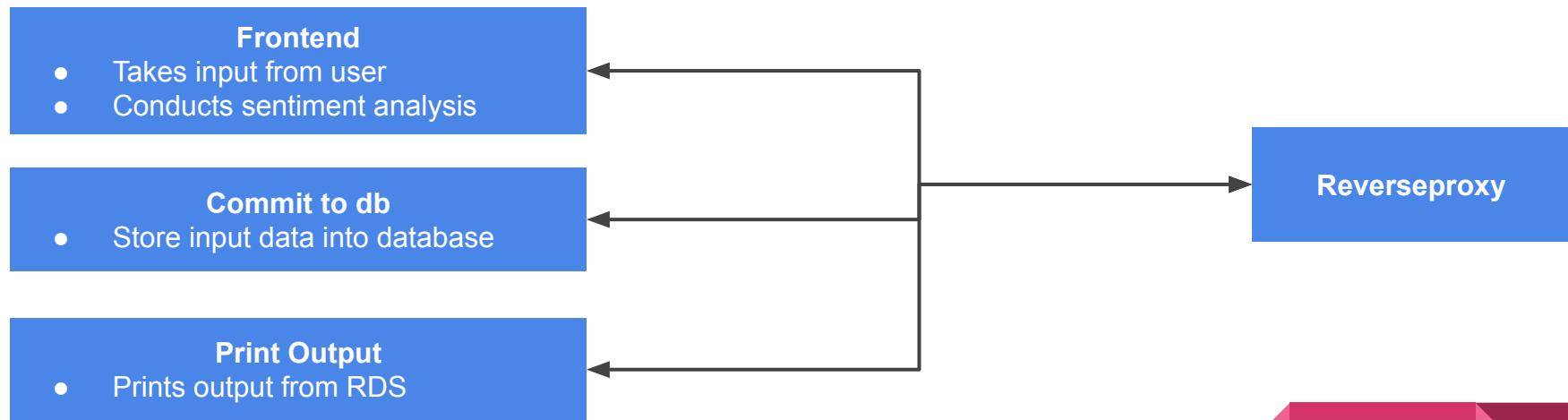


Capstone Project

Anubhav Aron

Brief Summary

Microservices



GitHub Repositories

<https://github.com/aronanubhav/capstonefrontend.git>

<https://github.com/aronanubhav/capstonecommittodb.git>

<https://github.com/aronanubhav/capstoneprintoutput.git>

<https://github.com/aronanubhav/capstonereverseproxy.git>

CapstoneSentiment App

- Takes a comment or text as input from users
- Conducts sentiment analysis of the input comment
- Commit user input data into AWS RDS
- Fetch data from RDS to webpage/html

Travis CI - Output (1/4)

