

# Automatic Essay Scoring System

## Create a new Kubernetes cluster

### 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

1.21.9-gke.1002 (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](#)

## my-cluster

Cluster creation can take five minutes or more.

DISMISS

25% - Cluster is being configured...

- Configuring
- 2. Deploying
- 3. Health checks

HIDE PROGRESS STEPS

DETAILS

NODES

STORAGE

LOGS

### Node Pools

Filter Filter node pools



Name ↑	Status	Version	Number of nodes	Machine type	Image type	Autoscaling
default-pool	Ok	1.21.9-gke.1002	0	c2-standard-4	Container-Optimized OS with containerd (cos_containerd)	Off

### Nodes

Could not get data from the cluster (unavailable)

Filter Filter nodes



Name ↑	Status	CPU requested	CPU allocatable	Memory requested	Memory allocatable
No rows to display					

## Connect to the cluster

```
horiguchi19618@cloudshell:~ (cs571-cloud-computing-project)$ gcloud container clusters get-credentials my-cluster --zone us-central1-a --project cs571-cloud-computing-project
Fetching cluster endpoint and auth data.
kubeconfig entry generated for my-cluster.
```

## Download the latest shell script

```
wget https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86_64.sh
```

```
horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ wget https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86_64.sh
--2022-04-05 18:04:56-- 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_64.sh 100%[=====>] 72.16M 212MB/s in 0.3s

2022-04-05 18:04:56 (212 MB/s) - 'Miniconda3-latest-Linux-x86_64.sh' saved [75660608/75660608]
```

## Make the miniconda installation script executable

```
chmod +x Miniconda3-latest-Linux-x86_64.sh
```

## Run miniconda installation script

```
./Miniconda3-latest-Linux-x86_64.sh
```

```
horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ chmod +x Miniconda3-latest-Linux-x86_64.sh
horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ ./Miniconda3-latest-Linux-x86_64.sh

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
=====
```

## Enter yes

```
Do you accept the license terms? [yes|no]
[no] >>>
Please answer 'yes' or 'no':
>>> yes

Miniconda3 will now be installed into this location:
/home/horiguchi19618/miniconda3

- Press ENTER to confirm the location
- Press CTRL-C to abort the installation
- Or specify a different location below
```

## Create and activate a Python environment

```
conda create -n myenv python=3.6
conda activate myenv
```

```
(base) horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ conda create -n myenv python=3.6
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

## Package Plan ##

environment location: /home/horiguchi19618/final_project/miniconda3/envs/myenv

added / updated specs:
- python=3.6

The following packages will be downloaded:
```

package	build	
ca-certificates-2022.3.29	h06a4308_0	117 KB
certifi-2020.6.20	pyhd3eb1b0_3	155 KB
openssl-1.1.1n	h7f8727e_0	2.5 MB
pip-21.2.2	py36h06a4308_0	1.8 MB
python-3.6.13	h12debd9_1	32.5 MB
setuptools-58.0.4	py36h06a4308_0	788 KB
sqlite-3.38.2	hc218d9a_0	1.0 MB

## Download project from github

```
cd final

git clone https://github.com/Quan25/flask-summary.git
```

```
(myenv) horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ ls
app.py          css              generateSummary.py  pycache          static           students.txt      templates
argsParser.py  demo.png        guides.pdf          README.md         Student.json     summarizer        test.txt
autoGrader.py  generateGrade.py Instructor.json     requirements.txt  students         summarizerApp.py
```

