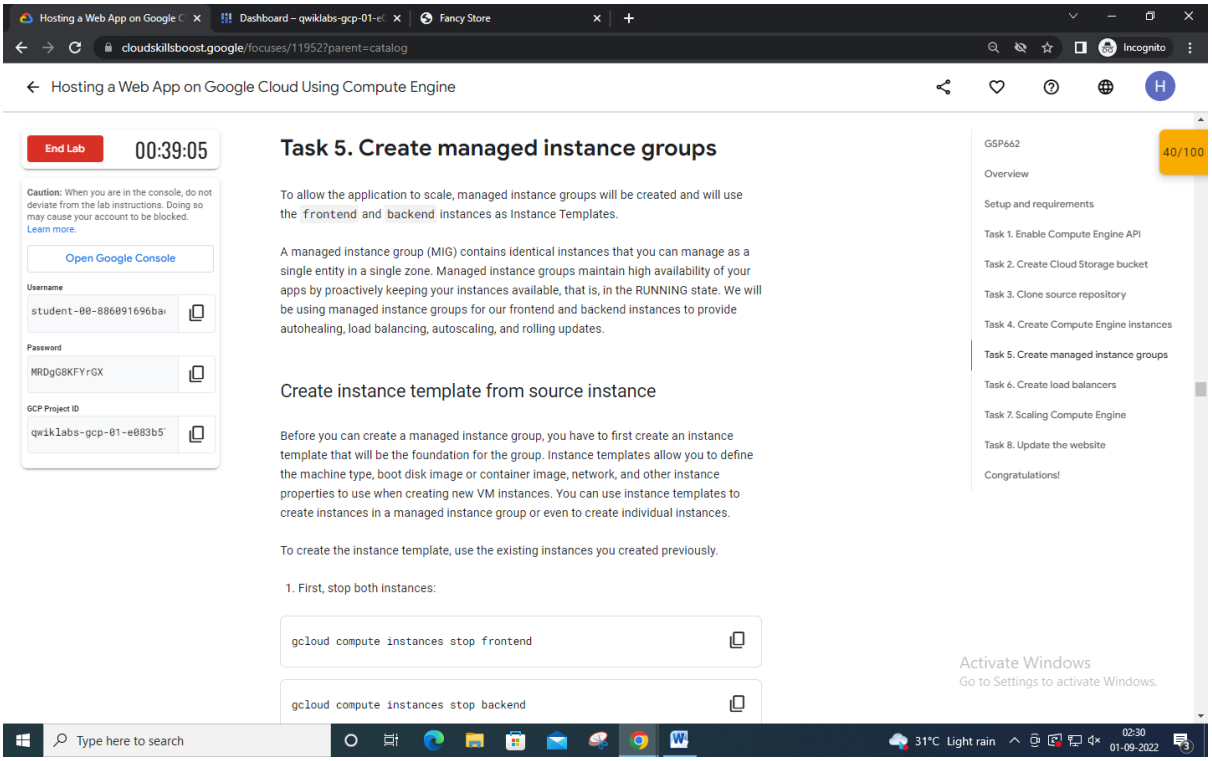
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:20
01-09-2022