arunanubhav / capstonefrontend build passing

Current Branches Build History Pull Requests More options

✓ main Update index.html

-o #10 passed

Ran for 1 min 4 sec
2 minutes ago

Commit c5dbc7d ⚡
Compare e674b25..c5dbc7d ⚡
Branch main ⚡

aronanubhav

Node.js: 13
AMD64

Job log View config

Worker information

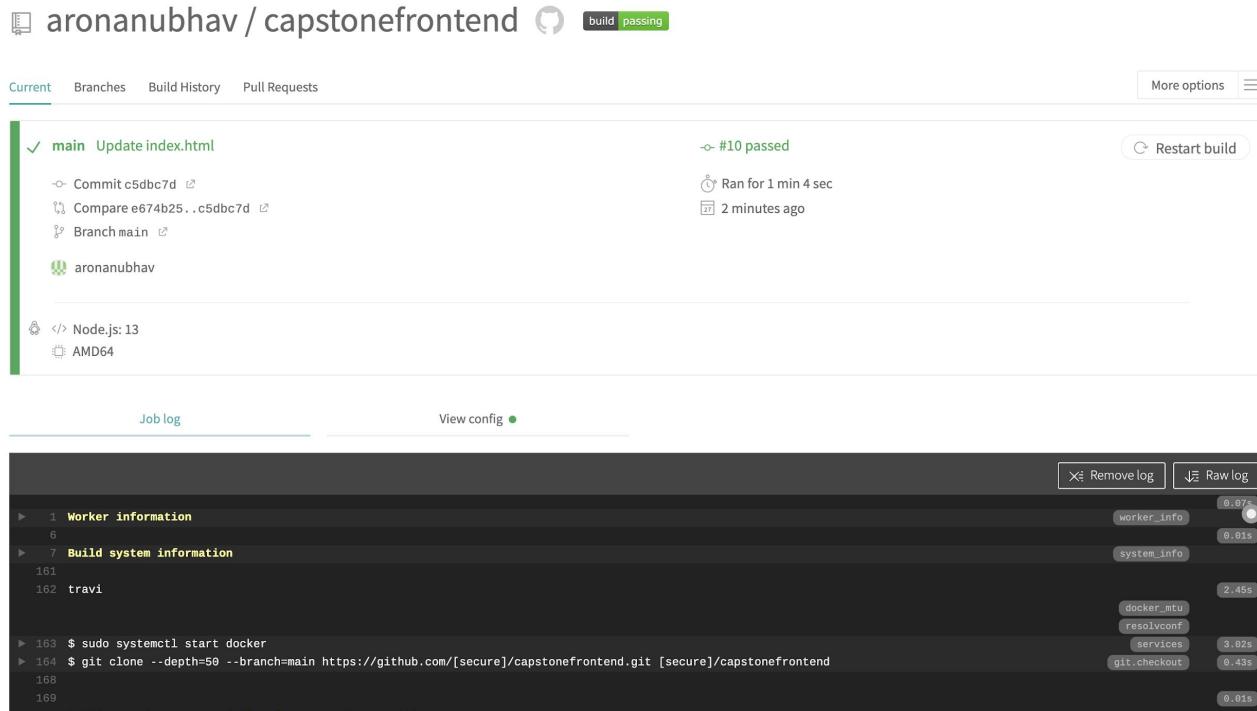
Build system information

\$ sudo systemctl start docker

\$ git clone --depth=50 --branch=main https://github.com/[secure]/capstonefrontend.git [secure]/capstonefrontend

git checkout

Raw log



Travis CI - Output (2/4)

arunanubhav / capstonecommittodb  build passing

Current Branches Build History Pull Requests More options 

✓ main Create .travis.yml
-o Commit ce6fe2d ⌂
↳ Compare 2d12c40..ce6fe2d ⌂
Branch main ⌂
arunanubhav

-o #1 passed
🕒 Ran for 1 min 5 sec
🕒 less than a minute ago
Restart build

🕒 </> Node.js:13
AMD64

Job log View config 

Worker information
Build system information
161
162
163 \$ sudo systemctl start docker
164 \$ git clone --depth=50 --branch=main https://github.com/[secure]/capstonecommittodb.git [secure]/capstonecommittodb
168
169
170 Setting environment variables from repository settings

X Remove log  Raw log 
worker_info 0.07s
system_info 0.01s
docker_stu 2.50s
resolvconf
services 0.02s
git_checkout 0.43s
0.01s

Travis CI - Output (3/4)

arona / aronanubhav / capstoneprintoutput  build passing

Current Branches Build History Pull Requests More options 

✓ main Update deployment.yaml

↳ Commit e7472f8  ↳ Compare ff517ee..e7472f8  ↳ Branch main 

aronanubhav 

Node.js: 13 AMD64

Job log View config 

Worker information   0.07s

worker_info 0.01s

system_info 2.46s

docker_mtu 3.02s

resolvconf 0.43s

services 0.01s

1 Worker information

6

7 Build system information

161

162

163 \$ sudo systemctl start docker

164 \$ git clone --depth=50 --branch=main https://github.com/[secure]/capstoneprintoutput.git [secure]/capstoneprintoutput

168

169

170 Setting environment variables from repository settings

171 \$ export DOCKER_PASSWORD=[secure]

Travis CI - Output (4/4)

arona**nubhav** / capstonereverseproxy  

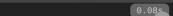
Current Branches Build History Pull Requests More options 

✓ main Create .travis.yml  #7 passed  Ran for 40 sec  5 minutes ago 

-o Commit bf^{aaea8}  Compare 2a51b88..bf^{aaea8}  Branch main 

aronanubhav 

Node.js: 13  AMD64 

Job log View config  

Worker information  0.08s
Build system information  0.01s
 2.51s
 3.02s
 0.43s
 0.01s

```
1 Worker information
2
3 Build system information
4
5
6
7
8
9
10
11
12
13 $ sudo systemctl start docker
14 $ git clone --depth=50 --branch=main https://github.com/[secure]/capstonereverseproxy.git [secure]/capstonereverseproxy
15
16
17 Setting environment variables from repository settings
```

Travis CI - Successful builds with 0 (1/4)

```
264
265 added 60 packages from 48 contributors and audited 60 packages in 1.401s
266 found 0 vulnerabilities
267
268 Removing intermediate container d29f841de7a6
269 ...-> 6ab46692391f
270 Step 5/7 : COPY . .
271 ...-> 6cee081845fc
272 Step 6/7 : EXPOSE 3000
273 ...-> Running in 8d2630e1d7e8
274 Removing intermediate container 8d2630e1d7e8
275 ...-> 432c3b7508d9
276 Step 7/7 : CMD [ "npm", "start" ]
277 ...-> Running in 6451a332aeefb
278 Removing intermediate container 6451a332aeefb
279 ...-> cebba77b9d6d
280 Successfully built cebba77b9d6d
281 Successfully tagged capstonefrontend:latest
282 The command "docker build -t capstonefrontend ." exited with 0.
283 $ docker tag capstonefrontend [secure]/capstonefrontend:latest
284 The command "docker tag capstonefrontend [secure]/capstonefrontend:latest" exited with 0.
▶ 285 store build cache
287
▶ 288 $ echo "$DOCKER_PASSWORD" | docker login -u "$DOCKER_USERNAME" --password-stdin
▶ 294 $ docker push [secure]/capstonefrontend
331
332 Done. Your build exited with 0.
```

