Create a new Kubernetes cluster

← Create a Kubernetes cluster   ⊞ ADD NODE POOL   🗑 REMOVE NODE POOL   📄 USE A SETUP GUIDE ▾   📋 HELP ASSISTANT

- • Cluster basics

NODE POOLS

- • default-pool   ⌄

CLUSTER

- • Automation
- • Networking
- • Security
- • Metadata
- • Features

Cluster basics

The new cluster will be created with the name, version, and in the location you specify here. After the cluster is created, name and location can't be changed.

> ℹ To experiment with an affordable cluster, try **My first cluster** in the Cluster set-up guides

Name
my-cluster   ❓

Location type
Resource prices may vary between certain regions. Learn more

- ● Zonal
- ○ Regional

Zone
us-central1-a   ▾ ❓

☐ Specify default node locations   ❓

Current default: us-central1-a

Control plane version

Choose a release channel for automatic management of your cluster's version and upgrade cadence. Choose a static version for more direct management of your cluster's version. Learn more.

- ○ Static version
- ● Release channel

Release channel
Regular channel (default)   ▾

Version
1.21.6-gke.1503 (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

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NODE POOLS

- • default-pool   ⌃
  - • Nodes
  - • Security
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Node pool details

The new cluster will be created with at least one node pool. A node pool is a template for groups of nodes created in this cluster. More node pools can be added and removed after cluster creation.

Name
default-pool

Control plane version - 1.21.6-gke.1503

Size

Number of nodes *
1

Pod address range limits the maximum size of the cluster. Learn more

☐ Enable autoscaling   ❓

☐ Specify node locations   ❓

Default: us-central1-a

Automation

☑ Enable auto-upgrade   ❓

> ⚠ Clusters smaller than 3 nodes may experience downtime during upgrades

☑ Enable auto-repair   ❓

Surge upgrade   ❓

Max surge *   Max unavailable *
1   0

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- default-pool   ⌃
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Nodes

These node settings will be used when new nodes are created using this node pool.

Image type
Container-Optimized OS with containerd (cos_containerd) (default)   ▾   ❓

⚠   The default Linux node image for newly created clusters and node pools with version 1.21.6-gke.1503 or later is Container-optimized OS with Containerd. For Windows node pools using version 1.21 or later, Containerd is also the recommended runtime. Since Dockershim is being deprecated by Kubernetes project, GKE will deprecate Docker node images. We recommend that you migrate to containerd node images as soon as possible. Learn more about the different node images.

Machine Configuration ❓

Machine family

| GENERAL-PURPOSE | COMPUTE-OPTIMIZED | MEMORY-OPTIMIZED | GPU |

High-performance machine types for compute-intensive workloads

Series
C2   ▾
Powered by Intel Cascade Lake CPU platform

Machine type
c2-standard-4 (4 vCPU, 16 GB memory)   ▾

	vCPU	Memory
	4	16 GB

⌄ CPU PLATFORM AND GPU

Boot disk type
Standard persistent disk   ▾   ❓

Boot disk size (GB)
100   ❓

☐ Enable customer-managed encryption for boot disk   ❓

Local SSD disks   ❓

☐ Enable preemptible nodes   ❓

Networking

ℹ   The cluster settings specify a maximum of 110 Pods per node, but you can override that setting at the node pool level.

Maximum Pods per node
110   ❓

Connect to the cluster

Name ⫶	Location	Number of nodes	Total vCPUs	Total memory	Notifications	Labels
my-cl...						

Connect to the cluster

You can connect to your cluster via command-line or using a dashboard.

Command-line access

Configure kubectl ↗ command line access by running the following command:

```
$ gcloud container clusters get-credentials my-cluster --zone us-central1-a --project cs-571-341522    ⧉
```

RUN IN CLOUD SHELL

Cloud Console dashboard

You can view the workloads running in your cluster in the Cloud Console Workloads dashboard .