## Get the rough.zip into the project directory

```
wget --load-cookies /tmp/cookies.txt "https://docs.google.com/uc?export=download&confirm=$(wget --quiet --savecookies /tmp/cookies.txt
```

```
(myenv) horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ 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
wget: unrecognized option '--savecookies'
Usage: wget [OPTION]... [URL]...

Try 'wget --help' for more options.
--2022-04-05 18:57:16-- https://docs.google.com/uc?export=download&confirm=$(id=1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH
Resolving docs.google.com (docs.google.com)... 173.194.202.101, 173.194.202.102, 173.194.202.139, ...
Connecting to docs.google.com (docs.google.com)|173.194.202.101|:443... connected.
HTTP request sent, awaiting response... 303 See Other
Location: https://doc-0g-ak-docs.googleusercontent.com/docs/securesc/gv5s89q8i254jrr5r80i850s2c3mcn7j/oj4i8ek37h9kigipq8our28epvdssm5q/1649184975000/09591049636102722091/02582342125624383028Z/1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH?e=download [following]
--2022-04-05 18:57:21-- https://doc-0g-ak-docs.googleusercontent.com/docs/securesc/gv5s89q8i254jrr5r80i850s2c3mcn7j/oj4i8ek37h9kigipq8our28epvdssm5q/1649184975000/09591049636102722091/02582342125624383028Z/1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH?e=download
Resolving doc-0g-ak-docs.googleusercontent.com (doc-0g-ak-docs.googleusercontent.com)... 74.125.195.132, 2607:f8b0:400e:c09::84
Connecting to doc-0g-ak-docs.googleusercontent.com (doc-0g-ak-docs.googleusercontent.com)|74.125.195.132|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://docs.google.com/nonceSigner?nonce=a75eb7qv2p4uk&continue=https://doc-0g-ak-docs.googleusercontent.com/docs/securesc/gv5s89q8i254jrr5r80i850s2c3mcn7j/oj4i8ek37h9kigipq8our28epvdssm5q/1649184975000/09591049636102722091/02582342125624383028Z/1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH?e=3Ddownload&hash=7t9r4hm35rshnc5v7hlq9camd27br0dc [following]
--2022-04-05 18:57:21-- https://docs.google.com/nonceSigner?nonce=a75eb7qv2p4uk&continue=https://doc-0g-ak-docs.googleusercontent.com/docs/securesc/gv5s89q8i254jrr5r80i850s2c3mcn7j/oj4i8ek37h9kigipq8our28epvdssm5q/1649184975000/09591049636102722091/02582342125624383028Z/1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH?e=3Ddownload&hash=7t9r4hm35rshnc5v7hlq9camd27br0dc
Connecting to docs.google.com (docs.google.com)|173.194.202.101|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://doc-0g-ak-docs.googleusercontent.com/docs/securesc/gv5s89q8i254jrr5r80i850s2c3mcn7j/oj4i8ek37h9kigipq8our28epvdssm5q/1649184975000/09591049636102722091/02582342125624383028Z/1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH?e=download&nonce=a75eb7qv2p4uk&user=02582342125624383028Z&hash=72i20d6babbr61bhne7jfsd54bgpcklp [following]
--2022-04-05 18:57:21-- https://doc-0g-ak-docs.googleusercontent.com/docs/securesc/gv5s89q8i254jrr5r80i850s2c3mcn7j/oj4i8ek37h9kigipq8our28epvdssm5q/1649184975000/09591049636102722091/02582342125624383028Z/1RxfZOYyNvzvCf37_vABfJMkohAsEZKtH?e=download&nonce=a75eb7qv2p4uk&user=02582342125624383028Z&hash=72i20d6babbr61bhne7jfsd54bgpcklp
Connecting to doc-0g-ak-docs.googleusercontent.com (doc-0g-ak-docs.googleusercontent.com)|74.125.195.132|: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 0.03s

2022-04-05 18:57:22 (125 MB/s) - 'rough.zip' saved [3916745/3916745]
```