Top ▲

Travis CI - Successful builds with 0 (2/4)

```
265 npm WARN capstonecommitdb@0.0.1 No license field.
266
267 added 60 packages from 48 contributors and audited 60 packages in 1.373s
268 found 0 vulnerabilities
269
270 Removing intermediate container 3974d00cb52d
271 --> 852c733e1726
272 Step 5/7 : COPY . .
273 --> 9f8deced7097
274 Step 6/7 : EXPOSE 3000
275 --> Running in 1006997de14e
276 Removing intermediate container 1006997de14e
277 --> 1ee745fa90df
278 Step 7/7 : CMD [ "npm", "start" ]
279 --> Running in eff429326303
280 Removing intermediate container eff429326303
281 --> 7c6ec9af107a
282 Successfully built 7c6ec9af107a
283 Successfully tagged capstonecommitdb:latest
284 The command "docker build -t capstonecommitdb ." exited with 0.
285 $ docker tag capstonecommitdb [secure]/capstonecommitdb:latest
286 The command "docker tag capstonecommitdb [secure]/capstonecommitdb:latest" exited with 0.
▶ 287 store build cache
291
▶ 292 $ echo "$DOCKER_PASSWORD" | docker login -u "$DOCKER_USERNAME" --password-stdin
▶ 293 $ docker push [secure]/capstonecommitdb
335
336 Done. Your build exited with 0.
```

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Travis CI - Successful builds with 0 (3/4)

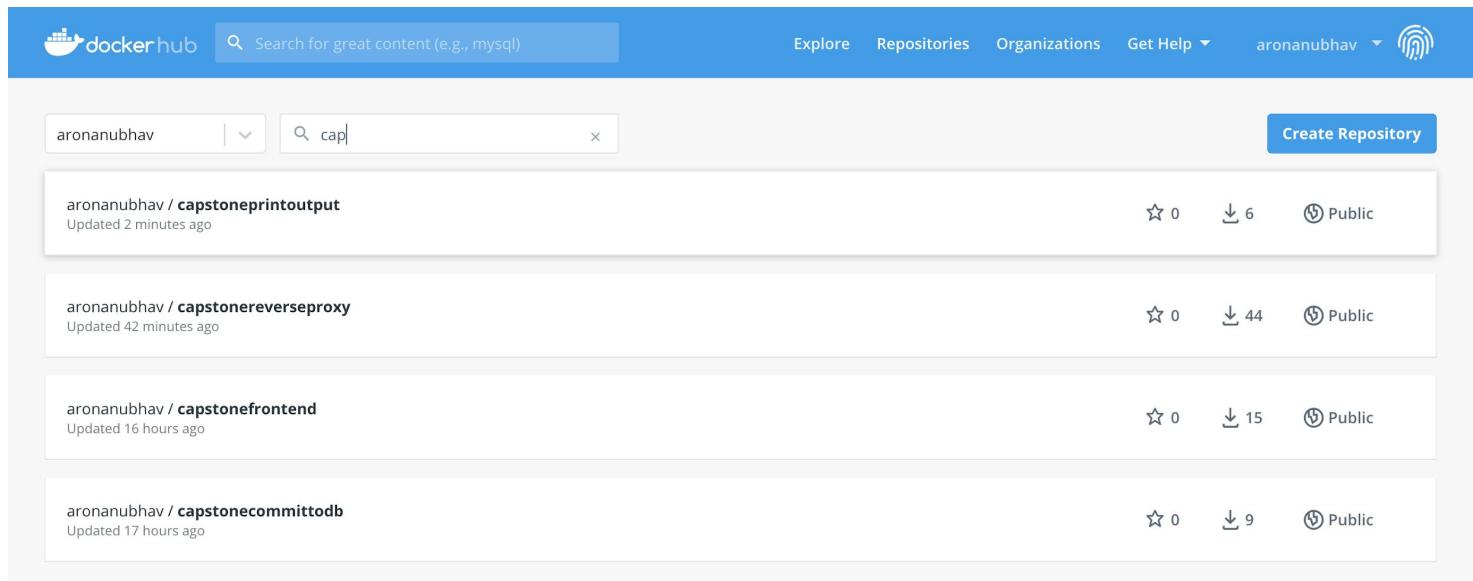
```
225
227 added 60 packages from 48 contributors and audited 60 packages in 1.428s
228 found 0 vulnerabilities
229
230 Removing intermediate container ec7a4c61f486
231 ---> cdd3406ec2dc
232 Step 5/7 : COPY . .
233 ---> c3b462b4f16b
234 Step 6/7 : EXPOSE 3000
235 ---> Running in af4d54edfcec
236 Removing intermediate container af4d54edfcec
237 ---> b4b48eff59a5
238 Step 7/7 : CMD [ "npm", "start" ]
239 ---> Running in b6d9f68821f1
240 Removing intermediate container b6d9f68821f1
241 ---> c31eb25f9569
242 Successfully built c31eb25f9569
243 Successfully tagged capstoneprintoutput:latest
244 The command "docker build -t capstoneprintoutput ." exited with 0.
245 $ docker tag capstoneprintoutput aronanubhav/capstoneprintoutput:latest
246 The command "docker tag capstoneprintoutput aronanubhav/capstoneprintoutput:latest" exited with 0.
247 store build cache
251
252 $ echo "$DOCKER_PASSWORD" | docker login -u "$DOCKER_USERNAME" --password-stdin
253 after_success.1 0.06s
254 $ docker push aronanubhav/capstoneprintoutput
255 after_success.2 0.47s
258
259 Done. Your build exited with 0.
```

Travis CI - Successful builds with 0 (4/4)

```
225 091a6e3499e9: Verifying Checksum
226 091a6e3499e9: Download complete
227 df20fa9351a1: Pull complete
228 091a6e3499e9: Pull complete
229 b4bea01b9731: Pull complete
230 62c992d61d2c: Pull complete
231 b675ffa804eb: Pull complete
232 Digest: sha256:a3c6118edc80de4a5aaaf2711b7742c25d4d2da54325bae465205cb386afa79ee
233 Status: Downloaded newer image for nginx:alpine
234 ---> bd53a8aa5ac9
235 Step 2/2 : COPY nginx.conf /etc/nginx/nginx.conf
236 ---> 053769a1a647
237 Successfully built 053769a1a647
238 Successfully tagged capstonereverseproxy:latest
239 The command "docker build -t capstonereverseproxy ." exited with 0.
240 $ docker tag capstonereverseproxy [secure]/capstonereverseproxy:latest
241 The command "docker tag capstonereverseproxy [secure]/capstonereverseproxy:latest" exited with 0.
242 store build cache
244
245 $ echo "$DOCKER_PASSWORD" | docker login -u "$DOCKER_USERNAME" --password-stdin
246 after_success.1 0.08s
247 $ docker push [secure]/capstonereverseproxy
248 after_success.2 0.30s
249
250 5.53s
267
268 Done. Your build exited with 0.
```

Top ▲

DockerBuild - Output (1/5)



A screenshot of the Docker Hub website. The top navigation bar includes the Docker Hub logo, a search bar with placeholder text "Search for great content (e.g., mysql)", and links for "Explore", "Repositories", "Organizations", "Get Help", and a user profile for "aronanubav". A "Create Repository" button is also visible. The main content area shows a search result for repositories starting with "cap". Four repositories are listed:

- aronanubav / capstoneprintoutput**
Updated 2 minutes ago
0 stars, 6 downloads, Public
- aronanubav / capstonereverseproxy**
Updated 42 minutes ago
0 stars, 44 downloads, Public
- aronanubav / capstonefrontend**
Updated 16 hours ago
0 stars, 15 downloads, Public
- aronanubav / capstonecommittdb**
Updated 17 hours ago
0 stars, 9 downloads, Public

DockerBuild - Output (2/5)

Screenshot of DockerHub showing the build output for the aronanubhav/capstonefrontend repository.

Header: dockerhub Search for great content (e.g., mysql) Explore Repositories Organizations Get Help aronanubhav

Breadcrumbs: Repositories > aronanubhav/capstonefrontend > latest

Image Summary: aronanubhav/capstonefrontend:latest
DIGEST: sha256:b49e10eda66e0ee802a6d9f95c1c0fbef40f5243298b63b821f224aeb9206901
OS/ARCH: linux/amd64 SIZE: 347.15 MB LAST PUSHED: 6 minutes ago by aronanubhav

Image Layers:

Layer	Command	Size
1	ADD file ... in /	43.27 MB
2	CMD ["bash"]	0 B
3	/bin/sh -c apt-get update &&	10.3 MB
4	/bin/sh -c set -ex; if	4.14 MB
5	/bin/sh -c apt-get update &&	47.76 MB

A modal window is open over the layers table, showing the command for the first layer: ADD file:13031623172f5c5857e27de93553adedf17d955fa370882f850bb6ed6fb8cee7 in /.

DockerBuild - Output (3/5)

docker hub

Explore Repositories Organizations Get Help ▾ aronanubhav ▾ 

Repositories aronanubhav/capstonecommittodb latest Using 0 of 1 private repositories. [Get more](#)

 aronanubhav/capstonecommittodb:latest
DIGEST: sha256:01d37d325db2f8c44379be951a61e028116820ef0878d2869bddb2b7105fa9f1

OS/ARCH SIZE LAST PUSHED
linux/amd64 347.15 MB 4 minutes ago by [aronanubhav](#)

IMAGE LAYERS ②

Layer	Command	Size
1	ADD file ... in /	43.27 MB
2	CMD ["bash"]	0 B
3	/bin/sh -c apt-get update &&	10.3 MB
4	/bin/sh -c set -ex; if	4.14 MB

Command

```
ADD file:13031623172f5c5857e27de93553adef17d955fa370882f850bb6ed6fb8cee7 in /
```

DockerBuild - Output (4/5)

 dockerhub

Explore Repositories Organizations Get Help ▾ aronanubhav ▾ 

Repositories > aronanubhav/capstoneprintoutput > latest

Using 0 of 1 private repositories. [Get more](#)


aronanubhav/capstoneprintoutput:latest
DIGEST: sha256:40e68f851846dbf6680c45f1d20d354b42d54576d6c971d0c1fb4e2b78fb2d24a

OS/ARCH SIZE LAST PUSHED
linux/amd64 347.15 MB a few seconds ago by [aronanubhav](#)

IMAGE LAYERS ②

Step	Command	Size
1	ADD file ... in /	43.27 MB
2	CMD ["bash"]	0 B
3	/bin/sh -c apt-get update &&	10.3 MB
4	/bin/sh -c set -ex; if	4.14 MB
5	/bin/sh -c apt-get update &&	47.76 MB
6	/bin/sh -c set -ex; apt-get	204.95 MB
7	/bin/sh -c aronamadd --aid 1000	4.06 KR

Command

```
ADD file:13031623172f5c5857e27de93553adef17d955fa370882f850bb6ed6fb8cee7 in /
```

DockerBuild - Output (5/5)

Screenshot of DockerHub showing the build output for the aronanubhav/capstonereverseproxy repository.

Header: dockerhub Search for great content (e.g., mysql) Explore Repositories Organizations Get Help aronanubhav Fingerprint

Breadcrumbs: Repositories / aronanubhav/capstonereverseproxy / latest

Image Summary: aronanubhav/capstonereverseproxy:latest
DIGEST: sha256:4f770c3a1dc47b2838a666dbe998becfe38e033cb66c5a3a6da07661909b92d
OS/ARCH: linux/amd64 | SIZE: 9.23 MB | LAST PUSHED: 42 minutes ago by aronanubhav

Image Layers:

Index	Command	Size
1	ADD file ... in /	2.67 MB
2	CMD ["/bin/sh"]	0 B
3	LABEL maintainer=NGINX Docker Maintainers	0 B
4	ENV NGINX_VERSION=1.19.3	0 B
5	ENV NJJS_VERSION=0.4.4	0 B
6	ENV PKG_RELEASE=1	0 B
7	/bin/sh -c set -x	6.56 MB
8	COPY file:e7e183879c35719c18aa7f733651029fbcc55f5... 601 B	

EKS Clusters - Output (1/4)

The screenshot shows the AWS EKS Cluster configuration page for the cluster 'capstonefrontend'. The left sidebar lists services: Amazon Container Services (selected), Amazon ECS, Amazon EKS (Clusters selected), and Amazon ECR. The main content area shows the cluster details:

Cluster configuration

- Kubernetes version: 1.17
- Status: Active
- Platform version: eks.3

Compute tab is selected.

Node Groups (1)

Group name	Desired size	AMI release version	Launch template	Status
capstonefrontend	2	1.17.11-20200921	-	Active

Fargate Profiles (0)

No Fargate Profiles. This cluster does not have any Fargate Profiles.

Add Fargate Profile

EKS Clusters - Output (2/4)

AWS Services ▾

Amazon Container Services X

EKS > Clusters > capstonecommittodb

capstonecommittodb

Cluster configuration [Info](#)

Kubernetes version Info	1.17	Status	Active
Platform version Info	eks.3		

Details Compute Networking Logging Update history Tags

Node Groups (1) [Info](#)

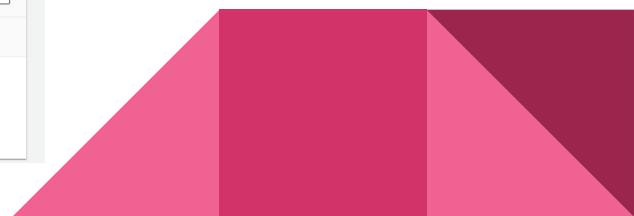
Group name	▲ Desired size	AMI release version	Launch template	Status
<input type="radio"/> capstonecommittodb	2	1.17.11-20201002	-	Active

Fargate Profiles (0) [Info](#)

Profile name	Namespaces	Status
No Fargate Profiles		

This cluster does not have any Fargate Profiles.

Add Fargate Profile



EKS Clusters - Output (3/4)

aws Services ▾

Amazon Container Services X

EKS > Clusters > capstoneprintoutput

capstoneprintoutput

Cluster configuration [Info](#)

Kubernetes version Info	1.17	Status
Platform version Info	eks.3	

Details [Compute](#) Networking Logging Update history Tags

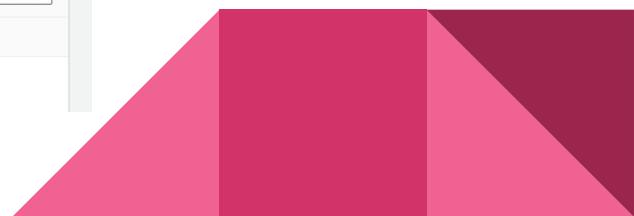
Node Groups (1) [Info](#)

Group name	▲ Desired size	AMI release version	▼ Launch template	Status
capstoneprintoutput	2	1.17.11-20201002	-	

Fargate Profiles (0) [Info](#)

Profile name	Namespaces	Status
No Fargate Profiles		

This cluster does not have any Fargate Profiles.



EKS Clusters - Output (4/4)

The screenshot shows the AWS EKS Cluster configuration page for the cluster 'capstonerreverseproxy'. The left sidebar shows the navigation path: Amazon Container Services > EKS > Clusters > capstonerreverseproxy. The main content area displays the cluster configuration, including the Kubernetes version (1.17) and Platform version (eks.3), both marked as active. Below this, the 'Compute' tab is selected, showing a single Node Group named 'capstonerreverseproxy' with a desired size of 2 and an AMI release version of 1.17.11-20200921, also marked as active. The 'Networking' tab is visible but not selected.

Cluster configuration [Info](#)

Kubernetes version [Info](#) Status 1.17 Active

Platform version [Info](#) eks.3

Node Groups (1) [Info](#)

Group name	Desired size	AMI release version	Launch template	Status
capstonerreverseproxy	2	1.17.11-20200921	-	Active

Fargate Profiles (0) [Info](#)

Profile name	Namespaces	Status
No Fargate Profiles This cluster does not have any Fargate Profiles.		

[Add Fargate Profile](#)

RDS MySQL - Output

AWS Services ▾

RDS > Databases > capstonesentiment2

capstonesentiment2

Modify Actions ▾

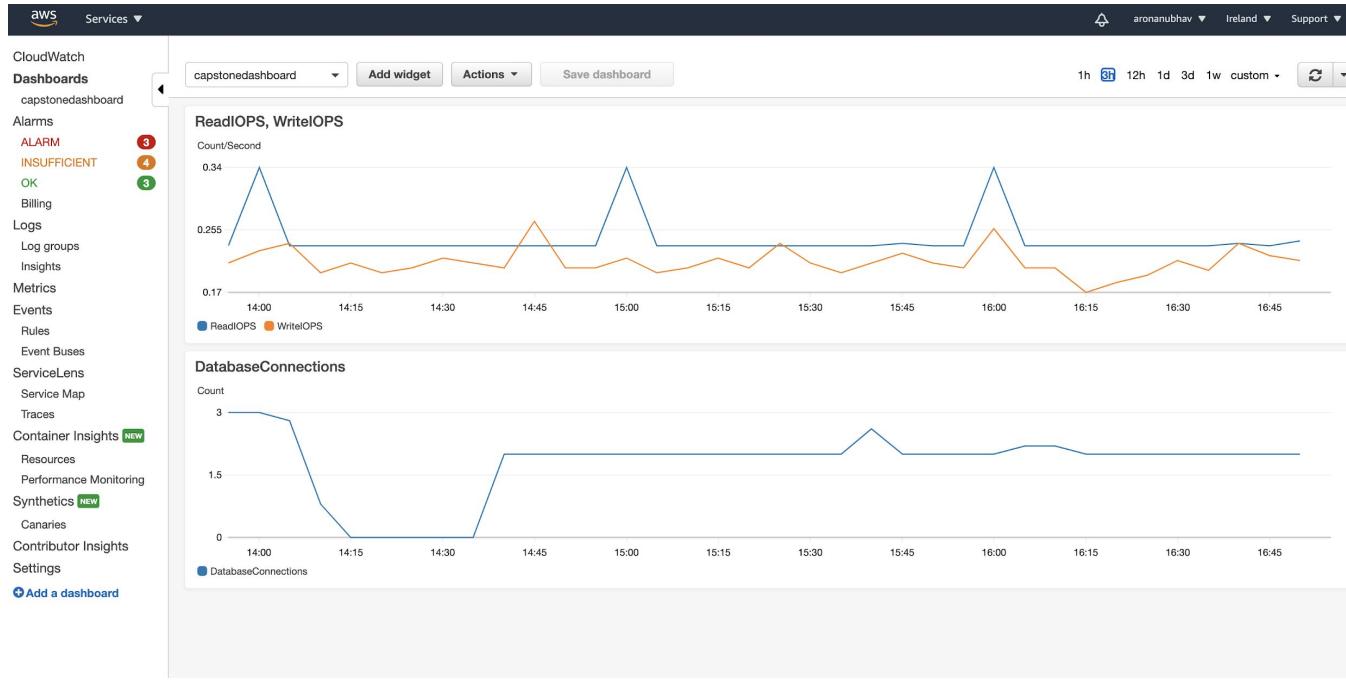
DB identifier	CPU	Info	Class
capstonesentiment2	1.48%	Available	db.t2.micro
Role	Current activity	Engine	Region & AZ
Instance	2 Connections	MySQL Community	eu-west-1c

Summary Connectivity & security Monitoring Logs & events Configuration Maintenance & backups Tags

Connectivity & security

Endpoint & port	Networking	Security
Endpoint capstonesentiment2.cjzgfj3nh7rd.eu-west-1.rds.amazonaws.com	Availability zone eu-west-1c	VPC security groups default (sg-58197e1b) (active) Open-To-The-World (sg-083d92b35069a8843) (active)
Port 3306	VPC vpc-3f57ae46	Subnet group default-vpc-3f57ae46
		Public accessibility Yes

CloudWatch for RDS Performance - Output



Kubectl Commands - Output

```
anubhavaron-macbookpro:capstoneprintoutput anubhavaron$ kubectl get pods
NAME                      READY   STATUS    RESTARTS   AGE
capstonecommittodb-85d99bd64b-7nxvw   1/1    Running   0          11m
capstonecommittodb-85d99bd64b-vdzc7   1/1    Running   0          11m
capstonefrontend-d599c79d8-jhspq      1/1    Running   0          11m
capstonefrontend-d599c79d8-qv2v9      1/1    Running   0          11m
capstoneprintoutput-84595d546-ffr8p   1/1    Running   0          11m
capstoneprintoutput-84595d546-kcqkv  1/1    Running   0          11m
capstonereverseproxy-749cd98954-9cbcs 1/1    Running   0          11m
anubhavaron-macbookpro:capstoneprintoutput anubhavaron$ kubectl get services
NAME           TYPE      CLUSTER-IP    EXTERNAL-IP   PORT(S)   AGE
capstonecommittodb   ClusterIP  10.100.60.6    <none>        8080/TCP  53m
capstonefrontend     ClusterIP  10.100.146.26   <none>        8080/TCP  53m
capstoneprintoutput   ClusterIP  10.100.255.177  <none>        8080/TCP  47m
capstonereverseproxy ClusterIP  10.100.5.162   <none>        8080/TCP  53m
kubernetes         ClusterIP  10.100.0.1     <none>        443/TCP   82m
anubhavaron-macbookpro:capstoneprintoutput anubhavaron$ kubectl logs capstonecommittodb-85d99bd64b-7nxvw

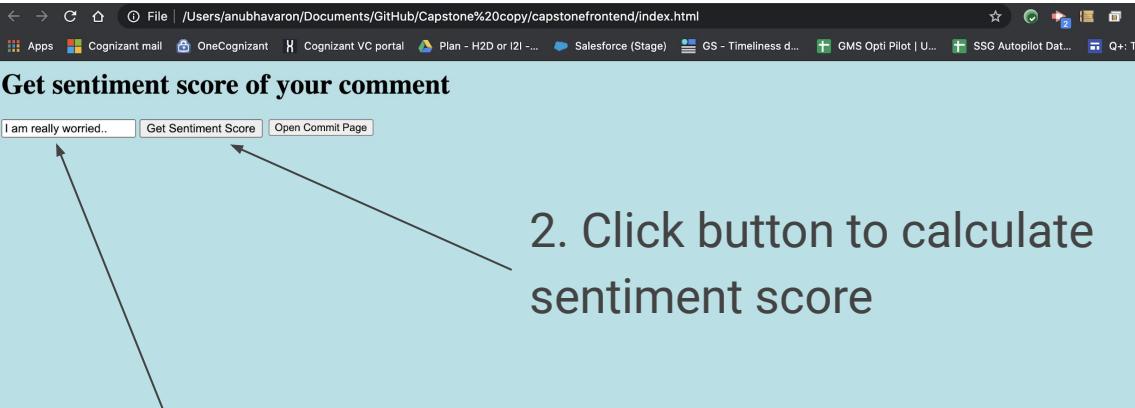
> capstonesentiment@0.0.1 start /usr/src/app
> node server.js

Running on 3000
anubhavaron-macbookpro:capstoneprintoutput anubhavaron$ kubectl logs capstonefrontend-d599c79d8-jhspq

> capstonesentiment@0.0.1 start /usr/src/app
> node server.js

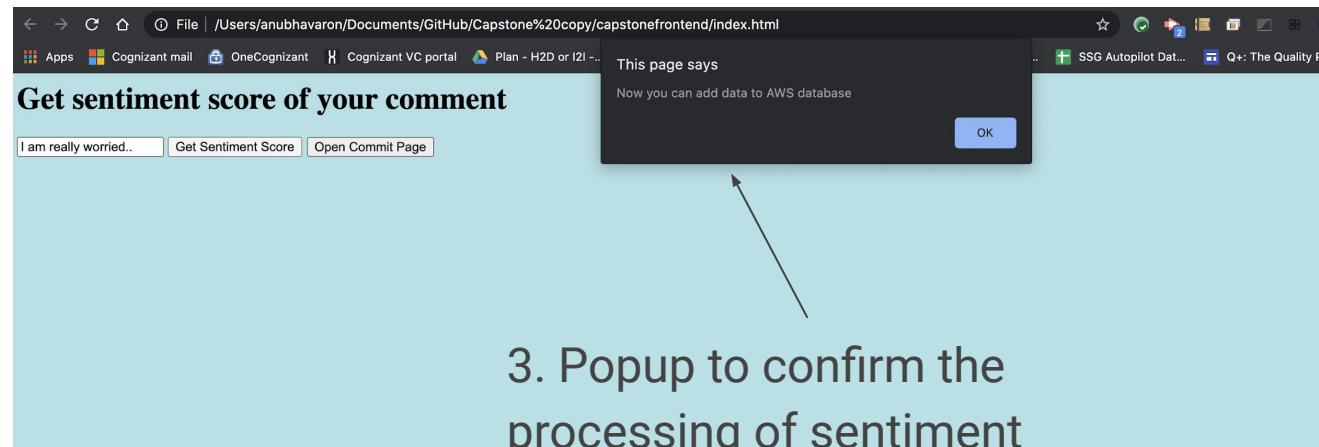
Running on 3000
```

