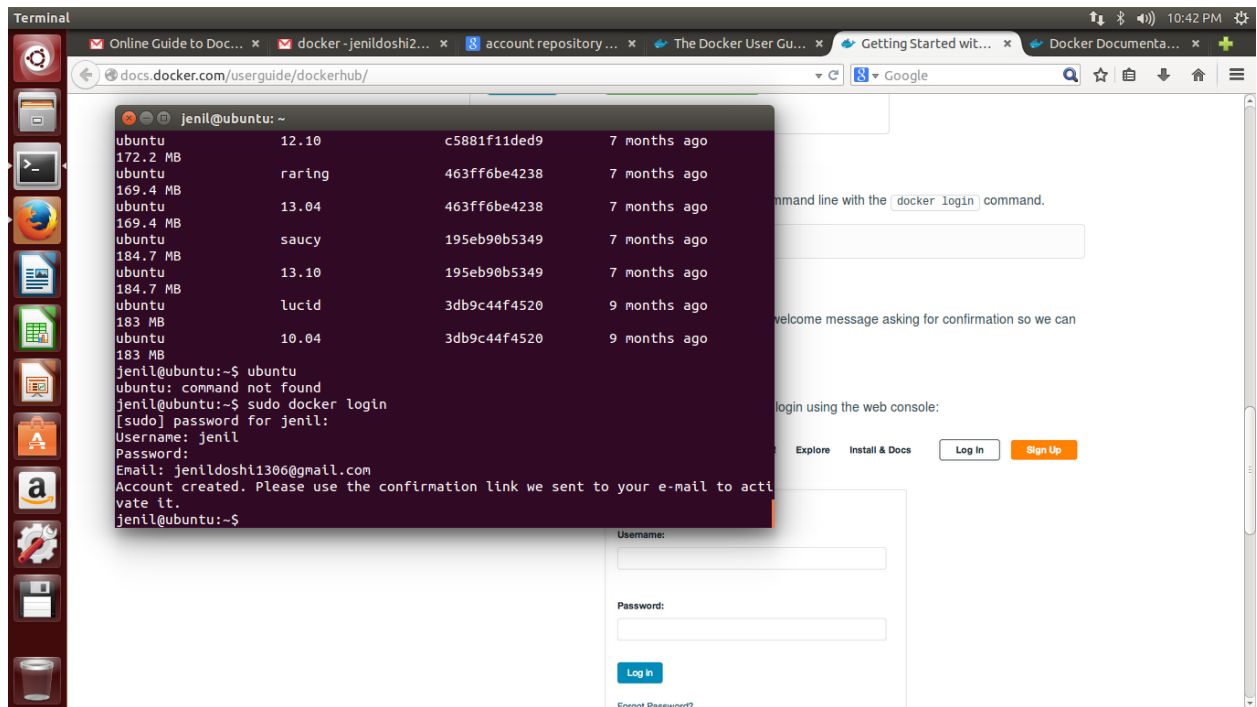
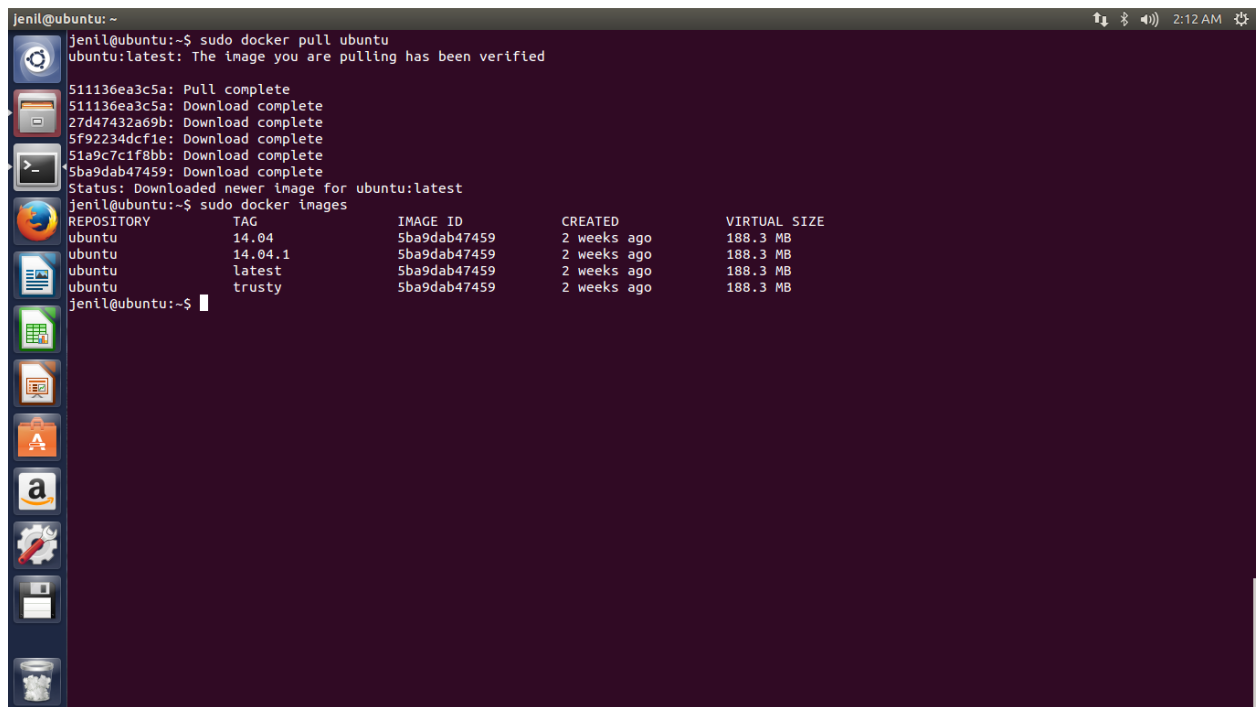