## Unzip rough.zip

```
(myenv) horiguchil9618@cloudshell:~/final_project (cs571-cloud-computing-project)$ 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/buildExceptionDB.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/buildExceptionDB.pl
  inflating: RELEASE-1.5.5/data/WordNet-1.6-Exceptions/noun.exc
  creating: RELEASE-1.5.5/sample-output/
  inflating: RELEASE-1.5.5/sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-b75-a-m.out
  inflating: RELEASE-1.5.5/sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-b75-a.out
  inflating: RELEASE-1.5.5/sample-output/DUC2002-BE-F.in.26.simple.out
  inflating: RELEASE-1.5.5/sample-output/verify-c95-2-1-U-r1000-n4-w1.2-b75-a-m-s.out
  inflating: RELEASE-1.5.5/sample-output/DUC2002-ROUGE.in.26.spl.out
  inflating: RELEASE-1.5.5/sample-output/DUC2002-ROUGE.in.26.spl.lst.out
  inflating: RELEASE-1.5.5/sample-output/verify-spl-c95-2-1-U-r1000-n4-w1.2-b75-a-m-s.out
  inflating: RELEASE-1.5.5/sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-a-m.out
  inflating: RELEASE-1.5.5/sample-output/DUC2002-BE-L.in.26.simple.out
  inflating: RELEASE-1.5.5/sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-l10-a.out
  inflating: RELEASE-1.5.5/sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-l10-a-m-s.out
  inflating: RELEASE-1.5.5/sample-output/DUC2002-BE-F.in.26.lst.out
  inflating: RELEASE-1.5.5/sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-b75-a-m-s.out
  inflating: RELEASE-1.5.5/sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-a-m-s.out
  inflating: RELEASE-1.5.5/sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-l10-a-m.out
  inflating: RELEASE-1.5.5/sample-output/DUC2002-BE-L.in.26.lst.out
  inflating: RELEASE-1.5.5/sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-a.out
  creating: RELEASE-1.5.5/docs/
  inflating: RELEASE-1.5.5/docs/COLING2004.pdf
  inflating: RELEASE-1.5.5/docs/NAACL2003.pdf
  inflating: RELEASE-1.5.5/docs/NTCIR4.pdf
  inflating: RELEASE-1.5.5/docs/ACL2004.pdf
  inflating: RELEASE-1.5.5/docs/WAS2004.pdf
  inflating: RELEASE-1.5.5/docs/ROUGE-Note-v1.4.2.pdf
  inflating: RELEASE-1.5.5/README.txt
  inflating: RELEASE-1.5.5/RELEASE-NOTE.txt
  inflating: RELEASE-1.5.5/runROUGE-test.pl
  creating: RELEASE-1.5.5/sample-test/
  creating: RELEASE-1.5.5/sample-test/Verify/
  inflating: RELEASE-1.5.5/sample-test/Verify/D00000.P.10.A.F.ISI08012003.0003.html
  inflating: RELEASE-1.5.5/sample-test/Verify/D00002.M.100.A.F.html
  inflating: RELEASE-1.5.5/sample-test/Verify/D00001.M.100.A.D.html
  inflating: RELEASE-1.5.5/sample-test/Verify/D00003.M.100.A.F.html
  inflating: RELEASE-1.5.5/sample-test/Verify/D00000.P.10.A.G.ISI08012003.0002.html
  inflating: RELEASE-1.5.5/sample-test/Verify/D00000.P.10.A.F.ISI08012003.0002.html
  inflating: RELEASE-1.5.5/sample-test/Verify/D00000.P.10.A.E.ISI08012003.0001.html
  inflating: RELEASE-1.5.5/sample-test/Verify/D00001.M.100.A.G.html
  inflating: RELEASE-1.5.5/sample-test/Verify/D00000.P.10.A.D.ISI08012003.0004.html
```