OPEN WORKLOADS DASHBOARD

OK

```
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
qian19602@cloudshell:~ (cs-571-341522)$ gcloud container clusters get-credentials my-cluster --zone us-central1-a --project cs-571-341522
Fetching cluster endpoint and auth data.
kubeconfig entry generated for my-cluster.
qian19602@cloudshell:~ (cs-571-341522)$ █
```

Download the project from gibhub

```
(base) qian19602@cloudshell:~ (cs-571-341522)$ git clone https://github.com/Quan25/flask-summary.git final_pro
ject
Cloning into 'final_project'...
remote: Enumerating objects: 191, done.
remote: Counting objects: 100% (191/191), done.
remote: Compressing objects: 100% (136/136), done.
remote: Total 191 (delta 91), reused 148 (delta 51), pack-reused 0
Receiving objects: 100% (191/191), 710.58 KiB | 17.33 MiB/s, done.
Resolving deltas: 100% (91/91), done.
(base) qian19602@cloudshell:~ (cs-571-341522)$ []
```

Type the following command to download rough.zip to your directory wget
--load-cookies /tmp/cookies.txt
"https://docs.google.com/uc?export=download&confirm=$(wget --quiet --savecookies
/tmp/cookies.txt --keep-session-cookies --no-check-certificate
'https://drive.google.com/file/d/1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH/' -O- | sed - rn
's/.confirm=([0-9A-Za-z_]+)./\1\n/p')&id=1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH" -O
rough.zip && rm -rf /tmp/cookies.txt

```
Cannot open cookies file '/tmp/cookies.txt': No such file or directory
--2022-04-11 17:32:50--  https://docs.google.com/uc?export=download&confirm=&id=1RxfZOYyNvzvCf37_vABfJMkohAsEZK
tH
Resolving docs.google.com (docs.google.com)... 173.194.202.139, 173.194.202.138, 173.194.202.102, ...
Connecting to docs.google.com (docs.google.com)|173.194.202.139|:443... connected.
HTTP request sent, awaiting response... 303 See Other
Location: https://doc-14-ao-docs.googleusercontent.com/docs/securesc/ha0ro937gcuc7l7deffksulhg5h7mbp1/bo1rajmgt
gaf5d1ch2i453psq5areofk/1649698350000/09591049636102722091/*/1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH?e=download [foll
owing]
Warning: wildcards not supported in HTTP.
--2022-04-11 17:32:56--  https://doc-14-ao-docs.googleusercontent.com/docs/securesc/ha0ro937gcuc7l7deffksulhg5h
7mbp1/bo1rajmgtgaf5d1ch2i453psq5areofk/1649698350000/09591049636102722091/*/1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH?e
=download
Resolving doc-14-ao-docs.googleusercontent.com (doc-14-ao-docs.googleusercontent.com)... 74.125.20.132, 2607:f8
b0:400e:c07::84
Connecting to doc-14-ao-docs.googleusercontent.com (doc-14-ao-docs.googleusercontent.com)|74.125.20.132|:443...
 connected.
HTTP request sent, awaiting response... 200 OK
Length: 3916745 (3.7M) [application/zip]
Saving to: 'rough.zip'

rough.zip              100%[===========================================>]   3.73M  --.-KB/s    in 0.04s

2022-04-11 17:32:56 (89.1 MB/s) - 'rough.zip' saved [3916745/3916745]
```

Unzip rough.zip

```
qian19602@cloudshell:~ (cs-571-341522)$ unzip rough.zip
Archive:  rough.zip
   creating: RELEASE-1.5.5/
   creating: RELEASE-1.5.5/data/
   creating: RELEASE-1.5.5/data/WordNet-2.0-Exceptions/
  inflating: RELEASE-1.5.5/data/WordNet-2.0-Exceptions/adj.exc
  inflating: RELEASE-1.5.5/data/WordNet-2.0-Exceptions/verb.exc
  inflating: RELEASE-1.5.5/data/WordNet-2.0-Exceptions/adv.exc
  inflating: RELEASE-1.5.5/data/WordNet-2.0-Exceptions/WordNet-2.0.exc.db
  inflating: RELEASE-1.5.5/data/WordNet-2.0-Exceptions/buildExeptionDB.pl
  inflating: RELEASE-1.5.5/data/WordNet-2.0-Exceptions/noun.exc
  inflating: RELEASE-1.5.5/data/WordNet-2.0.exc.db
  inflating: RELEASE-1.5.5/data/WordNet-1.6.exc.db
  inflating: RELEASE-1.5.5/data/smart_common_words.txt
   creating: RELEASE-1.5.5/data/WordNet-1.6-Exceptions/
  inflating: RELEASE-1.5.5/data/WordNet-1.6-Exceptions/adj.exc
  inflating: RELEASE-1.5.5/data/WordNet-1.6-Exceptions/verb.exc
  inflating: RELEASE-1.5.5/data/WordNet-1.6-Exceptions/adv.exc
  inflating: RELEASE-1.5.5/data/WordNet-1.6-Exceptions/WordNet-1.6.exc.db
  inflating: RELEASE-1.5.5/data/WordNet-1.6-Exceptions/buildExeptionDB.pl
  inflating: RELEASE-1.5.5/data/WordNet-1.6-Exceptions/noun.exc
   creating: RELEASE-1.5.5/sample-output/
```