LocalHost Application



1. Enter the comments

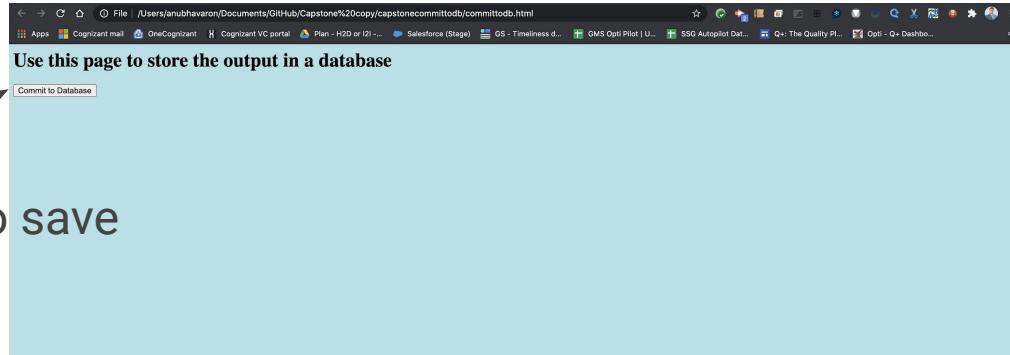
2. Click button to calculate sentiment score



3. Popup to confirm the processing of sentiment calculation



4. Click button to open data commit page



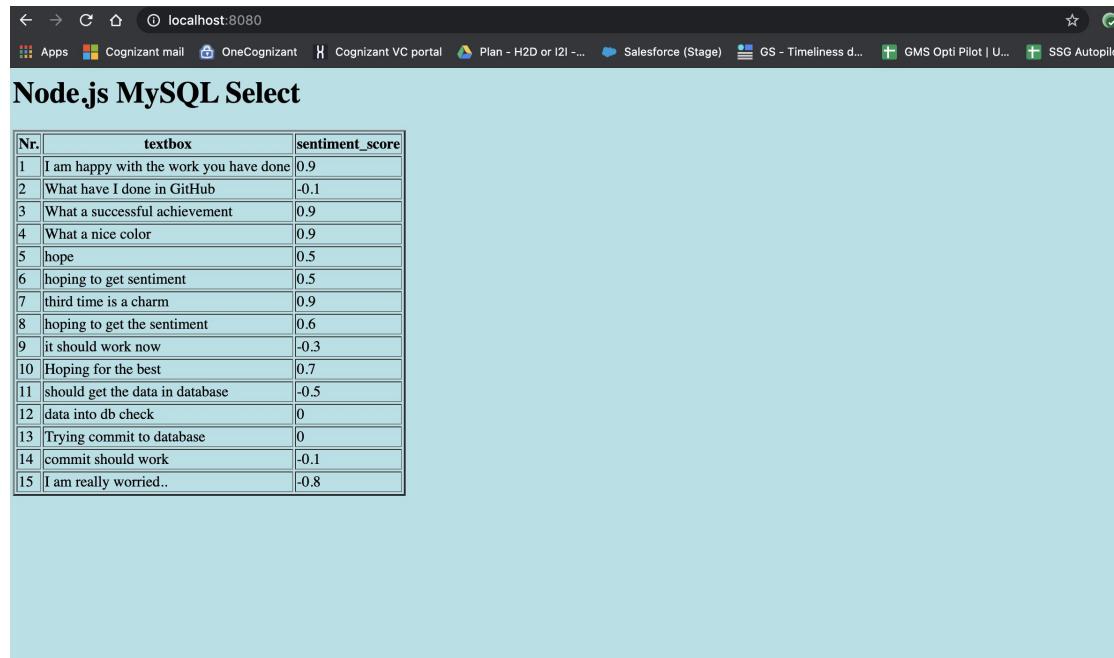
5. Click this button to save data to RDS



MySQL Workbench

Output display from RDS to HTML

```
anubhavaron-macbookpro:capstonereverseproxy anubhavaron$  
anubhavaron-macbookpro:capstonereverseproxy anubhavaron$ node reverseproxy.js  
Server running at //localhost:8080/
```



The screenshot shows a web browser window with the URL `localhost:8080` in the address bar. The page title is "Node.js MySQL Select". The content of the page is a table with two columns: "Nr." and "sentiment_score". The table contains 15 rows of data, each with a unique ID and a corresponding sentiment score. The data is as follows:

Nr.	sentiment_score
1	I am happy with the work you have done 0.9
2	What have I done in GitHub -0.1
3	What a successful achievement 0.9
4	What a nice color 0.9
5	hope 0.5
6	hoping to get sentiment 0.5
7	third time is a charm 0.9
8	hoping to get the sentiment 0.6
9	it should work now -0.3
10	Hoping for the best 0.7
11	should get the data in database -0.5
12	data into db check 0
13	Trying commit to database 0
14	commit should work -0.1
15	I am really worried.. -0.8