1. Account Creation



2. Pulling 'Ubuntu' base image from docker hub which is used to run the container.



3. Creating own image for node app

```
jenil@ubuntu: ~
jenil@ubuntu:~$ sudo docker pull ubuntu
ubuntu:latest: The image you are pulling has been verified
511136ea3c5a: Pull complete
511136ea3c5a: Download complete
27d47432a69b: Download complete
5f92234dcf1e: Download complete
51a9c7c1f8bb: Download complete
5ba9dab47459: Download complete
Status: Downloaded newer image for ubuntu:latest
jenil@ubuntu:~$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             VIRTUAL SIZE
ubuntu              14.04              5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              14.04.1            5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              latest              5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              trusty              5ba9dab47459       2 weeks ago        188.3 MB
jenil@ubuntu:~$ sudo docker run -it ubuntu:latest
root@263bdd624c7c:/# exit
exit
jenil@ubuntu:~$ sudo docker commit -m "Creating my own image" -a "Jenil Doshi" \
> 263bdd624c7c nodeapp/ubuntu:latest
d7a16e5431d5ba6e71e89886f6fefa6c2cc55e548b1415fc421bf47ac48100b7
jenil@ubuntu:~$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             VIRTUAL SIZE
nodeapp/ubuntu      latest              d7a16e5431d5       7 seconds ago      188.3 MB
ubuntu              trusty              5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              14.04              5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              14.04.1            5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              latest              5ba9dab47459       2 weeks ago        188.3 MB
jenil@ubuntu:~$
```