Install libxml-parser-perl, it is essential for installing ROUGE-1.5.5 sudo apt-get install
libxml-parser-perl

```
qian19602@cloudshell:~/final_project (cs-571-341522)$ sudo apt-get install libxml-parser-perl
**************************************************************************
You are running apt-get inside of Cloud Shell. Note that your Cloud Shell
machine is ephemeral and no system-wide change will persist beyond session end.

To suppress this warning, create an empty ~/.cloudshell/no-apt-get-warning file.
The command will automatically proceed in 5 seconds or on any key.

Visit https://cloud.google.com/shell/help for more information.
**************************************************************************
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
   libauthen-sasl-perl libclone-perl libdata-dump-perl libencode-locale-perl libfile-listing-perl
   libfont-afm-perl libhtml-form-perl libhtml-format-perl libhtml-parser-perl libhtml-tagset-perl
   libhtml-tree-perl libhttp-cookies-perl libhttp-daemon-perl libhttp-date-perl libhttp-message-perl
   libhttp-negotiate-perl libio-html-perl libio-socket-ssl-perl liblwp-mediatypes-perl
   liblwp-protocol-https-perl libmailtools-perl libnet-http-perl libnet-smtp-ssl-perl libnet-ssleay-perl
   libtry-tiny-perl liburi-perl libwww-perl libwww-robotrules-perl perl-openssl-defaults
Suggested packages:
   libdigest-hmac-perl libgssapi-perl libcrypt-ssleay-perl libauthen-ntlm-perl
The following NEW packages will be installed:
   libauthen-sasl-perl libclone-perl libdata-dump-perl libencode-locale-perl libfile-listing-perl
   libfont-afm-perl libhtml-form-perl libhtml-format-perl libhtml-parser-perl libhtml-tagset-perl
   libhtml-tree-perl libhttp-cookies-perl libhttp-daemon-perl libhttp-date-perl libhttp-message-perl
   libhttp-negotiate-perl libio-html-perl libio-socket-ssl-perl liblwp-mediatypes-perl
   liblwp-protocol-https-perl libmailtools-perl libnet-http-perl libnet-smtp-ssl-perl libnet-ssleay-perl
```

sudo cpan install XML::Parser::PerlSAX

```
qian19602@cloudshell:~/final_project (cs-571-341522)$ cd RELEASE-1.5.5
qian19602@cloudshell:~/final_project/RELEASE-1.5.5 (cs-571-341522)$ sudo cpan install XML::Parser::PerlSAX
Loading internal logger. Log::Log4perl recommended for better logging

CPAN.pm requires configuration, but most of it can be done automatically.
If you answer 'no' below, you will enter an interactive dialog for each
configuration option instead.

Would you like to configure as much as possible automatically? [yes] yes
Fetching with LWP:
http://www.cpan.org/authors/01mailrc.txt.gz
Reading '/root/.cpan/sources/authors/01mailrc.txt.gz'
.........................................................................DONE
Fetching with LWP:
http://www.cpan.org/modules/02packages.details.txt.gz
Reading '/root/.cpan/sources/modules/02packages.details.txt.gz'
   Database was generated on Mon, 11 Apr 2022 20:55:46 GMT
.............
```