## Install libxml-parser-perl, it is essential for installing ROUGE-1.5.5

```
sudo apt-get install libxml-parser-perl
```

```
(myenv) horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ 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 libtry-tiny-perl liburi-perl
  libwww-perl libwww-robotrules-perl libxml-parser-perl perl openssl-defaults
0 upgraded, 30 newly installed, 0 to remove and 55 not upgraded.
Need to get 1,914 kB of archives.
After this operation, 5,609 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 https://deb.debian.org/debian bullseye/main amd64 libauthen-sasl-perl all 2.1600-1.1 [45.4 kB]
Get:2 https://deb.debian.org/debian bullseye/main amd64 libclone-perl amd64 0.45-1+b1 [15.4 kB]
Get:3 https://deb.debian.org/debian bullseye/main amd64 libdata-dump-perl all 1.23-1.1 [27.6 kB]
Get:4 https://deb.debian.org/debian bullseye/main amd64 libencode-locale-perl all 1.05-1.1 [13.2 kB]
Get:5 https://deb.debian.org/debian bullseye/main amd64 libhttp-date-perl all 6.05-1 [10.4 kB]
Get:6 https://deb.debian.org/debian bullseye/main amd64 libfile-listing-perl all 6.14-1 [12.4 kB]
Get:7 https://deb.debian.org/debian bullseye/main amd64 libfont-afm-perl all 1.20-3 [14.0 kB]
Get:8 https://deb.debian.org/debian bullseye/main amd64 libhtml-tagset-perl all 3.20-4 [13.0 kB]
Get:9 https://deb.debian.org/debian bullseye/main amd64 liburi-perl all 5.08-1 [90.6 kB]
Get:10 https://deb.debian.org/debian bullseye/main amd64 libhtml-parser-perl amd64 3.75-1+b1 [105 kB]
Get:11 https://deb.debian.org/debian bullseye/main amd64 libio-html-perl all 1.004-2 [16.1 kB]
Get:12 https://deb.debian.org/debian bullseye/main amd64 liblwp-mediatypes-perl all 6.04-1 [19.9 kB]
Get:13 https://deb.debian.org/debian bullseye/main amd64 libhttp-message-perl all 6.28-1 [79.6 kB]
Get:14 https://deb.debian.org/debian bullseye/main amd64 libhtml-form-perl all 6.07-1 [22.9 kB]
Get:15 https://deb.debian.org/debian bullseye/main amd64 libhtml-tree-perl all 5.07-2 [213 kB]
```

```
sudo cpan install XML::Parser::PerlSAX
```

```
(myenv) horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ 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 Tue, 05 Apr 2022 18:17:03 GMT
.....
New CPAN.pm version (v2.33) available.
[Currently running version is v2.27]
You might want to try
  install CPAN
  reload cpan
to both upgrade CPAN.pm and run the new version without leaving
the current session.
```

```
sudo cpan install XML::RegExp
```



```
(myenv) horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ sudo cpan install XML::RegExp
Loading internal logger. Log::Log4perl recommended for better logging
Reading '/root/.cpan/Metadata'
^[[4~ Database was generated on Tue, 05 Apr 2022 18:17:03 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
^[[4~The current configuration of allow installing outdated dists is 'ask/no', but for this option we would need 'CPAN::DistnameInfo'
installed. Please install 'CPAN::DistnameInfo' as soon as possible. As long as we are not equipped with 'CPAN::DistnameInfo' this opti
on 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
1..1
ok 1
CPAN: Self-Upgrade: 0.000000 to 0.000000
```

```
sudo cpan install XML::DOM
```

```
(myenv) horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ sudo cpan install XML::DOM
Loading internal logger. Log::Log4perl recommended for better logging
Reading '/root/.cpan/Metadata'
Database was generated on Tue, 05 Apr 2022 18:17:03 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/DOMEException.pm blib/lib/XML/DOM/DOMEException.pm
cp lib/XML/DOM/NodeList.pod blib/lib/XML/DOM/NodeList.pod
cp lib/XML/DOM/Notation.pod blib/lib/XML/DOM/Notation.pod
cp lib/XML/DOM/CharacterData.pod blib/lib/XML/DOM/CharacterData.pod
cp lib/XML/DOM/AttlistDecl.pod blib/lib/XML/DOM/AttlistDecl.pod
cp lib/XML/DOM/Document.pod blib/lib/XML/DOM/Document.pod
cp lib/XML/DOM/Node.pod blib/lib/XML/DOM/Node.pod
cp lib/XML/DOM/AttDef.pod blib/lib/XML/DOM/AttDef.pod
cp lib/XML/DOM/XMLDecl.pod blib/lib/XML/DOM/XMLDecl.pod
```

## Make sure you can run this, which means the ROUGE is successfully installed

```
./runROUGE-test.pl
```

```
(myenv) horiguchi19618@cloudshell:~/final_project/RELEASE-1.5.5 (cs571-cloud-computing-project)$ ./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-test-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/ROUGE-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 -1 10 -a ROUGE-test.xml > ../sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-110-a.out
./ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -1 10 -a -m ROUGE-test.xml > ../sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-110-a-m.out
./ROUGE-1.5.5.pl -e ../data -c 95 -2 -1 -U -r 1000 -n 4 -w 1.2 -1 10 -a -m -s ROUGE-test.xml > ../sample-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-110-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/ROUGE-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-output/ROUGE-test-c95-2-1-U-r1000-n4-w1.2-b75-a-m-s.out
./ROUGE-1.5.5.pl -e ../data -3 HM -z SIMPLE DUC2002-BE-F.in.26.1st 26 > ../sample-output/UC2002-BE-F.in.26.1st.out
```