4. Creating mongo image for mongdb

```
jenil@ubuntu: ~
511136ea3c5a: Pull complete
511136ea3c5a: Download complete
27d47432a69b: Download complete
5f92234dcf1e: Download complete
51a9c7c1f8bb: Download complete
5ba9dab47459: Download complete
Status: Downloaded newer image for ubuntu:latest
jenil@ubuntu:~$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             VIRTUAL SIZE
ubuntu              14.04              5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              14.04.1            5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              latest              5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              trusty              5ba9dab47459       2 weeks ago        188.3 MB
jenil@ubuntu:~$ sudo docker run -it ubuntu:latest
root@263bdd624c7c:/# exit
exit
jenil@ubuntu:~$ sudo docker commit -m "Creating my own image" -a "Jenil Doshi" \
> 263bdd624c7c nodeapp/ubuntu:latest
d7a16e5431d5ba6e71e89886f6fefa6c2cc55e548b1415fc421bf47ac48100b7
jenil@ubuntu:~$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             VIRTUAL SIZE
nodeapp/ubuntu      latest              d7a16e5431d5       7 seconds ago      188.3 MB
ubuntu              trusty              5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              14.04              5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              14.04.1            5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              latest              5ba9dab47459       2 weeks ago        188.3 MB
jenil@ubuntu:~$ sudo docker run -it ubuntu:latest
root@bb6ab3b8ffa2:/# exit
exit
jenil@ubuntu:~$ sudo docker commit -m "Creating my own image for mongo" -a "Jenil Doshi" bb6ab3b8ffa2 mongo/ubuntu:latest
fc1e669cfaa6e92bd427398b73579c91f0cea7672ce4b68ce6b15db65b209c8b
jenil@ubuntu:~$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             VIRTUAL SIZE
mongo/ubuntu        latest              fc1e669cfaa6       24 seconds ago     188.3 MB
nodeapp/ubuntu      latest              d7a16e5431d5       2 minutes ago      188.3 MB
ubuntu              trusty              5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              14.04              5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              14.04.1            5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              latest              5ba9dab47459       2 weeks ago        188.3 MB
jenil@ubuntu:~$
```

5. Installing Node app code through Dockerfile on node image

```
jenil@ubuntu: ~/Desktop/src
└─ bson@0.2.18 (nan@1.5.1)
   └─> ca890e735448
Removing intermediate container 689e1c68da5a
Step 7 : RUN npm install ejs
   └─> Running in f160c25d70dc
npm http GET https://registry.npmjs.org/ejs
npm http 200 https://registry.npmjs.org/ejs
npm http GET https://registry.npmjs.org/ejs/-/ejs-2.2.4.tgz
npm http 200 https://registry.npmjs.org/ejs/-/ejs-2.2.4.tgz
ejs@2.2.4 node_modules/ejs
   └─> 0a336083a323
Removing intermediate container f160c25d70dc
Step 8 : RUN npm install debug
   └─> Running in 2bb4c3a5536c
npm http GET https://registry.npmjs.org/debug
npm http 304 https://registry.npmjs.org/debug
npm http GET https://registry.npmjs.org/ms/0.6.2
npm http 304 https://registry.npmjs.org/ms/0.6.2
debug@2.1.1 node_modules/debug
   └─ ms@0.6.2
      └─> 1e77020c5fc3
Removing intermediate container 2bb4c3a5536c
Step 9 : EXPOSE 8080
   └─> Running in c5d3bef70306
   └─> e3ba1c6ffe12
Removing intermediate container c5d3bef70306
Step 10 : CMD nodejs /src/index.js
   └─> Running in 7b6561a22ece
   └─> 5cf57b36d025
Removing intermediate container 7b6561a22ece
Successfully built 5cf57b36d025
jenil@ubuntu:~/Desktop/src$ sudo docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	VIRTUAL SIZE
nodeapp/ubuntu	latest	5cf57b36d025	24 seconds ago	362.2 MB
mongo/ubuntu	latest	fc1e669cfaa6	6 minutes ago	188.3 MB
<none>	<none>	d7a16e5431d5	8 minutes ago	188.3 MB
ubuntu	14.04.1	5ba9dab47459	2 weeks ago	188.3 MB
ubuntu	latest	5ba9dab47459	2 weeks ago	188.3 MB
ubuntu	trusty	5ba9dab47459	2 weeks ago	188.3 MB
ubuntu	14.04	5ba9dab47459	2 weeks ago	188.3 MB