sudo cpan install XML::RegExp

```
qian19602@cloudshell:~/final_project/RELEASE-1.5.5 (cs-571-341522)$ sudo cpan install XML::RegExp
Loading internal logger. Log::Log4perl recommended for better logging
Reading '/root/.cpan/Metadata'
   Database was generated on Mon, 11 Apr 2022 20:55:46 GMT
Running install for module 'XML::RegExp'
Fetching with LWP:
http://www.cpan.org/authors/id/T/TJ/TJMATHER/XML-RegExp-0.04.tar.gz
Fetching with LWP:
http://www.cpan.org/authors/id/T/TJ/TJMATHER/CHECKSUMS
Checksum for /root/.cpan/sources/authors/id/T/TJ/TJMATHER/XML-RegExp-0.04.tar.gz ok
'YAML' not installed, will not store persistent state
Configuring T/TJ/TJMATHER/XML-RegExp-0.04.tar.gz with Makefile.PL
Checking if your kit is complete...
Looks good
Generating a Unix-style Makefile
Writing Makefile for XML::RegExp
Writing MYMETA.yml and MYMETA.json
   TJMATHER/XML-RegExp-0.04.tar.gz
   /usr/bin/perl Makefile.PL INSTALLDIRS=site -- OK
Running make for T/TJ/TJMATHER/XML-RegExp-0.04.tar.gz
cp lib/XML/RegExp.pm blib/lib/XML/RegExp.pm
Manifying 1 pod document
   TJMATHER/XML-RegExp-0.04.tar.gz
   /usr/bin/make -- OK
The current configuration of allow_installing_outdated_dists is 'ask/no', but for this option we would need 'C
PAN::DistnameInfo' installed. Please install 'CPAN::DistnameInfo' as soon as possible. As long as we are not e
quipped with 'CPAN::DistnameInfo' this option does not take effect
Running make test for TJMATHER/XML-RegExp-0.04.tar.gz
PERL DL NONLAZY=1 "/usr/bin/perl" "-Iblib/lib" "-Iblib/arch" test.pl
```

Sudo cpan install XML::DOM

```
qian19602@cloudshell:~/final_project/RELEASE-1.5.5 (cs-571-341522)$ sudo cpan install XML::DOM
Loading internal logger. Log::Log4perl recommended for better logging
Reading '/root/.cpan/Metadata'
  Database was generated on Mon, 11 Apr 2022 20:55:46 GMT
Running install for module 'XML::DOM'
Fetching with LWP:
http://www.cpan.org/authors/id/T/TJ/TJMATHER/XML-DOM-1.46.tar.gz
Checksum for /root/.cpan/sources/authors/id/T/TJ/TJMATHER/XML-DOM-1.46.tar.gz ok
'YAML' not installed, will not store persistent state
Configuring T/TJ/TJMATHER/XML-DOM-1.46.tar.gz with Makefile.PL
Checking if your kit is complete...
Looks good
Generating a Unix-style Makefile
Writing Makefile for XML::DOM
Writing MYMETA.yml and MYMETA.json
  TJMATHER/XML-DOM-1.46.tar.gz
  /usr/bin/perl Makefile.PL INSTALLDIRS=site -- OK
Running make for T/TJ/TJMATHER/XML-DOM-1.46.tar.gz
cp lib/XML/DOM/NamedNodeMap.pod blib/lib/XML/DOM/NamedNodeMap.pod
cp lib/XML/DOM/CharacterData.pod blib/lib/XML/DOM/CharacterData.pod
cp lib/XML/DOM/NamedNodeMap.pm blib/lib/XML/DOM/NamedNodeMap.pm
cp lib/XML/DOM/Text.pod blib/lib/XML/DOM/Text.pod
cp lib/XML/DOM/Element.pod blib/lib/XML/DOM/Element.pod
cp lib/XML/DOM/DOMException.pm blib/lib/XML/DOM/DOMException.pm
cp lib/XML/DOM/AttDef.pod blib/lib/XML/DOM/AttDef.pod
cp lib/XML/DOM/CDATASection.pod blib/lib/XML/DOM/CDATASection.pod
cp lib/XML/DOM/DocumentFragment.pod blib/lib/XML/DOM/DocumentFragment.pod
cp lib/XML/DOM/Attr.pod blib/lib/XML/DOM/Attr.pod
cp lib/XML/DOM/ProcessingInstruction.pod blib/lib/XML/DOM/ProcessingInstruction.pod
```