## Install pyrouge



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

```
(myenv) horiguchi19618@cloudshell:~/final_project/RELEASE-1.5.5 (cs571-cloud-computing-project)$ 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 | 5.13 MiB/s, done.
Resolving deltas: 100% (198/198), done.
```

```
cd pyrouge
```

```
pip install -e .
```

```
(myenv) horiguchi19618@cloudshell:~/final_project/RELEASE-1.5.5 (cs571-cloud-computing-project)$ cd pyrouge
(myenv) horiguchi19618@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs571-cloud-computing-project)$ pip install -e
*****
Python 2 is deprecated. Upgrade to pip3 as soon as possible.
See https://cloud.google.com/python/docs/python2-sunset

Cloud Shell will soon default to Python 3.

To suppress this warning, create an empty ~/.cloudshell/pip3-default-warning file.
The command will automatically proceed in 5 seconds or on any key.
*****

Usage:
  pip install [options] <requirement specifier> [package-index-options] ...
  pip install [options] -r <requirements file> [package-index-options] ...
  pip install [options] [-e] <vcs project url> ...
  pip install [options] [-e] <local project path> ...
  pip install [options] <archive url/path> ...

-e option requires an argument
```

## Install pytorch 1.1.0 with this comand

```
conda install pytorch-cpu==1.1.0 torchvision-cpu==0.3.0 cpuonly -c pytorch
```

```
(myenv) horiguchi19618@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs571-cloud-computing-project)$ conda create -n myenv python=3.6
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

## Package Plan ##

  environment location: /home/horiguchi19618/miniconda3/envs/myenv
  added / updated specs:
    - python=3.6

The following packages will be downloaded:



| package                   | build          | size    |
|---------------------------|----------------|---------|
| ca-certificates-2022.3.29 | h06a4308_0     | 117 KB  |
| certifi-2020.6.20         | pyhd3eb1b0_3   | 155 KB  |
| openssl-1.1.1n            | h7f9727e_0     | 2.5 MB  |
| pip-21.2.2                | py36h06a4308_0 | 1.8 MB  |
| python-3.6.13             | h12debd9_1     | 32.5 MB |
| setuptools-58.0.4         | py36h06a4308_0 | 788 KB  |
| sqlite-3.38.2             | hc218d9a_0     | 1.0 MB  |


  Total: 38.9 MB

The following NEW packages will be INSTALLED:

  libgcc_mutex          pkgs/main/linux-64::libgcc_mutex-0.1-main
  openmp_mutex          pkgs/main/linux-64::openmp_mutex-4.5-1_gnu
  ca-certificates       pkgs/main/linux-64::ca-certificates-2022.3.29-h06a4308_0
  certifi               pkgs/main/noarch::certifi-2020.6.20-pyhd3eb1b0_3
  ld_impl_linux-64     pkgs/main/linux-64::ld_impl_linux-64-2.35.1-h7274673_9
  libffi                pkgs/main/linux-64::libffi-3.3-he6710b0_2
  libgcc-ng             pkgs/main/linux-64::libgcc-ng-9.3.0-h5101ec6_17
  libgomp               pkgs/main/linux-64::libgomp-9.3.0-h5101ec6_17
  libstdcxx-ng          pkgs/main/linux-64::libstdcxx-ng-9.3.0-hd4cf53a_17
  ncurses               pkgs/main/linux-64::ncurses-6.3-h7f9727e_2
  openssl               pkgs/main/linux-64::openssl-1.1.1n-h7f9727e_0
  pip                   pkgs/main/linux-64::pip-21.2.2-py36h06a4308_0
  python                pkgs/main/linux-64::python-3.6.13-h12debd9_1
  readline              pkgs/main/linux-64::readline-8.1.2-h7f9727e_1
  setuptools            pkgs/main/linux-64::setuptools-58.0.4-py36h06a4308_0
  sqlite                pkgs/main/linux-64::sqlite-3.38.2-hc218d9a_0
  tk                    pkgs/main/linux-64::tk-8.6.11-hiccmab5_0
  wheel                 pkgs/main/noarch::wheel-0.37.1-pyhd3eb1b0_0
  xz                    pkgs/main/linux-64::xz-5.2.5-h7b6447c_0
  zlib                  pkgs/main/linux-64::zlib-1.2.11-h7f9727e_4

Proceed ([y]/n)? y

Downloading and Extracting Packages
certifi-2020.6.20 | 155 KB | ##### | 100%
sqlite-3.38.2 | 1.0 MB | ##### | 100%
openssl-1.1.1n | 2.5 MB | ##### | 100%
python-3.6.13 | 32.5 MB | ##### | 100%
pip-21.2.2 | 1.8 MB | ##### | 100%
ca-certificates-2022 | 117 KB | ##### | 100%
setuptools-58.0.4 | 788 KB | ##### | 100%
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate myenv
#
# To deactivate an active environment, use
#
#     $ conda deactivate
#

(myenv) horiguchi19618@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs571-cloud-computing-project)$ conda activate myenv
(myenv) horiguchi19618@cloudshell:~/final_project/RELEASE-1.5.5/pyrouge (cs571-cloud-computing-project)$ conda install pytorch-cpu==1.
Collecting package metadata (current_repodata.json): done
Solving environment: failed with initial frozen solve. Retrying with flexible solve.
Solving environment: |█
```

