

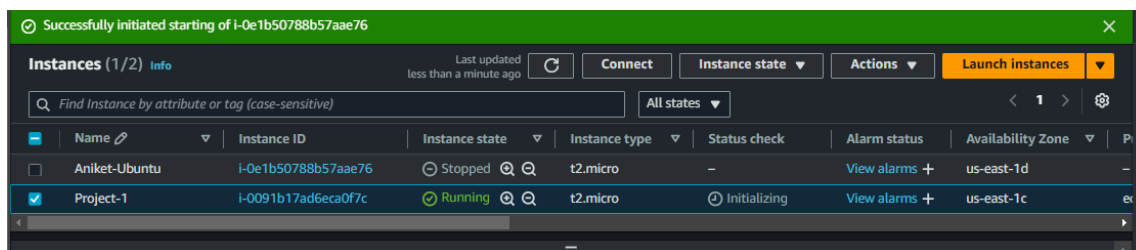
Problem Statement:

Company ABC wants to move their product to AWS. They have the following things set up right now:

1. MySQL DB

2. Website (PHP) The company wants high availability on this product, therefore wants Auto Scaling to be enabled on this website

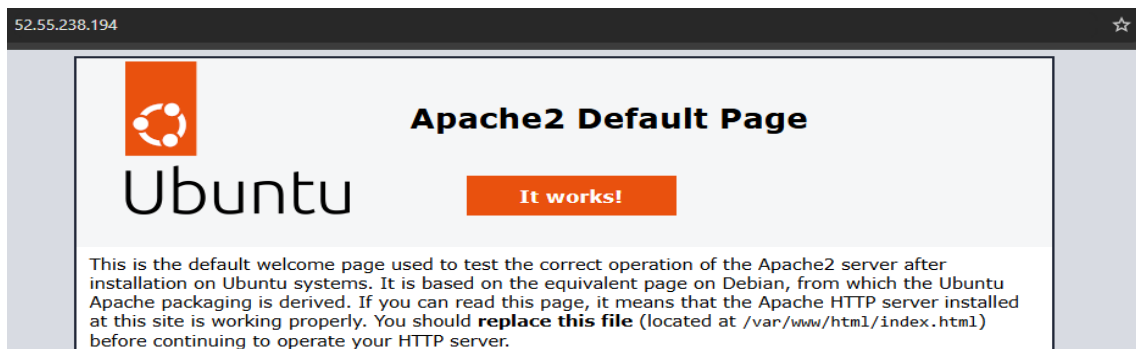
Steps → Launch an Ubuntu instance > Update the machine and install any webserver in it



To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

```
ubuntu@ip-172-31-84-178:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [496 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
```

```
Reading package lists... Done
ubuntu@ip-172-31-84-178:~$ sudo apt-get install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64 liblua5.4-0 ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64 liblua5.4-0 ssl-cert
0 upgraded, 10 newly installed, 0 to remove and 57 not upgraded.
Need to get 2084 kB of archives.
After this operation, 8094 kB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libapr1t64 amd64 1.7.2-3.1ubuntu0.1 [108 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1t64 amd64 1.6.3-1.1ubuntu7 [91.9 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.3-1.1ubuntu7 [11.2 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-ldap amd64 1.6.3-1.1ubuntu7 [9116 B]
```



Now delete the index.html file of the web page

```
ubuntu@ip-172-31-84-178:~$ cd /var/www/html
ubuntu@ip-172-31-84-178:/var/www/html$ ls
index.html
ubuntu@ip-172-31-84-178:/var/www/html$ sudo rm index.html
ubuntu@ip-172-31-84-178:/var/www/html$
```

i-0091b17ad6eca0f7c (Project-1)