Make sure you can run this, which means the ROUGE is successfully installed
./runROUGE-test.pl

```
qian19602@cloudshell:~/final_project/RELEASE-1.5.5 (cs-571-341522)$ ./runROUGE-test.pl
../ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -a ROUGE-test.xml > ../sample-output/ROUGE-tes
t-c95-2-1-U-r1000-n4-w1.2-a.out
../ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -a -m ROUGE-test.xml > ../sample-output/ROUGE-
test-c95-2-1-U-r1000-n4-w1.2-a-m.out
../ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -a -m -s ROUGE-test.xml > ../sample-output/ROU
GE-test-c95-2-1-U-r1000-n4-w1.2-a-m-s.out
../ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -l 10 -a ROUGE-test.xml > ../sample-output/ROU
GE-test-c95-2-1-U-r1000-n4-w1.2-l10-a.out
../ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -l 10 -a -m ROUGE-test.xml > ../sample-output/
ROUGE-test-c95-2-1-U-r1000-n4-w1.2-l10-a-m.out
../ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -l 10 -a -m -s ROUGE-test.xml > ../sample-outp
ut/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-l10-a-m-s.out
../ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -b 75 -a ROUGE-test.xml > ../sample-output/ROU
GE-test-c95-2-1-U-r1000-n4-w1.2-b75-a.out
../ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -b 75 -a -m ROUGE-test.xml > ../sample-output/
ROUGE-test-c95-2-1-U-r1000-n4-w1.2-b75-a-m.out
../ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -b 75 -a -m -s ROUGE-test.xml > ../sample-outp
```

git clone https://github.com/bheinzerling/pyrouge.git
cd pyrouge

```
qian19602@cloudshell:~/final_project/RELEASE-1.5.5 (cs-571-341522)$ git clone https://github.com/bheinzerling/
pyrouge.git
Cloning into 'pyrouge'...
remote: Enumerating objects: 551, done.
remote: Total 551 (delta 0), reused 0 (delta 0), pack-reused 551
Receiving objects: 100% (551/551), 123.17 KiB | 5.35 MiB/s, done.
Resolving deltas: 100% (198/198), done.
qian19602@cloudshell:~/final_project/RELEASE-1.5.5 (cs-571-341522)$ cd pyrouge
qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ ls
bin  CHANGES.txt  LICENSE.txt  PKG-INFO  pyrouge  README.rst  setup.cfg  setup.py
```

Download the latest shell script wget
https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86_64.sh Make the
miniconda installation script executable chmod +x Miniconda3-latest-Linux-x86_64.sh

```
qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ wget https://repo.anaconda.com/min
iconda/Miniconda3-latest-Linux-x86_64.sh
--2022-04-11 21:55:01--  https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86_64.sh
Resolving repo.anaconda.com (repo.anaconda.com)... 104.16.131.3, 104.16.130.3, 2606:4700::6810:8303, ...
Connecting to repo.anaconda.com (repo.anaconda.com)|104.16.131.3|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 75660608 (72M) [application/x-sh]
Saving to: 'Miniconda3-latest-Linux-x86_64.sh'

Miniconda3-latest-Linux-x86 100%[===========================================>]  72.16M  94.4MB/s    in 0.8s

2022-04-11 21:55:01 (94.4 MB/s) - 'Miniconda3-latest-Linux-x86_64.sh' saved [75660608/75660608]

qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ chmod +x Miniconda3-latest-Linux-x
86_64.sh
qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ ls
bin           LICENSE.txt                PKG-INFO  README.rst  setup.py
CHANGES.txt   Miniconda3-latest-Linux-x86 64.sh  pyrouge    setup.cfg
```

Run miniconda installation script ./Miniconda3-latest-Linux-x86_64.sh

```
qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ ./Miniconda3-latest-Linux-x86_64.s
h

Welcome to Miniconda3 py39_4.11.0

In order to continue the installation process, please review the license
agreement.
Please, press ENTER to continue
>>>
===================================
End User License Agreement - Miniconda
===================================

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ates are provided with their separate governing terms, they are deemed part of Miniconda licensed to you as pr
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```

Create and activate a Python environment conda create -n myenv python=3.6

```
qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ conda activate base
(base) qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ conda create -n myenv pytho
n=3.6
WARNING: A conda environment already exists at '/home/qian19602/miniconda3/envs/myenv'
Remove existing environment (y/[n])? y

Collecting package metadata (current_repodata.json): done
Solving environment: done

==> WARNING: A newer version of conda exists. <==
  current version: 4.11.0
  latest version: 4.12.0

Please update conda by running

    $ conda update -n base -c defaults conda
```

conda activate myenv

```
(base) qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ conda activate myenv
(myenv) qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ pip3 install -e .
```

pip install -e .