Hosting a Web App on Google
Dashboard – qwiklabs-gcp-01-
student_00_886091696bad —
https://8080-dab089e2-194b-
Fancy Store
Not secure | 173.255.119.186:8080
Incognito
Fancy Store
Home
Products
Orders
Welcome to the Fancy Store!
Take a look at our wide variety of products.
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:20
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
Fancy Store
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:39:05
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Task 5. Create managed instance groups
To allow the application to scale, managed instance groups will be created and will use the frontend and backend instances as Instance Templates.
A managed instance group (MIG) contains identical instances that you can manage as a single entity in a single zone. Managed instance groups maintain high availability of your apps by proactively keeping your instances available, that is, in the RUNNING state. We will be using managed instance groups for our frontend and backend instances to provide autohealing, load balancing, autoscaling, and rolling updates.
Create instance template from source instance
Before you can create a managed instance group, you have to first create an instance template that will be the foundation for the group. Instance templates allow you to define the machine type, boot disk image or container image, network, and other instance properties to use when creating new VM instances. You can use instance templates to create instances in a managed instance group or even to create individual instances.
To create the instance template, use the existing instances you created previously.
1. First, stop both instances:
gcloud compute instances stop frontend
gcloud compute instances stop backend
GSP662
40/100
Overview
Setup and requirements
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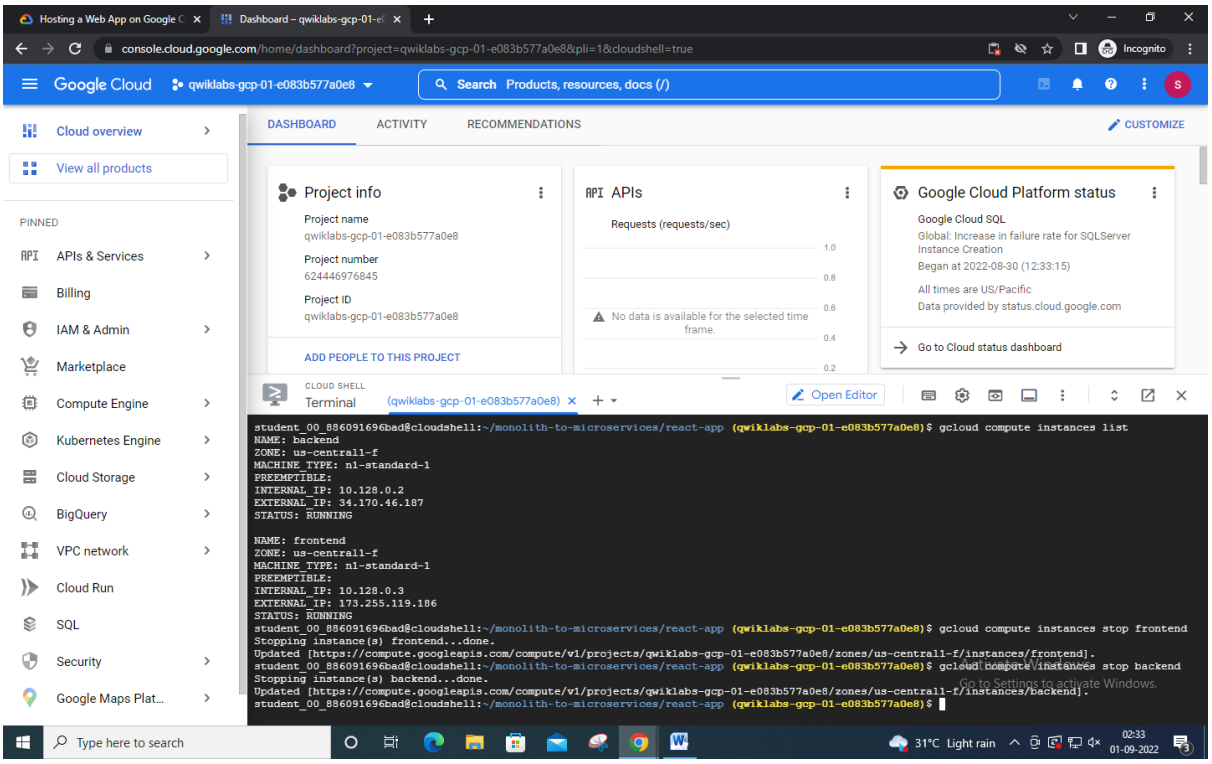
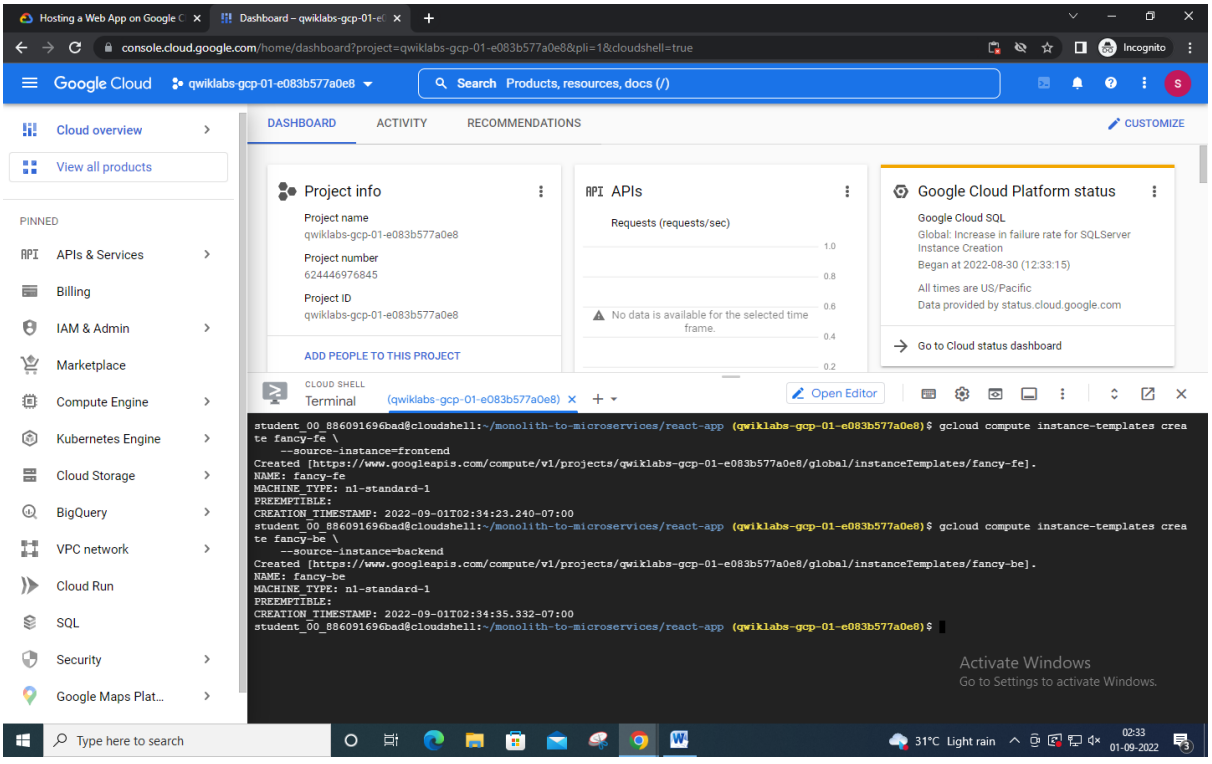
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:30
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_86091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instances list
NAME: backend
ZONE: us-central1-f
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
INTERNAL_IP: 10.128.0.2
EXTERNAL_IP: 34.170.46.187
STATUS: RUNNING
NAME: frontend
ZONE: us-central1-f
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
INTERNAL_IP: 10.128.0.3
EXTERNAL_IP: 173.255.119.186
STATUS: RUNNING
student_00_86091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instances stop frontend
Stopping instance(s) frontend...done.
Updated [https://compute.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instances/frontend].
student_00_86091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instances stop backend
Stopping instance(s) backend...done.
Updated [https://compute.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instances/backend].
student_00_86091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$
Type here to search
31°C Light rain
02:33
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
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APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
APIs
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Google Cloud Platform status
Google Cloud SQL
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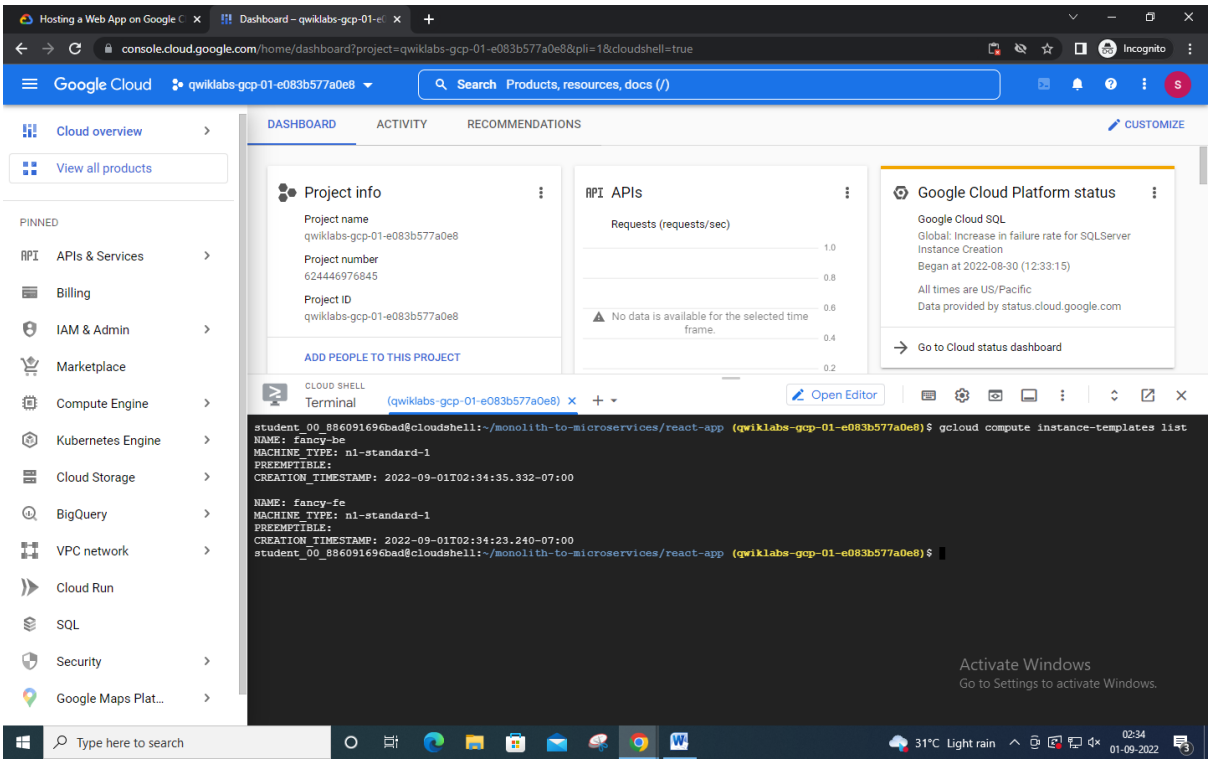
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_86091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-templates crea
te fancy-fe \
--source-instance=frontend
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/instanceTemplates/fancy-fe].
NAME: fancy-fe
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
CREATION_TIMESTAMP: 2022-09-01T02:34:23.240-07:00
student_00_86091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-templates crea
te fancy-be \
--source-instance=backend
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/instanceTemplates/fancy-be].
NAME: fancy-be
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
CREATION_TIMESTAMP: 2022-09-01T02:34:35.332-07:00
student_00_86091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:33
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
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APIs & Services
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IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
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Google Maps Plat...
DASHBOARD
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Project info
Project name
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Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
APIs
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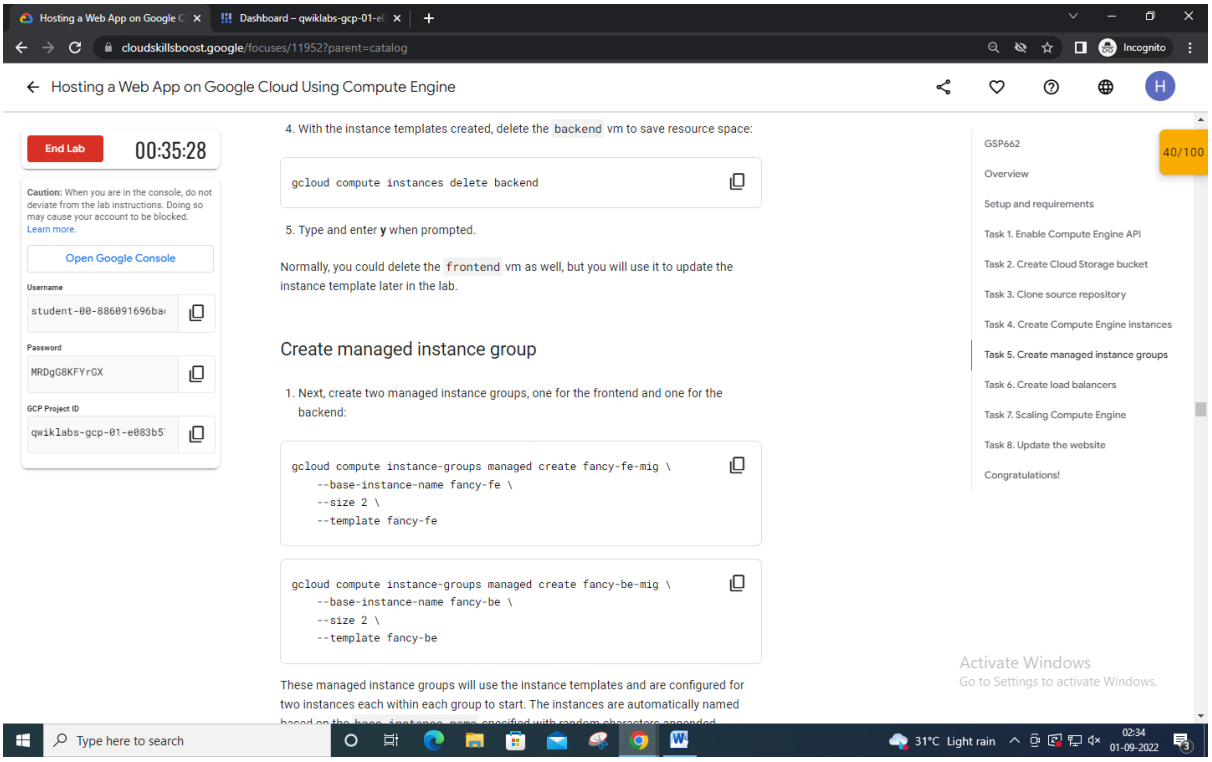
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_88609169bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-templates list
NAME: fancy-be
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
CREATION_TIMESTAMP: 2022-09-01T02:34:35.332-07:00
NAME: fancy-fe
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
CREATION_TIMESTAMP: 2022-09-01T02:34:23.240-07:00
student_00_88609169bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:34
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:35:28
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
4. With the instance templates created, delete the backend vm to save resource space:
gcloud compute instances delete backend
5. Type and enter y when prompted.
Normally, you could delete the frontend vm as well, but you will use it to update the instance template later in the lab.
Create managed instance group
1. Next, create two managed instance groups, one for the frontend and one for the backend:
gcloud compute instance-groups managed create fancy-fe-mig \
--base-instance-name fancy-fe \
--size 2 \
--template fancy-fe
gcloud compute instance-groups managed create fancy-be-mig \
--base-instance-name fancy-be \
--size 2 \
--template fancy-be
These managed instance groups will use the instance templates and are configured for two instances each within each group to start. The instances are automatically named
GSP662
40/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
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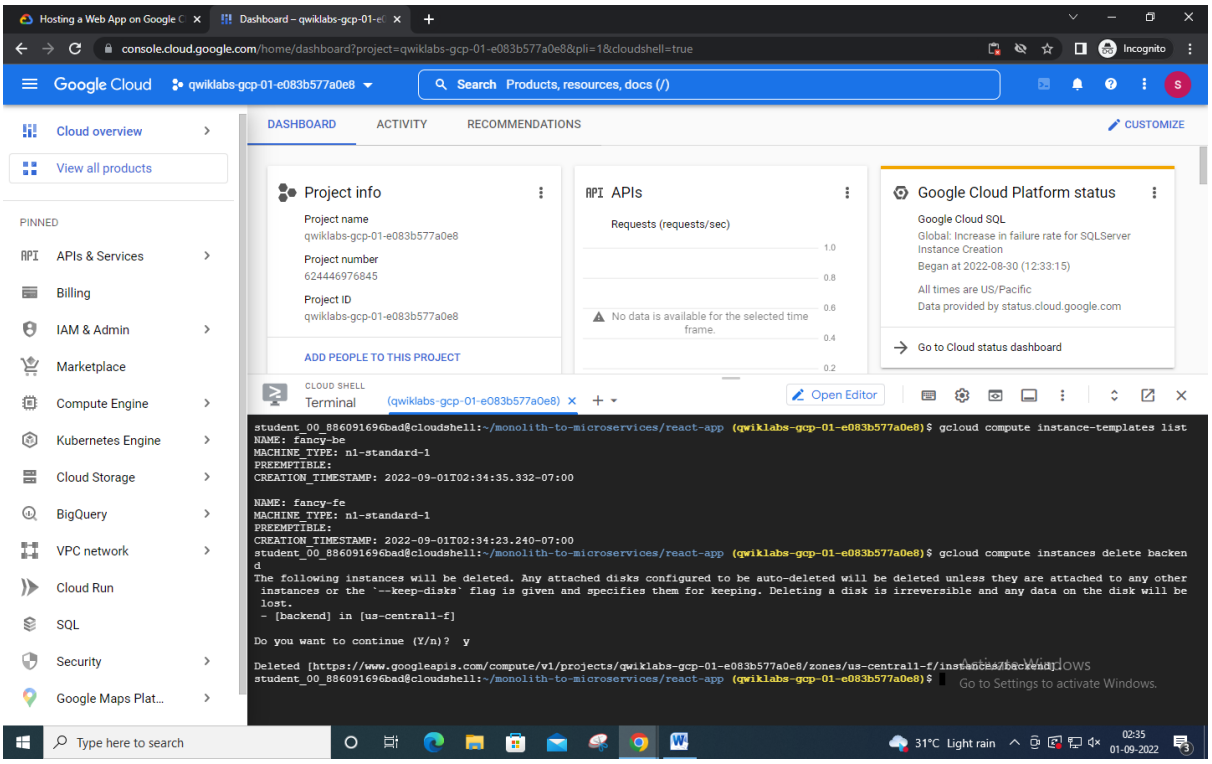
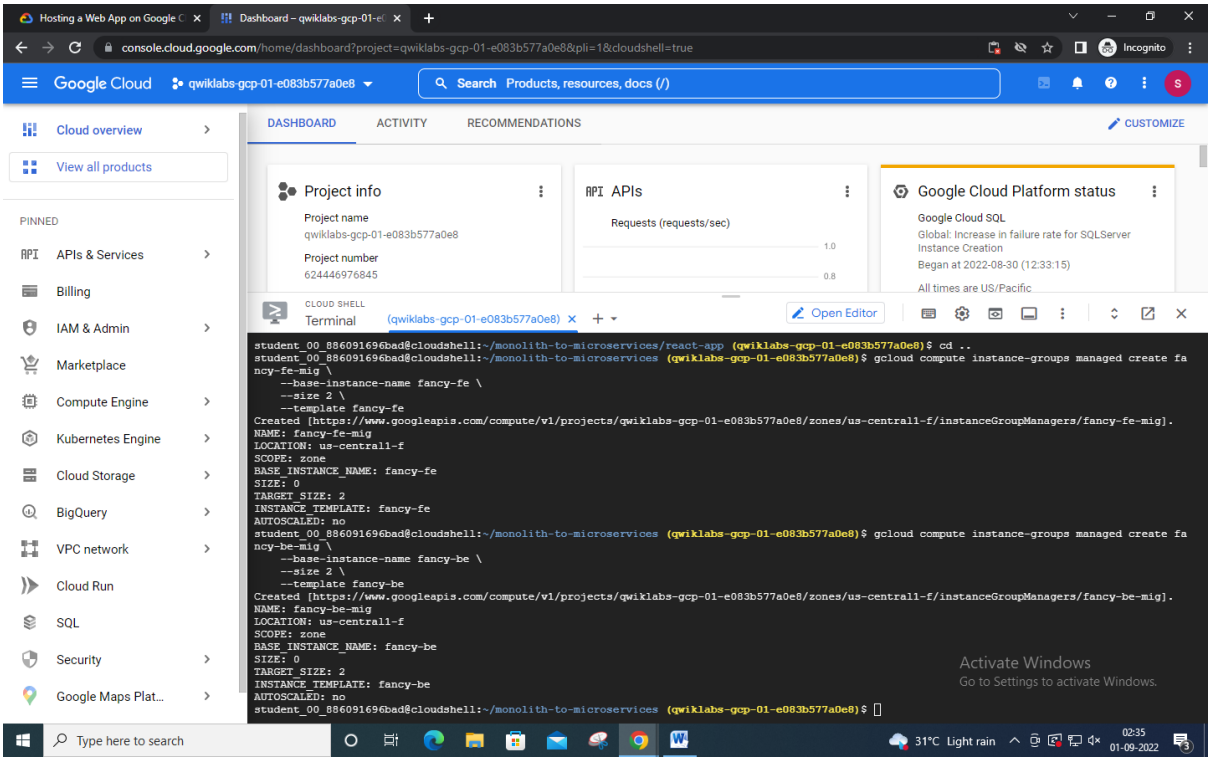
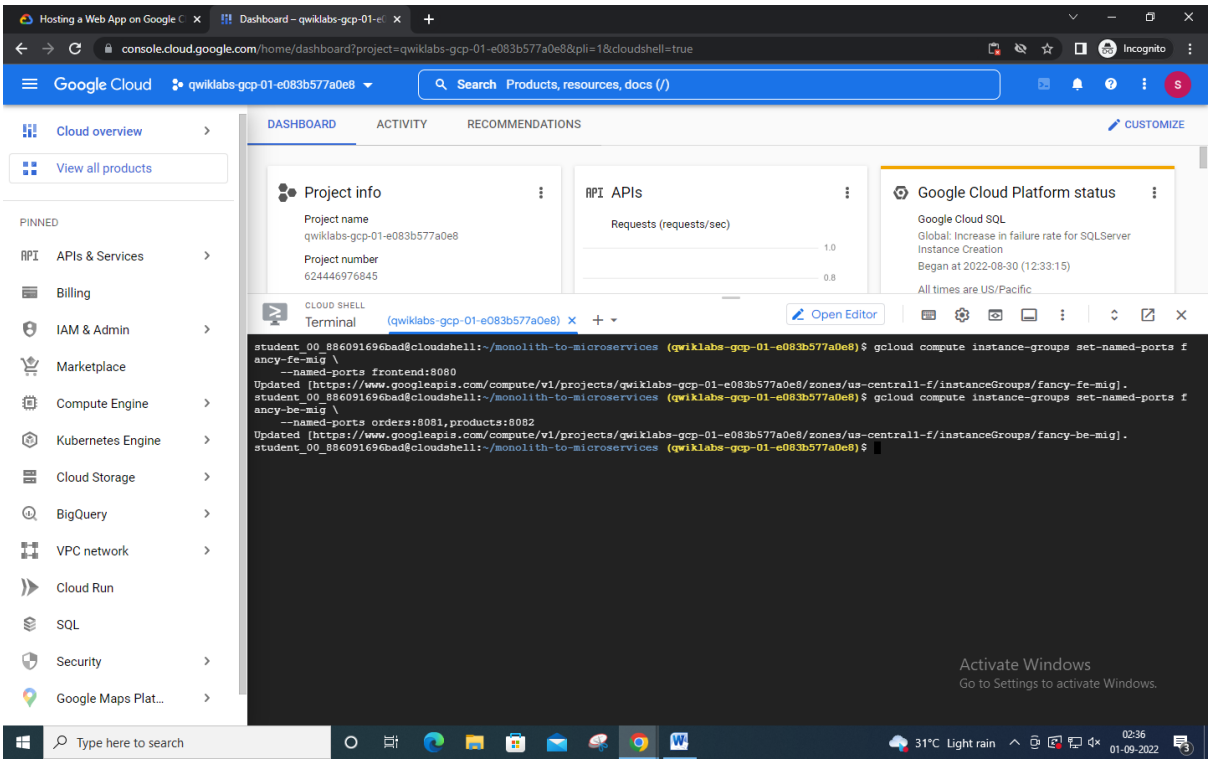
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:34
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
Project ID
qwiklabs-gcp-01-e083b577a0e8
ADD PEOPLE TO THIS PROJECT
APIs
Requests (requests/sec)
No data is available for the selected time frame.
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
Data provided by status.cloud.google.com
Go to Cloud status dashboard
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-templates list
NAME: fancy-be
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
CREATION_TIMESTAMP: 2022-09-01T02:34:35.332-07:00
NAME: fancy-fe
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
CREATION_TIMESTAMP: 2022-09-01T02:34:23.240-07:00
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instances delete backend
The following instances will be deleted. Any attached disks configured to be auto-deleted will be deleted unless they are attached to any other instances or the `--keep-disks` flag is given and specifies them for keeping. Deleting a disk is irreversible and any data on the disk will be lost.
- [backend] in [us-central1-f]
Do you want to continue (Y/n)? y
Deleted [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instances/backend].
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:35
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
DASHBOARD
ACTIVITY
RECOMMENDATIONS
CUSTOMIZE
Project info
Project name
qwiklabs-gcp-01-e083b577a0e8
Project number
624446976845
APIs
Requests (requests/sec)
Google Cloud Platform status
Google Cloud SQL
Global: Increase in failure rate for SQLServer Instance Creation
Began at 2022-08-30 (12:33:15)
All times are US/Pacific
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ cd ..
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-groups managed create fancy-fe-mig \
--base-instance-name fancy-fe \
--size 2 \
--template fancy-fe
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-fe-mig].
NAME: fancy-fe-mig
LOCATION: us-central1-f
SCOPE: zone
BASE_INSTANCE_NAME: fancy-fe
SIZE: 0
TARGET_SIZE: 2
INSTANCE_TEMPLATE: fancy-fe
AUTOSCALED: no
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-groups managed create fancy-be-mig \
--base-instance-name fancy-be \
--size 2 \
--template fancy-be
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-be-mig].
NAME: fancy-be-mig
LOCATION: us-central1-f
SCOPE: zone
BASE_INSTANCE_NAME: fancy-be
SIZE: 0
TARGET_SIZE: 2
INSTANCE_TEMPLATE: fancy-be
AUTOSCALED: no
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:35
01-09-2022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Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-groups set-named-ports fancy-fe-mig \
--named-ports frontend:8080
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroups/fancy-fe-mig].
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-groups set-named-ports fancy-be-mig \
--named-ports orders:8081,products:8082
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroups/fancy-be-mig].
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$
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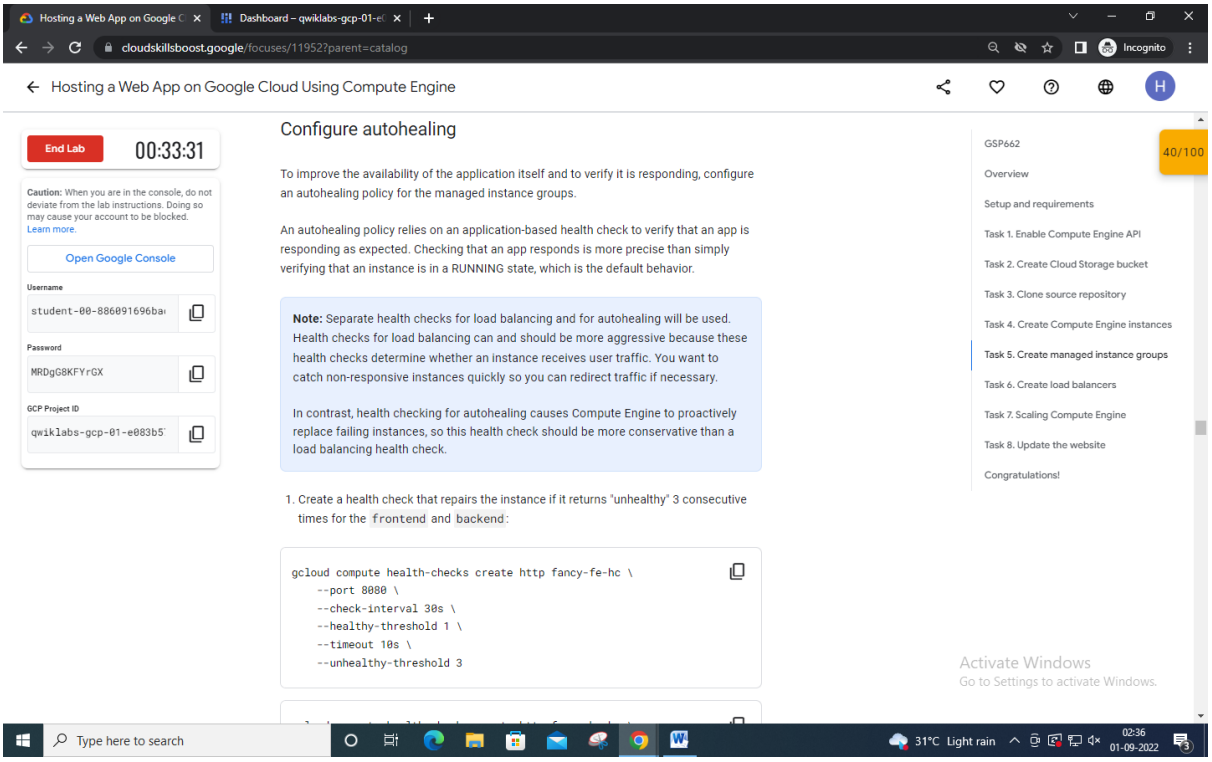
Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:33:31
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Configure autohealing
To improve the availability of the application itself and to verify it is responding, configure an autohealing policy for the managed instance groups.
An autohealing policy relies on an application-based health check to verify that an app is responding as expected. Checking that an app responds is more precise than simply verifying that an instance is in a RUNNING state, which is the default behavior.
Note: Separate health checks for load balancing and for autohealing will be used. Health checks for load balancing can and should be more aggressive because these health checks determine whether an instance receives user traffic. You want to catch non-responsive instances quickly so you can redirect traffic if necessary.
In contrast, health checking for autohealing causes Compute Engine to proactively replace failing instances, so this health check should be more conservative than a load balancing health check.
1. Create a health check that repairs the instance if it returns "unhealthy" 3 consecutive times for the frontend and backend:
gcloud compute health-checks create http fancy-fe-hc \
--port 8080 \
--check-interval 30s \
--healthy-threshold 1 \
--timeout 10s \
--unhealthy-threshold 3
GSP662
40/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
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Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
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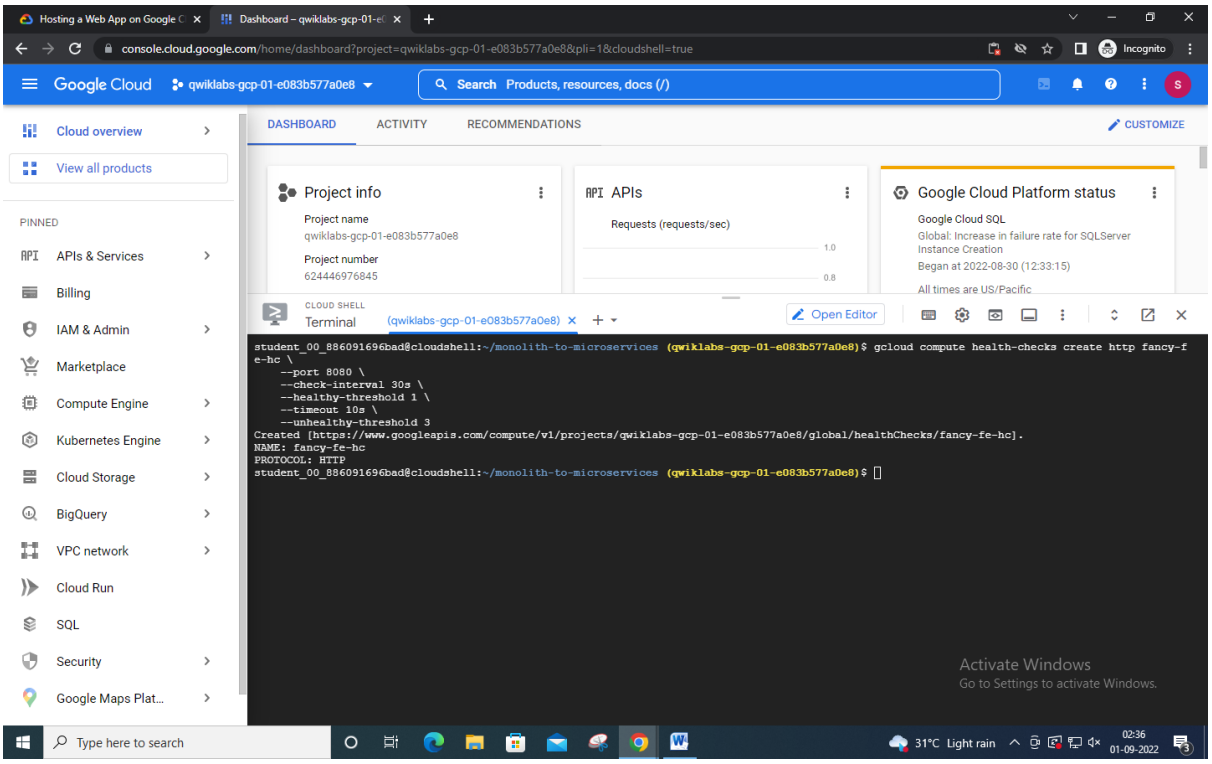
01-09-2022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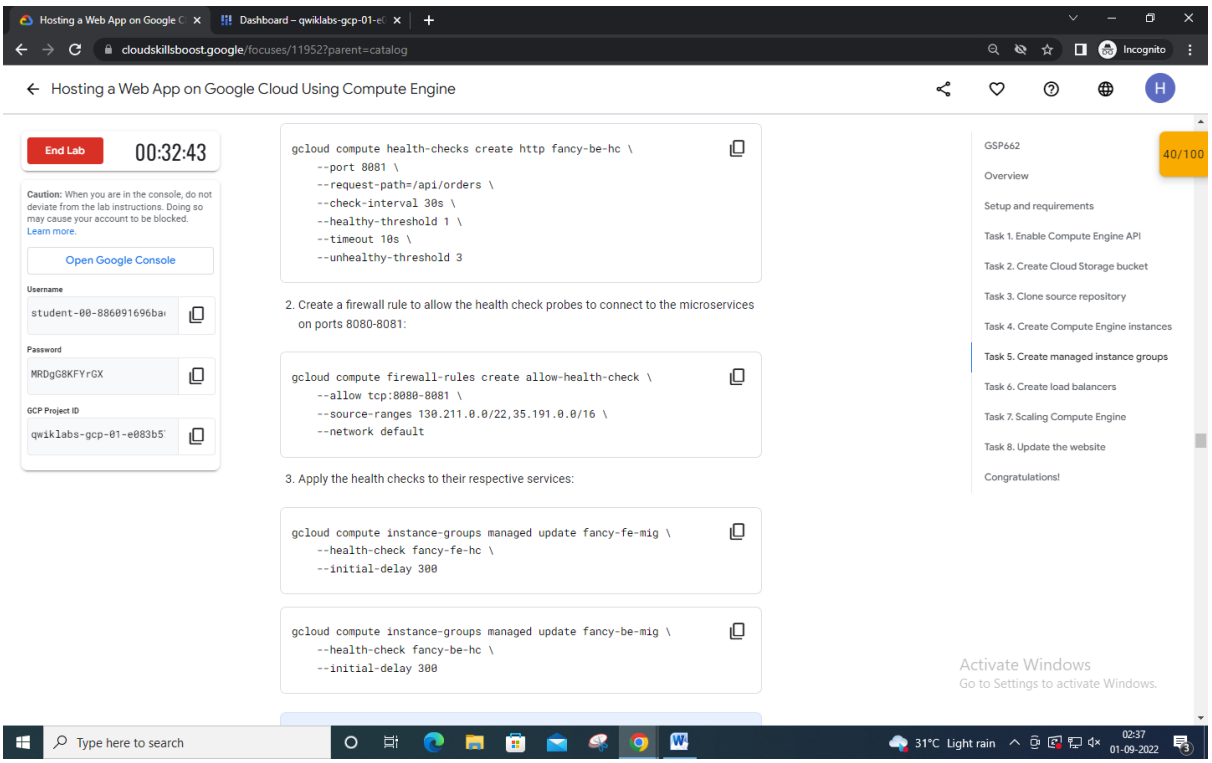
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute health-checks create http fancy-fe-hc \
--port 8080 \
--check-interval 30s \
--healthy-threshold 1 \
--timeout 10s \
--unhealthy-threshold 3
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/healthChecks/fancy-fe-hc].
NAME: fancy-fe-hc
PROTOCOL: HTTP
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:36
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:32:43
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
gcloud compute health-checks create http fancy-be-hc \
--port 8081 \
--request-path=/api/orders \
--check-interval 30s \
--healthy-threshold 1 \
--timeout 10s \
--unhealthy-threshold 3
2. Create a firewall rule to allow the health check probes to connect to the microservices on ports 8080-8081:
gcloud compute firewall-rules create allow-health-check \
--allow tcp:8080-8081 \
--source-ranges 130.211.0.0/22,35.191.0.0/16 \
--network default
3. Apply the health checks to their respective services:
gcloud compute instance-groups managed update fancy-fe-mig \
--health-check fancy-fe-hc \
--initial-delay 300
gcloud compute instance-groups managed update fancy-be-mig \
--health-check fancy-be-hc \
--initial-delay 300
GSP662
40/100
Overview
Setup and requirements
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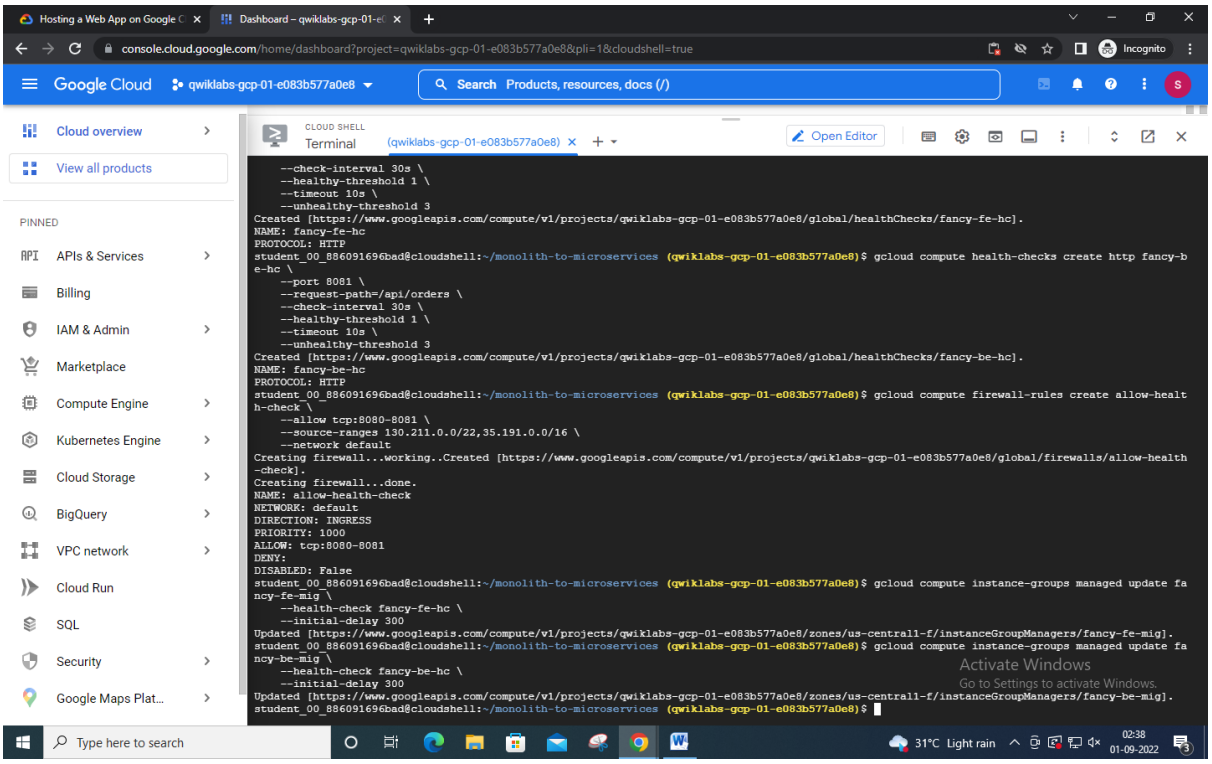
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:37
01-09-2022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console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
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Cloud overview
View all products
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APIs & Services
Billing
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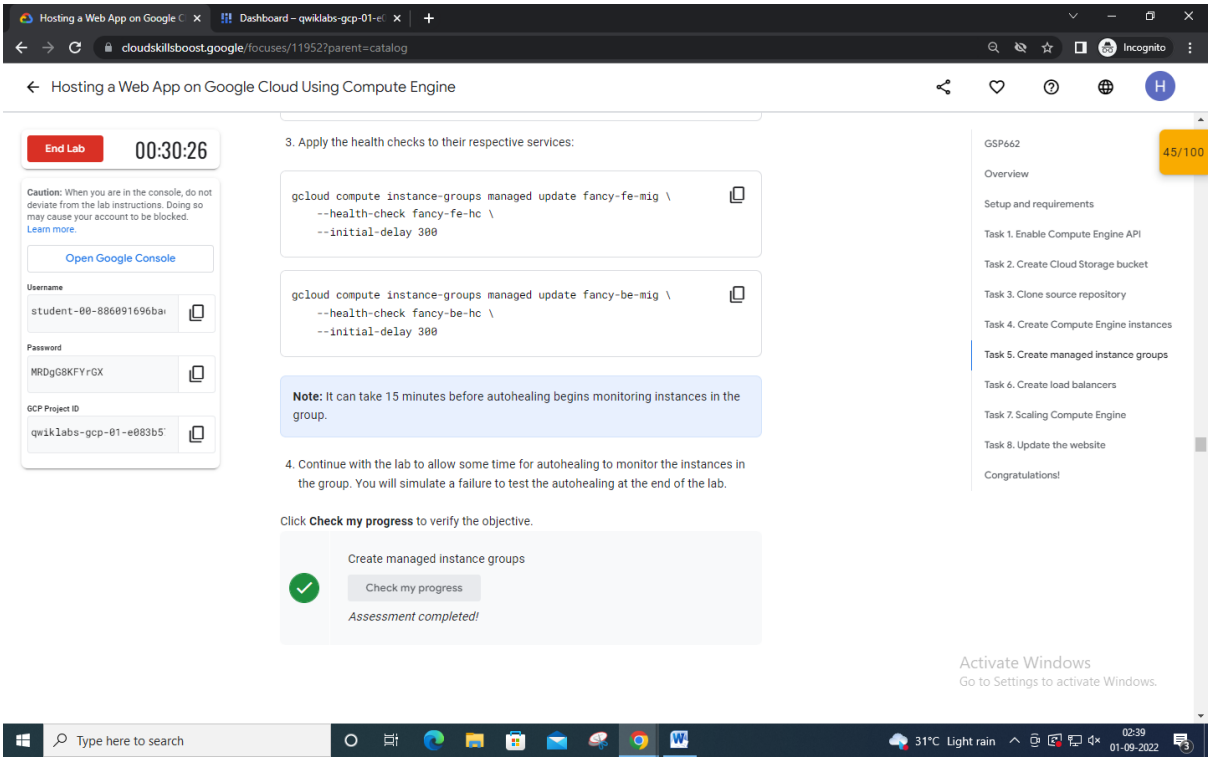
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
--check-interval 30s \
--healthy-threshold 1 \
--timeout 10s \
--unhealthy-threshold 3
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/healthChecks/fancy-fe-hc].
NAME: fancy-fe-hc
PROTOCOL: HTTP
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute health-checks create http fancy-be-hc \
--port 8081 \
--request-path=/api/orders \
--check-interval 30s \
--healthy-threshold 1 \
--timeout 10s \
--unhealthy-threshold 3
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/healthChecks/fancy-be-hc].
NAME: fancy-be-hc
PROTOCOL: HTTP
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute firewall-rules create allow-health-check \
--allow tcp:8080-8081 \
--source-ranges 130.211.0.0/22,35.191.0.0/16 \
--network default
Creating firewall...working..Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/firewalls/allow-health-check].
Creating firewall...done.
NAME: allow-health-check
NETWORK: default
DIRECTION: INGRESS
PRIORITY: 1000
ALLOW: tcp:8080-8081
DENY:
DISABLED: False
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-groups managed update fancy-fe-mig \
--health-check fancy-fe-hc \
--initial-delay 300
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-fe-mig].
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-groups managed update fancy-be-mig \
--health-check fancy-be-hc \
--initial-delay 300
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-be-mig].
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:38
01-09-2022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Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:30:26
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
3. Apply the health checks to their respective services:
gcloud compute instance-groups managed update fancy-fe-mig \
--health-check fancy-fe-hc \
--initial-delay 300
gcloud compute instance-groups managed update fancy-be-mig \
--health-check fancy-be-hc \
--initial-delay 300
Note: It can take 15 minutes before autohealing begins monitoring instances in the group.
4. Continue with the lab to allow some time for autohealing to monitor the instances in the group. You will simulate a failure to test the autohealing at the end of the lab.
Click Check my progress to verify the objective.
Create managed instance groups
Check my progress
Assessment completed!
GSP662
45/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
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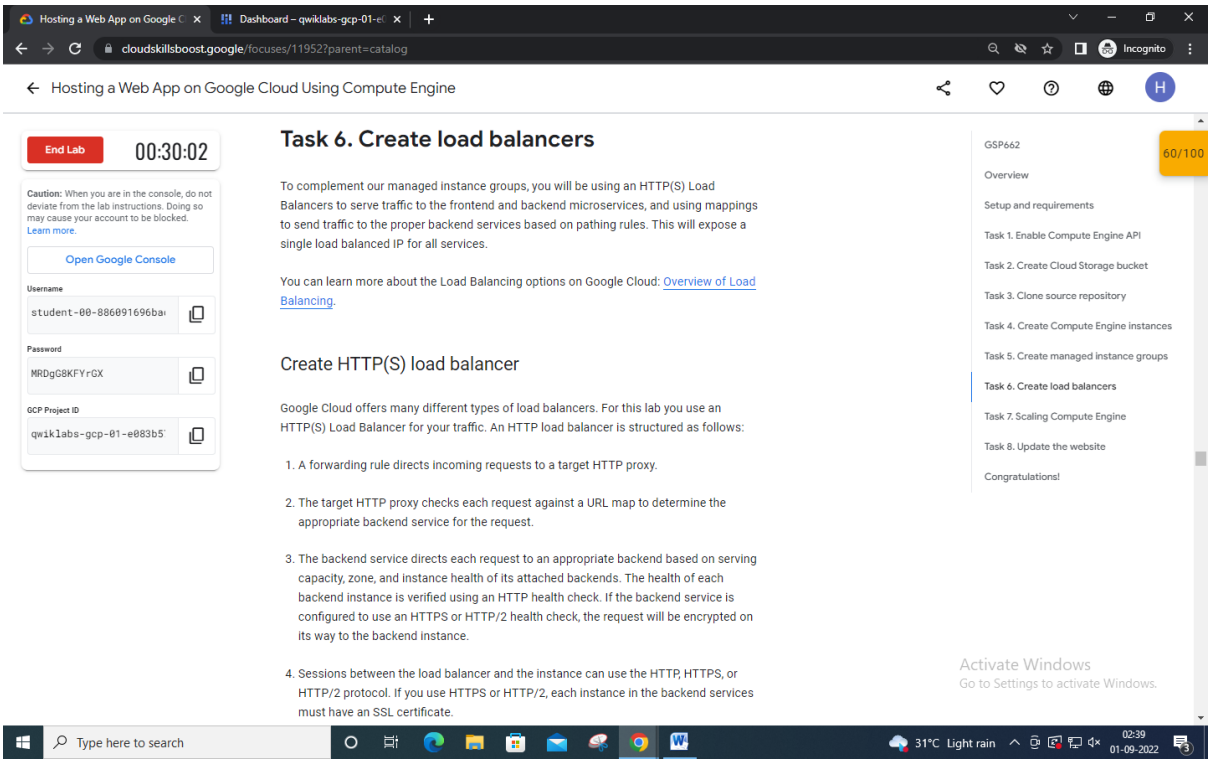
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Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:30:02
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Task 6. Create load balancers
To complement our managed instance groups, you will be using an HTTP(S) Load Balancers to serve traffic to the frontend and backend microservices, and using mappings to send traffic to the proper backend services based on pathing rules. This will expose a single load balanced IP for all services.
You can learn more about the Load Balancing options on Google Cloud: Overview of Load Balancing.
Create HTTP(S) load balancer
Google Cloud offers many different types of load balancers. For this lab you use an HTTP(S) Load Balancer for your traffic. An HTTP load balancer is structured as follows:
1. A forwarding rule directs incoming requests to a target HTTP proxy.
2. The target HTTP proxy checks each request against a URL map to determine the appropriate backend service for the request.
3. The backend service directs each request to an appropriate backend based on serving capacity, zone, and instance health of its attached backends. The health of each backend instance is verified using an HTTP health check. If the backend service is configured to use an HTTPS or HTTP/2 health check, the request will be encrypted on its way to the backend instance.
4. Sessions between the load balancer and the instance can use the HTTP, HTTPS, or HTTP/2 protocol. If you use HTTPS or HTTP/2, each instance in the backend services must have an SSL certificate.
GSP662
60/100
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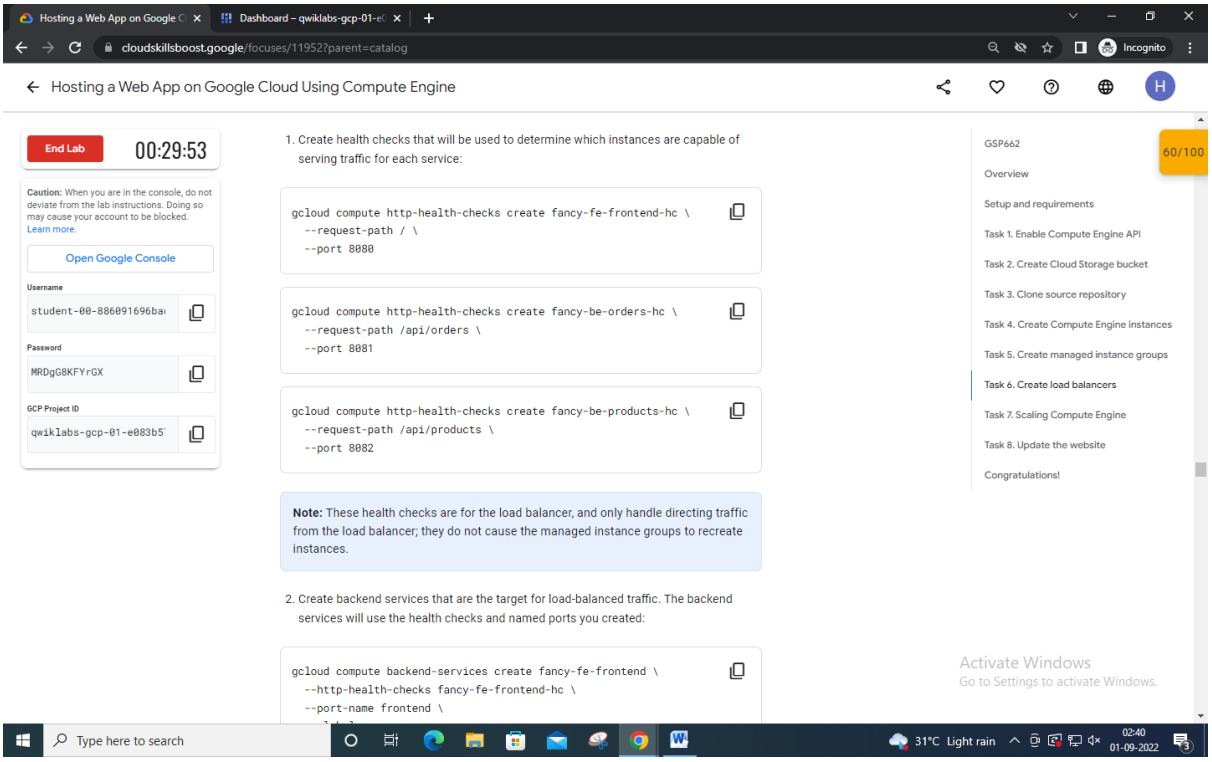
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cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:29:53
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
1. Create health checks that will be used to determine which instances are capable of serving traffic for each service:
gcloud compute http-health-checks create fancy-fe-frontend-hc \
--request-path / \
--port 8080
gcloud compute http-health-checks create fancy-be-orders-hc \
--request-path /api/orders \
--port 8081
gcloud compute http-health-checks create fancy-be-products-hc \
--request-path /api/products \
--port 8082
Note: These health checks are for the load balancer, and only handle directing traffic from the load balancer; they do not cause the managed instance groups to recreate instances.
2. Create backend services that are the target for load-balanced traffic. The backend services will use the health checks and named ports you created:
gcloud compute backend-services create fancy-fe-frontend \
--http-health-checks fancy-fe-frontend-hc \
--port-name frontend \
GSP662
60/100
Overview
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Activate Windows
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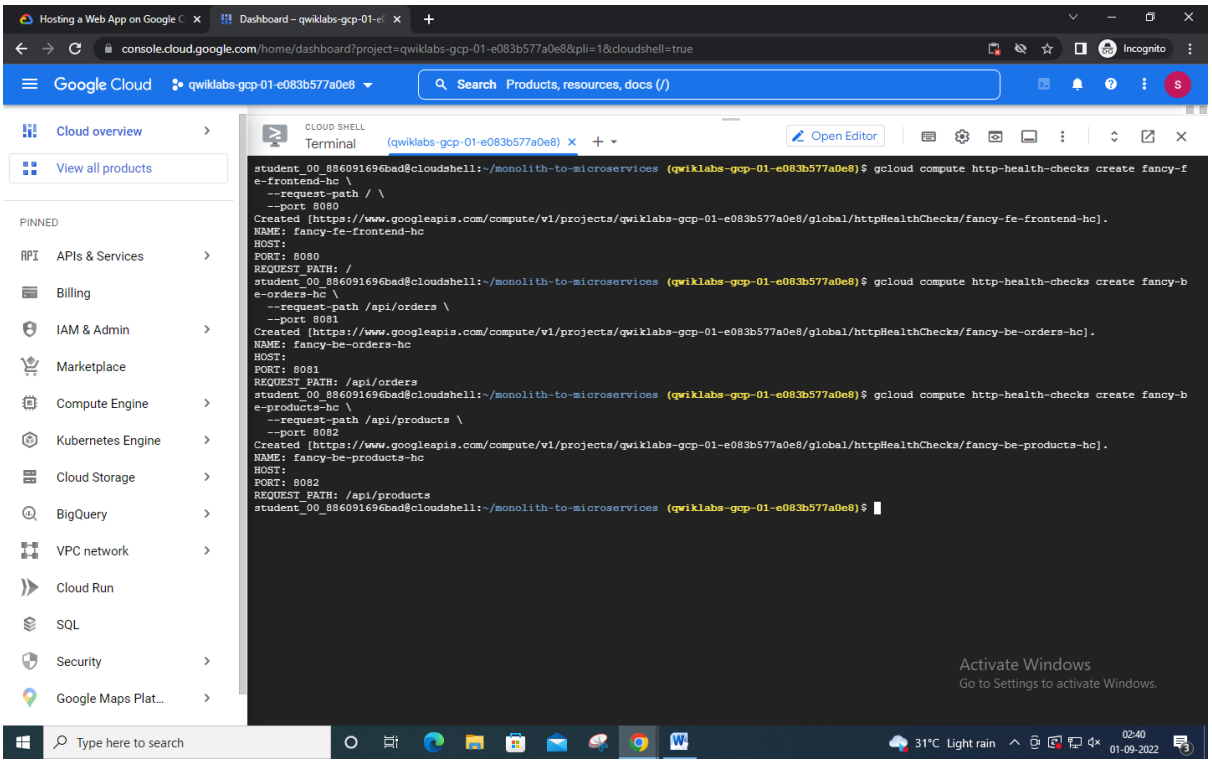
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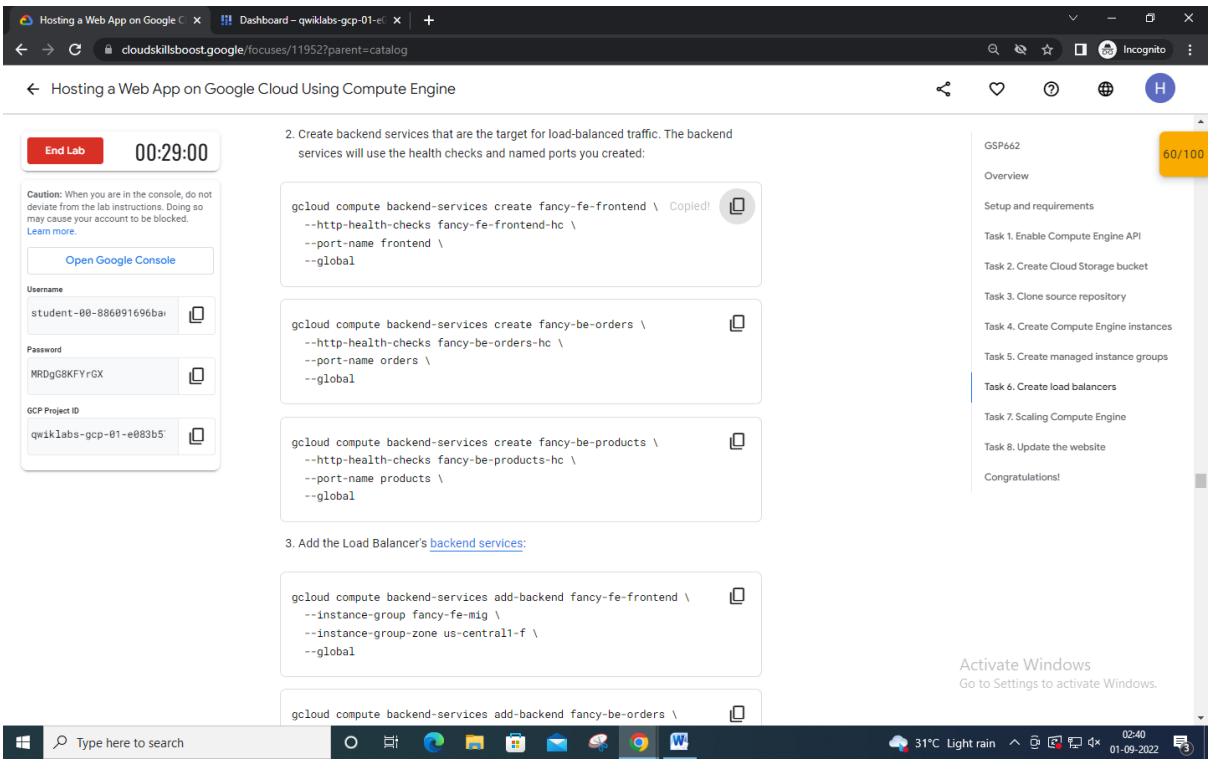
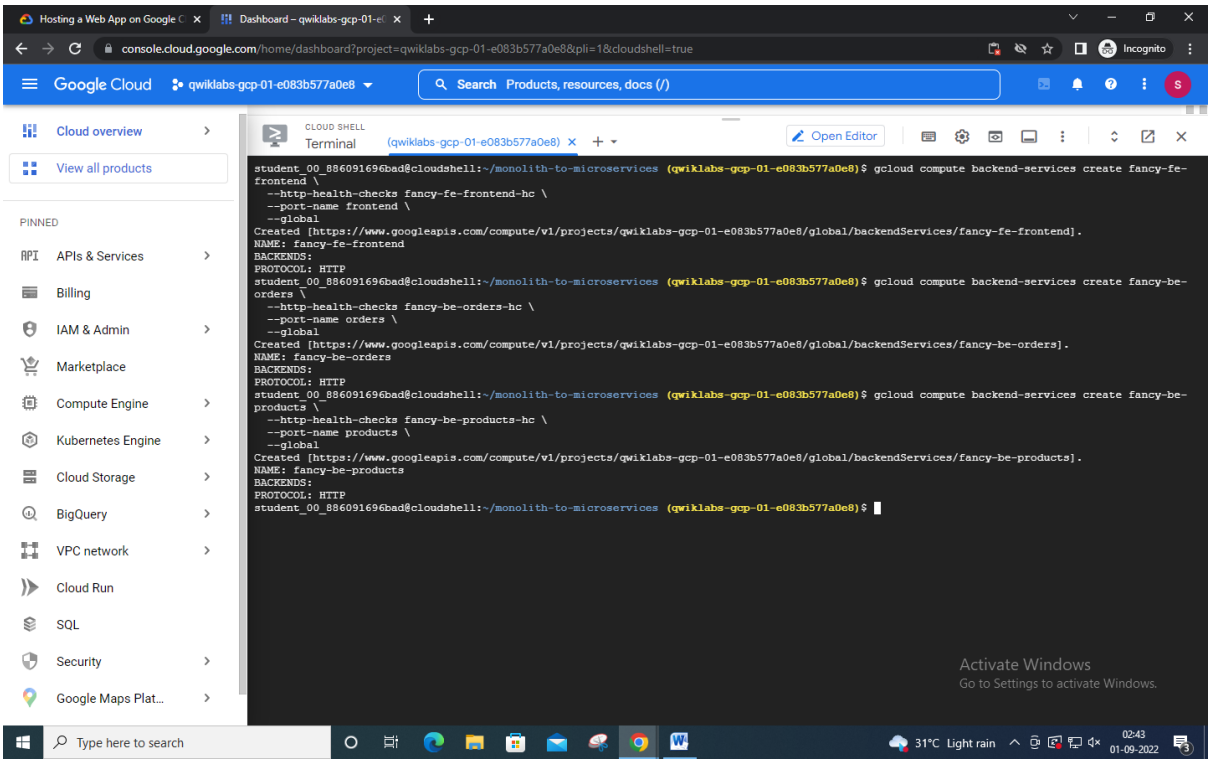
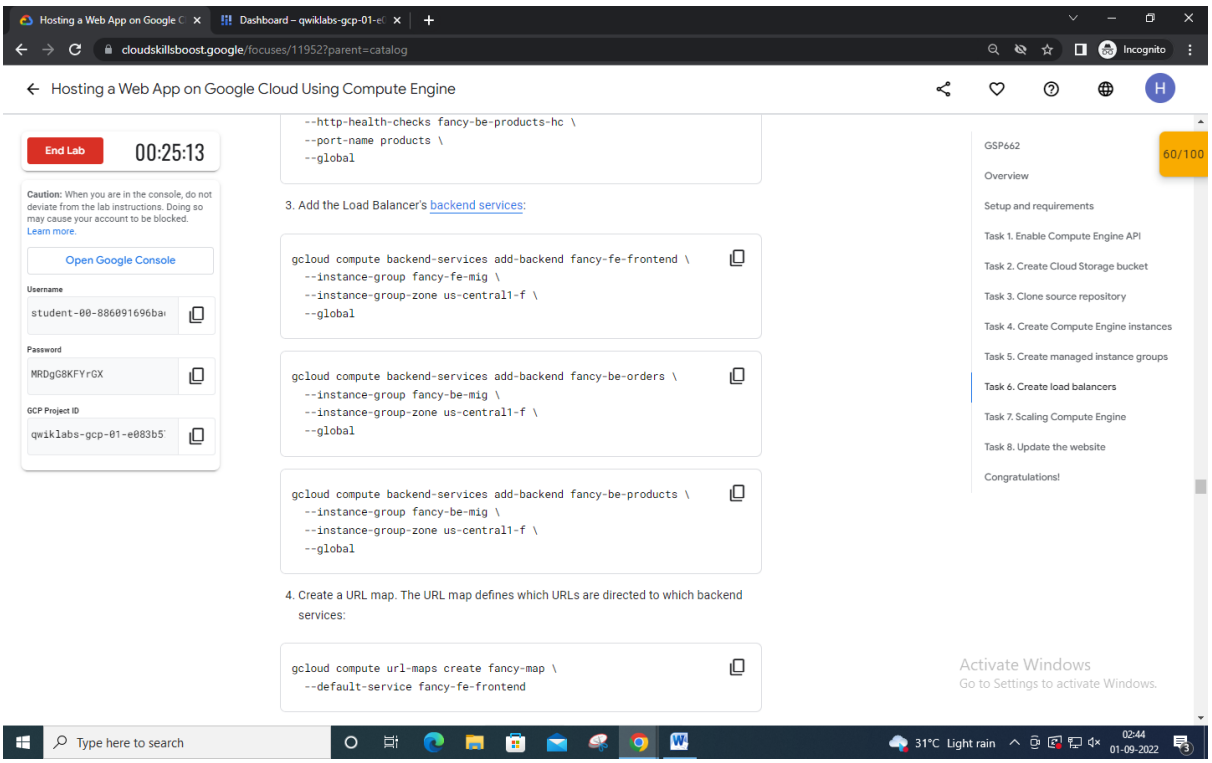
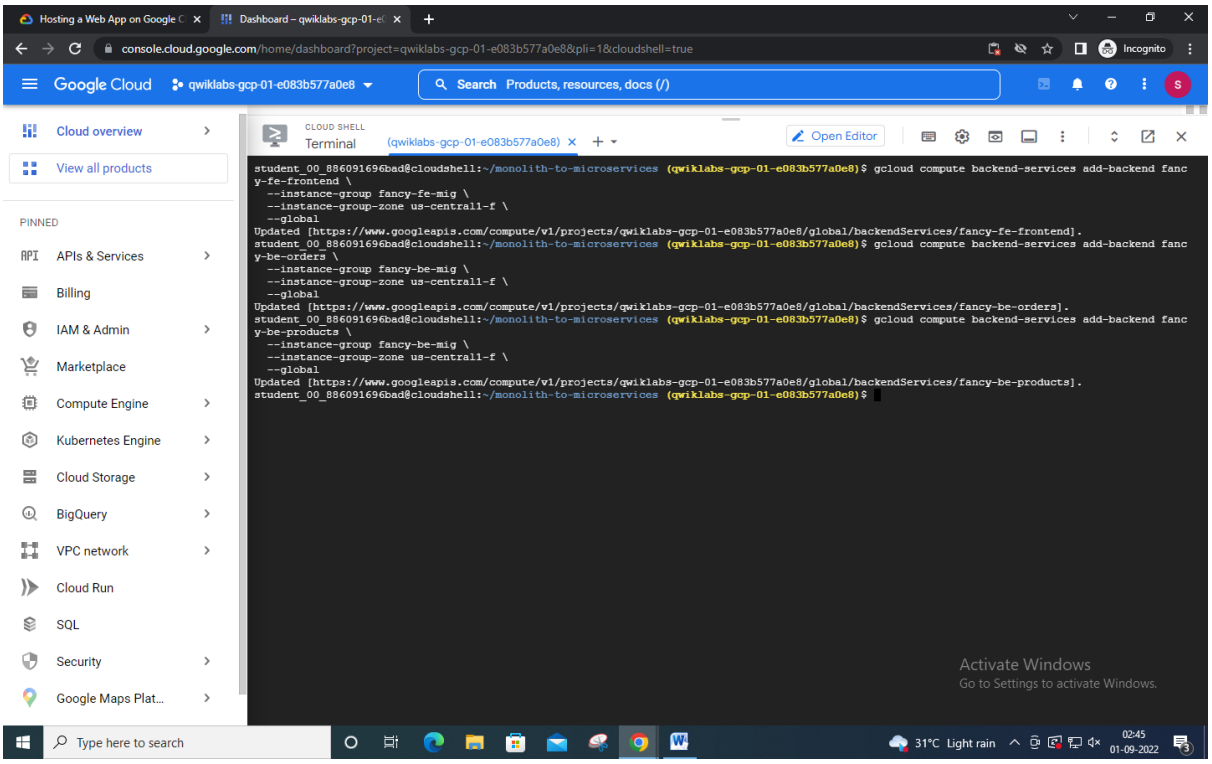
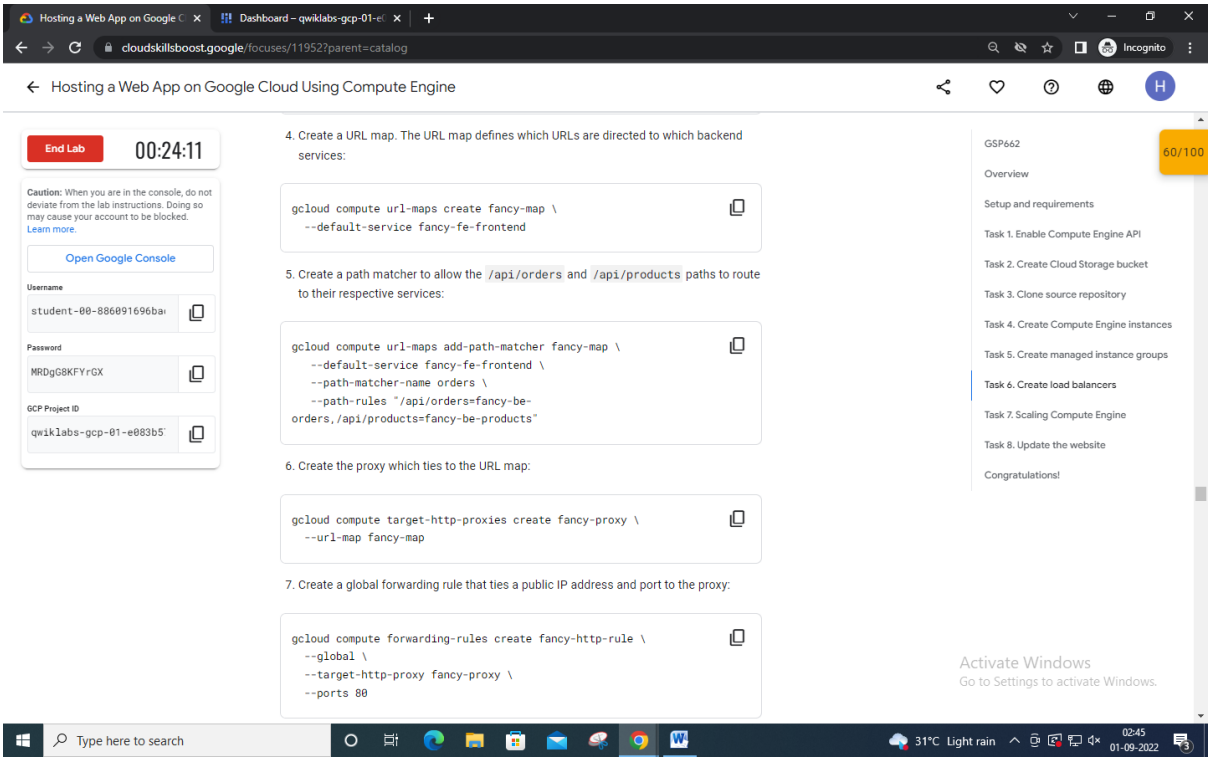
Open Editor
student_00_86091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute http-health-checks create fancy-fe-frontend-hc \
--request-path / \
--port 8080
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/httpHealthChecks/fancy-fe-frontend-hc].
NAME: fancy-fe-frontend-hc
HOST:
PORT: 8080
REQUEST_PATH: /
student_00_86091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute http-health-checks create fancy-be-orders-hc \
--request-path /api/orders \
--port 8081
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/httpHealthChecks/fancy-be-orders-hc].
NAME: fancy-be-orders-hc
HOST:
PORT: 8081
REQUEST_PATH: /api/orders
student_00_86091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute http-health-checks create fancy-be-products-hc \
--request-path /api/products \
--port 8082
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/httpHealthChecks/fancy-be-products-hc].
NAME: fancy-be-products-hc
HOST:
PORT: 8082
REQUEST_PATH: /api/products
student_00_86091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:40
01-09-2022