PublicIPs: 52.55.238.194 PrivateIPs: 172.31.84.178

Now copy your code from local machine to this instance > install the unzip package and unzip that copied file

```
C:\Users\Admin\Downloads>scp -r -i N.virginia-keypair.pem code.zip ubuntu@52.55.238.194:/home/ubuntu
The authenticity of host '52.55.238.194 (52.55.238.194)' can't be established.
ED25519 key fingerprint is SHA256:GQv83r2/esbcy8lfzjVhFg2LUOKTuwL3A/mvgicTGTI.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])?
Warning: Permanently added '52.55.238.194' (ED25519) to the list of known hosts.
code.zip 100% 769KB 492.2KB/s 00:01

C:\Users\Admin\Downloads>
```

```
ubuntu@ip-172-31-84-178:/var/www/html$ cd
ubuntu@ip-172-31-84-178:~$ ls
code.zip
ubuntu@ip-172-31-84-178:~$
```

i-0091b17ad6eca0f7c (Project-1)

PublicIPs: 52.55.238.194 PrivateIPs: 172.31.84.178

```
ubuntu@ip-172-31-84-178:~$ sudo apt-get install unzip -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  zip
The following NEW packages will be installed:
  unzip
0 upgraded, 1 newly installed, 0 to remove and 57 not upgraded.
Need to get 174 kB of archives.
After this operation, 384 kB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 unzip amd64 6.0-28ubuntu4.1 [174 kB]
Fetched 174 kB in 0s (10.4 MB/s)
Selecting previously unselected package unzip.
(Reading database ... 68559 files and directories currently installed.)
Preparing to unpack .../unzip_6.0-28ubuntu4.1_amd64.deb ...
Unpacking unzip (6.0-28ubuntu4.1) ...
Setting up unzip (6.0-28ubuntu4.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...
```

i-0091b17ad6eca0f7c (Project-1)

PublicIPs: 52.55.238.194 PrivateIPs: 172.31.84.178

```
ubuntu@ip-172-31-84-178:~$ sudo unzip code.zip
Archive:  code.zip
  creating: 1243/images/
  inflating: 1243/images/1.png
  inflating: 1243/images/2.png
  inflating: 1243/index.php
ubuntu@ip-172-31-84-178:~$ ls
1243  code.zip
ubuntu@ip-172-31-84-178:~$
```

i-0091b17ad6eca0f7c (Project-1)

PublicIPs: 52.55.238.194 PrivateIPs: 172.31.84.178

```
ubuntu@ip-172-31-84-178:~$ cd 1243
ubuntu@ip-172-31-84-178:~/1243$ ls
images  index.php
ubuntu@ip-172-31-84-178:~/1243$
```

i-0091b17ad6eca0f7c (Project-1)

PublicIPs: 52.55.238.194 PrivateIPs: 172.31.84.178

Now move these files to the html location

```
ubuntu@ip-172-31-84-178:~/1243$ sudo mv * /var/www/html
ubuntu@ip-172-31-84-178:~/1243$ cd /var/www/html
ubuntu@ip-172-31-84-178:/var/www/html$ ls
images  index.php
ubuntu@ip-172-31-84-178:/var/www/html$
```

i-0091b17ad6eca0f7c (Project-1)

PublicIPs: 52.55.238.194 PrivateIPs: 172.31.84.178

Not secure 52.55.238.194

Name:

Email:

Submit

Now create the My SQL RDS database

RDS > Create database


Choose a database creation method


☒ Standard create
You set all of the configuration options, including ones for availability, security, backups, and maintenance.


☐ Easy create
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.


Engine options

Engine type Info

☐ Aurora (MySQL Compatible)


☐ Aurora (PostgreSQL Compatible)


☒ MySQL


☐ PostgreSQL


▼ Additional configuration

Database options, encryption turned on, backup turned on, backtrack turned off, maintenance, CloudWatch Logs, delete protection turned off.

Database options

Initial database name Info

inteli

If you do not specify a database name, Amazon RDS does not create a database.

DB parameter group Info

default.mysql8.0

Option group Info

default:mysql-8-0

✔ Successfully created database database-1

View connection details

×

You can use settings from database-1 to simplify configuration of suggested database add-ons while we finish creating your DB for you.