## Go back to your final project folder and download pretrained-bert-model

```
wget https://s3.amazonaws.com/models.huggingface.co/bert/bert-large-uncased.tar.gz
```

```
(myenv) horiguchi19618@cloudshell:~/final_project (cs571-cloud-computing-project)$ wget https://s3.amazonaws.com/models.huggingface.co/bert/bert-large-uncased.tar.gz
--2022-04-05 19:15:25-- https://s3.amazonaws.com/models.huggingface.co/bert/bert-large-uncased.tar.gz
Resolving s3.amazonaws.com (s3.amazonaws.com)... 52.217.83.70
Connecting to s3.amazonaws.com (s3.amazonaws.com)[52.217.83.70]: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 46.3MB/s in 28s
2022-04-05 19:15:54 (42.1 MB/s) - 'bert-large-uncased.tar.gz' saved [1248501532/1248501532]
```

## Change the path in BertParent.py in summarizer folder

```

43
44
45
46     _, size: str):
47         ler[model_type].from_pretrained(self.size_handler[size][model_type])
48         retrained([' /home/horiguchi19618/final_project/bert-large-uncased'])
49         andler[model_type].from_pretrained(self.size_handler[size][model_type])
50     _handler[size][model_type]
51
52

```

## 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

```

python3

import nltk

nltk.download('punkt')

exit()

```

```

(base) horiguchi19618@cloudshell:~ (cs571-cloud-computing-project)$ pip install matplotlib
Requirement already satisfied: matplotlib in ./miniconda3/lib/python3.9/site-packages (3.5.0)
Requirement already satisfied: packaging>=20.0 in ./miniconda3/lib/python3.9/site-packages (from matplotlib) (21.3)
Requirement already satisfied: pillow>=6.2.0 in ./miniconda3/lib/python3.9/site-packages (from matplotlib) (9.1.0)
Requirement already satisfied: cycler>=0.10 in ./miniconda3/lib/python3.9/site-packages (from matplotlib) (0.11.0)
Requirement already satisfied: kiwisolver>=1.0.1 in ./miniconda3/lib/python3.9/site-packages (from matplotlib) (1.4.2)
Requirement already satisfied: setuptools-scm>=4 in ./miniconda3/lib/python3.9/site-packages (from matplotlib) (6.4.2)
Requirement already satisfied: numpy>=1.17 in ./miniconda3/lib/python3.9/site-packages (from matplotlib) (1.22.3)
Requirement already satisfied: pyparsing>=2.2.1 in ./miniconda3/lib/python3.9/site-packages (from matplotlib) (3.0.7)
Requirement already satisfied: python-dateutil>=2.7 in ./miniconda3/lib/python3.9/site-packages (from matplotlib) (2.8.2)
Requirement already satisfied: fonttools>=4.22.0 in ./miniconda3/lib/python3.9/site-packages (from matplotlib) (4.31.2)
Requirement already satisfied: six>=1.5 in ./miniconda3/lib/python3.9/site-packages (from python-dateutil>=2.7->matplotlib) (1.16.0)
Requirement already satisfied: setuptools in ./miniconda3/lib/python3.9/site-packages (from setuptools-scm>=4->matplotlib) (58.0.4)
Requirement already satisfied: tomli>=1.0.0 in ./miniconda3/lib/python3.9/site-packages (from setuptools-scm>=4->matplotlib) (2.0.1)
(base) horiguchi19618@cloudshell:~ (cs571-cloud-computing-project)$ python3
Python 3.9.7 (default, Sep 16 2021, 13:09:58)
[GCC 7.5.0] :: Anaconda, Inc. on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import nltk
nltk.>>> nltk.download('punkt')
[nltk data] Downloading package punkt to
[nltk data] /home/horiguchi19618/nltk data...
[nltk data] Unzipping tokenizers/punkt.zip.
True
>>> exit()