```
jenil@ubuntu:~/Desktop/src$
```

6. Installing MongoDB on mongo image

```
jenil@ubuntu: ~/Desktop/src
└─ bson@0.2.18 (nan@1.5.1)
   └─> ca890e735448
Removing intermediate container 689e1c68da5a
Step 7 : RUN npm install ejs
   └─> Running in f160c25d70dc
npm http GET https://registry.npmjs.org/ejs
npm http 200 https://registry.npmjs.org/ejs
npm http GET https://registry.npmjs.org/ejs/-/ejs-2.2.4.tgz
npm http 200 https://registry.npmjs.org/ejs/-/ejs-2.2.4.tgz
ejs@2.2.4 node_modules/ejs
   └─> 0a336083a323
Removing intermediate container f160c25d70dc
Step 8 : RUN npm install debug
   └─> Running in 2bb4c3a5536c
npm http GET https://registry.npmjs.org/debug
npm http 304 https://registry.npmjs.org/debug
npm http GET https://registry.npmjs.org/ms/0.6.2
npm http 304 https://registry.npmjs.org/ms/0.6.2
debug@2.1.1 node_modules/debug
   └─ ms@0.6.2
      └─> 1e77020c5fc3
Removing intermediate container 2bb4c3a5536c
Step 9 : EXPOSE 8080
   └─> Running in c5d3bef70306
   └─> e3ba1c6ffe12
Removing intermediate container c5d3bef70306
Step 10 : CMD nodejs /src/index.js
   └─> Running in 7b6561a22ece
   └─> 5cf57b36d025
Removing intermediate container 7b6561a22ece
Successfully built 5cf57b36d025
jenil@ubuntu:~/Desktop/src$ sudo docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	VIRTUAL SIZE
nodeapp/ubuntu	latest	5cf57b36d025	24 seconds ago	362.2 MB
mongo/ubuntu	latest	fc1e669cfaa6	6 minutes ago	188.3 MB
<none>	<none>	d7a16e5431d5	8 minutes ago	188.3 MB
ubuntu	14.04.1	5ba9dab47459	2 weeks ago	188.3 MB
ubuntu	latest	5ba9dab47459	2 weeks ago	188.3 MB
ubuntu	trusty	5ba9dab47459	2 weeks ago	188.3 MB
ubuntu	14.04	5ba9dab47459	2 weeks ago	188.3 MB

```
jenil@ubuntu:~/Desktop/src$
```

7. Running mongo server on mongo image

```

jenil@ubuntu: ~
jenil@ubuntu:~/Desktop/src$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             VIRTUAL SIZE
mongo/ubuntu        latest             fae57beedf83       3 minutes ago      500.3 MB
nodeapp/ubuntu      latest             5cf57b36d025       24 minutes ago     362.2 MB
<none>              <none>            fc1e669cfaa6       30 minutes ago     188.3 MB
<none>              <none>            d7a16e5431d5       32 minutes ago     188.3 MB
ubuntu              trusty             5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              14.04             5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              14.04.1           5ba9dab47459       2 weeks ago        188.3 MB
ubuntu              latest            5ba9dab47459       2 weeks ago        188.3 MB

jenil@ubuntu:~/Desktop/src$ cd ..
jenil@ubuntu:~/Desktop$ cd ..
jenil@ubuntu:~$ sudo docker run -it mongo/ubuntu:latest
usr/bin/mongod --help for help and startup options
2015-02-16T10:48:16.708+0000 [initandlisten] MongoDB starting : pid=7 port=27017 dbpath=/data/db 64-bit host=654ae7f7b67f
2015-02-16T10:48:16.711+0000 [initandlisten] db version v2.6.7
2015-02-16T10:48:16.712+0000 [initandlisten] git version: a7d57ad27c382de82e9cb93bf983a80fd9ac9899
2015-02-16T10:48:16.712+0000 [initandlisten] build info: Linux build7.nj1.10gen.cc 2.6.32-431.3.1.el6.x86_64 #1 SMP Fri Jan 3 21:39:27 UTC 2014
x86_64 BOOST_LIB_VERSION=1_49
2015-02-16T10:48:16.712+0000 [initandlisten] allocator: tcmalloc
2015-02-16T10:48:16.712+0000 [initandlisten] options: {}
2015-02-16T10:48:16.715+0000 [initandlisten] journal dir=/data/db/journal
2015-02-16T10:48:16.715+0000 [initandlisten] recover : no journal files present, no recovery needed
2015-02-16T10:48:16.806+0000 [initandlisten] allocating new ns file /data/db/local.ns, filling with zeroes...
2015-02-16T10:48:17.142+0000 [FileAllocator] allocating new datafile /data/db/local.0, filling with zeroes...
2015-02-16T10:48:17.147+0000 [FileAllocator] creating directory /data/db/_tmp
2015-02-16T10:48:17.961+0000 [FileAllocator] done allocating datafile /data/db/local.0, size: 64MB, took 0.809 secs
2015-02-16T10:48:18.299+0000 [initandlisten] build index on: local.startup_log properties: { v: 1, key: { _id: 1 }, name: "_id_", ns: "local.startup_log" }
2015-02-16T10:48:18.316+0000 [initandlisten] added index to empty collection
2015-02-16T10:48:18.335+0000 [initandlisten] command local.$cmd command: create { create: "startup_log", size: 10485760, capped: true } ntotetur
n:1 keyUpdates:0 numYields:0 reslen:37 1525ms
2015-02-16T10:48:18.352+0000 [initandlisten] waiting for connections on port 27017