📘 Easy path homogeneous data migrations from EC2 database to RDS

×

With integrated homogenous data migration powered by AWS DMS, the Amazon RDS console leverages simple and performant data migration from EC2 database to equivalent RDS database. To get started, select an existing RDS database and choose the **Migrate data from EC2 database** in the **Actions** menu. Make sure you check the supported engine types and feature limitations. [Learn more](#)

Databases (1)

Group resources

Modify

Actions


Restore from S3

Create database

Filter by databases

DB identifier	Status	Role	Engine	Region ...	Size	Recommendations
database-1	Available	Instance	MySQL Co...	us-east-1c	db.t4g.mi...	

Now copy the endpoint and paste that in the index.php file and change the username and pass

Connectivity & security		
Endpoint & port <div>Endpoint copied</div> <div>  database-1.c1ws260wmxlgl.us-east-1.rds.amazonaws.com </div> Port 3306	Networking Availability Zone us-east-1c VPC Default (vpc-03b0e0bbc81c66196) Subnet group	Security VPC security groups default (sg-088950dfd05cf66ac) <div>Active</div> launch-wizard-1 (sg-05f44b750858308c8) <div>Active</div>

```
<?php
$firstname=$_POST['firstname'];
$email=$_POST['email'];
$servername = "database-1.clws260wmxlg.us-east-1.rds.amazonaws.com";
$username = "admin";
$password = "Aniket1234";
$db = "intel";
// Create connection
$conn = new mysqli($servername, $username, $password, $db);
```

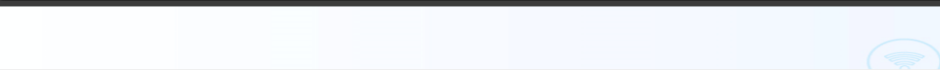
Add the ondrej repository > install the php 5.6 version to resolve the error

```
ubuntu@ip-172-31-84-178:/var/www/html$ sudo add-apt-repository -y ppa:ondrej/php
PPA publishes dbgsym, you may need to include 'main/debug' component
Repository: 'Types: deb
URIs: https://ppa.launchpadcontent.net/ondrej/php/ubuntu/
Suites: noble
Components: main
'
Description:
Co-installable PHP versions: PHP 5.6, PHP 7.x, PHP 8.x and most requested extensions are included. Only Supported
re provided.

Debian oldstable and stable packages are provided as well: https://deb.sury.org/#debian-dpa

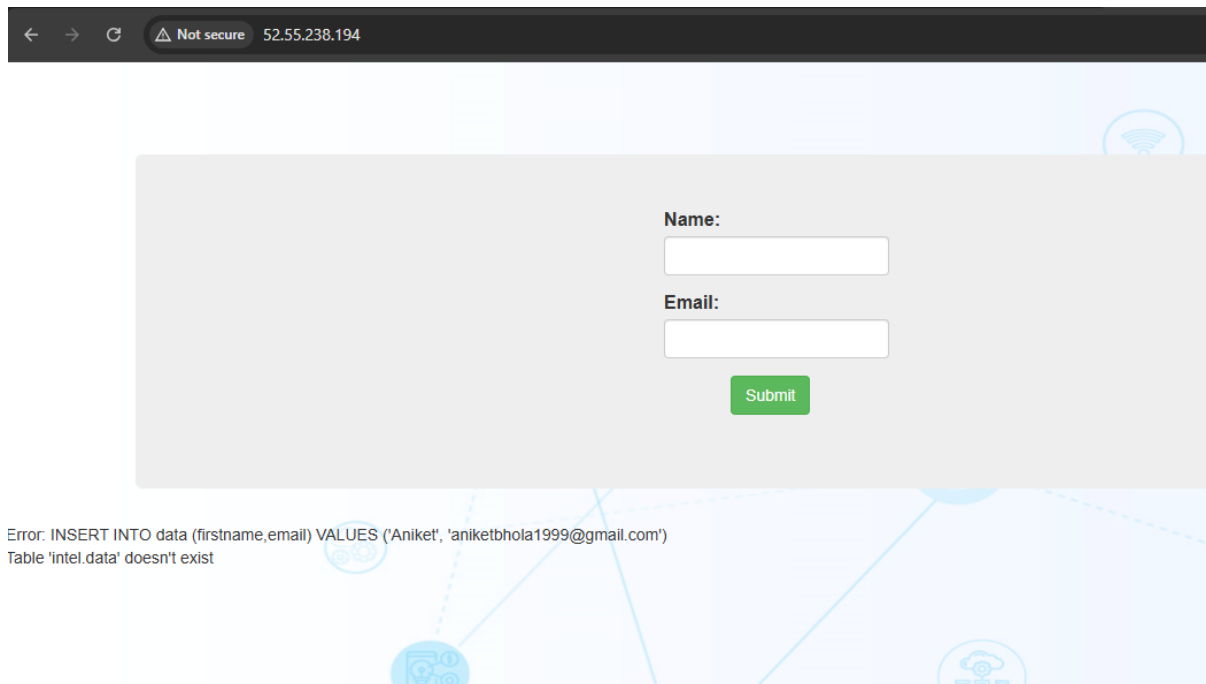
You can get more information about the packages at https://hh.sury.org
```

```
ubuntu@ip-172-31-84-178:~$ sudo apt-get install php5.6 mysql-client php5.6-mysqli -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Note, selecting 'php5.6-mysql' instead of 'php5.6-mysqli'
The following additional packages will be installed:
  debsumo-archive-keyring libapache2-mod-php5.6 libpcrc3 mysql-client-8.0 mysql-client-core-8.0 mysql-common
  php5.6-opcache php5.6-readline
Suggested packages:
  php-pear
The following NEW packages will be installed:
```