```

## Run app.py

- Due to lack of space in gcloud disk to execute and install dependencies, I reproduced everything again on my local machine as shown below. It is the same process as above.

```

(base) ricardo@Naka-Home:/mnt/c/Users/Ricardo/Documents/Projects/SFBU/Cloud/final-project$
sudo 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
INFO:werkzeug: * Running on http://0.0.0.0:5000/ (Press CTRL+C to quit)
INFO:werkzeug: * Restarting with stat
WARNING:werkzeug: * Debugger is active!
INFO:werkzeug: * Debugger PIN: 265-903-261

```

The screenshot shows a web browser with multiple tabs. The active tab is 'Flask Summary'. The address bar shows 'localhost:5000'. The page has a header with navigation links: 'Unauthorised', 'Home', 'next.js/examples/wi...', 'Course List', and 'kubernetes\_project...'. The main content area is divided into two columns. The left column is titled 'Please paste the contents that you want to summarize:' and contains a large empty text area. Below this text area are two radio buttons: 'Add To Instructor' (selected) and 'Add To Student'. Below the radio buttons is a progress bar showing 20% completion. At the bottom of the left column are three buttons: 'submit', 'Grade Students', and 'Reset'. The right column is titled 'Potential Summary:' and contains a large empty text area.

## Editing requirements.txt to create Dockerfile

```
gensim==3.8.3
pytorch_pretrained_bert
flask
pandas
sklearn
nltk
matplotlib==3.0.0
```

## Creating Dockerfile to upload image to Docker Hub

```
FROM python:3.7
COPY . /app
WORKDIR /app
RUN pip install --upgrade pip
RUN pip install -r requirements.txt
ENV PORT 5000
EXPOSE 5000
ENTRYPOINT ["python3"]
CMD ["app.py"]
```

## Generating the image

```
(base) ricardo@Naka-Home:/mnt/c/Users/Ricardo/Documents/Projects/SFBU/Cloud/final-project$ sudo docker build -t rnhori/grade .
[+] Building 63.0s (10/10) FINISHED
=> [internal] load build definition from Dockerfile 0.0s
=> => transferring dockerfile: 38B 0.0s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> [internal] load metadata for docker.io/library/python:3.7 0.8s
=> [internal] load build context 4.4s
=> => transferring context: 137.89kB 4.4s
=> CACHED [1/5] FROM docker.io/library/python:3.7@sha256:d5f8ad8ea577d61cd0456808e1566b8c859999bdb5ab0ab13d572 0.0s
=> [2/5] COPY . /app 1.0s
=> [3/5] WORKDIR /app 0.0s
=> [4/5] RUN pip install --upgrade pip 1.6s
=> [5/5] RUN pip install -r requirements.txt 46.6s
=> exporting to image 8.5s
=> => exporting layers 8.5s
=> => writing image sha256:d4d2f611b02f333768fd4a4a26c7955432e808260f524aa16fe7625224a0dba4 0.0s
=> => naming to docker.io/rnhori/grade 0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
```