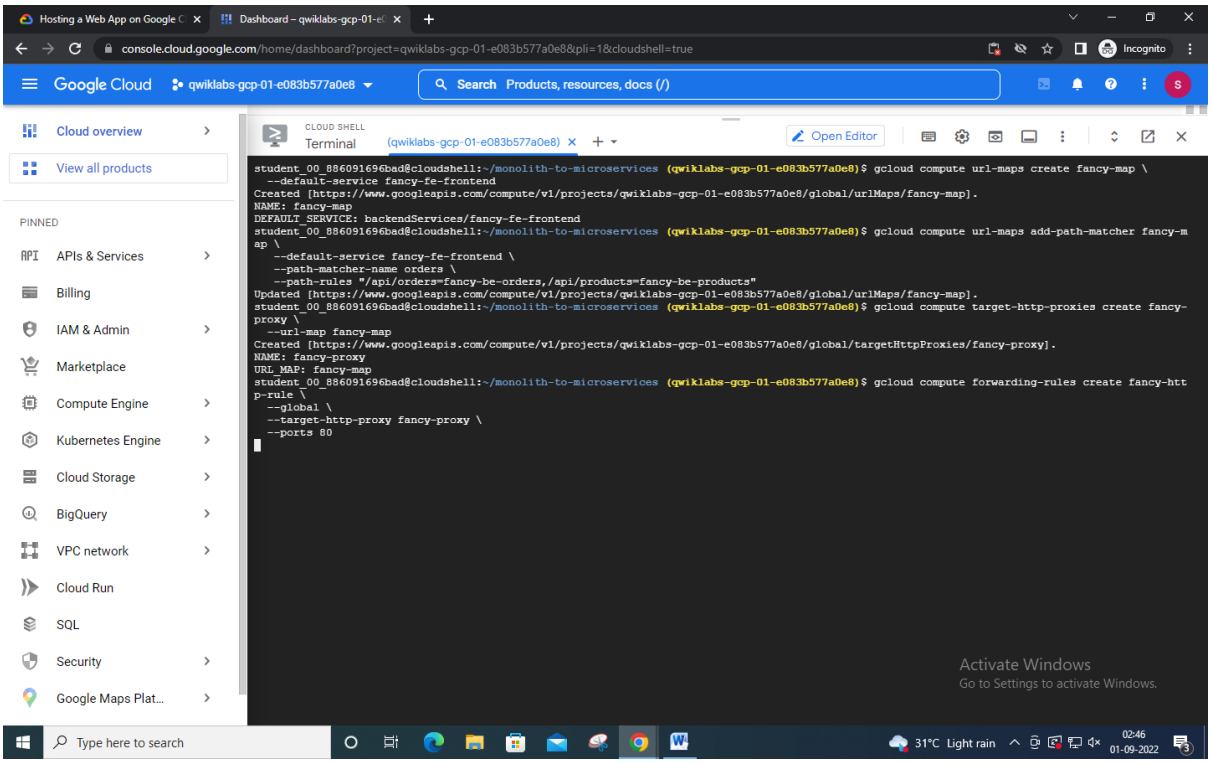

Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:29:00
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
2. Create backend services that are the target for load-balanced traffic. The backend services will use the health checks and named ports you created:
gcloud compute backend-services create fancy-fe-frontend \
--http-health-checks fancy-fe-frontend-hc \
--port-name frontend \
--global
Copied!
gcloud compute backend-services create fancy-be-orders \
--http-health-checks fancy-be-orders-hc \
--port-name orders \
--global
gcloud compute backend-services create fancy-be-products \
--http-health-checks fancy-be-products-hc \
--port-name products \
--global
3. Add the Load Balancer's backend services:
gcloud compute backend-services add-backend fancy-fe-frontend \
--instance-group fancy-fe-mig \
--instance-group-zone us-central1-f \
--global
gcloud compute backend-services add-backend fancy-be-orders \
GSP662
60/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:40
01-09-2022

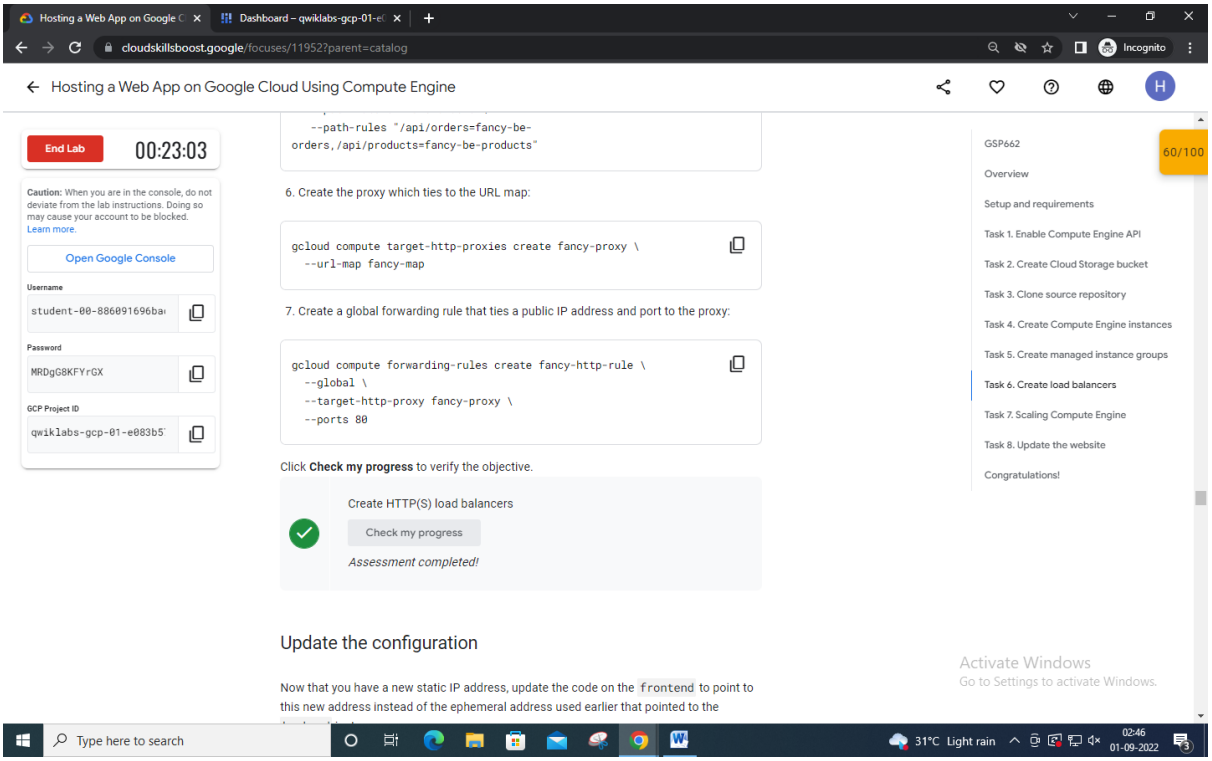

Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute backend-services create fancy-fe-frontend \
--http-health-checks fancy-fe-frontend-hc \
--port-name frontend \
--global
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/backendServices/fancy-fe-frontend].
NAME: fancy-fe-frontend
BACKENDS:
PROTOCOL: HTTP
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute backend-services create fancy-be-orders \
--http-health-checks fancy-be-orders-hc \
--port-name orders \
--global
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/backendServices/fancy-be-orders].
NAME: fancy-be-orders
BACKENDS:
PROTOCOL: HTTP
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute backend-services create fancy-be-products \
--http-health-checks fancy-be-products-hc \
--port-name products \
--global
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/backendServices/fancy-be-products].
NAME: fancy-be-products
BACKENDS:
PROTOCOL: HTTP
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:43
01-09-2022

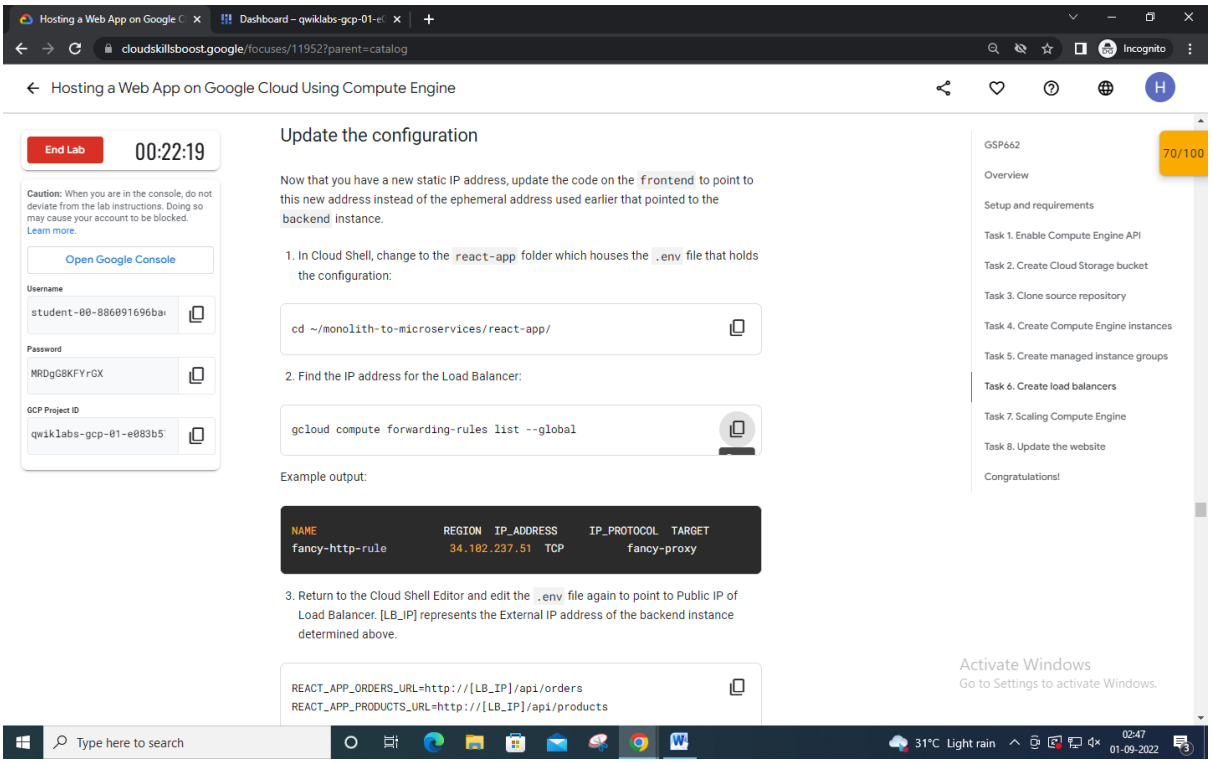

Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:25:13
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
--http-health-checks fancy-be-products-hc \
--port-name products \
--global
3. Add the Load Balancer's backend services:
gcloud compute backend-services add-backend fancy-fe-frontend \
--instance-group fancy-fe-mig \
--instance-group-zone us-central1-f \
--global
gcloud compute backend-services add-backend fancy-be-orders \
--instance-group fancy-be-mig \
--instance-group-zone us-central1-f \
--global
gcloud compute backend-services add-backend fancy-be-products \
--instance-group fancy-be-mig \
--instance-group-zone us-central1-f \
--global
4. Create a URL map. The URL map defines which URLs are directed to which backend services:
gcloud compute url-maps create fancy-map \
--default-service fancy-fe-frontend
GSP662
60/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:44
01-09-2022

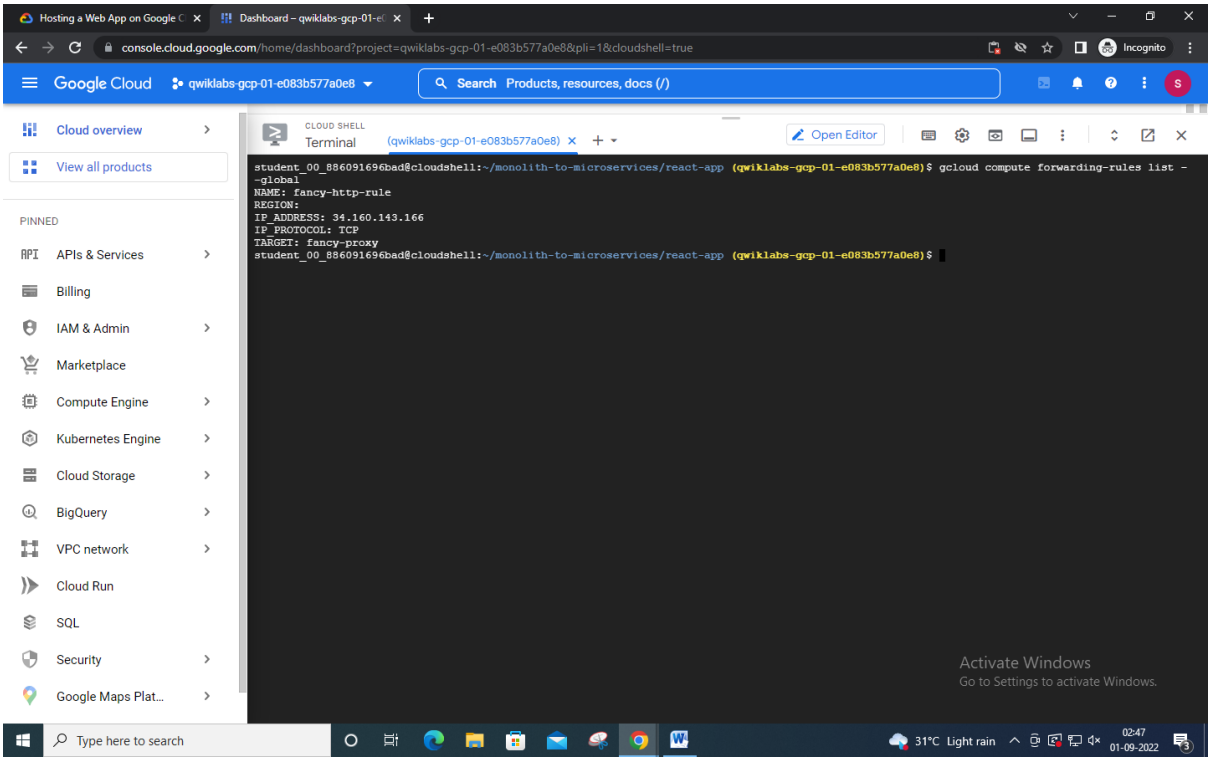

Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute backend-services add-backend fancy-fe-frontend \
--instance-group fancy-fe-mig \
--instance-group-zone us-central1-f \
--global
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/backendServices/fancy-fe-frontend].
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute backend-services add-backend fancy-be-orders \
--instance-group fancy-be-mig \
--instance-group-zone us-central1-f \
--global
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/backendServices/fancy-be-orders].
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute backend-services add-backend fancy-be-products \
--instance-group fancy-be-mig \
--instance-group-zone us-central1-f \
--global
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/backendServices/fancy-be-products].
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:45
01-09-2022

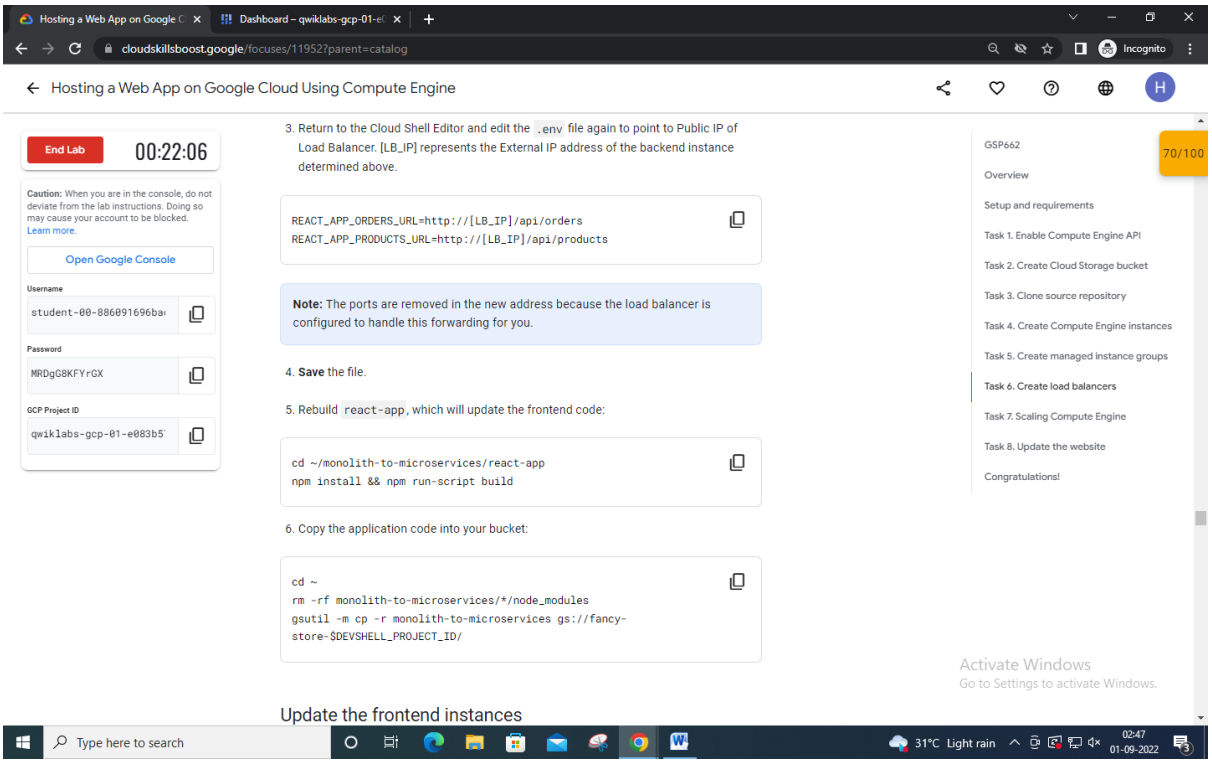

Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:24:11
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
4. Create a URL map. The URL map defines which URLs are directed to which backend services:
gcloud compute url-maps create fancy-map \
--default-service fancy-fe-frontend
5. Create a path matcher to allow the /api/orders and /api/products paths to route to their respective services:
gcloud compute url-maps add-path-matcher fancy-map \
--default-service fancy-fe-frontend \
--path-matcher-name orders \
--path-rules "/api/orders=fancy-be-orders,/api/products=fancy-be-products"
6. Create the proxy which ties to the URL map:
gcloud compute target-http-proxies create fancy-proxy \
--url-map fancy-map
7. Create a global forwarding rule that ties a public IP address and port to the proxy:
gcloud compute forwarding-rules create fancy-http-rule \
--global \
--target-http-proxy fancy-proxy \
--ports 80
GSP662
60/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:45
01-09-2022

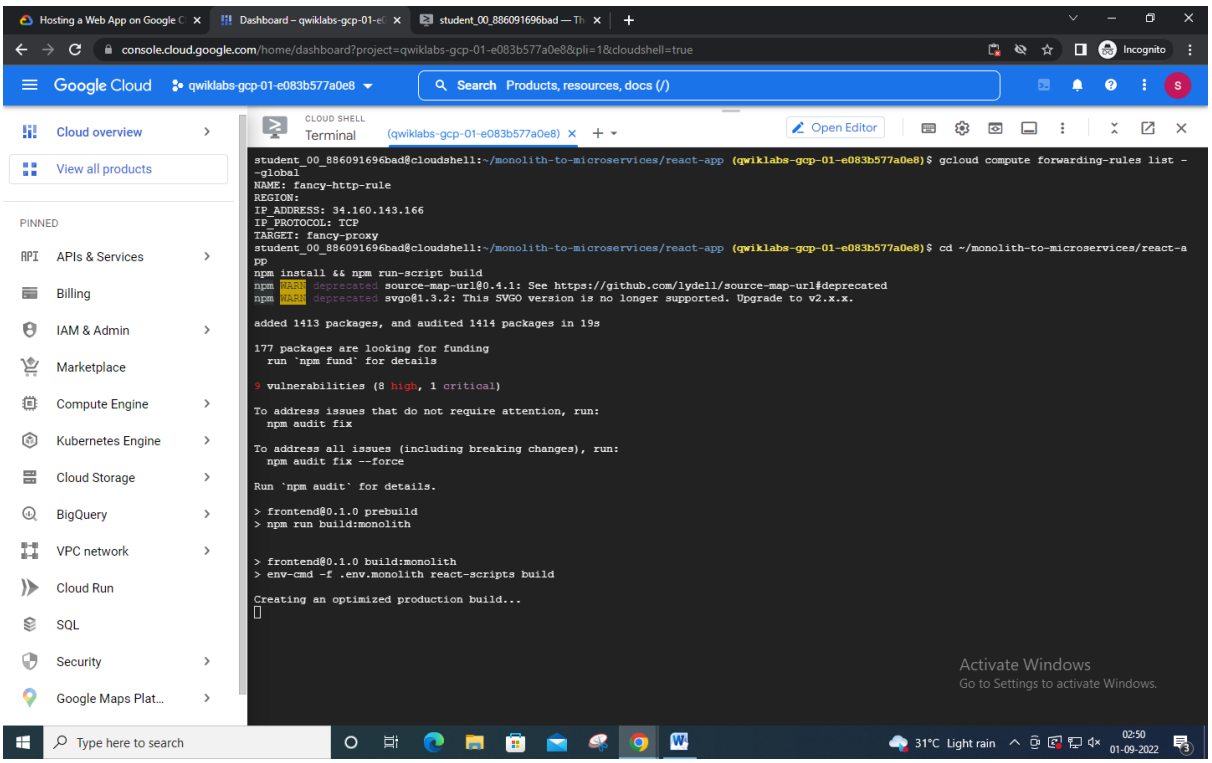

Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute url-maps create fancy-map \
--default-service fancy-fe-frontend
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/urlMaps/fancy-map].
NAME: fancy-map
DEFAULT_SERVICE: backendServices/fancy-fe-frontend
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute url-maps add-path-matcher fancy-map \
--default-service fancy-fe-frontend \
--path-matcher-name orders \
--path-rules "/api/orders=fancy-be-orders,/api/products=fancy-be-products"
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/urlMaps/fancy-map].
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute target-http-proxies create fancy-proxy \
--url-map fancy-map
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/targetHttpProxies/fancy-proxy].
NAME: fancy-proxy
URL_MAP: fancy-map
student_00_886091696bad@cloudshell:~/monolith-to-microservices (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute forwarding-rules create fancy-http-rule \
--global \
--target-http-proxy fancy-proxy \
--ports 80
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:46
01-09-2022

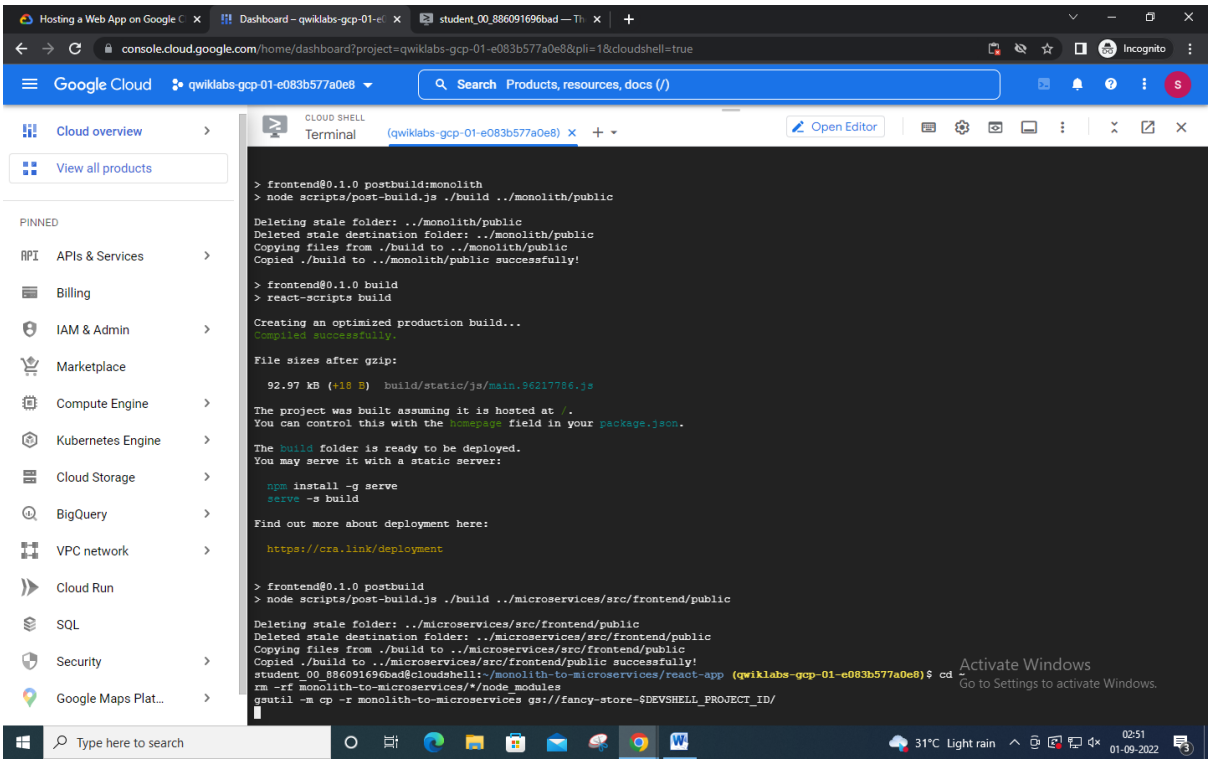

Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
cloudskillsboost.google/focuses/11952?parent=catalog
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:23:03
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
--path-rules "/api/orders=fancy-be-orders,/api/products=fancy-be-products"
6. Create the proxy which ties to the URL map:
gcloud compute target-http-proxies create fancy-proxy \
--url-map fancy-map
7. Create a global forwarding rule that ties a public IP address and port to the proxy:
gcloud compute forwarding-rules create fancy-http-rule \
--global \
--target-http-proxy fancy-proxy \
--ports 80
Click Check my progress to verify the objective.
Create HTTP(S) load balancers
Check my progress
Assessment completed!
Update the configuration
Now that you have a new static IP address, update the code on the frontend to point to this new address instead of the ephemeral address used earlier that pointed to the
GSP662
60/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:46
01-09-2022

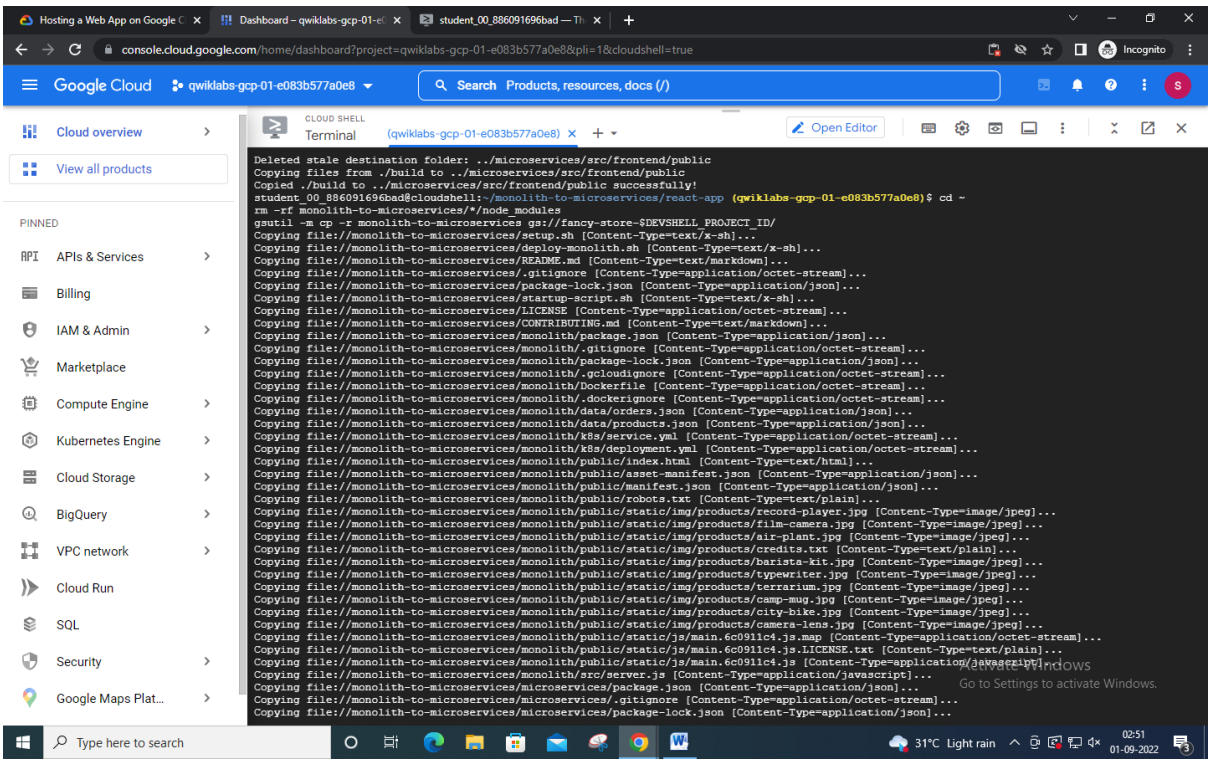

Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:22:19
Update the configuration
Now that you have a new static IP address, update the code on the frontend to point to this new address instead of the ephemeral address used earlier that pointed to the backend instance.
1. In Cloud Shell, change to the react-app folder which houses the .env file that holds the configuration:
cd ~/monolith-to-microservices/react-app/
2. Find the IP address for the Load Balancer:
gcloud compute forwarding-rules list --global
Example output:
NAME REGION IP_ADDRESS IP_PROTOCOL TARGET
fancy-http-rule 34.102.237.51 TCP fancy-proxy
3. Return to the Cloud Shell Editor and edit the .env file again to point to Public IP of Load Balancer. [LB_IP] represents the External IP address of the backend instance determined above.
REACT_APP_ORDERS_URL=http://[LB_IP]/api/orders
REACT_APP_PRODUCTS_URL=http://[LB_IP]/api/products
GSP662
70/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!

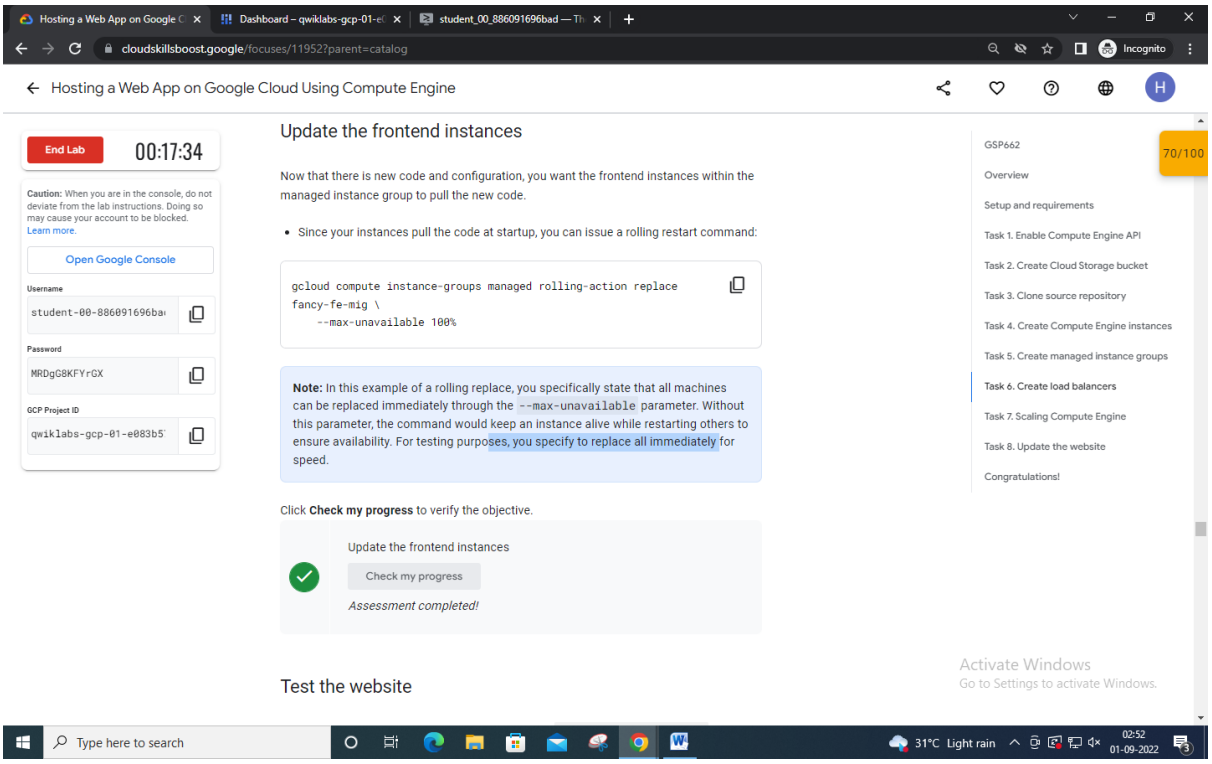

Google Cloud
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute forwarding-rules list --global
NAME: fancy-http-rule
REGION:
IP_ADDRESS: 34.160.143.166
IP_PROTOCOL: TCP
TARGET: fancy-proxy
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$

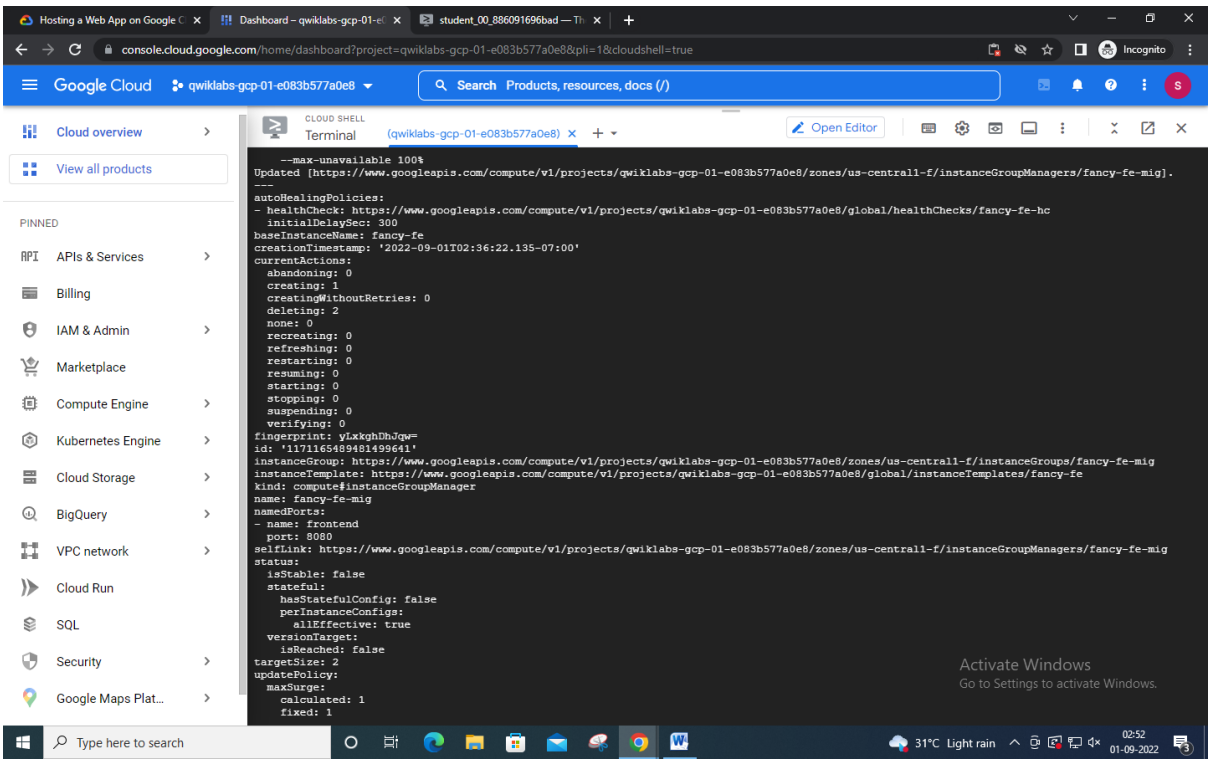

Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:22:06
Open Google Console
3. Return to the Cloud Shell Editor and edit the .env file again to point to Public IP of Load Balancer. [LB_IP] represents the External IP address of the backend instance determined above.
REACT_APP_ORDERS_URL=http://[LB_IP]/api/orders
REACT_APP_PRODUCTS_URL=http://[LB_IP]/api/products
Note: The ports are removed in the new address because the load balancer is configured to handle this forwarding for you.
4. Save the file.
5. Rebuild react-app, which will update the frontend code:
cd ~/monolith-to-microservices/react-app
npm install && npm run-script build
6. Copy the application code into your bucket:
cd ~
rm -rf monolith-to-microservices/*/node_modules
gsutil -m cp -r monolith-to-microservices gs://fancy-store-$DEVSHELL_PROJECT_ID/
Update the frontend instances
GSP662
70/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.


Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute forwarding-rules list --global
NAME: fancy-http-rule
REGION:
IP_ADDRESS: 34.160.143.166
IP_PROTOCOL: TCP
TARGET: fancy-proxy
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ cd ~/monolith-to-microservices/react-app
npm install && npm run-script build
npm WARN deprecated source-map-url@0.4.1: See https://github.com/lydell/source-map-url#deprecated
npm WARN deprecated svgo@1.3.2: This SVGO version is no longer supported. Upgrade to v2.x.x.
added 1413 packages, and audited 1414 packages in 19s
177 packages are looking for funding
run `npm fund` for details
9 vulnerabilities (8 high, 1 critical)
To address issues that do not require attention, run:
npm audit fix
To address all issues (including breaking changes), run:
npm audit fix --force
Run `npm audit` for details.
> frontend@0.1.0 prebuild
> npm run build:monolith
> frontend@0.1.0 build:monolith
> env-cmd -f .env.monolith react-scripts build
Creating an optimized production build...
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
> frontend@0.1.0 postbuild:monolith
> node scripts/post-build.js ./build ../monolith/public
Deleting stale folder: ../monolith/public
Deleted stale destination folder: ../monolith/public
Copying files from ./build to ../monolith/public
Copied ./build to ../monolith/public successfully!
> frontend@0.1.0 build
> react-scripts build
Creating an optimized production build...
Compiled successfully.
File sizes after gzip:
92.97 kB (+18 B) build/static/js/main.96217786.js
The project was built assuming it is hosted at /.
You can control this with the homepage field in your package.json.
The build folder is ready to be deployed.
You may serve it with a static server:
npm install -g serve
serve -s build
Find out more about deployment here:
https://cra.link/deployment
> frontend@0.1.0 postbuild
> node scripts/post-build.js ./build ../microservices/src/frontend/public
Deleting stale folder: ../microservices/src/frontend/public
Deleted stale destination folder: ../microservices/src/frontend/public
Copying files from ./build to ../microservices/src/frontend/public
Copied ./build to ../microservices/src/frontend/public successfully!
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ cd ~
rm -rf monolith-to-microservices/*/node_modules
gsutil -m cp -r monolith-to-microservices gs://fancy-store-$DEVSHELL_PROJECT_ID/
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:51
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
Deleted stale destination folder: ../microservices/src/frontend/public
Copying files from ./build to ../microservices/src/frontend/public
Copied ./build to ../microservices/src/frontend/public successfully!
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app (qwiklabs-gcp-01-e083b577a0e8)$ cd ~
rm -rf monolith-to-microservices/*/node_modules
gsutil -m cp -r monolith-to-microservices gs://fancy-store-$DEVSHELL_PROJECT_ID/
Copying file://monolith-to-microservices/setup.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/deploy-monolith.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/README.md [Content-Type=text/markdown]...
Copying file://monolith-to-microservices/.gitignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/package-lock.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/startup-script.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/LICENSE [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/CONTRIBUTING.md [Content-Type=text/markdown]...
Copying file://monolith-to-microservices/monolith/package.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/.gitignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/package-lock.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/.gcloudignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/Dockerfile [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/.dockerignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/data/orders.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/data/products.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/k8s/service.yml [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/k8s/deployment.yml [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/public/index.html [Content-Type=text/html]...
Copying file://monolith-to-microservices/monolith/public/asset-manifest.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/public/manifest.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/public/robots.txt [Content-Type=text/plain]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/record-player.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/film-camera.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/air-plant.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/credits.txt [Content-Type=text/plain]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/barista-kit.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/typewriter.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/terrarium.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/camp-mug.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/city-bike.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/camera-lens.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/js/main.6c0911c4.js.map [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/public/static/js/main.6c0911c4.js.LICENSE.txt [Content-Type=text/plain]...
Copying file://monolith-to-microservices/monolith/public/static/js/main.6c0911c4.js [Content-Type=application/javascript]...
Copying file://monolith-to-microservices/monolith/src/server.js [Content-Type=application/javascript]...
Copying file://monolith-to-microservices/microservices/package.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/microservices/.gitignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/microservices/package-lock.json [Content-Type=application/json]...
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:51
01-09-2022


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:17:34
Update the frontend instances
Now that there is new code and configuration, you want the frontend instances within the managed instance group to pull the new code.
Since your instances pull the code at startup, you can issue a rolling restart command:
gcloud compute instance-groups managed rolling-action replace fancy-fe-mig \
--max-unavailable 100%
Note: In this example of a rolling replace, you specifically state that all machines can be replaced immediately through the --max-unavailable parameter. Without this parameter, the command would keep an instance alive while restarting others to ensure availability. For testing purposes, you specify to replace all immediately for speed.
Click Check my progress to verify the objective.
Update the frontend instances
Check my progress
Assessment completed!
Test the website
GSP662
70/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!


Google Cloud
Cloud overview
View all products
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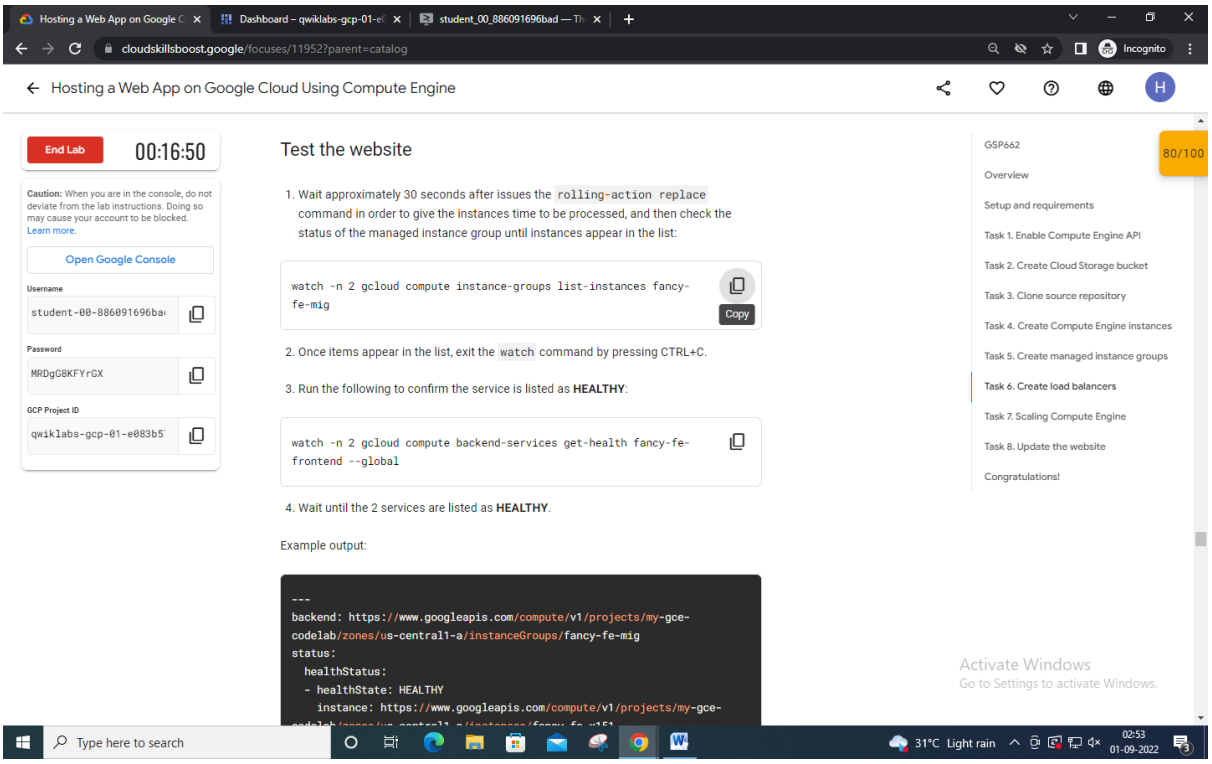
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
Terminal
--max-unavailable 100%
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-fe-mig].
autoHealingPolicies:
- healthCheck: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/healthChecks/fancy-fe-hc
initialDelaySec: 300
baseInstanceName: fancy-fe
creationTimestamp: '2022-09-01T02:36:22.135-07:00'
currentActions:
abandoning: 0
creating: 1
creatingWithoutRetries: 0
deleting: 2
none: 0
recreating: 0
refreshing: 0
restarting: 0
resuming: 0
starting: 0
stopping: 0
suspending: 0
verifying: 0
fingerprint: yLxkghDhJqw=
id: '1171165489481499641'
instanceGroup: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroups/fancy-fe-mig
instanceTemplate: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/instanceTemplates/fancy-fe
kind: compute#instanceGroupManager
name: fancy-fe-mig
namedPorts:
- name: frontend
port: 8080
selfLink: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-fe-mig
status:
isStable: false
stateful:
hasStatefulConfig: false
perInstanceConfigs:
allEffective: true
versionTarget:
isReached: false
targetSize: 2
updatePolicy:
maxSurge:
calculated: 1
fixed: 1


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:16:50
Test the website
watch -n 2 gcloud compute instance-groups list-instances fancy-fe-mig
Copy
watch -n 2 gcloud compute backend-services get-health fancy-fe-frontend --global
Example output:
backend: https://www.googleapis.com/compute/v1/projects/my-gce-codelab/zones/us-central1-a/instanceGroups/fancy-fe-mig
healthState: HEALTHY
GSP662
80/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
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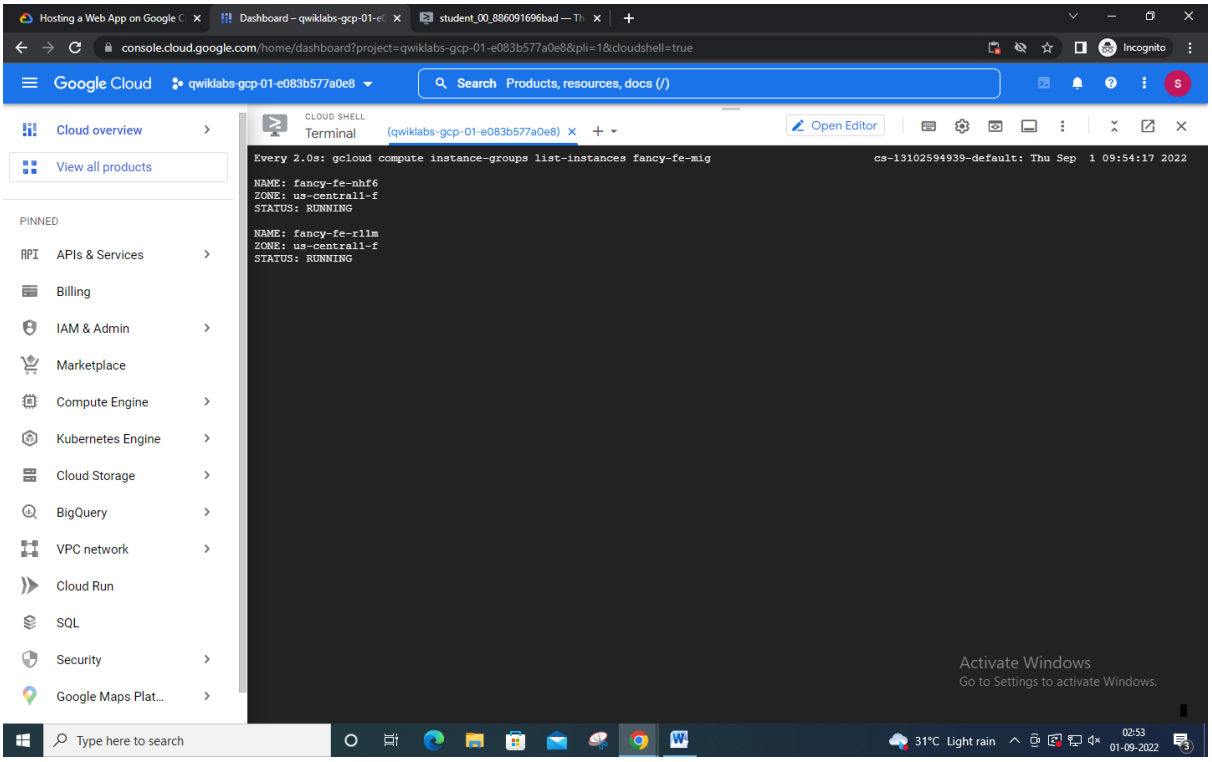
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.