```
(myenv) qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ pip3 install -e .
Obtaining file:///home/qian19602/final_project/RELEASE-1.5.5/pyrouge
Installing collected packages: pyrouge
  Running setup.py develop for pyrouge
Successfully installed pyrouge-0.1.3
```

install pytorch 1.1.0 with this comand conda install pytorch-cpu==1.1.0
torchvision-cpu==0.3.0 cpuonly -c pytorch

```
(myenv) qian19602@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs-571-341522)$ conda install pytorch-cpu=
=1.1.0 torchvision-cpu==0.3.0 cpuonly -c pytorch
Collecting package metadata (current_repodata.json): done
Solving environment: failed with initial frozen solve. Retrying with flexible solve.
Solving environment: failed with repodata from current_repodata.json, will retry with next repodata source.
Collecting package metadata (repodata.json): done
Solving environment: done

==> WARNING: A newer version of conda exists. <==
  current version: 4.11.0
  latest version: 4.12.0

Please update conda by running

    $ conda update -n base -c defaults conda

## Package Plan ##

  environment location: /home/qian19602/miniconda3/envs/myenv

  added / updated specs:
    - cpuonly
    - pytorch-cpu==1.1.0
    - torchvision-cpu==0.3.0

The following packages will be downloaded:

    package                    |            build
    ---------------------------|-----------------
    blas-1.0                   |            mkl           6 KB
    certifi-2021.5.30          |   py36h06a4308_0        139 KB
    cffi-1.14.6                |   py36h400218f_0        220 KB
    cpuonly-2.0                |                0          2 KB  pytorch
    freetype-2.11.0            |       h70c0345_0        618 KB
```

Go back to your final project folder and download pretrained-bert-model wget
https://s3.amazonaws.com/models.huggingface.co/bert/bert-largeuncased.tar.gz

```
(myenv) qian19602@cloudshell:~/final_project (cs-571-341522)$ wget https://s3.amazonaws.com/models.huggingface
.co/bert/bert-large-uncased.tar.gz
--2022-04-11 22:16:17--  https://s3.amazonaws.com/models.huggingface.co/bert/bert-large-uncased.tar.gz
Resolving s3.amazonaws.com (s3.amazonaws.com)... 52.216.80.67
Connecting to s3.amazonaws.com (s3.amazonaws.com)|52.216.80.67|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1248501532 (1.2G) [application/x-tar]
Saving to: 'bert-large-uncased.tar.gz'

bert-large-uncased.tar.gz   100%[===========================================>]   1.16G  44.8MB/s    in 27s

2022-04-11 22:16:45 (44.0 MB/s) - 'bert-large-uncased.tar.gz' saved [1248501532/1248501532]
```

Change the path in BertParent.py in summarizer folder self.model =
BertModel.from_pretrained('YOUR_PROJECT_Directory/bert-largeuncased.tar.gz')

```
    def __init__(self, model_type: str, size: str):
        #self.model = self.model_handler[model_type].from_pretrained(self.size_handler[size][model_type])
        self.model = BertModel.from_pretrained('/home/qian19602/final_project/bert-large-uncased.tar.g  ')
        self.tokenizer = self.token_handler[model_type].from_pretrained(self.size_handler[size][model_type])
        self.vector_size = self.vector_handler[size][model_type]
        self.model_type = model_type
        self.model.eval()
```

Install all the following package
pip3 install flask
pip3 install pandas
pip3 install sklearn
pip3 install nltk
pip3 install gensim==3.8.3
pip3 install pytorch-pretrained-bert
pip3 install matplotlib==3.0.0

Download punkt package with nltk

```
(myenv) qian19602@cloudshell:~/final_project (cs-571-341522)$ python3
Python 3.6.13 |Anaconda, Inc.| (default, Jun  4 2021, 14:25:59)
[GCC 7.5.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import nltk
>>> nltk.download('punkt')
[nltk_data] Downloading package punkt to /home/qian19602/nltk_data...
[nltk_data]   Unzipping tokenizers/punkt.zip.
True
>>> exit()
(myenv) qian19602@cloudshell:~/final_project (cs-571-341522)$ █
```

Run app.py

```
(myenv) qian19602@cloudshell:~/final_project (cs-571-341522)$ python3 app.py
 * Serving Flask app 'app' (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployment.
   Use a production WSGI server instead.
 * Debug mode: on
WARNING:werkzeug: * Running on all addresses.
   WARNING: This is a development server. Do not use it in a production deployment.
INFO:werkzeug: * Running on http://172.17.0.4:5000/ (Press CTRL+C to quit)
INFO:werkzeug: * Restarting with stat
WARNING:werkzeug: * Debugger is active!
INFO:werkzeug: * Debugger PIN: 100-114-127
█
```

se Web Preview and change the port number to 5000

```
Requirement already satisfied: six>=1.5 in /home/qian19602/miniconda3/envs/myenv/lib/python3.6/site-packages (
from python-dateutil>=2.1->matplotlib==3.0.0) (1.16.0)
Installing collected packages: pyparsing, kiwisolver, cycler, matplotlib
Successfully installed cycler-0.1                                    ng-3.0.8
(myenv) qian19602@cloudshell:~/fin
BertParent.py  lecture_summarizer.
(myenv) qian19602@cloudshell:~/fin
-bash: cd--: command not found
(myenv) qian19602@cloudshell:~/fin
/home/qian19602/final_project
(myenv) qian19602@cloudshell:~/fin
app.py              demo.p                                          summarizerApp.py
argsParser.py       generat                                        templates
autoGrader.py       generat                                        test.txt
bert-large-uncased.tar.gz  guides.
css                 Instruc
(myenv) qian19602@cloudshell:~/fin
app.py              demo.p                                          summarizerApp.py
argsParser.py       generat                                        templates
autoGrader.py       generateSummary.py  RELEASE-1.5.5   students    test.txt
bert-large-uncased.tar.gz  guides.pdf        requirements.txt  students.txt
css                 Instructor.json    rough.zip    summarizer
(myenv) qian19602@cloudshell:~/final_project (cs-571-341522)$ python3
```

<div>
Change Preview Port

Port Number *
5000
</div>

<div>
CANCEL   CHANGE AND PREVIEW
</div>

Click change and preview

Please paste the contents that you want to summarize: Potential Summary:

● Add To Instructor
○ Add To Student

20%

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Test app

Please paste the contents that you want to summarize:

```
All cats have evolved as predatory hunting
mammals with particularly keen senses of
hearing, sight and smell. Anatomical
characteristics such as the rounded head
and skeletal structure suggest that all
the 37 recognised species within the
Felidae family evolved from a common
ancestor, probably living in Asia around
```

Potential Summary:

```
All cats have evolved as predatory hunting
mammals with particularly keen senses of
hearing, sight and smell. The rise and
fall of sea levels over many millennia
helped both to create conditions where
Felidae species could migrate and occupy
other geographical locations (when sea
levels were low) and isolate the
```

◉ Add To Instructor
○ Add To Student

Total Time cost:34.37s

🔵————————————— 20%

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Deploy this app on Kubernetes.

Create a Dockerfile:

```
FROM python:3.9-buster
COPY . /app
WORKDIR /app
RUN pip3 install -r  requirements.txt
ENV PORT 5000
EXPOSE 5000
ENTRYPOINT ["python3"]
CMD ["app.py"]
```

buliding a docker image.

```
qian19602@cloudshell:~/final_project (cs-571-341522)$ sudo docker build -t qian19602/automated_essay_s .
Sending build context to Docker daemon  1.342GB
Step 1/8 : FROM python:3.9-buster
3.9-buster: Pulling from library/python
b281ebec60d2: Pull complete
74dae484504b: Pull complete
21739e3ef21a: Pull complete
e98d6bb51c7c: Pull complete
517ebafd9747: Pull complete
72db0c197ab9: Pull complete
310232170046: Pull complete
c5be29056a71: Pull complete
ef34a4fcd9c7: Pull complete
Digest: sha256:43c5b7c3c73e7ed15680b93f278d715753f4d7c4f0cccfff7cb8cab4faa3e2fb
Status: Downloaded newer image for python:3.9-buster
 ---> b1ce4d348e6a
Step 2/8 : COPY . /app
 ---> 1ccb7408e2ea
Step 3/8 : WORKDIR /app
 ---> Running in be4cbbb90c7b
Removing intermediate container be4cbbb90c7b
 ---> e1164fdf3437
Step 4/8 : RUN pip3 install -r  requirements.txt
 ---> Running in 73b7aed0b716
Collecting gensim==3.8.3
```

sudo docker push qian19602/automated_essay_s