## Uploading to DockerHub

```
(base) ricardo@Naka-Home:/mnt/c/Users/Ricardo/Documents/Projects/SFBU/Cloud/final-project$ docker push rnhori/grade
Using default tag: latest
The push refers to repository [docker.io/rnhori/grade]
28ed2cacde40: Pushed
fd0051cc51e6: Pushed
5f70bf18a086: Layer already exists
c6c61939c3f0: Pushed
9fc37d8a925a: Layer already exists
36937a9650fa: Layer already exists
39a6656848d5: Layer already exists
89f49a7a4e4a: Layer already exists
c5579a205adc: Layer already exists
7a7698dal7f2: Layer already exists
d59769727d80: Layer already exists
348622fdcc61: Layer already exists
4ac8bc2cd0be: Layer already exists
latest: digest: sha256:bd80b5d37c271cff2459b4edbf16a5c5deb2cfebeeccae9fb2daa13550170f1 size: 3063
```

## Create Cluster named 'grade'

```
gcloud container clusters create grade --num-nodes=1 --machine-type=e2-micro
\ --region=us-west1
```

```
(base) horiguchi19618@cloudshell: (cs571-cloud-computing-project)$ gcloud container clusters create kuba --num-nodes=1 --machine-type=e2-micro --region=us-west1
Default change: VPC-native is the default mode during cluster creation for versions greater than 1.21.0-gke.1500. To create advanced routes based clusters, please pass the '--no-enable-ip-alias' flag
Note: Your Pod address range ('--cluster-ip-v4-cidr') can accommodate at most 1008 node(s).
Creating cluster kuba in us-west1... Cluster is being health-checked (master is healthy)...done.
Created [https://console.google.com/v1/projects/cs571-cloud-computing-project/zones/us-west1/clusters/kuba].
To inspect the contents of your cluster, go to: https://console.cloud.google.com/kubernetes/workload/_gcloud/us-west1/kuba?project=cs571-cloud-computing-project
kubeconfig entry generated for kuba.
NAME: kuba
LOCATION: us-west1
MASTER VERSION: 1.21.6-gke.1503
MASTER IP: 34.145.8.145
MACHINE TYPE: e2-micro
NODE VERSION: 1.21.6-gke.1503
NUM NODES: 3
STATUS: RUNNING
```

## Create yaml file for deploy on Kubernetes

### grader-deployment.yaml

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: grader-deployment
  labels:
    app: grader-deployment
spec:
  replicas: 1
  selector:
    matchLabels:
      app: grader-deployment
  template:
    metadata:
      labels:
        app: grader-deployment
    spec:
      containers:
```

```
- image: rnhori/grade
  imagePullPolicy: Always
  name: grader-deployment
  ports:
    - containerPort: 5000
```

## Run deployment

```
kubectl apply -f grader-deployment.yaml
```

## Check pods

```
kubectl get pods
```

```
(base) horiguchi19618@cloudshell:~/final (cs571-cloud-computing-project)$ kubectl apply -f grader-deployment.yaml
deployment.apps/grader-deployment created
(base) horiguchi19618@cloudshell:~/final (cs571-cloud-computing-project)$ kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
grader-deployment-86bc444b6-fj287	0/1	ContainerCreating	0	2m34s

## Create service to access via LoadBalancer

### grader-service.yaml

```
apiVersion: v1
kind: Service
metadata:
  name: grader-service
spec:
  type: LoadBalancer
  ports:
    # service port in cluster
    - port: 5000
    # port to contact inside container
    targetPort: 5000
  selector:
    app: grader-deployment
```

### Run Service file

```
kubectl apply -f grader-service.yaml
```

Services & Ingress

REFRESH

CREATE INGRESS

DELETE

Cluster

Namespace

RESET

SAVE

SERVICESINGRESS

Services are sets of Pods with a network endpoint that can be used for discovery and load balancing. Ingresses are collections of rules for routing external HTTP(S) traffic to Services.

Filter

Is system object : False

Filter services and ingresses

<input type="checkbox"/>	Name ↑	Status	Type	Endpoints	Pods	Namespace	Clusters
<input type="checkbox"/>	grader-service	OK	External load balancer	35.233.144.18:5000	1/1	default	kubia

Services & Ingress - Kubernetes

Flask Summary

← → ↻

Not secure | 35.233.144.18:5000

Library

Portal

ProQuest

O'Reilly

Canvas FAQ

Canvas - NPU LMS...

My Drive - Google...

NPU - Course Mate...

Algorithm - Tutorial...

Silicon Valley Movie...

UML Tutorial

Please paste the contents that you want to summarize:

Add To Instructor

Add To Student

20%

submit

Grade Students

Reset

Potential Summary: