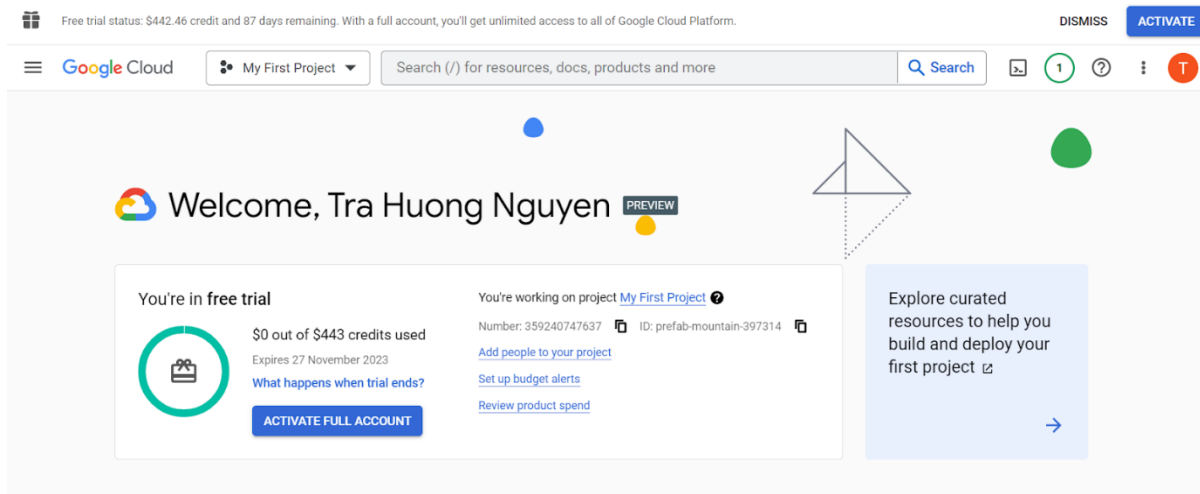


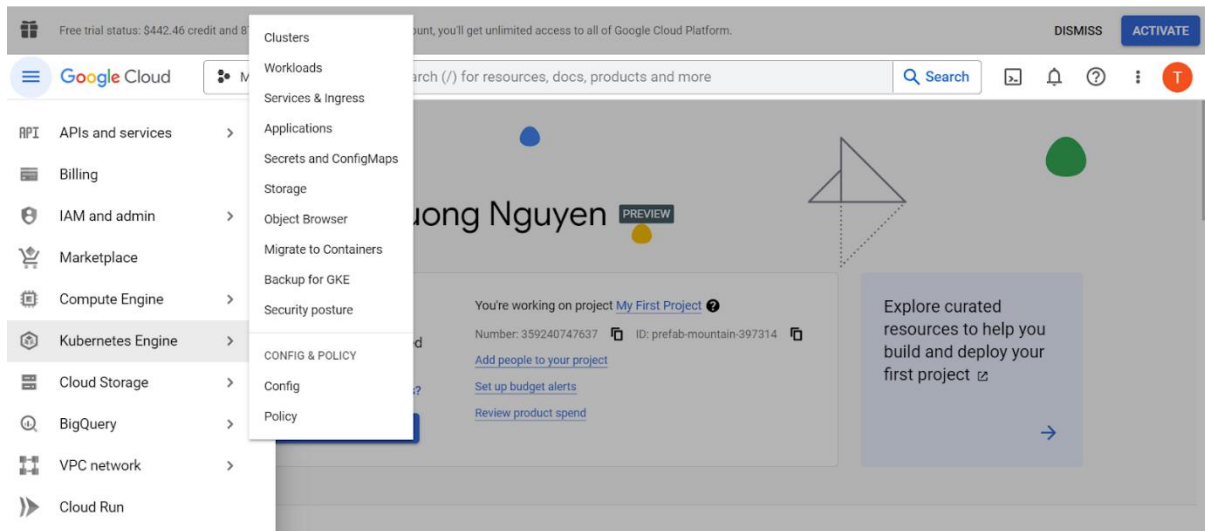
# ISEC6000 Secure DevOps Assignment 1

## Task 1: : Set Up Initial Infrastructure

1. Create a Kubernetes Cluster on GKE
  - a. Log in to the Google Cloud Console.



- b. Create cluster on the Kubernetes Engine section



- c. Configure cluster settings

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Create an Autopilot cluster

SWITCH TO STANDARD CLUSTER

HELP ASSISTANT

LEARN

1 Cluster basics

Set up basics for your cluster

2 Networking

Define applications communication in the cluster

3 Advanced settings

Review additional options

4 Review and create

Review all settings and create your cluster

Cluster basics

Create an Autopilot cluster by specifying a name and region. After the cluster has been created, you can deploy your workload through Kubernetes and we'll take care of the rest, including:

✓ Nodes: Automated node provisioning, scaling and maintenance

✓ Networking: VPC native traffic routing for public or private clusters

✓ Security: Shielded GKE nodes and Workload Identity

✓ Telemetry: Cloud Operations logging and monitoring

Name

autopilot-cluster-2

Cluster names must start with a lowercase letter followed by up to 39 lowercase letters, numbers or hyphens. They can't end with a hyphen. You cannot change the cluster's name once it has been created.

Region

us-central1

The regional location in which your cluster's control plane and nodes are located. You

CREATE

CANCEL

Equivalent

REST

or

COMMAND LINE

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Define how applications in this cluster communicate with each other and how clients can reach them.

Network \*

default

Node subnet \*

default

IPv4 network access

Choose the type of network you want to allow to access your cluster's workloads. [Learn more](#)

☒ Public cluster

Choose a public cluster to configure access from public networks to the cluster's workloads. Routes aren't created automatically. You cannot change this setting after the cluster is created.

☐ Private cluster

Choose a private cluster to assign internal IP addresses to pods and nodes. This isolates the cluster's workloads from public networks. You cannot change this setting after the cluster is created.

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Create an Autopilot cluster

SWITCH TO STANDARD CLUSTER

HEL

✓ Cluster basics

Set up basics for your cluster

✓ Networking

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Review additional options

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Review all settings and create your cluster

Advanced settings

Release channel

Regular channel (default)

These versions have passed internal validation and are considered production quality but don't have enough historical data to guarantee their stability. Known issues generally have known workarounds. [Release notes](#)

Automation

Anthos Service Mesh

Security

Operations

CREATE

CANCEL

Equivalent

REST

or

COMMAND LINE

## d. Create GKE cluster.

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Kubernetes Engine Kubernetes clusters CREATE DEPLOY REFRESH OPERATIONS HELP ASSISTANT

OVERVIEW OBSERVABILITY COST OPTIMISATION

Filter Enter property name or value

Status	Name	Location	Mode	Number of nodes	Total vCPUs	Total memory	Notifications
<input checked="" type="checkbox"/>	<a href="#">autopilot-cluster-1</a>	us-central1	Autopilot	0	0	0 GB	
<input type="checkbox"/>	<a href="#">autopilot-cluster-2</a>	us-central1	Autopilot	0	0	0 GB	
<input checked="" type="checkbox"/>	<a href="#">devops-assignment-cluster-1</a>	australia-southeast1	Autopilot	0	0	0 GB	

## 2. Install and configure kubectl to manage the Kubernetes cluster.

### a. Connect to the cluster

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Kubernetes Engine Kubernetes clusters CREATE DEPLOY REFRESH OPERATIONS HELP ASSISTANT LEARN

OVERVIEW OBSERVABILITY COST OPTIMISATION

Filter Enter property name or value

Status	Name	Location	Mode	Number of nodes	Total vCPUs	Total memory	Notifications	Labels
<input checked="" type="checkbox"/>	<a href="#">autopilot-cluster-1</a>	us-central1	Autopilot	0	0	0 GB		
<input checked="" type="checkbox"/>	<a href="#">autopilot-cluster-2</a>	us-central1	Autopilot	0	0	0 GB		
<input checked="" type="checkbox"/>	<a href="#">devops-assignment-cluster-1</a>	australia-southeast1	Autopilot	0	0	0 GB		

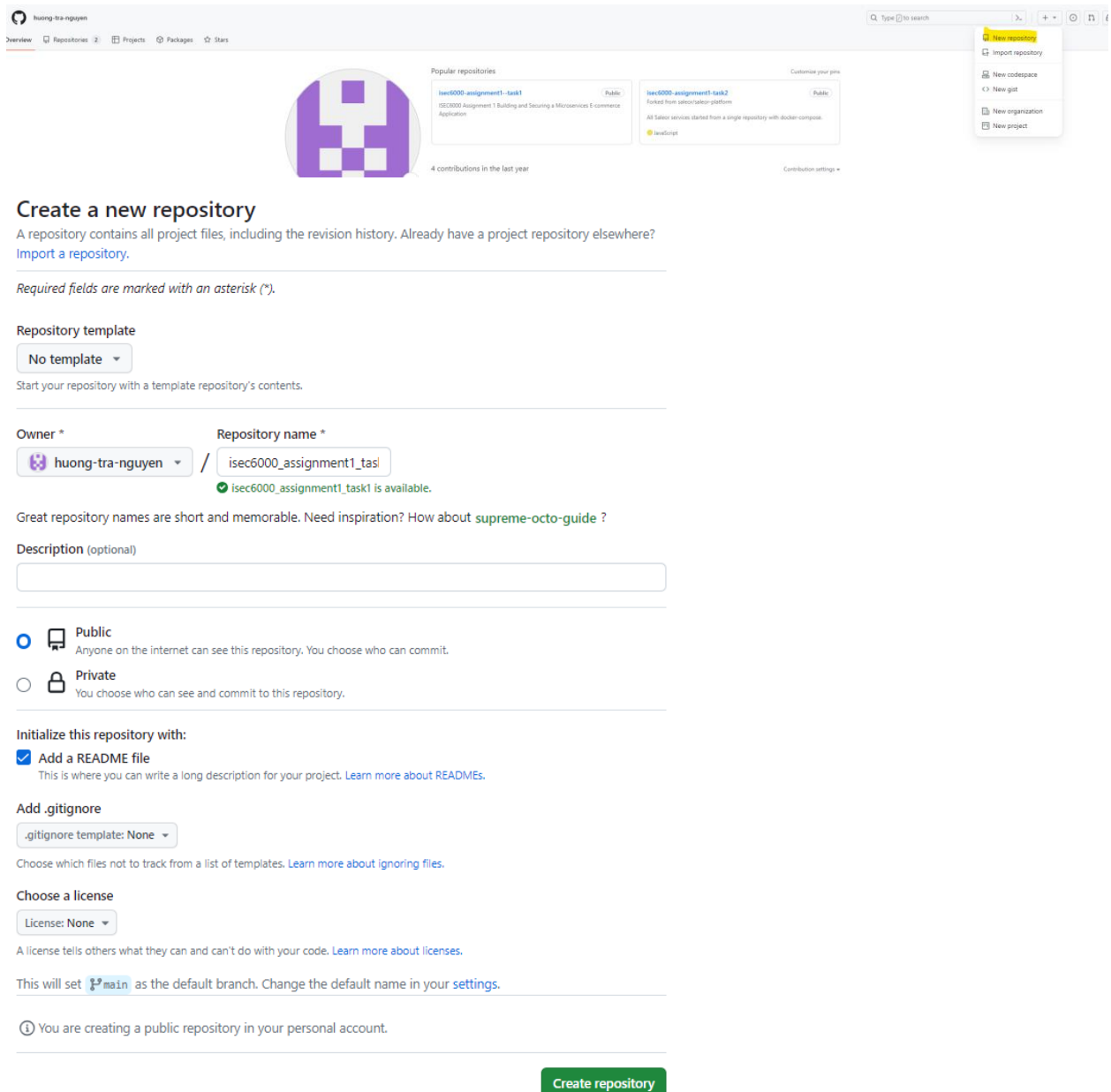
Edit  
Comment  
Delete

### b. Authenticate kubectl with the GKE cluster

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to prefab-mountain-397314.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
cs@prefab-mountain-397314:~$ gcloud container clusters get-credentials autopilot-cluster-2 --region us-central1 --project prefab-mountain-397314
```

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to prefab-mountain-397314.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
trahuong2711@cloudshell:~ (prefab-mountain-397314)$ gcloud container clusters get-credentials autopilot-cluster-2 --region us-central1 --project prefab-mountain-397314
Fetching cluster endpoint and auth data.
kubectl entry generated for autopilot-cluster-2.
trahuong2711@cloudshell:~ (prefab-mountain-397314)$
```

3. Set up a private GitHub repository to store the project files.
  - a. Create a Github repository



huong-tra-nguyen

Overview Repositories Projects Packages Stars

Popular repositories

isec6000\_assignment1\_tas1 Public Application

isec6000\_assignment1\_tas2 Public Forked from isec6000\_assignment1\_tas1

4 contributions in the last year

Create a new repository

Import repository

New codespace

New gist

New organization

New project

## Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository.](#)

Required fields are marked with an asterisk (\*).

### Repository template

No template

Start your repository with a template repository's contents.

Owner \*

huong-tra-nguyen

Repository name \*

isec6000\_assignment1\_tas1

isec6000\_assignment1\_tas1 is available.

Great repository names are short and memorable. Need inspiration? How about [supreme-octo-guide](#) ?

Description (optional)

Public

Anyone on the internet can see this repository. You choose who can commit.

Private

You choose who can see and commit to this repository.

Initialize this repository with:

☒ Add a README file

This is where you can write a long description for your project. [Learn more about READMEs.](#)

Add .gitignore

.gitignore template: None

Choose which files not to track from a list of templates. [Learn more about ignoring files.](#)

Choose a license

License: None

A license tells others what they can and can't do with your code. [Learn more about licenses.](#)

This will set `main` as the default branch. Change the default name in your [settings](#).

You are creating a public repository in your personal account.

Create repository