Google Cloud
Cloud overview
View all products
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Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
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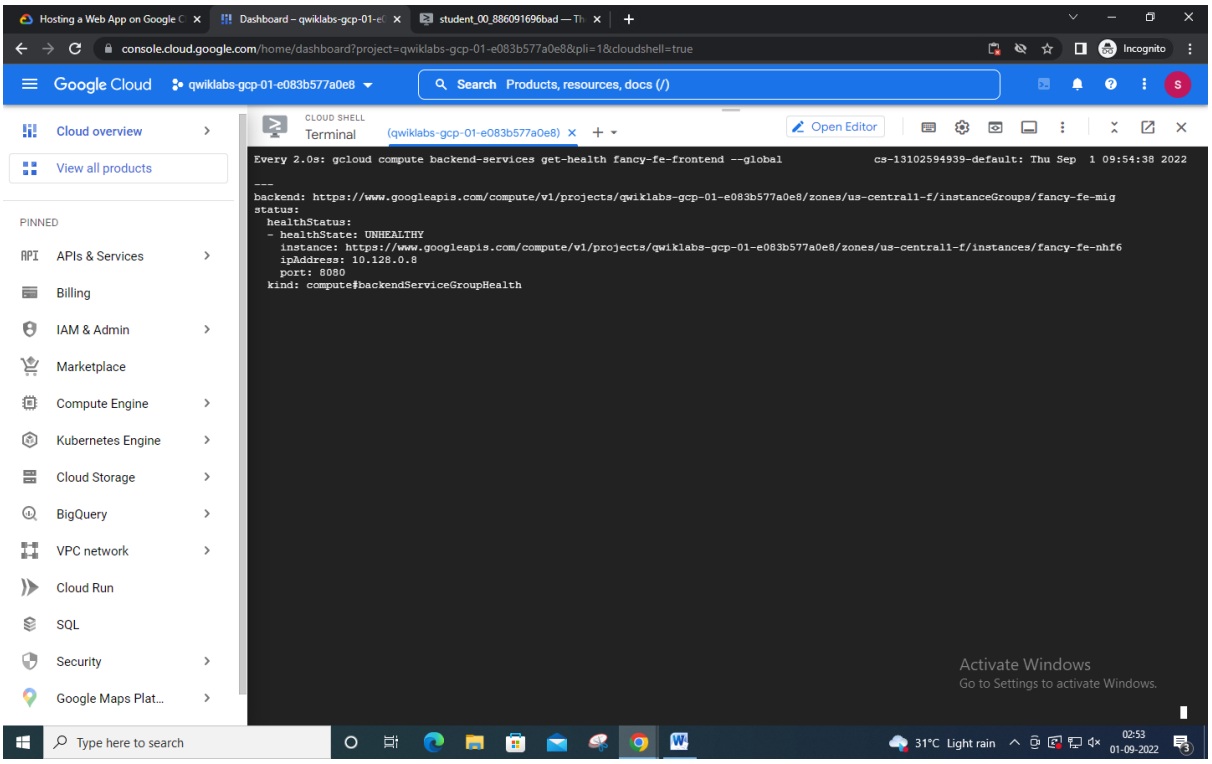
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
Terminal
Every 2.0s: gcloud compute instance-groups list-instances fancy-fe-mig
NAME: fancy-fe-nhf6
ZONE: us-central1-f
STATUS: RUNNING
NAME: fancy-fe-r11m
ZONE: us-central1-f
STATUS: RUNNING
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
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console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
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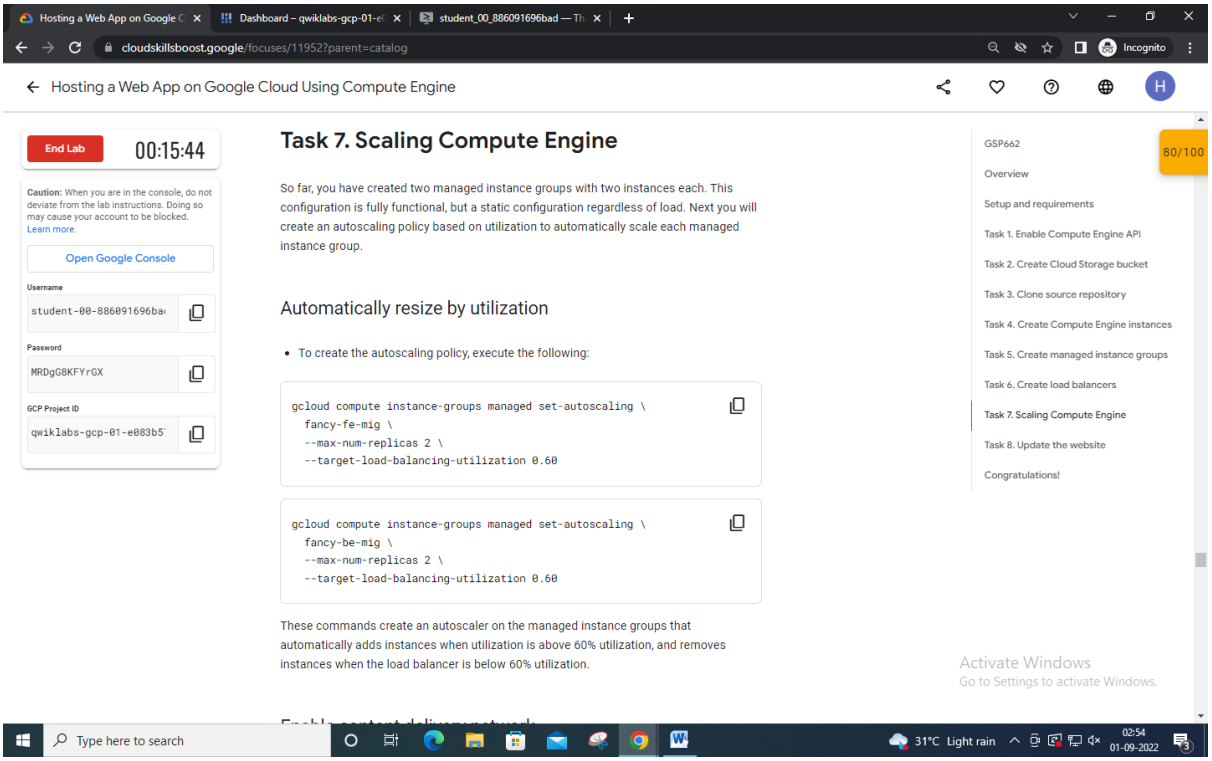
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
Every 2.0s: gcloud compute backend-services get-health fancy-fe-frontend --global
cs-13102594939-default: Thu Sep 1 09:54:38 2022
backend: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroups/fancy-fe-mig
status:
healthStatus:
- healthState: UNHEALTHY
instance: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instances/fancy-fe-nhf6
ipAddress: 10.128.0.8
port: 8080
kind: compute#backendServiceGroupHealth
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:53
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:15:44
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Task 7. Scaling Compute Engine
So far, you have created two managed instance groups with two instances each. This configuration is fully functional, but a static configuration regardless of load. Next you will create an autoscaling policy based on utilization to automatically scale each managed instance group.
Automatically resize by utilization
To create the autoscaling policy, execute the following:
gcloud compute instance-groups managed set-autoscaling \
fancy-fe-mig \
--max-num-replicas 2 \
--target-load-balancing-utilization 0.60
gcloud compute instance-groups managed set-autoscaling \
fancy-be-mig \
--max-num-replicas 2 \
--target-load-balancing-utilization 0.60
These commands create an autoscaler on the managed instance groups that automatically adds instances when utilization is above 60% utilization, and removes instances when the load balancer is below 60% utilization.
GSP662
80/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
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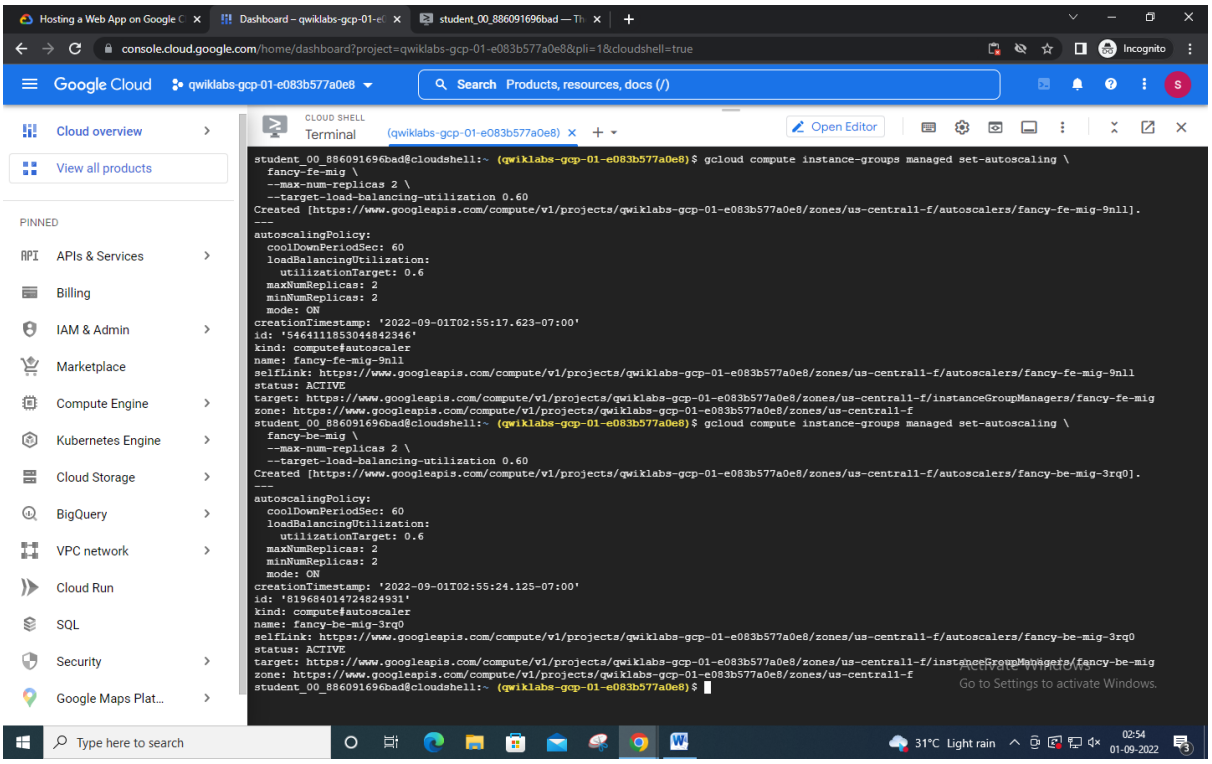
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:54
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
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console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
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Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-groups managed set-autoscaling \
fancy-fe-mig \
--max-num-replicas 2 \
--target-load-balancing-utilization 0.60
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/autoscalers/fancy-fe-mig-9nll].
---
autoscalingPolicy:
coolDownPeriodSec: 60
loadBalancingUtilization:
utilizationTarget: 0.6
maxNumReplicas: 2
minNumReplicas: 2
mode: ON
creationTimestamp: '2022-09-01T02:55:17.623-07:00'
id: '5464111853044842346'
kind: compute#autoscaler
name: fancy-fe-mig-9nll
selfLink: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/autoscalers/fancy-fe-mig-9nll
status: ACTIVE
target: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-fe-mig
zone: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-groups managed set-autoscaling \
fancy-be-mig \
--max-num-replicas 2 \
--target-load-balancing-utilization 0.60
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/autoscalers/fancy-be-mig-3rq0].
---
autoscalingPolicy:
coolDownPeriodSec: 60
loadBalancingUtilization:
utilizationTarget: 0.6
maxNumReplicas: 2
minNumReplicas: 2
mode: ON
creationTimestamp: '2022-09-01T02:55:24.125-07:00'
id: '8196840147248249 31'
kind: compute#autoscaler
name: fancy-be-mig-3rq0
selfLink: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/autoscalers/fancy-be-mig-3rq0
status: ACTIVE
target: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-be-mig
zone: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
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Type here to search
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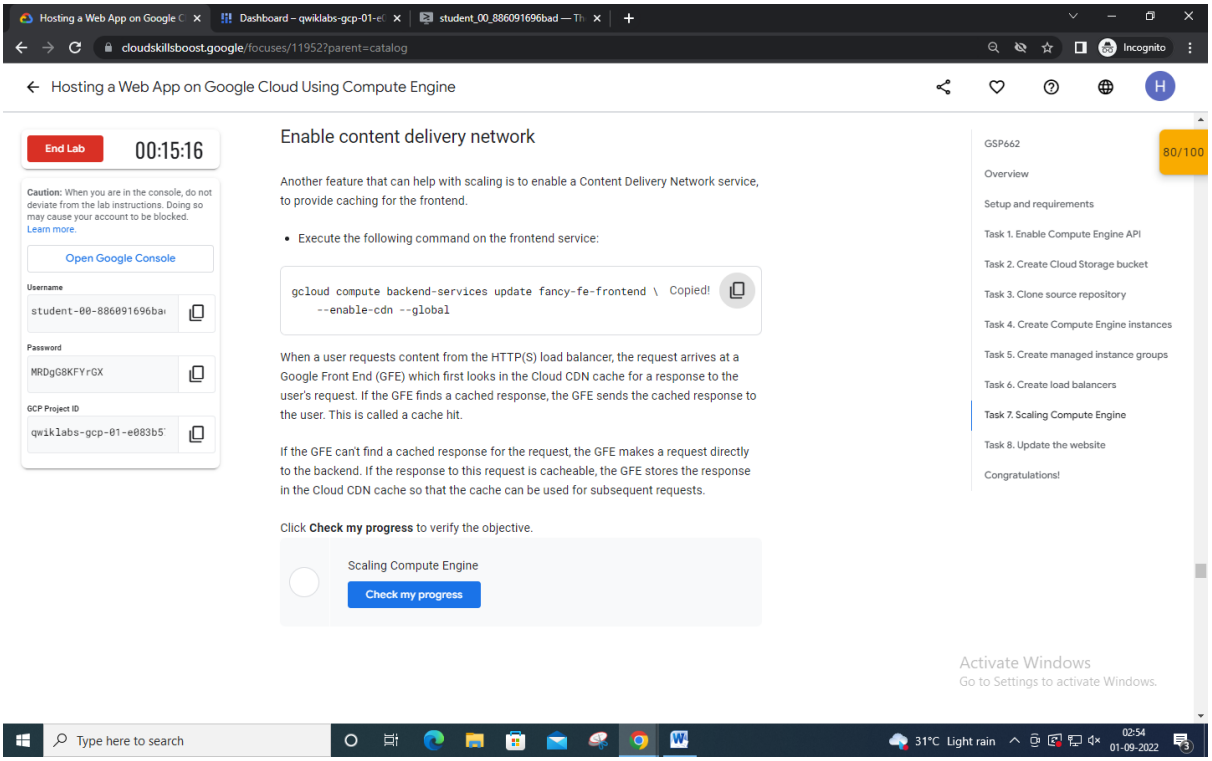
02:54
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:15:16
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Enable content delivery network
Another feature that can help with scaling is to enable a Content Delivery Network service, to provide caching for the frontend.
Execute the following command on the frontend service:
gcloud compute backend-services update fancy-fe-frontend \
--enable-cdn --global
Copied!
When a user requests content from the HTTP(S) load balancer, the request arrives at a Google Front End (GFE) which first looks in the Cloud CDN cache for a response to the user's request. If the GFE finds a cached response, the GFE sends the cached response to the user. This is called a cache hit.
If the GFE can't find a cached response for the request, the GFE makes a request directly to the backend. If the response to this request is cacheable, the GFE stores the response in the Cloud CDN cache so that the cache can be used for subsequent requests.
Click Check my progress to verify the objective.
Scaling Compute Engine
Check my progress
GSP662
80/100
Overview
Setup and requirements
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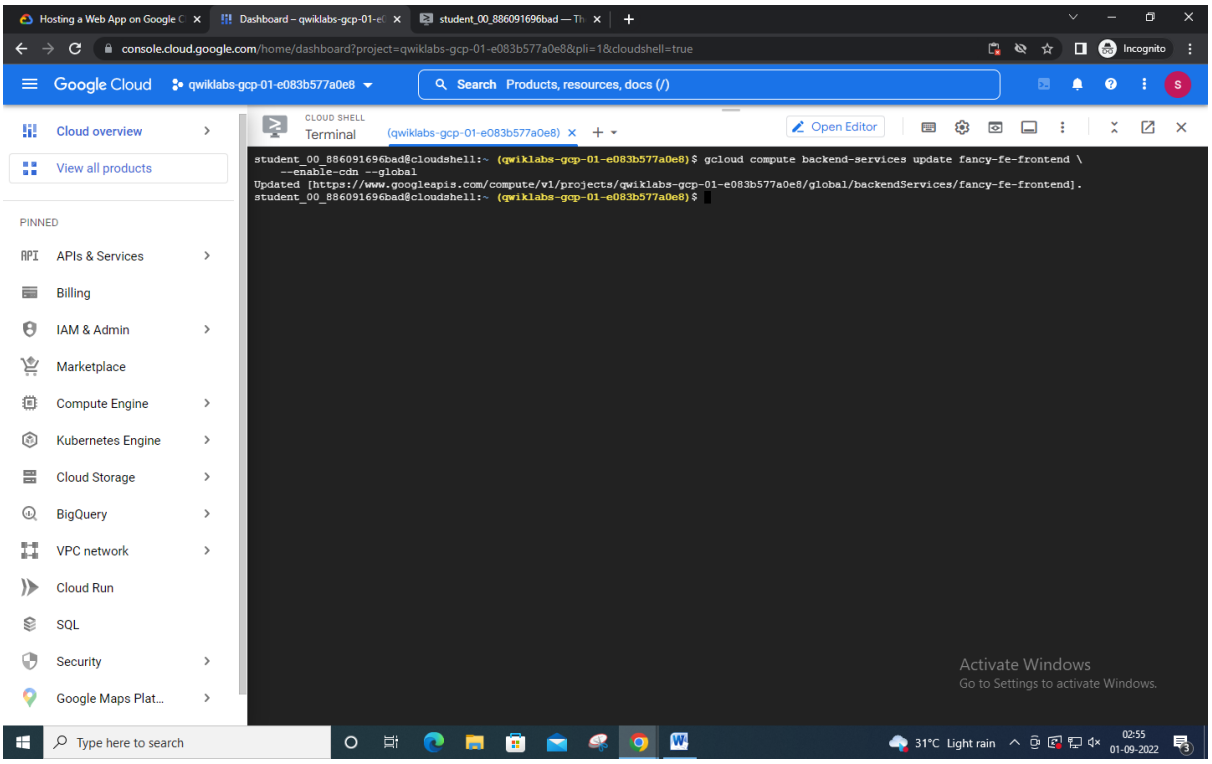
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student_00_886091696bad — Th
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute backend-services update fancy-fe-frontend \
--enable-cdn --global
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/backendServices/fancy-fe-frontend].
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
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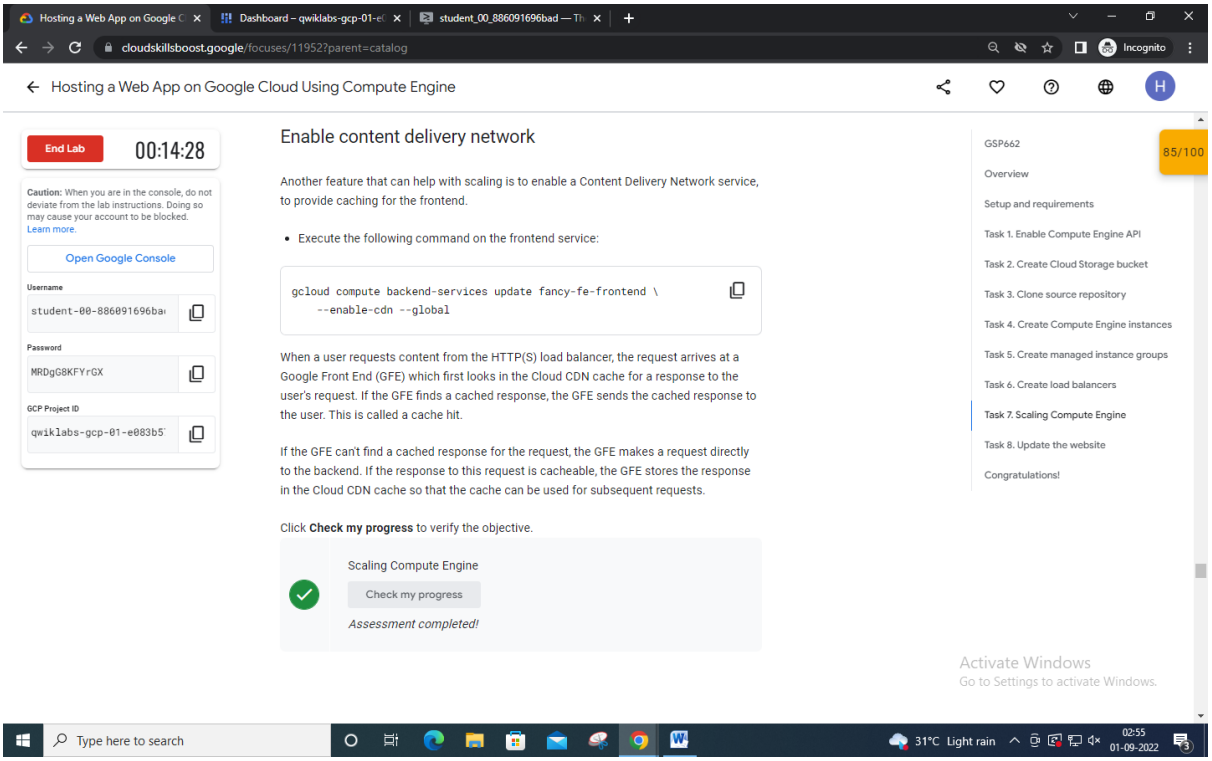
Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:14:28
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Enable content delivery network
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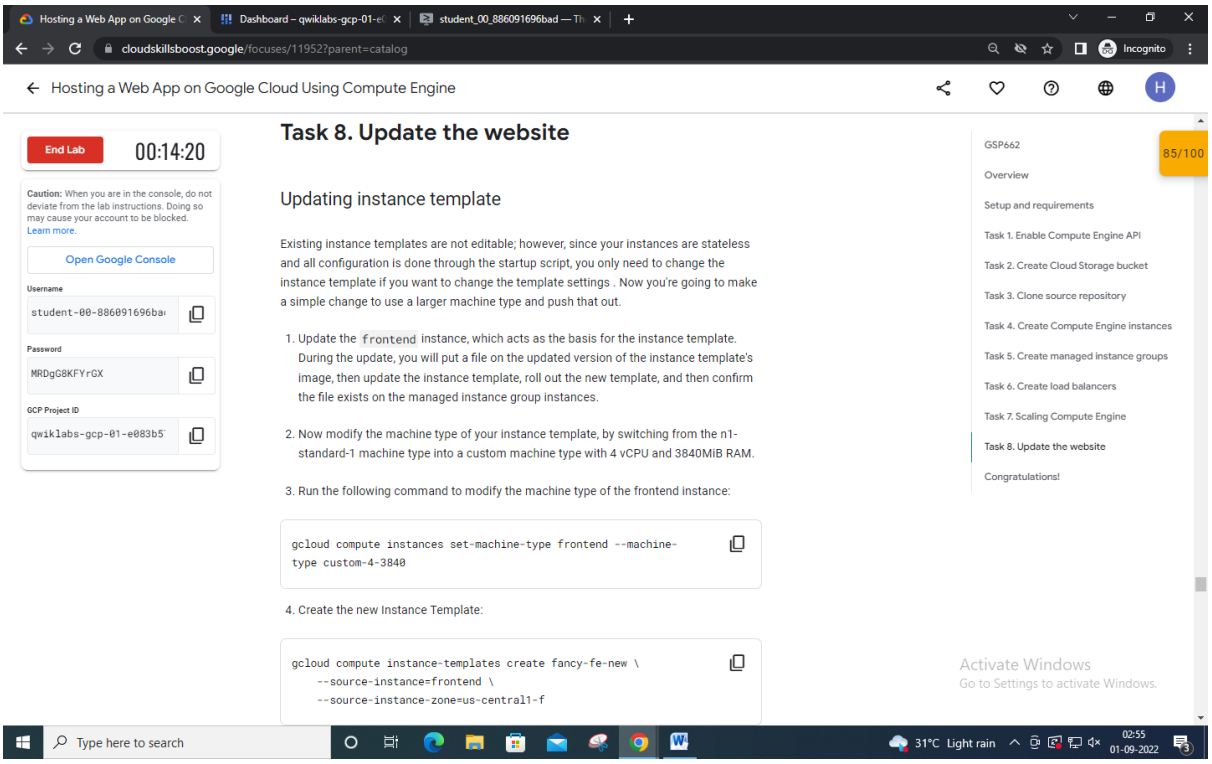
gcloud compute backend-services update fancy-fe-frontend \
--enable-cdn --global
When a user requests content from the HTTP(S) load balancer, the request arrives at a Google Front End (GFE) which first looks in the Cloud CDN cache for a response to the user's request. If the GFE finds a cached response, the GFE sends the cached response to the user. This is called a cache hit.
If the GFE can't find a cached response for the request, the GFE makes a request directly to the backend. If the response to this request is cacheable, the GFE stores the response in the Cloud CDN cache so that the cache can be used for subsequent requests.
Click Check my progress to verify the objective.
Scaling Compute Engine
Check my progress
Assessment completed!
GSP662
85/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:55
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:14:20
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Task 8. Update the website
Updating instance template
Existing instance templates are not editable; however, since your instances are stateless and all configuration is done through the startup script, you only need to change the instance template if you want to change the template settings . Now you're going to make a simple change to use a larger machine type and push that out.
1. Update the frontend instance, which acts as the basis for the instance template. During the update, you will put a file on the updated version of the instance template's image, then update the instance template, roll out the new template, and then confirm the file exists on the managed instance group instances.
2. Now modify the machine type of your instance template, by switching from the n1-standard-1 machine type into a custom machine type with 4 vCPU and 3840MiB RAM.
3. Run the following command to modify the machine type of the frontend instance:
gcloud compute instances set-machine-type frontend --machine-type custom-4-3840
4. Create the new Instance Template:
gcloud compute instance-templates create fancy-fe-new \
--source-instance=frontend \
--source-instance-zone=us-central1-f
GSP662
85/100
Overview
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Activate Windows
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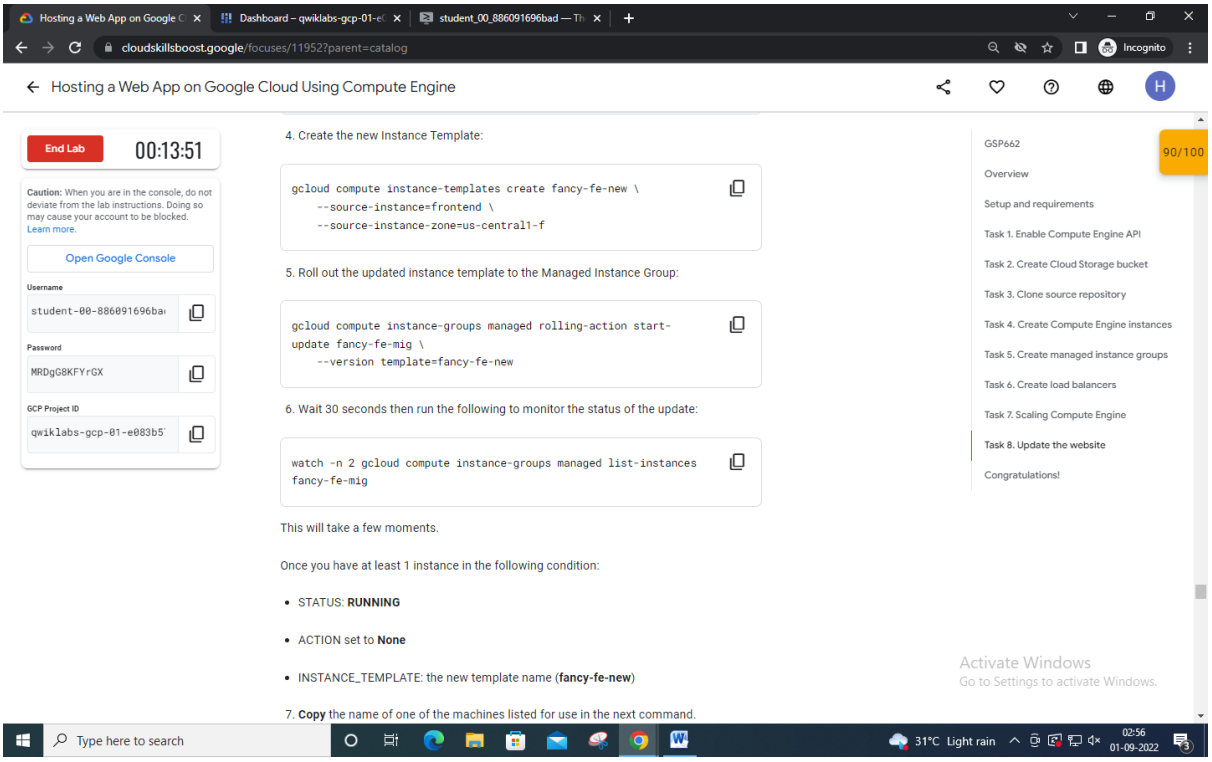
Type here to search
31°C Light rain
02:55
01-09-2022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Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:13:51
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Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
4. Create the new Instance Template:
gcloud compute instance-templates create fancy-fe-new \
--source-instance=frontend \
--source-instance-zone=us-central1-f
5. Roll out the updated instance template to the Managed Instance Group:
gcloud compute instance-groups managed rolling-action start-update fancy-fe-mig \
--version template=fancy-fe-new
6. Wait 30 seconds then run the following to monitor the status of the update:
watch -n 2 gcloud compute instance-groups managed list-instances fancy-fe-mig
This will take a few moments.
Once you have at least 1 instance in the following condition:
• STATUS: RUNNING
• ACTION set to None
• INSTANCE_TEMPLATE: the new template name (fancy-fe-new)
7. Copy the name of one of the machines listed for use in the next command.
GSP662
90/100
Overview
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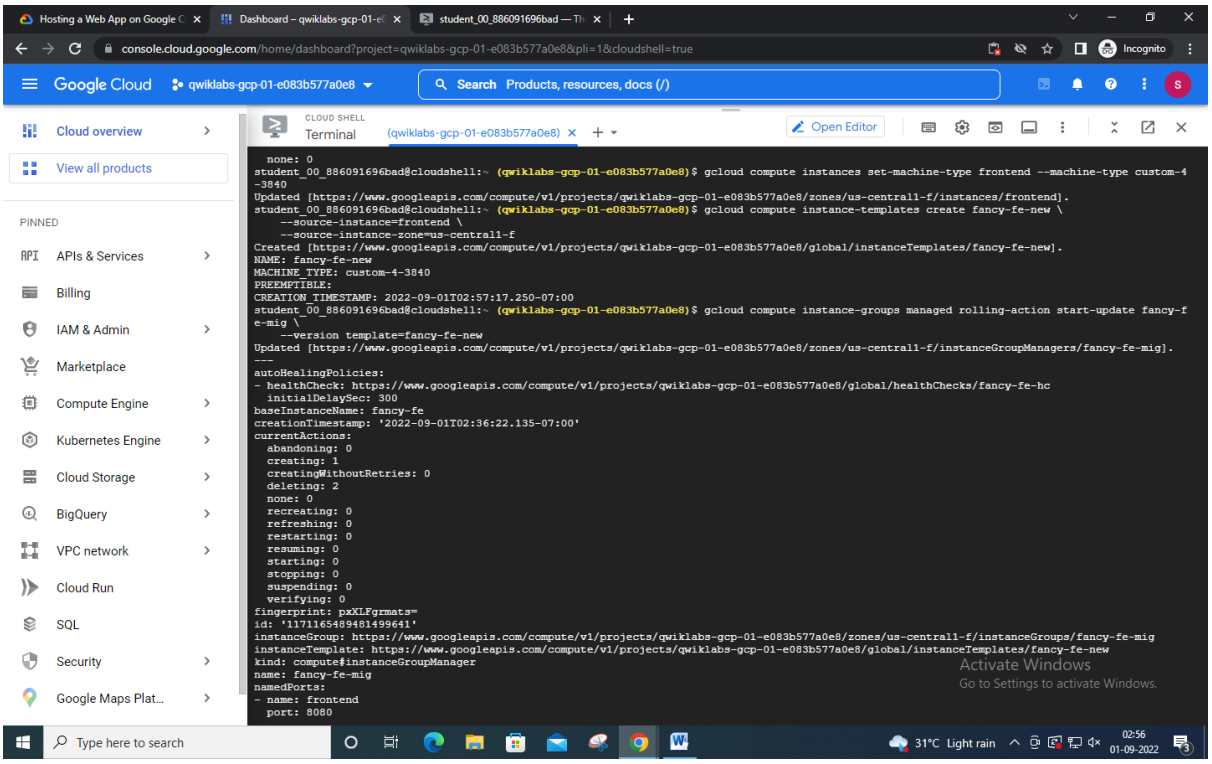
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:56
01-09-2022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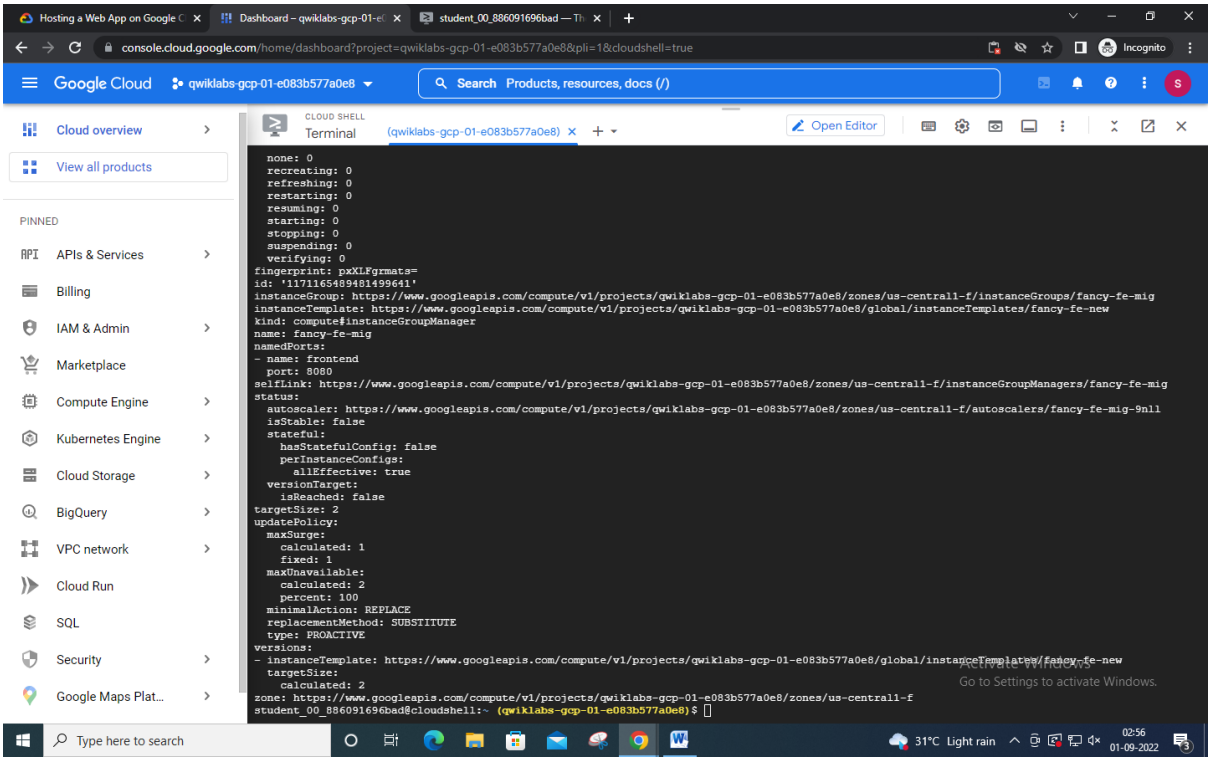
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
none: 0
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instances set-machine-type frontend --machine-type custom-4-3840
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instances/frontend].
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-templates create fancy-fe-new \
--source-instance=frontend \
--source-instance-zone=us-central1-f
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/instanceTemplates/fancy-fe-new].
NAME: fancy-fe-new
MACHINE_TYPE: custom-4-3840
PREEMPTIBLE:
CREATION_TIMESTAMP: 2022-09-01T02:57:17.250-07:00
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instance-groups managed rolling-action start-update fancy-fe-mig \
--version template=fancy-fe-new
Updated [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-fe-mig].
---
autoHealingPolicies:
- healthCheck: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/healthChecks/fancy-fe-hc
initialDelaySec: 300
baseInstanceName: fancy-fe
creationTimestamp: '2022-09-01T02:36:22.135-07:00'
currentActions:
abandoning: 0
creating: 1
creatingWithoutRetries: 0
deleting: 2
none: 0
recreating: 0
refreshing: 0
restarting: 0
resuming: 0
starting: 0
stopping: 0
suspending: 0
verifying: 0
fingerprint: pxXLFgrmats=
id: '1171165489481499641'
instanceGroup: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroups/fancy-fe-mig
instanceTemplate: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/instanceTemplates/fancy-fe-new
kind: compute#instanceGroupManager
name: fancy-fe-mig
namedPorts:
- name: frontend
port: 8080
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:56
01-09-2022


Hosting a Web App on Google C
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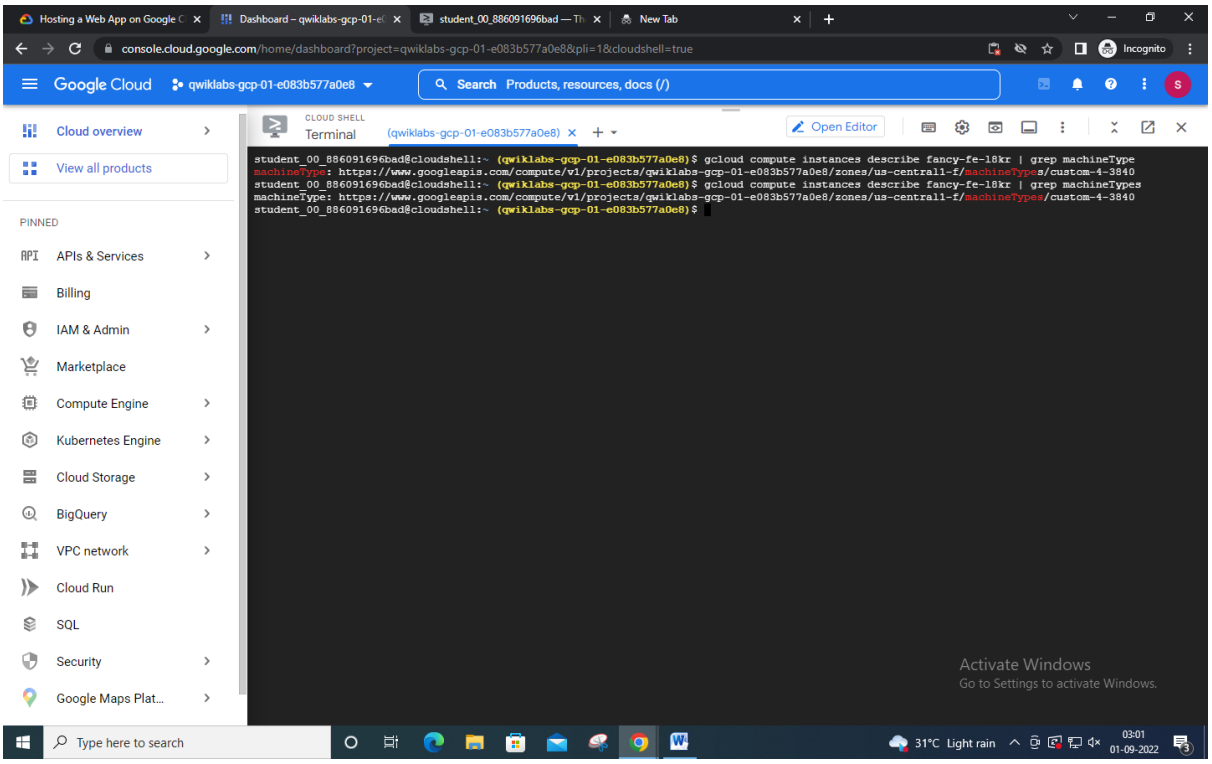
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
none: 0
recreating: 0
refreshing: 0
restarting: 0
resuming: 0
starting: 0
stopping: 0
suspending: 0
verifying: 0
fingerprint: pxXLFgrmats=
id: '1171165489481499641'
instanceGroup: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroups/fancy-fe-mig
instanceTemplate: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/instanceTemplates/fancy-fe-new
kind: compute#instanceGroupManager
name: fancy-fe-mig
namedPorts:
- name: frontend
port: 8080
selfLink: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-fe-mig
status:
autoscaler: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/autoscalers/fancy-fe-mig-9nll
isStable: false
stateful:
hasStatefulConfig: false
perInstanceConfigs:
allEffective: true
versionTarget:
isReached: false
targetSize: 2
updatePolicy:
maxSurge:
calculated: 1
fixed: 1
maxUnavailable:
calculated: 2
percent: 100
minimalAction: REPLACE
replacementMethod: SUBSTITUTE
type: PROACTIVE
versions:
- instanceTemplate: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/instanceTemplates/fancy-fe-new
targetSize:
calculated: 2
zone: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
02:56
01-09-2022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New Tab
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
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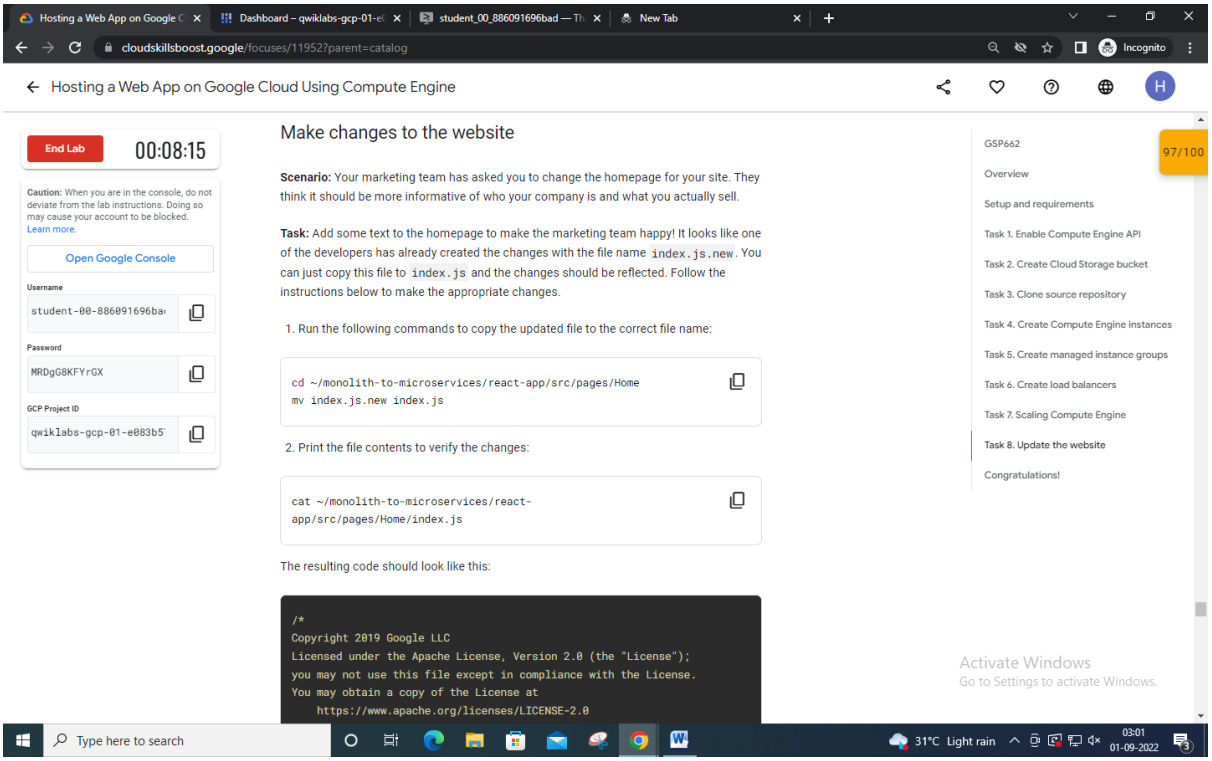
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instances describe fancy-fe-l8kr | grep machineType
machineType: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/machineTypes/custom-4-3840
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute instances describe fancy-fe-l8kr | grep machineTypes
machineType: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/machineTypes/custom-4-3840
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
03:01
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
New Tab
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Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:08:15
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
Make changes to the website
Scenario: Your marketing team has asked you to change the homepage for your site. They think it should be more informative of who your company is and what you actually sell.
Task: Add some text to the homepage to make the marketing team happy! It looks like one of the developers has already created the changes with the file name index.js.new. You can just copy this file to index.js and the changes should be reflected. Follow the instructions below to make the appropriate changes.
1. Run the following commands to copy the updated file to the correct file name:
cd ~/monolith-to-microservices/react-app/src/pages/Home
mv index.js.new index.js
2. Print the file contents to verify the changes:
cat ~/monolith-to-microservices/react-app/src/pages/Home/index.js
The resulting code should look like this:
/*
Copyright 2019 Google LLC
Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at
https://www.apache.org/licenses/LICENSE-2.0
GSP662
97/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
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Task 6. Create load balancers
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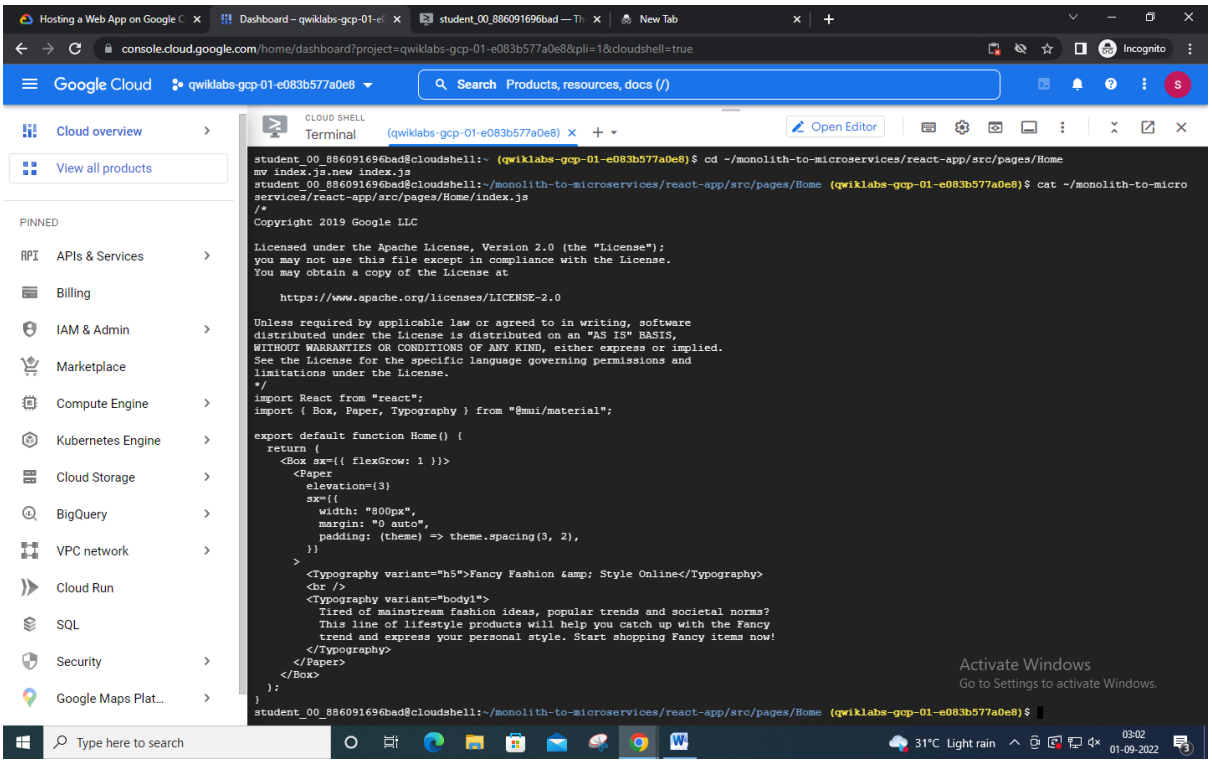
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
03:01
01-09-2022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New Tab
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
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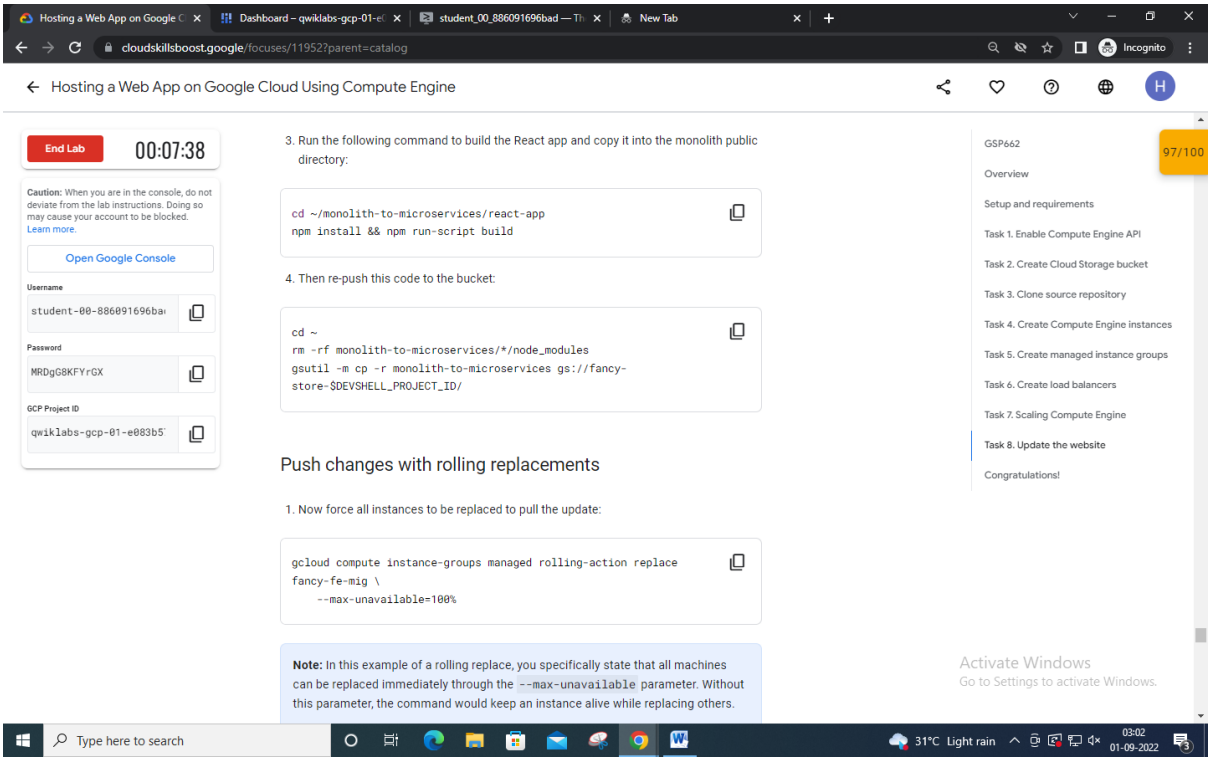
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ cd ~/monolith-to-microservices/react-app/src/pages/Home
mv index.js.new index.js
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app/src/pages/Home (qwiklabs-gcp-01-e083b577a0e8)$ cat ~/monolith-to-microservices/react-app/src/pages/Home/index.js
/*
Copyright 2019 Google LLC
Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at
https://www.apache.org/licenses/LICENSE-2.0
Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
*/
import React from "react";
import { Box, Paper, Typography } from "@mui/material";
export default function Home() {
return (
<Box sx={{ flexGrow: 1 }}>
<Paper
elevation={3}
sx={{
width: "800px",
margin: "0 auto",
padding: (theme) => theme.spacing(3, 2),
}}
>
<Typography variant="h5">Fancy Fashion & Style Online</Typography>

<Typography variant="body1">
Tired of mainstream fashion ideas, popular trends and societal norms?
This line of lifestyle products will help you catch up with the Fancy
trend and express your personal style. Start shopping Fancy items now!
</Typography>
</Paper>
</Box>
);
}
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app/src/pages/Home (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
03:02
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
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New Tab
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:07:38
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
3. Run the following command to build the React app and copy it into the monolith public directory:
cd ~/monolith-to-microservices/react-app
npm install && npm run-script build
4. Then re-push this code to the bucket:
cd ~
rm -rf monolith-to-microservices/*/node_modules
gsutil -m cp -r monolith-to-microservices gs://fancy-store-$DEVSHELL_PROJECT_ID/
Push changes with rolling replacements
1. Now force all instances to be replaced to pull the update:
gcloud compute instance-groups managed rolling-action replace fancy-fe-mig \
--max-unavailable=100%
Note: In this example of a rolling replace, you specifically state that all machines can be replaced immediately through the --max-unavailable parameter. Without this parameter, the command would keep an instance alive while replacing others.
GSP662
97/100
Overview
Setup and requirements
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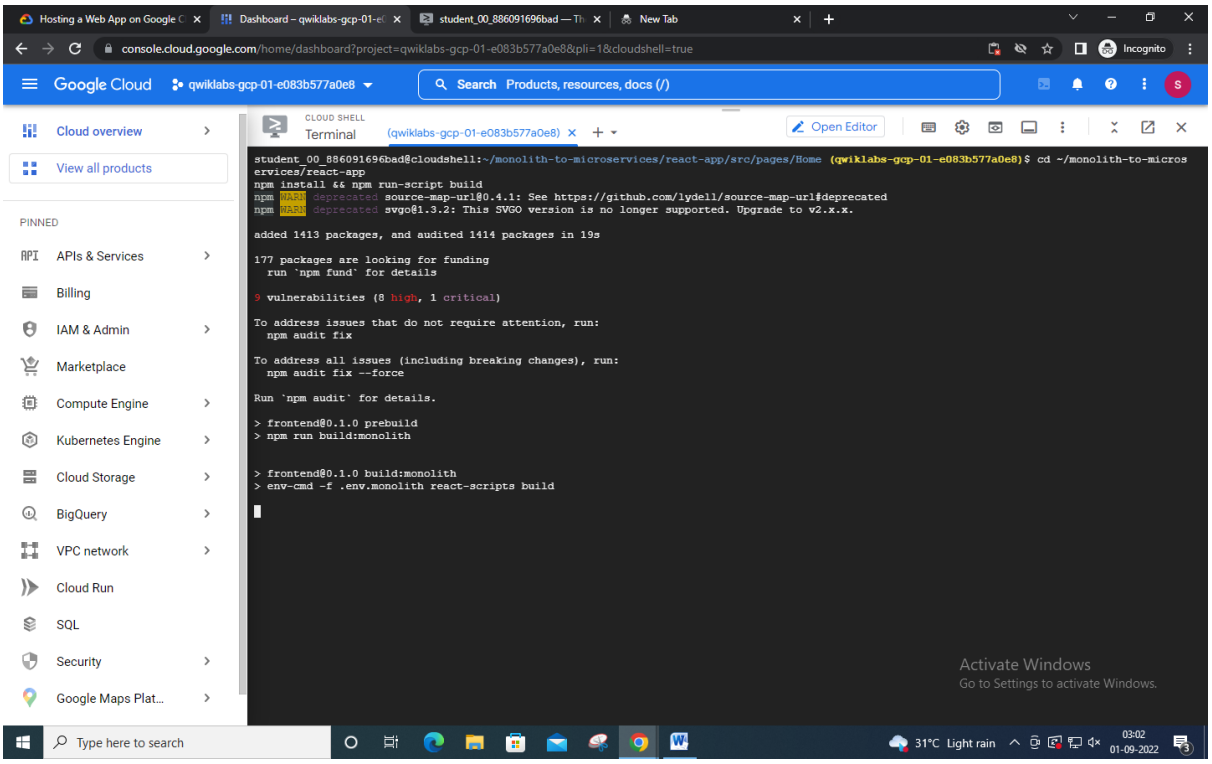
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
03:02
01-09-2022


Hosting a Web App on Google C
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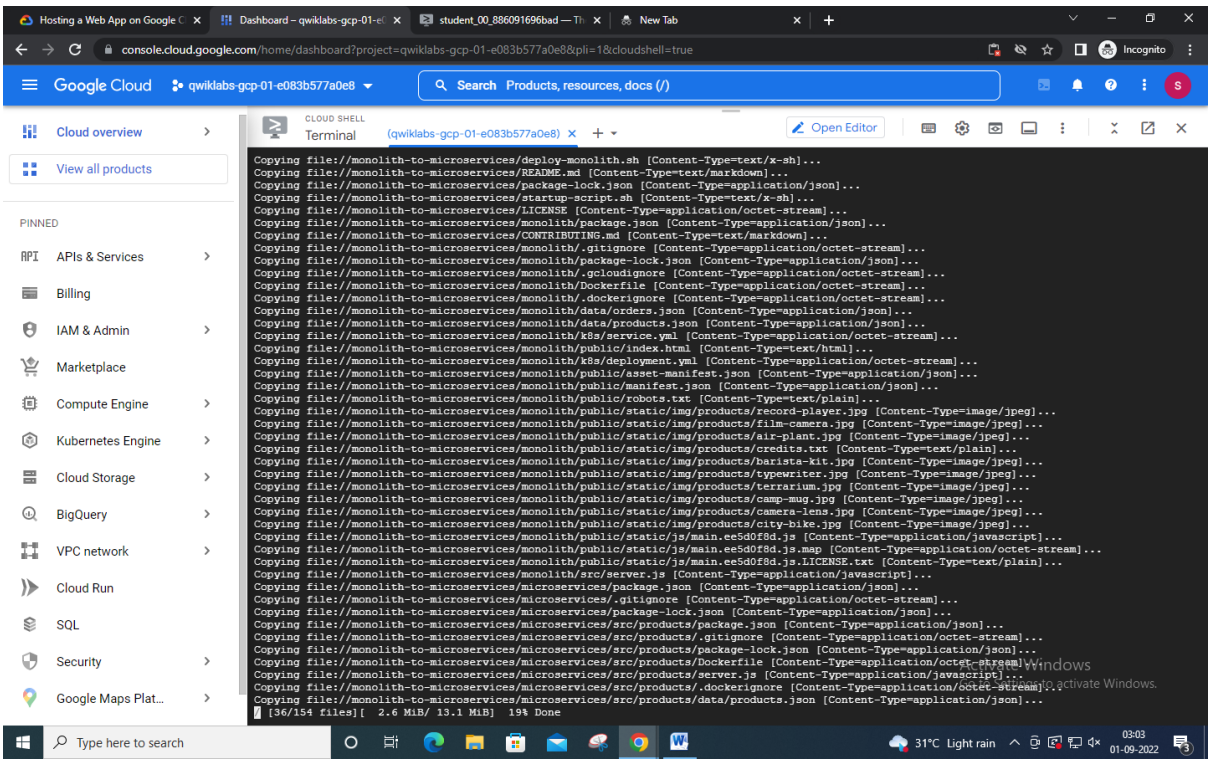
New Tab
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~/monolith-to-microservices/react-app/src/pages/Home (qwiklabs-gcp-01-e083b577a0e8)$ cd ~/monolith-to-microservices/react-app
npm install && npm run-script build
npm WARN deprecated source-map-url@0.4.1: See https://github.com/lydell/source-map-url#deprecated
npm WARN deprecated svgo@1.3.2: This SVGO version is no longer supported. Upgrade to v2.x.x.
added 1413 packages, and audited 1414 packages in 19s
177 packages are looking for funding
run `npm fund` for details
9 vulnerabilities (8 high, 1 critical)
To address issues that do not require attention, run:
npm audit fix
To address all issues (including breaking changes), run:
npm audit fix --force
Run `npm audit` for details.
> frontend@0.1.0 prebuild
> npm run build:monolith
> frontend@0.1.0 build:monolith
> env-cmd -f .env.monolith react-scripts build
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
03:02
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
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New Tab
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
Cloud overview
View all products
PINNED
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
Copying file://monolith-to-microservices/deploy-monolith.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/README.md [Content-Type=text/markdown]...
Copying file://monolith-to-microservices/package-lock.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/startup-script.sh [Content-Type=text/x-sh]...
Copying file://monolith-to-microservices/LICENSE [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/package.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/CONTRIBUTING.md [Content-Type=text/markdown]...
Copying file://monolith-to-microservices/monolith/.gitignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/package-lock.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/.gcloudignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/Dockerfile [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/.dockerignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/data/orders.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/data/products.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/monolith/k8s/service.yml [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/public/index.html [Content-Type=text/html]...
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Copying file://monolith-to-microservices/monolith/public/static/img/products/air-plant.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/credits.txt [Content-Type=text/plain]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/barista-kit.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/typewriter.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/terrarium.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/camp-mug.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/camera-lens.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/img/products/city-bike.jpg [Content-Type=image/jpeg]...
Copying file://monolith-to-microservices/monolith/public/static/js/main.ee5d0f8d.js [Content-Type=application/javascript]...
Copying file://monolith-to-microservices/monolith/public/static/js/main.ee5d0f8d.js.map [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/monolith/public/static/js/main.ee5d0f8d.js.LICENSE.txt [Content-Type=text/plain]...
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Copying file://monolith-to-microservices/microservices/.gitignore [Content-Type=application/octet-stream]...
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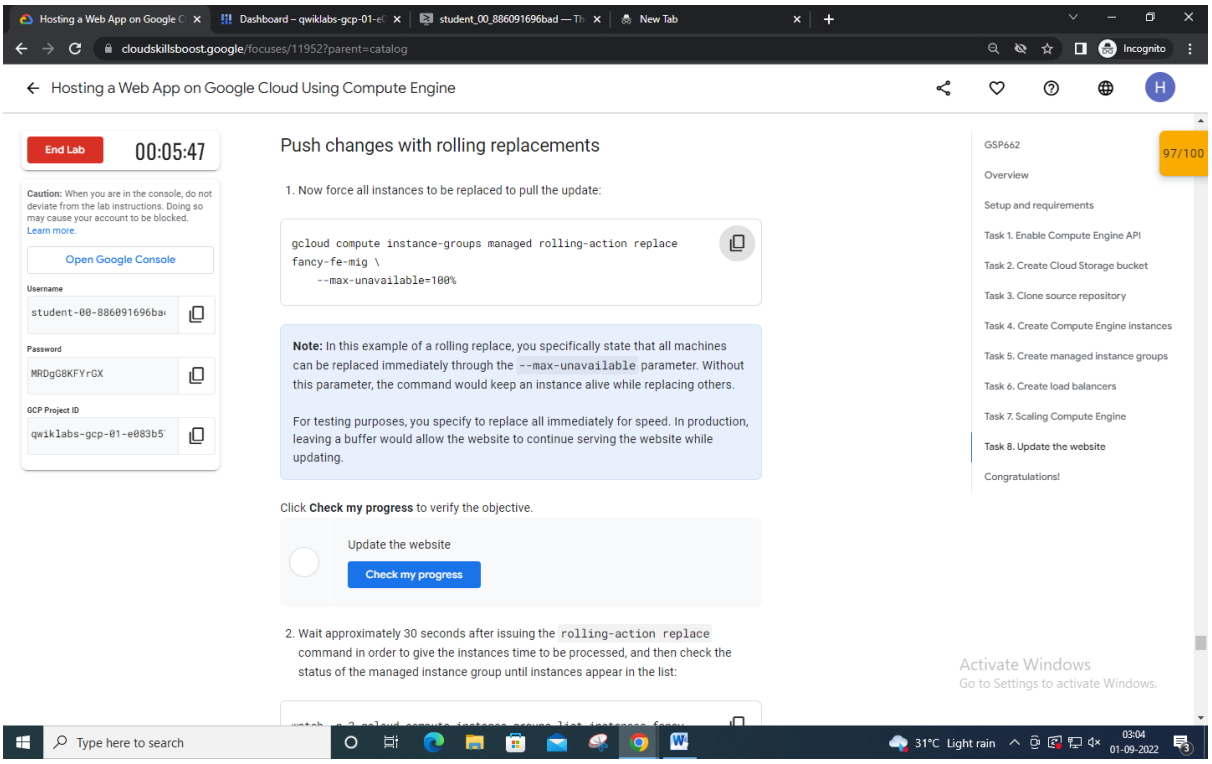
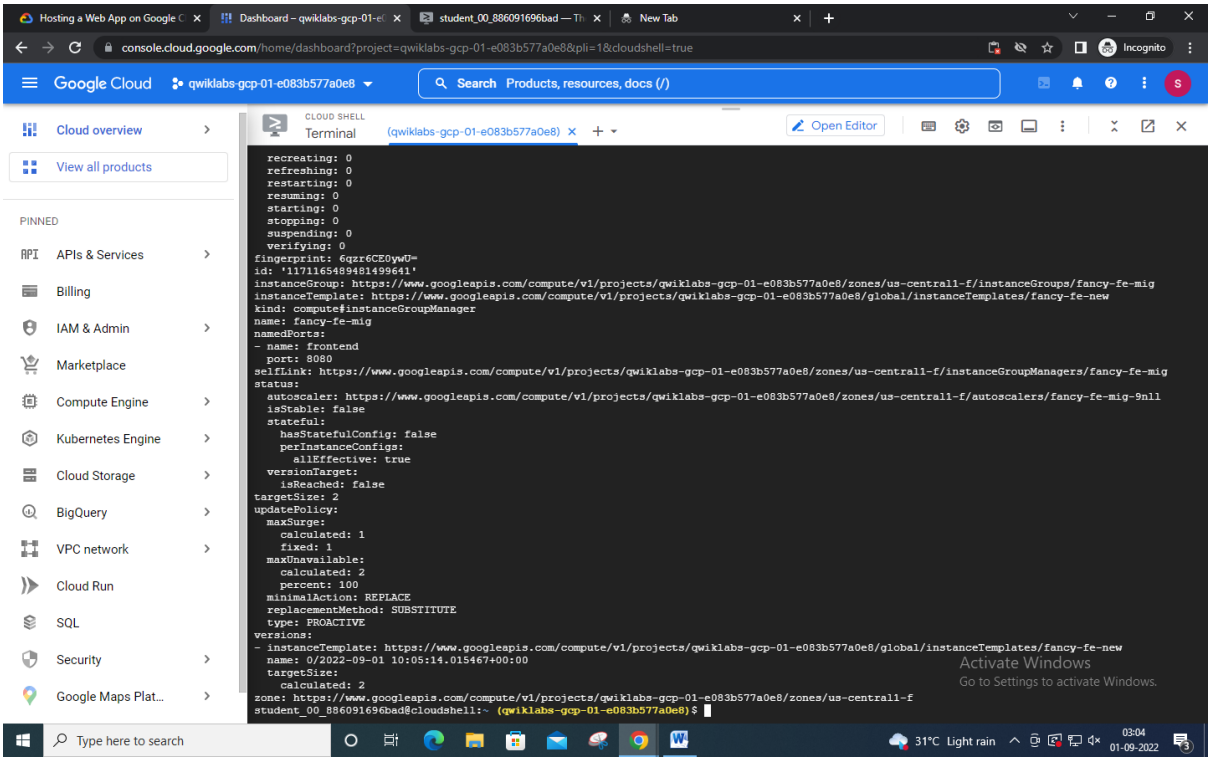
Copying file://monolith-to-microservices/microservices/src/products/package.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/microservices/src/products/.gitignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/microservices/src/products/package-lock.json [Content-Type=application/json]...
Copying file://monolith-to-microservices/microservices/src/products/Dockerfile [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/microservices/src/products/server.js [Content-Type=application/javascript]...
Copying file://monolith-to-microservices/microservices/src/products/.dockerignore [Content-Type=application/octet-stream]...
Copying file://monolith-to-microservices/microservices/src/products/data/products.json [Content-Type=application/json]...
/ [36/154 files][2.6 MiB/ 13.1 MiB] 19% Done
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
03:03
01-09-2022


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:05:47
Push changes with rolling replacements
1. Now force all instances to be replaced to pull the update:
gcloud compute instance-groups managed rolling-action replace fancy-fe-mig \
--max-unavailable=100%
Note: In this example of a rolling replace, you specifically state that all machines can be replaced immediately through the --max-unavailable parameter. Without this parameter, the command would keep an instance alive while replacing others.
For testing purposes, you specify to replace all immediately for speed. In production, leaving a buffer would allow the website to continue serving the website while updating.
Click Check my progress to verify the objective.
Update the website
Check my progress
2. Wait approximately 30 seconds after issuing the rolling-action replace command in order to give the instances time to be processed, and then check the status of the managed instance group until instances appear in the list:
GSP662
97/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.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qwiklabs-gcp-01-e083b577a0e8
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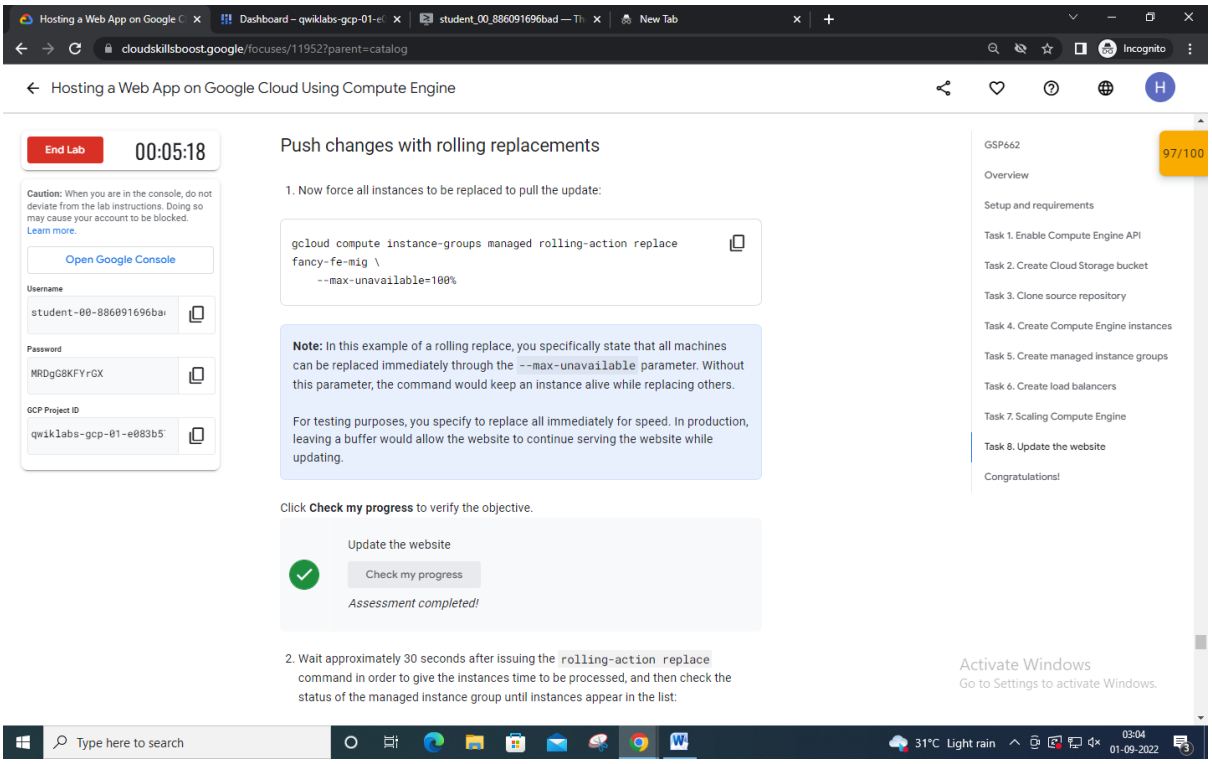
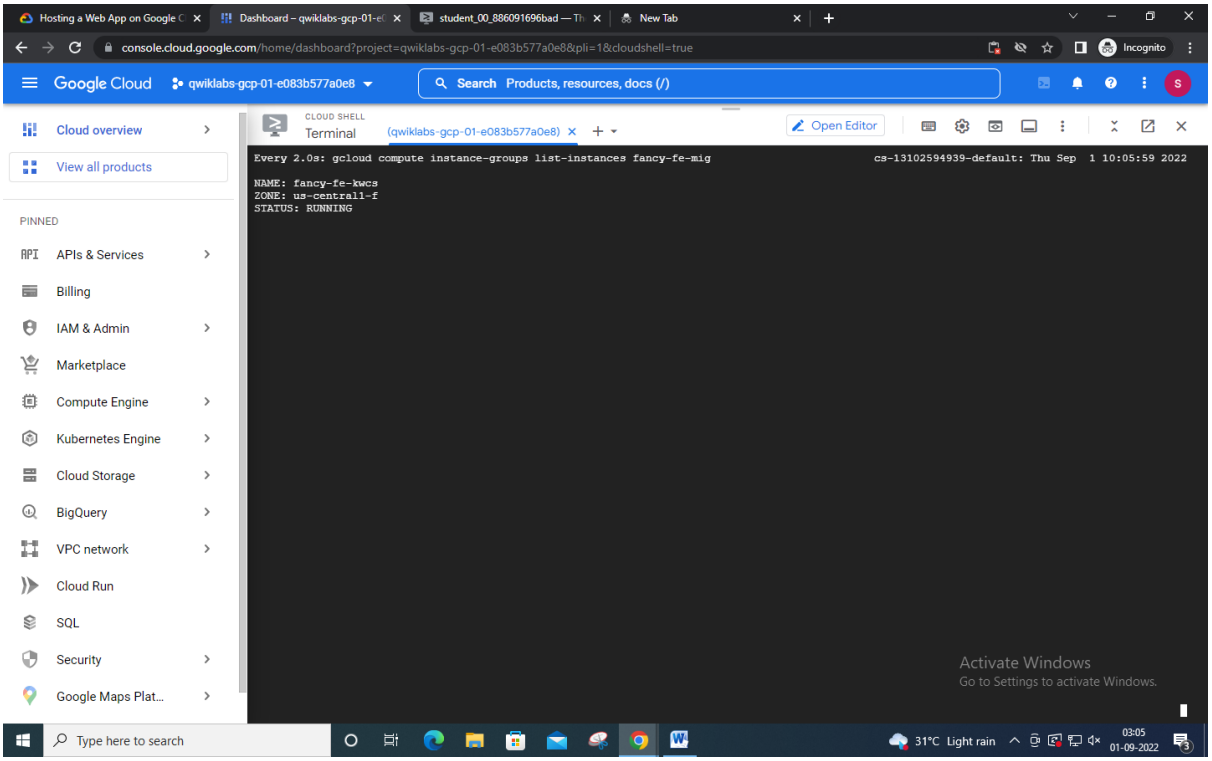
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
Open Editor
recreating: 0
refreshing: 0
restarting: 0
resuming: 0
starting: 0
stopping: 0
suspending: 0
verifying: 0
fingerprint: 6qzr6CE0ywU=
id: '1171165489481499641'
instanceGroup: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroups/fancy-fe-mig
instanceTemplate: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/instanceTemplates/fancy-fe-new
kind: compute#instanceGroupManager
name: fancy-fe-mig
namedPorts:
- name: frontend
port: 8080
selfLink: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroupManagers/fancy-fe-mig
status:
autoscaler: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/autoscalers/fancy-fe-mig-9nll
isStable: false
stateful:
hasStatefulConfig: false
perInstanceConfigs:
allEffective: true
versionTarget:
isReached: false
targetSize: 2
updatePolicy:
maxSurge:
calculated: 1
fixed: 1
maxUnavailable:
calculated: 2
percent: 100
minimalAction: REPLACE
replacementMethod: SUBSTITUTE
type: PROACTIVE
versions:
- instanceTemplate: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/global/instanceTemplates/fancy-fe-new
name: 0/2022-09-01 10:05:14.015467+00:00
targetSize:
calculated: 2
zone: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:05:18
Push changes with rolling replacements
1. Now force all instances to be replaced to pull the update:
gcloud compute instance-groups managed rolling-action replace fancy-fe-mig \
--max-unavailable=100%
Note: In this example of a rolling replace, you specifically state that all machines can be replaced immediately through the --max-unavailable parameter. Without this parameter, the command would keep an instance alive while replacing others.
For testing purposes, you specify to replace all immediately for speed. In production, leaving a buffer would allow the website to continue serving the website while updating.
Click Check my progress to verify the objective.
Update the website
Check my progress
Assessment completed!
2. Wait approximately 30 seconds after issuing the rolling-action replace command in order to give the instances time to be processed, and then check the status of the managed instance group until instances appear in the list:
GSP662
97/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.


Google Cloud
Cloud overview
View all products
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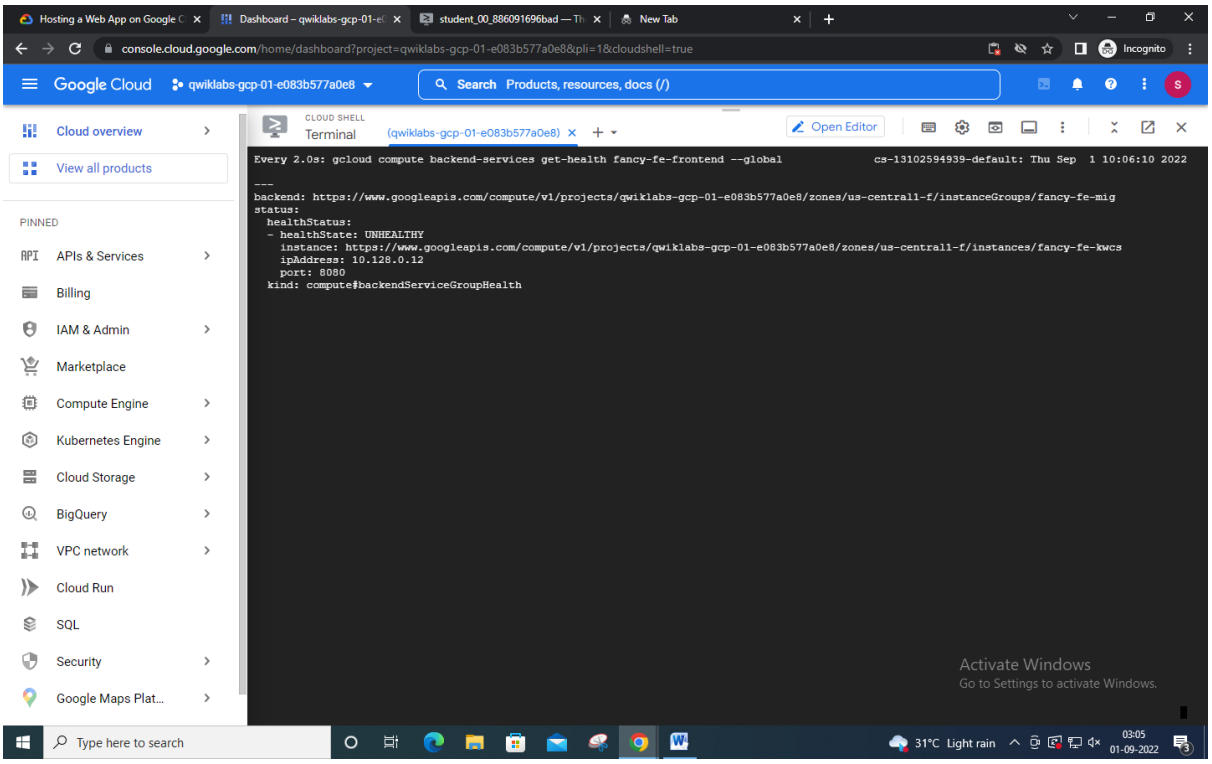
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
Open Editor
Every 2.0s: gcloud compute instance-groups list-instances fancy-fe-mig
NAME: fancy-fe-kwcs
ZONE: us-central1-f
STATUS: RUNNING
Activate Windows
Go to Settings to activate Windows.


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
New Tab
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
Incognito
Google Cloud
qwiklabs-gcp-01-e083b577a0e8
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View all products
PINNED
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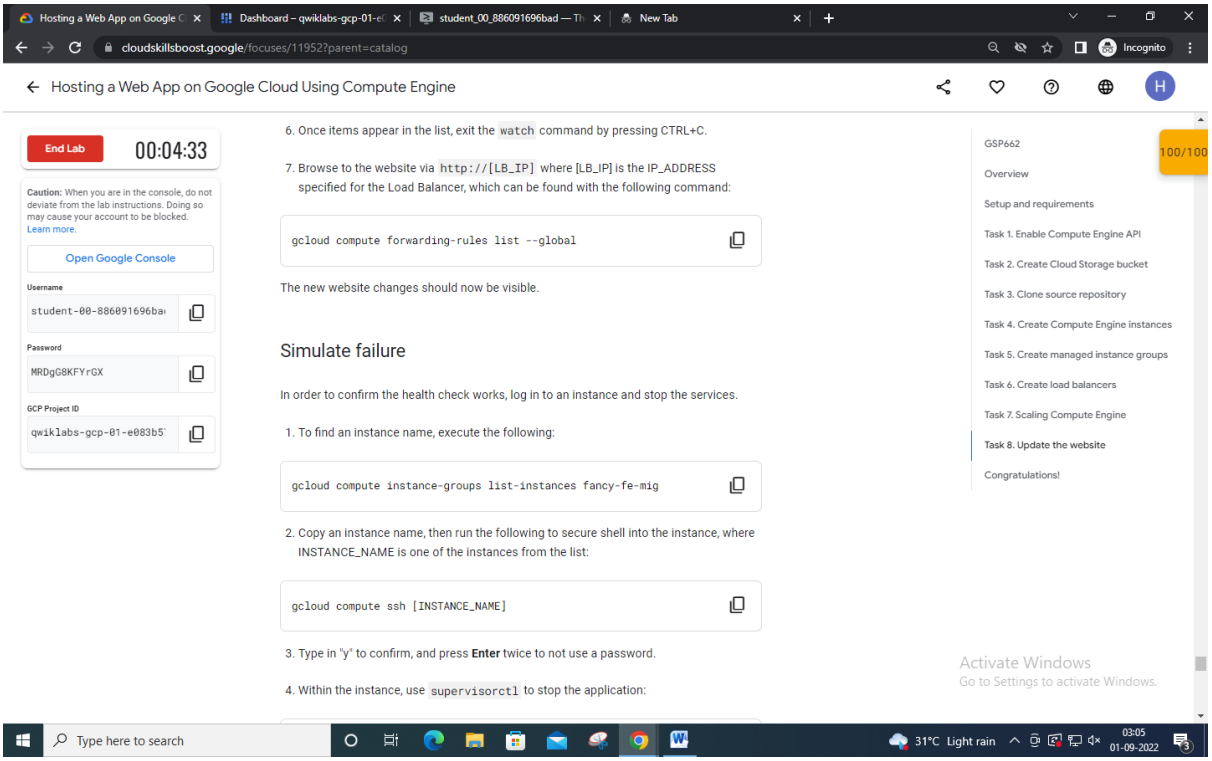
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
Every 2.0s: gcloud compute backend-services get-health fancy-fe-frontend --global
cs-13102594939-default: Thu Sep 1 10:06:10 2022
backend: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instanceGroups/fancy-fe-mig
status:
healthStatus:
- healthState: UNHEALTHY
instance: https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-01-e083b577a0e8/zones/us-central1-f/instances/fancy-fe-kwcs
ipAddress: 10.128.0.12
port: 8080
kind: compute#backendServiceGroupHealth
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
03:05
01-09-2022


Hosting a Web App on Google C
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student_00_886091696bad — Th
New Tab
cloudskillsboost.google/focuses/11952?parent=catalog
Incognito
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:04:33
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
6. Once items appear in the list, exit the watch command by pressing CTRL+C.
7. Browse to the website via http://[LB_IP] where [LB_IP] is the IP_ADDRESS specified for the Load Balancer, which can be found with the following command:
gcloud compute forwarding-rules list --global
The new website changes should now be visible.
Simulate failure
In order to confirm the health check works, log in to an instance and stop the services.
1. To find an instance name, execute the following:
gcloud compute instance-groups list-instances fancy-fe-mig
2. Copy an instance name, then run the following to secure shell into the instance, where INSTANCE_NAME is one of the instances from the list:
gcloud compute ssh [INSTANCE_NAME]
3. Type in "y" to confirm, and press Enter twice to not use a password.
4. Within the instance, use supervisorctl to stop the application:
GSP662
100/100
Overview
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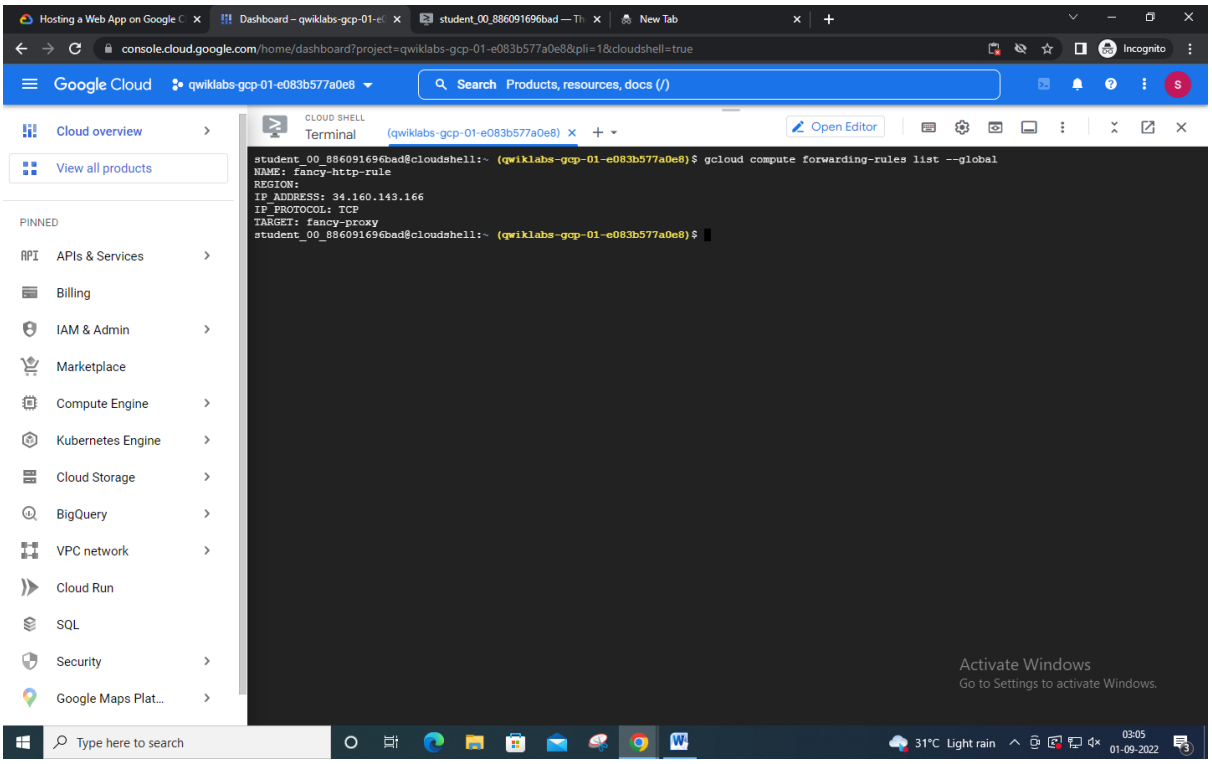
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
03:05
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
New Tab
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
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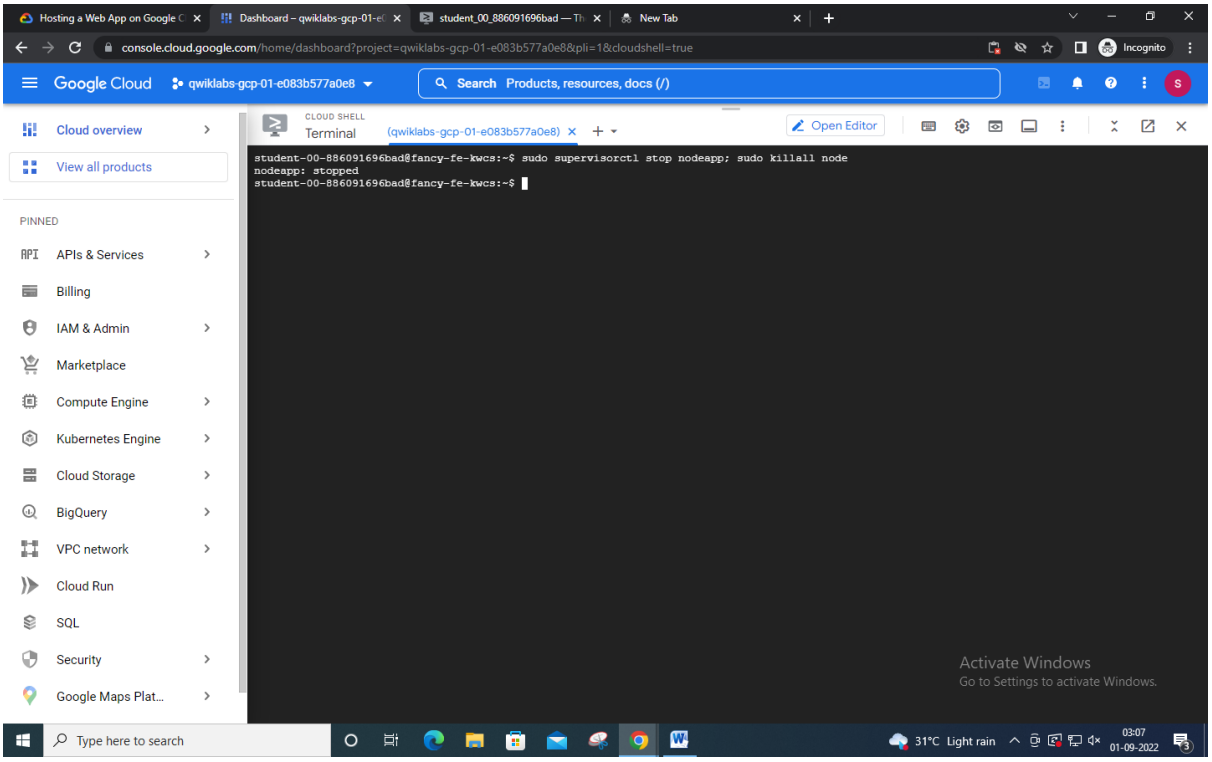
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$ gcloud compute forwarding-rules list --global
NAME: fancy-http-rule
REGION:
IP_ADDRESS: 34.160.143.166
IP_PROTOCOL: TCP
TARGET: fancy-proxy
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
03:05
01-09-2022


Hosting a Web App on Google C
Dashboard – qwiklabs-gcp-01-e
student_00_886091696bad — Th
New Tab
console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
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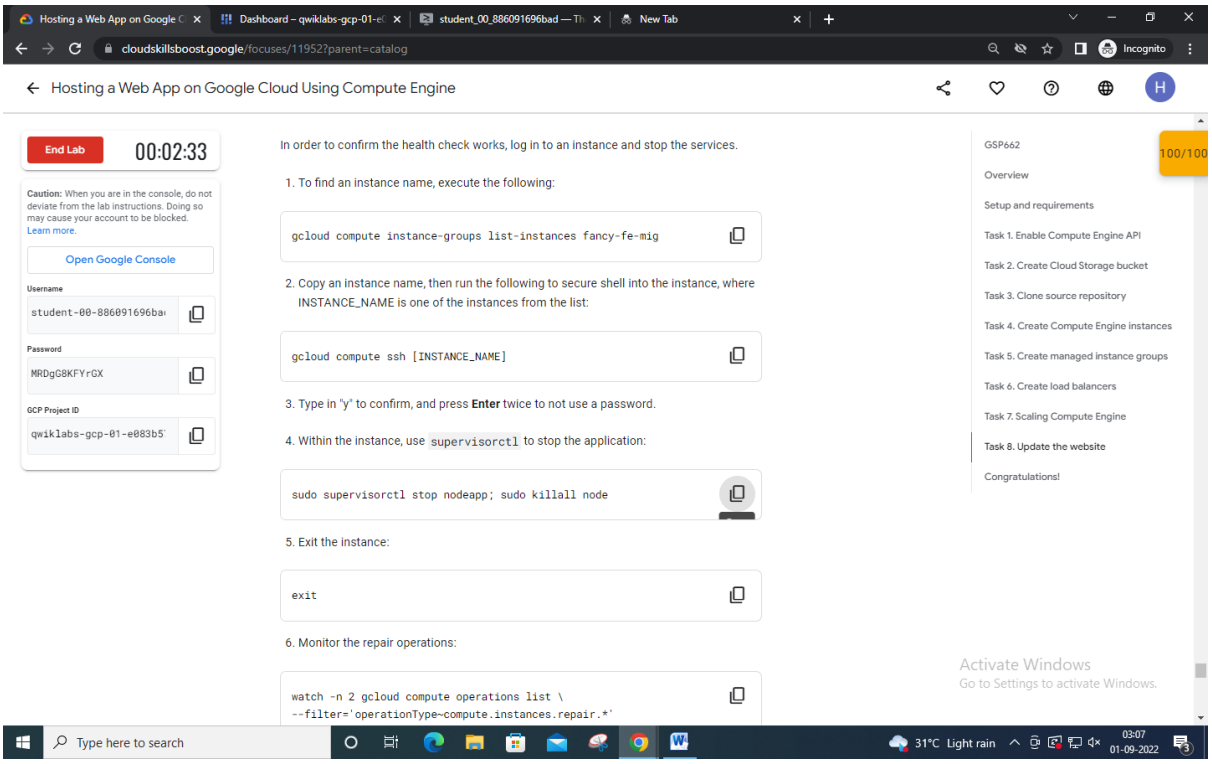
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student-00-886091696bad@fancy-fe-kwcs:~$ sudo supervisorctl stop nodeapp; sudo killall node
nodeapp: stopped
student-00-886091696bad@fancy-fe-kwcs:~$
Activate Windows
Go to Settings to activate Windows.
Type here to search
31°C Light rain
03:07
01-09-2022