```

8. Running mongo shell on mongo image

```

root@654ae7f7b67f: /
jenil@ubuntu:~$ sudo docker ps
[sudo] password for jenil:
CONTAINER ID        IMAGE               COMMAND                  CREATED
654ae7f7b67f       mongo/ubuntu:latest "/bin/sh -c usr/bin/   About a minute
ago Up About a minute 27017/tcp              jovial Hoover
jenil@ubuntu:~$ sudo docker exec -it 654ae7f7b67f /bin/bash
root@654ae7f7b67f:/# mongo
MongoDB shell version: 2.6.7
connecting to: test
Welcome to the MongoDB shell.
For interactive help, type "help".
For more comprehensive documentation, see
http://docs.mongodb.org/
Questions? Try the support group
http://groups.google.com/group/mongodb-user

> db
test
> db.test.insert({"studId" : 1, "studName" : "Jenil", "studCourse" : "CMPE283"})
WriteResult({"nInserted" : 1})
> db.test.find()
{ "_id" : ObjectId("54e1cbd00c7e99c0e2745d16"), "studId" : 1, "studName" : "Jenil", "studCourse" : "CMPE283" }
>

```

9. Fetching mongo IP address for connection

```
jenil@ubuntu: ~
jenil@ubuntu:~$ sudo docker inspect 654ae7f7b67f
[sudo] password for jenil:
[[
  "AppArmorProfile": "",
  "Args": [
    "-c",
    "/usr/bin/mongod"
  ],
  "Config": {
    "AttachStderr": true,
    "AttachStdin": true,
    "AttachStdout": true,
    "Cmd": null,
    "CpuShares": 0,
    "Cpuset": "",
    "Domainname": "",
    "Entrypoint": [
      "/bin/sh",
      "-c",
      "/usr/bin/mongod"
    ],
    "Env": [
      "PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"
    ],
    "ExposedPorts": {
      "27017/tcp": {}
    },
    "Hostname": "654ae7f7b67f",
    "Image": "mongo/ubuntu:latest",
    "MacAddress": "",
    "Memory": 0,
    "MemorySwap": 0,
    "NetworkDisabled": false,
    "OnBuild": null,
    "OpenStdin": true,
    "PortSpecs": null,
    "StdinOnce": true,
    "Tty": true,
    "User": "",
    "Volumes": null,
    "WorkingDir": ""
  ]
}]
```