```
qian19602@cloudshell:~/final_project (cs-571-341522)$ sudo docker push qian19602/automated_essay_s
Using default tag: latest
The push refers to repository [docker.io/qian19602/automated_essay_s]
293ca305b1b7: Pushed
d55bc8b90600: Pushed
4c9efc7d50b2: Mounted from library/python
5fffd512537b: Mounted from library/python
fef7b0285d08: Mounted from library/python
dad95716bb70: Mounted from library/python
627d03f17169: Mounted from library/python
6b9b07bf46f5: Mounted from library/python
88139fe969ab: Mounted from library/python
83f556e4c108: Mounted from library/python
7362f7f77851: Mounted from library/python
latest: digest: sha256:a0b9bf6bf278b01ed776e300eed94a7f9fde2cdda86e4fc49def5fb325a07149 size: 2645
qian19602@cloudshell:~/final_project (cs-571-341522)$
```

create aes-deployment.ymal

```
apiVersion: apps/V1
kind: Deployment
metadata:
  name: aes-deployment
  labels:
    app: aes-deployment
spec:
  replicas: 1
  selector:
    matchLabels:
      app: aes-deployment
  template:
    metadata:
      labels:
        app: aes-deployment
    spec:
      containers:
        - image: qian19602/automated_essay_s
          imagePullPolicy: Always
          name: aes-deployment
          ports:
            - containerPort: 5000
```

create aes-service.ymal

```
apiVersion: v1
kind: Service
metadata:
  name: bookshelf-service
spec:
  type: LoadBalancer
  ports:
    -port: 5000
     targetPort: 5000
  selector:
    app: aes-deployment
```

minikube start

```
qian19602@cloudshell:~/final_project (cs-571-341522)$ minikube start
* minikube v1.25.2 on Debian 11.2 (amd64)
  - MINIKUBE_FORCE_SYSTEMD=true
  - MINIKUBE_HOME=/google/minikube
  - MINIKUBE_WANTUPDATENOTIFICATION=false
* Automatically selected the docker driver. Other choices: none, ssh
* Starting control plane node minikube in cluster minikube
* Pulling base image ...
* Downloading Kubernetes v1.23.3 preload ...
    > preloaded-images-k8s-v17-v1...: 505.68 MiB / 505.68 MiB  100.00% 264.56 M
* Creating docker container (CPUs=2, Memory=4000MB) ...
* Preparing Kubernetes v1.23.3 on Docker 20.10.12 ...
  - kubelet.cgroups-per-qos=false
  - kubelet.enforce-node-allocatable=""
  - kubelet.housekeeping-interval=5m
  - Generating certificates and keys ...
  - Booting up control plane ...
  - Configuring RBAC rules ...
* Verifying Kubernetes components...
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Enabled addons: default-storageclass, storage-provisioner
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

minikube addons enable ingress

```
qian19602@cloudshell:~/final_project (cs-571-341522)$ minikube addons enable ingress
  - Using image k8s.gcr.io/ingress-nginx/controller:v1.1.1
  - Using image k8s.gcr.io/ingress-nginx/kube-webhook-certgen:v1.1.1
  - Using image k8s.gcr.io/ingress-nginx/kube-webhook-certgen:v1.1.1
* Verifying ingress addon...
* The 'ingress' addon is enabled
```

kubectl apply -f aes-deployment.yaml

```
qian19602@cloudshell:~/final_project (cs-571-341522)$ kubectl apply -f aes-deployment.yaml
deployment.apps/aes-deployment created
qian19602@cloudshell:~/final_project (cs-571-341522)$ kubectl apply -f aes-service.yaml
```

kubectl apply -f aes-service.yaml

```
qian19602@cloudshell:~/final_project (cs-571-341522)$ kubectl apply -f aes-service.yaml
service/aes-service created
qian19602@cloudshell:~/final_project (cs-571-341522)$
```

```
qian19602@cloudshell:~/final_project (cs-571-341522)$ kubectl get service
NAME           TYPE           CLUSTER-IP      EXTERNAL-IP    PORT(S)          AGE
aes-service    LoadBalancer   10.99.183.31    <pending>      5000:30714/TCP   3m8s
kubernetes     ClusterIP      10.96.0.1       <none>         443/TCP          14m
```

```
qian19602@cloudshell:~/final_project (cs-571-341522)$ kubectl get pods
NAME                             READY    STATUS      RESTARTS      AGE
aes-deployment-6d855d84b-7j5lg   1/1      Running     0             10m
```

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