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:02:33
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
In order to confirm the health check works, log in to an instance and stop the services.
1. To find an instance name, execute the following:
gcloud compute instance-groups list-instances fancy-fe-mig
2. Copy an instance name, then run the following to secure shell into the instance, where INSTANCE_NAME is one of the instances from the list:
gcloud compute ssh [INSTANCE_NAME]
3. Type in "y" to confirm, and press Enter twice to not use a password.
4. Within the instance, use supervisorctl to stop the application:
sudo supervisorctl stop nodeapp; sudo killall node
5. Exit the instance:
exit
6. Monitor the repair operations:
watch -n 2 gcloud compute operations list \
--filter='operationType~compute.instances.repair.*'
GSP662
100/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
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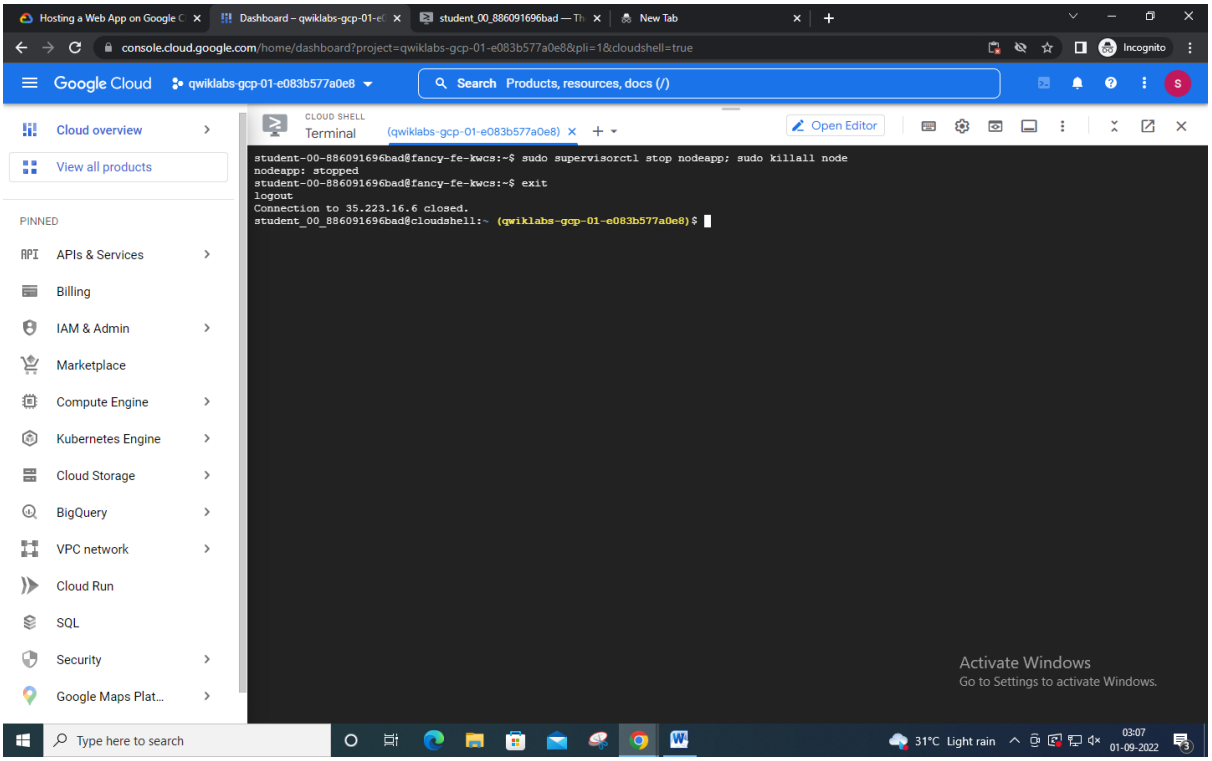
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.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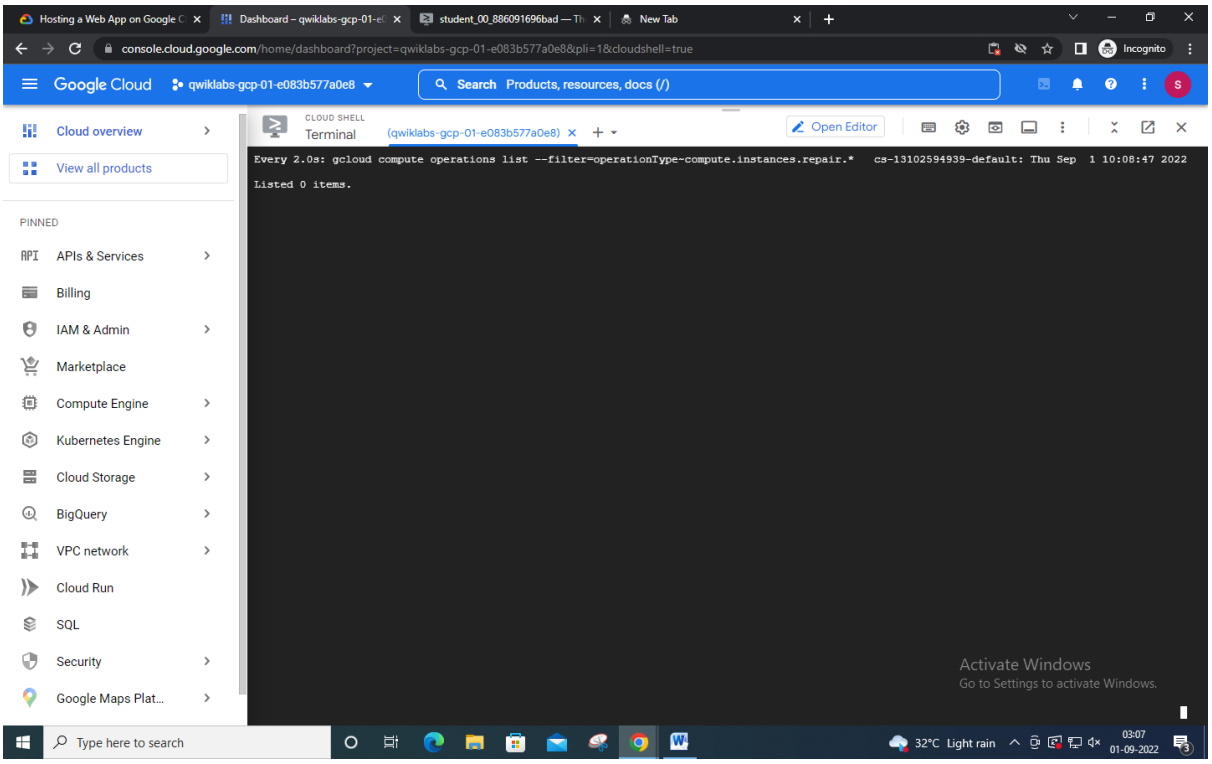
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
student-00-886091696bad@fancy-fe-kwcs:~$ sudo supervisorctl stop nodeapp; sudo killall node
nodeapp: stopped
student-00-886091696bad@fancy-fe-kwcs:~$ exit
logout
Connection to 35.223.16.6 closed.
student_00_886091696bad@cloudshell:~ (qwiklabs-gcp-01-e083b577a0e8)$
Activate Windows
Go to Settings to activate Windows.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student_00_886091696bad — Th
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console.cloud.google.com/home/dashboard?project=qwiklabs-gcp-01-e083b577a0e8&pli=1&cloudshell=true
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Google Cloud
qwiklabs-gcp-01-e083b577a0e8
Search Products, resources, docs (/)
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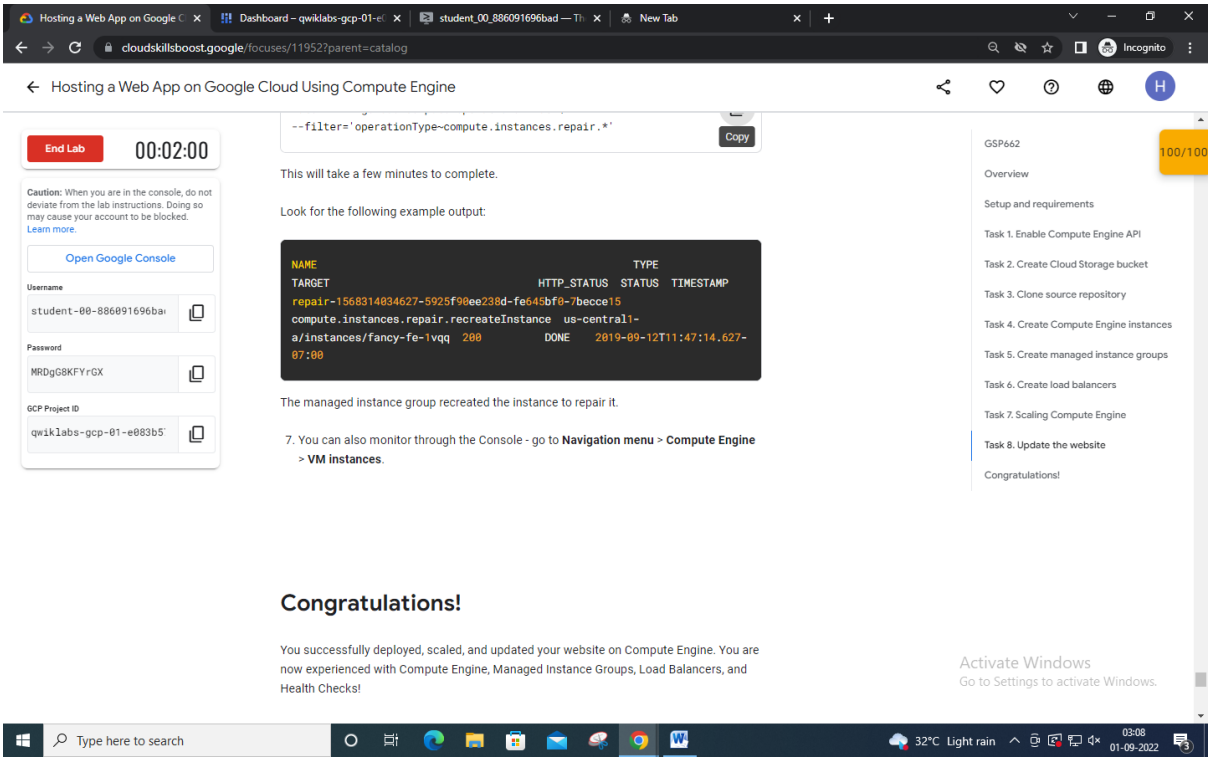
APIs & Services
Billing
IAM & Admin
Marketplace
Compute Engine
Kubernetes Engine
Cloud Storage
BigQuery
VPC network
Cloud Run
SQL
Security
Google Maps Plat...
CLOUD SHELL
Terminal
(qwiklabs-gcp-01-e083b577a0e8)
Open Editor
Every 2.0s: gcloud compute operations list --filter=operationType~compute.instances.repair.* cs-13102594939-default: Thu Sep 1 10:08:47 2022
Listed 0 items.
Activate Windows
Go to Settings to activate Windows.
Type here to search
32°C Light rain
03:07
01-09-2022


cloudskillsboost.google/focuses/11952?parent=catalog
Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:02:00
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
student-00-886091696ba
Password
MRDgG8KFYrGX
GCP Project ID
qwiklabs-gcp-01-e083b5
--filter='operationType~compute.instances.repair.*'
Copy
This will take a few minutes to complete.
Look for the following example output:
NAME TYPE
TARGET HTTP_STATUS STATUS TIMESTAMP
repair-1568314034627-5925f90ee238d-fe645bf0-7becce15
compute.instances.repair.recreateInstance us-central1-
a/instances/fancy-fe-1vqq 200 DONE 2019-09-12T11:47:14.627-
07:00
The managed instance group recreated the instance to repair it.
7. You can also monitor through the Console - go to Navigation menu > Compute Engine > VM instances.
GSP662
100/100
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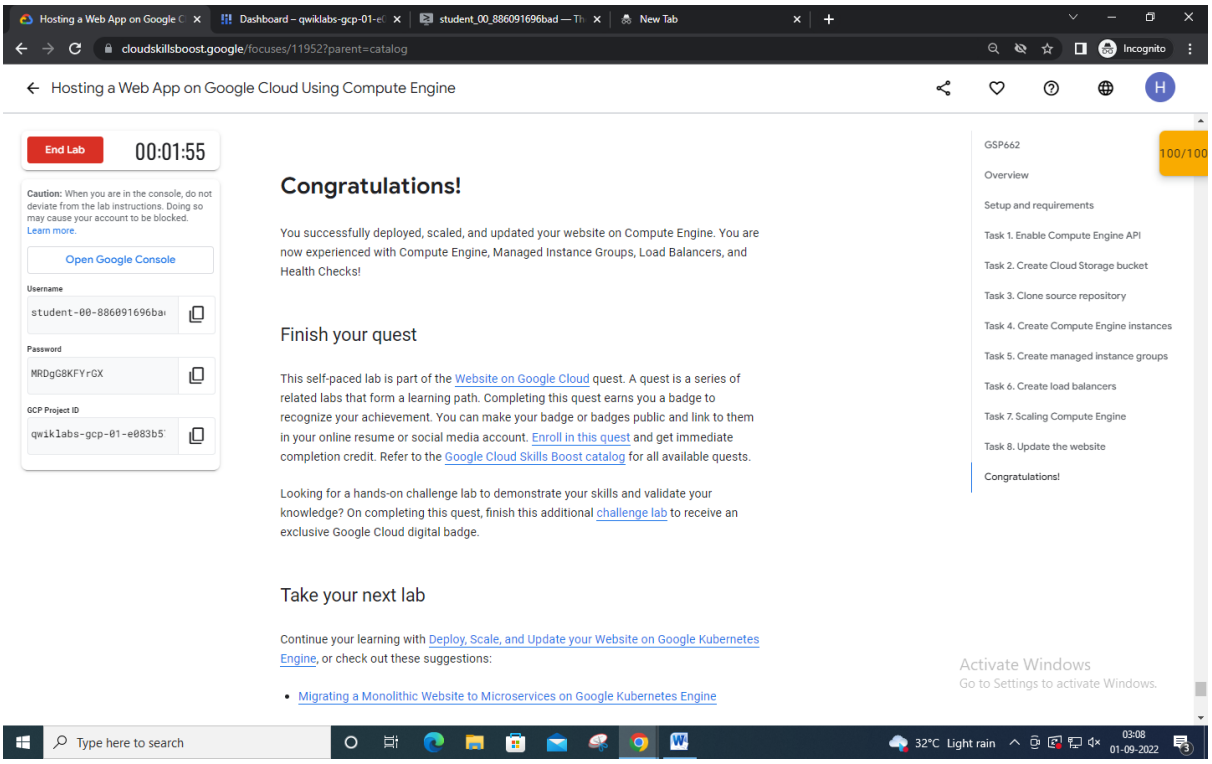
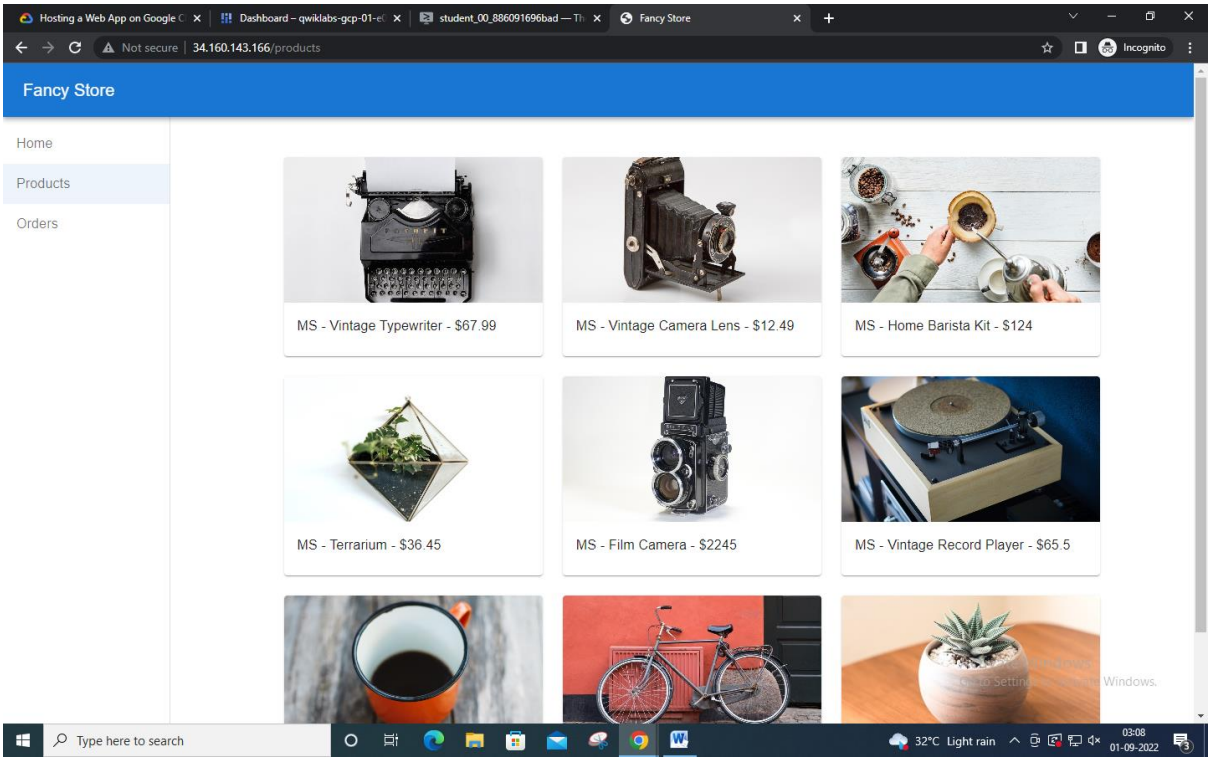
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Congratulations!
You successfully deployed, scaled, and updated your website on Compute Engine. You are now experienced with Compute Engine, Managed Instance Groups, Load Balancers, and Health Checks!
Activate Windows
Go to Settings to activate Windows.
Type here to search
32°C Light rain
03:08
01-09-2022


Hosting a Web App on Google Cloud Using Compute Engine
End Lab
00:01:55
Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
Learn more.
Open Google Console
Username
Password
GCP Project ID
Congratulations!
You successfully deployed, scaled, and updated your website on Compute Engine. You are now experienced with Compute Engine, Managed Instance Groups, Load Balancers, and Health Checks!
Finish your quest
This self-paced lab is part of the Website on Google Cloud quest. A quest is a series of related labs that form a learning path. Completing this quest earns you a badge to recognize your achievement. You can make your badge or badges public and link to them in your online resume or social media account. Enroll in this quest and get immediate completion credit. Refer to the Google Cloud Skills Boost catalog for all available quests.
Looking for a hands-on challenge lab to demonstrate your skills and validate your knowledge? On completing this quest, finish this additional challenge lab to receive an exclusive Google Cloud digital badge.
Take your next lab
Continue your learning with Deploy, Scale, and Update your Website on Google Kubernetes Engine, or check out these suggestions:
Migrating a Monolithic Website to Microservices on Google Kubernetes Engine
GSP662
100/100
Overview
Setup and requirements
Task 1. Enable Compute Engine API
Task 2. Create Cloud Storage bucket
Task 3. Clone source repository
Task 4. Create Compute Engine instances
Task 5. Create managed instance groups
Task 6. Create load balancers
Task 7. Scaling Compute Engine
Task 8. Update the website
Congratulations!
Activate Windows
Go to Settings to activate Windows.
Type here to search
32°C Light rain
03:08
01-09-2022


Fancy Store
Not secure 34.160.143.166/products
Home
Products
Orders
MS - Vintage Typewriter - $67.99
MS - Vintage Camera Lens - $12.49
MS - Home Barista Kit - $124
MS - Terrarium - $36.45
MS - Film Camera - $2245
MS - Vintage Record Player - $65.5
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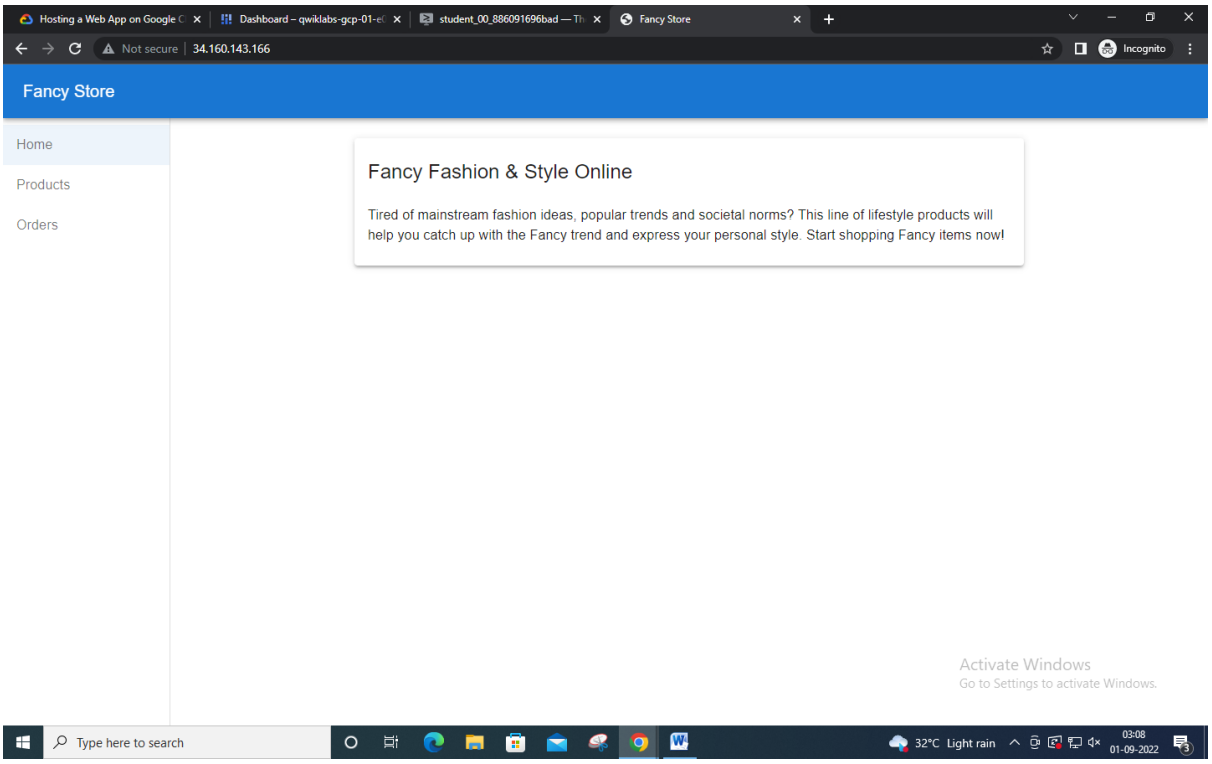
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Dashboard – qwiklabs-gcp-01-e
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Fancy Store
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Fancy Store
Home
Products
Orders
Fancy Fashion & Style Online
Tired of mainstream fashion ideas, popular trends and societal norms? This line of lifestyle products will help you catch up with the Fancy trend and express your personal style. Start shopping Fancy items now!
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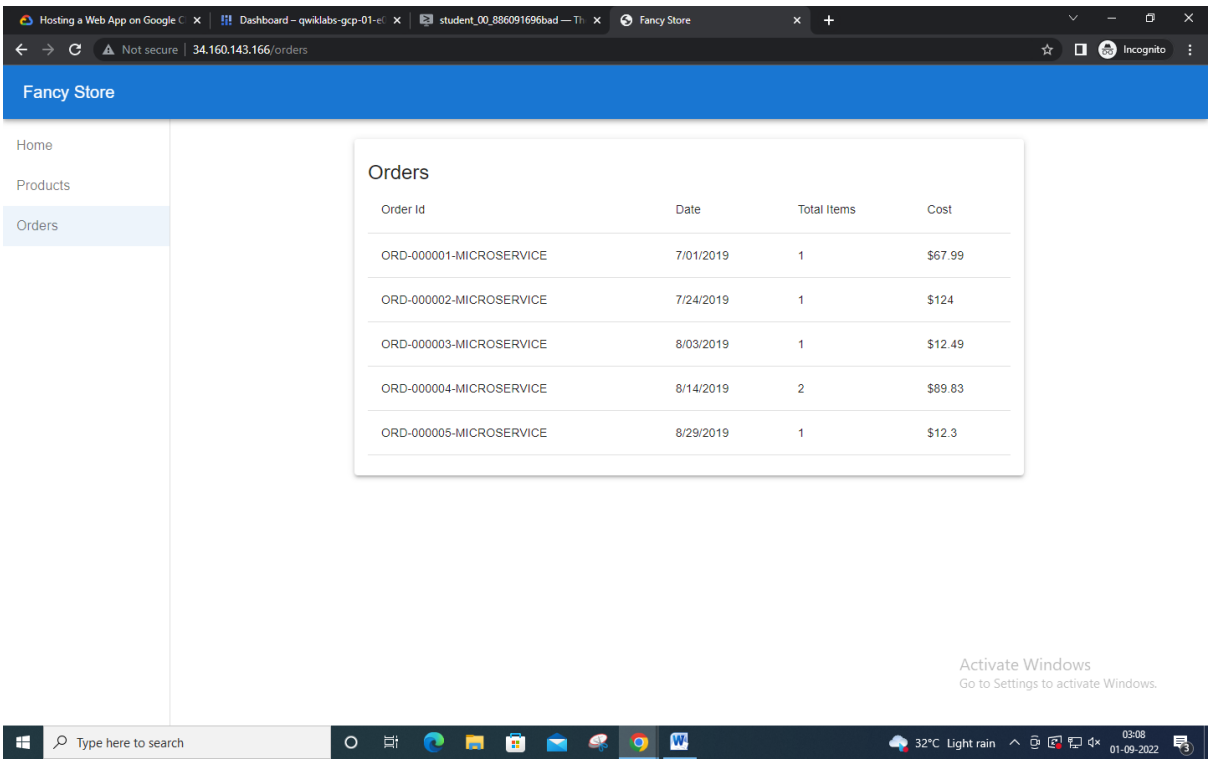
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Total Items
Cost
ORD-000001-MICROSERVICE
7/01/2019
1
$67.99
ORD-000002-MICROSERVICE
7/24/2019
1
$124
ORD-000003-MICROSERVICE
8/03/2019
1
$12.49
ORD-000004-MICROSERVICE
8/14/2019
2
$89.83
ORD-000005-MICROSERVICE
8/29/2019
1
$12.3
Activate Windows
Go to Settings to activate Windows.
Type here to search
32°C Light rain
03:08
01-09-2022

Various options explored:
Different cloud infrastructure platforms:

- **Amazon web services(AWS):** Amazon Web Services (AWS) is an amazing public cloud infrastructure platform. At my organization, we are using AWS for all our major business services that help us to run the application and mobile applications seamlessly and smoothly. AWS provides us agility to scale up and scale down our infrastructure at any point in time. Amazon EC2, RDS, VPA, S3, and Lightsail are the top most features.
- **Microsoft Azure:** Microsoft Azure is the seamless public cloud platform that is most important for our overall cloud infrastructure and web applications. This cloud platform provides many features related to Big data, SQL, virtual machines, AI/ML, and many more and I must admit these all are super easy to use and very much effective. Azure provides free accounts to the new users and also provides some free credits to test this platform out.
- **IBM cloud:** IBM and its stability have been fantastic for me. We were relieved of numerous worries after it was implemented. We don't have to worry about upgrades, fix packs, and environment support thanks to its SaaS model. The performance is excellent. Now we don't have to devote much time to the management or administration of underlying cloud infrastructure and networking, servers, operating systems, space, and even specific application features, thanks to the SaaS model.

Different services available in google cloud to host a website:

- **Cloud storage bucket:** Static websites are a good option for sites like blogs — where the page rarely changes after it has been published, or where there isn't any dynamically-generated content. All you need to set up a static website on Google Cloud is a cloud storage bucket connected to your domain name and that's it.
- **App engine:** Google Cloud's managed and serverless offerings like App Engine or Cloud Run would be apt, this allows you to focus on delivering features and let Google worry about operating and managing the infrastructure. This provides a wide range of features that make scalability, load balancing, logging, monitoring, and security much easier than if you had to build and manage the website yourself.
- **Cloud run:** When you use Cloud Run, you can code in any programming language, because your application is deployed as a container, and Google will seamlessly launch and scale your application for you. For websites with higher complexity, you probably want more options and control than a managed platform offers.

- **Kubernetes engine:** For a larger business with more developers and more complicated problems, it makes sense to containerize your application. You will notice that it becomes really hard to manage feature roll outs if the website is one big monolith, which makes it difficult to keep up with the increase in demand and pace of business.

2. Explain your program logic, classes and methods used, as applicable.

➔ **Methods used:**

1) **Rolling deployment:** A rolling deployment is a software release strategy that staggers deployment across multiple phases, which usually include one or more servers performing one or more function within a server cluster. Rather than updating all servers or tiers simultaneously, the organization installs the updated software package on one server or subset of servers at a time. A rolling deployment is used to reduce application downtime and unforeseen consequences or errors in software updates.
2) **Google cloud storage bucket:** Cloud Storage is a service for storing objects in Google Cloud. An object is an immutable piece of data consisting of a file of any format. These objects are stored in containers called buckets. All buckets are associated with a project, and you can group your projects under an organization.
3) **Load balancing:** Cloud load balancing is defined as the method of splitting workloads and computing properties in a cloud computing. It enables enterprise to manage workload demands or application demands by distributing resources among numerous computers, networks or servers.
4) **Autohealing:** To improve the availability of the application itself and to verify it is responding, configure an autohealing policy for the managed instance groups. An autohealing policy relies on an application-based health check to verify that an app is responding as expected. Checking that an app responds is more precise than simply verifying that an instance is in a RUNNING state, which is the default behaviour.
5) **Proxy server:** A proxy server is a dedicated computer or software system that sits between an end "client," such as a desktop computer or mobile device, and a desired destination, such as a website, server, or web- or cloud-based application. The proxy: Receives a web request from a client, Terminates the connection, Establishes a new connection with the desired destination and Sends the data on the client's behalf.
6) **Scaling:** Cloud scalability in cloud computing refers to increasing or decreasing IT resources as needed to meet changing demand. Scalability is one of the hallmarks of the cloud and the primary driver of its explosive popularity with businesses. Data storage capacity, processing power, and networking can all be

increased by using existing cloud computing infrastructure. Scaling can be done quickly and easily, usually without any disruption or downtime.

3. Explain the Importance of the approach followed by you

Key Advantages of Using Google Cloud Hosting

After comparing Microsoft Azure, Amazon Web Services, and Google Cloud Platform, We recommend using Google Cloud Platform Services. There are some key advantages of using Google Cloud Hosting which we would like to discuss here.

1. **Better Pricing Plans Availability**

Economically, Google Cloud Hosting Plans are cheaper than other Platforms Hosting Plans. It has better pricing plans as compared to its competitors. Google Cloud Hosting service has per sec billing plans. To avail this service, users just need to sign up with all the details required. He/she just requires a credit card or bank details. The main advantage of Google Cloud Hosting is that the user is not bounded by its subscription if he/she has subscribed to any of the pricing plans. The subscription can be stopped at any instance. If you are looking for better offers, you can switch your subscription to other plans.

Whereas in Azure, only 5% discount is available for 12 months to pre-pay. In Google Cloud Hosting plans, no upfront cost is required; it means you don't have to pre-pay. You can also grab the trial version which is available for free. Earlier, AWS had much higher pricing plans but they revised their plans in November 2016. After comparing Google Cloud Hosting and other platforms pricing plans, Google is giving a decent discount on its all services which is also attracting the users to adopt Google Cloud Hosting services. Google Cloud Hosting monthly plans are much cheaper than AWS plans.

2. Enhanced Execution

At enterprises level, Google has enhanced the performance of Google Cloud Hosting service. An individual can access the data from any location via remote. It has a big infrastructure so it allows executing various complex operations easily at its network. Google Cloud Machines can handle n number of visitors at any time. If you are

planning to move to the Google Cloud Hosting, then you will experience the decrease in your website load time.

3. Benefits of Live Migration

One of the top advantages of Google Cloud Hosting is "Live Migration". It is also the biggest advantage because Amazon Web Services and Microsoft Azure both don't provide this benefit. It merely consists of migration of Virtual Machines. By having such a large network, Google Cloud Hosting allows users to migrate their machines.

4. Private Network

Users get maximum time and efficiency due to the private network. A private network means Google is providing its own network to every customer so that they have more control and scalability over the network. Private Network is the backbone of Google Cloud Hosting service. When it comes to fiber-optic cables, these are more efficient than any other cables. Google has used fiber-optics to spread its network. The network via fiber-optics can bear any amount of traffic.

5. Commitment to Constant Development

As we already know, Google Cloud Hosting is also a part of Google Cloud Platform. It also contains a large infrastructure which is a public domain. Google is also developing its infrastructure rapidly according to the customer's requirements. In near future, we will see the Google Infrastructure expansion to the new locations. This will help to build a strong Google's network. Currently, Google is present at 17 locations. The new Google Cloud Platform regions will be Hong Kong in 2018 and Zurich, Switzerland in 2019.

Preparing to become a certified Google Cloud Architect? Here is the preparation guide for Google Certified Professional Cloud Architect Exam.

6. Control and Security

Google has its own security model which is currently securing Gmail, YouTube and other products. Google has recruited a large number of Security Professionals who help Google to protect the data on servers. All the data on Cloud Platform Services is

encrypted. Google has a strong network of ISPs, It helps Google to secure their network. Google is also making the process-based investment to secure its network or data.

7. Redundant Backups

Redundancy means if something is no longer required, it can be reduced. Google has its own in-built redundant backups. If some part of a component is not functioning, then Google will create a backup. This means you are storing your data in different locations (minimum two locations). In case, something happens, users won't lose their data. Redundancy helps to ensure data integrity, It also ensures reliability and durability.

Conclusion: - Successfully deployed a website on google cloud infrastructure**,** with many other additional functionalities like auto-healing, load balancers and etc.