10. Mapping mongo IP address with Node app

```
root@7b6441e9633c: /src
/**
 * Module dependencies.
 */
var express = require('express')
, http = require('http')
, path = require('path');

var MongoClient = require('mongodb').MongoClient;

var app = express();
var dbData;
// all environments
app.set('port', process.env.PORT || 8080);
app.set('views', __dirname + '/views');
app.set('view engine', 'ejs');
app.use(express.favicon());
app.use(express.logger('dev'));
app.use(express.bodyParser());
app.use(express.methodOverride());
app.use(app.router);
app.use(express.static(path.join(__dirname, 'public')));

// development only
if ('development' == app.get('env')) {
  app.use(express.errorHandler());
}

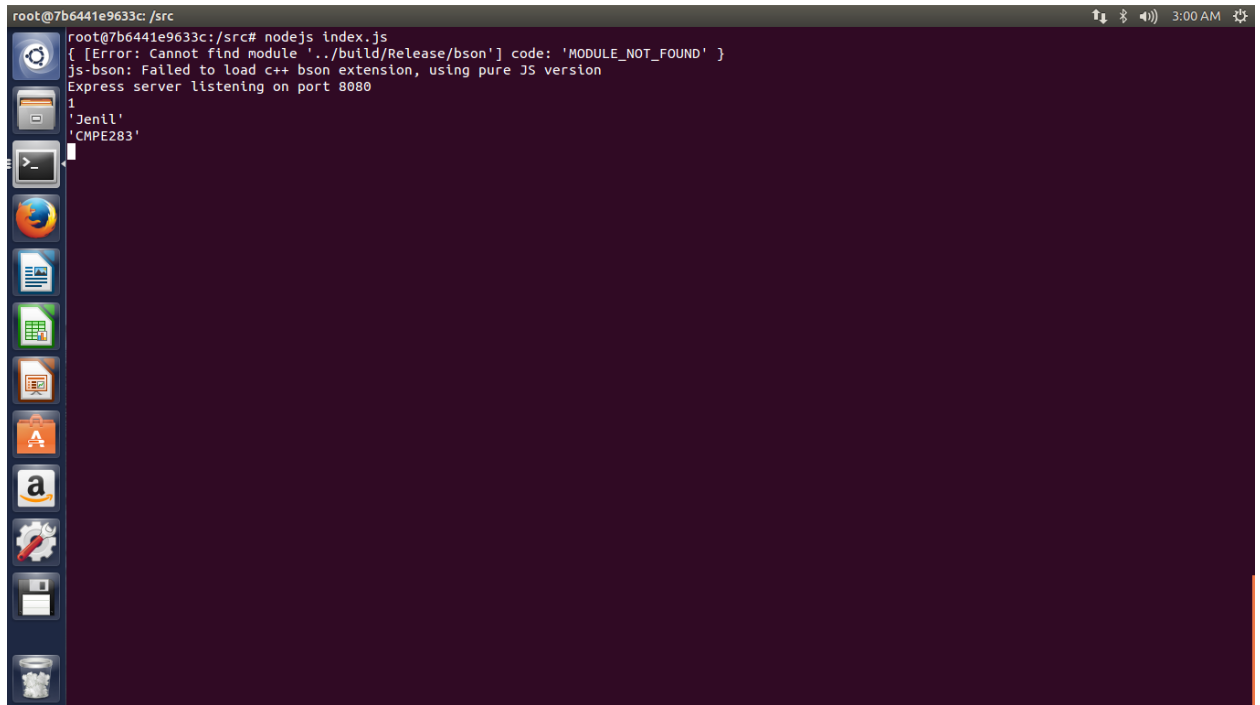
MongoClient.connect('mongodb://172.17.0.17:27017/test', function(err, db) {
  if(err) throw err;

  // Find one document in our collection
  db.collection('test').findOne({}, function(err, doc) {
    if(err) throw err;

    // Print the result.
    // Will print a null if there are no documents in the db.
    console.dir(doc.studId);
    console.dir(doc.studName);
  });
});

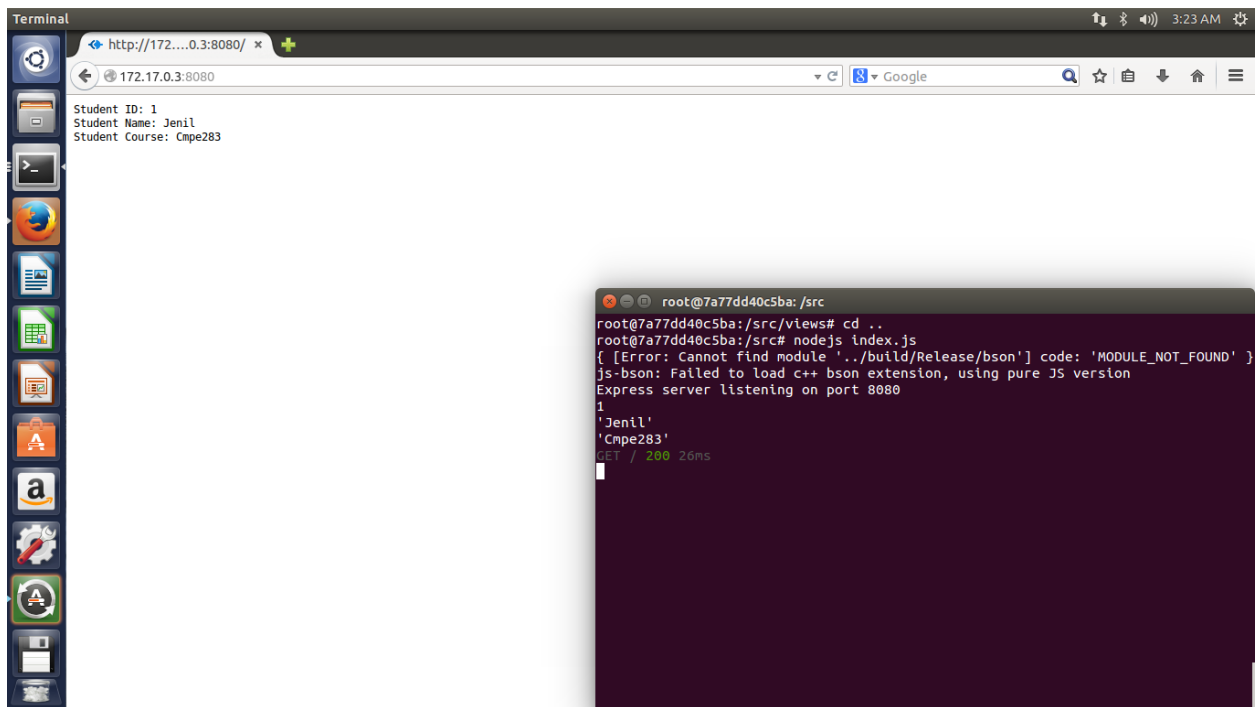
"index.js" 70L, 1794C
```

11. Running node app



```
root@7b6441e9633c: /src
root@7b6441e9633c:/src# nodejs index.js
{ [Error: Cannot find module '../build/Release/bson'] code: 'MODULE_NOT_FOUND' }
js-bson: Failed to load c++ bson extension, using pure JS version
Express server listening on port 8080
1
'Jenil'
'CMPE283'
```

12. Viewing web application on browser



Terminal

http://172.17.0.3:8080/ x

172.17.0.3:8080

Student ID: 1
Student Name: Jenil
Student Course: Cmpe283

```
root@7a77dd40c5ba: /src
root@7a77dd40c5ba:/src/views# cd ..
root@7a77dd40c5ba:/src# nodejs index.js
{ [Error: Cannot find module '../build/Release/bson'] code: 'MODULE_NOT_FOUND' }
js-bson: Failed to load c++ bson extension, using pure JS version
Express server listening on port 8080
1
'Jenil'
'CMPE283'
GET / 200 26ms
```