The screenshot shows a web browser window. The address bar at the top displays a warning icon, the text "Not secure", and the IP address "52.55.238.194". The page content is a light gray rectangular area. On the left side of this area is a blue button labeled "Back". On the right side is a form with two labels, "Name:" and "Email:", each followed by a white input field. Below these fields is a green button labeled "Submit". The background of the entire image features a light blue pattern of dashed lines and circular nodes.

Now after adding the data Im getting this error:



The screenshot shows a web browser window with the address bar displaying "52.55.238.194". The page contains a form with two input fields labeled "Name:" and "Email:", and a green "Submit" button. Below the form, an error message is displayed: "Error: INSERT INTO data (firstname,email) VALUES ('Aniket', 'aniketbhola1999@gmail.com') Table 'intel.data' doesn't exist".

To resolve the error we need to create the table inside the database and add the data again

```
ubuntu@ip-172-31-84-178:~$ sudo mysql -h database-1.clws260wmxlg.us-east-1.rds.amazonaws.com -u admin -pAniket1234
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 38
Server version: 8.0.39 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| intel      |
| mysql      |
| performance_schema |
| sys        |
+-----+
5 rows in set (0.01 sec)
```

i-0091b17ad6eca0f7c (Project-1)

PublicIPs: 52.55.238.194 PrivateIPs: 172.31.84.178

```
mysql> use intel;
Database changed
mysql> show tables;
Empty set (0.01 sec)

mysql> create table data (firstname varchar(20), email varchar(20));
Query OK, 0 rows affected (0.04 sec)

mysql> show tables;
+-----+
| Tables_in_intel |
+-----+
| data             |
+-----+
1 row in set (0.00 sec)

mysql>
```

i-0091b17ad6eca0f7c (Project-1)

PublicIPs: 52.55.238.194 PrivateIPs: 172.31.84.178

Now add the sample data

Name:

Email:


```
mysql> select * from data;
+-----+-----+
| firstname | email |
+-----+-----+
| Aniket    | aniketbhola1999@gmai |
| Payal     | payal123@gmail.com   |
| Astha     | astha231@gmail.com   |
| Ishika    | ishika343@gmail.com   |
+-----+-----+
4 rows in set (0.00 sec)

mysql> | |
```

i-0091b17ad6eca0f7c (Project-1)
PublicIPs: 52.55.238.194 PrivateIPs: 172.31.84.178

For High availability:

Create the AMI of the instance > Now create the ASG and ALB > copy the DNS of the ALB and paste that in the browser

Amazon Machine Images (AMIs) (1/1) info

Owned by me Find AMI by attribute or tag

	Name	AMI name	AMI ID	Source	Owner	Visibility
<input checked="" type="checkbox"/>	Project-1		ami-03ee3687bcc894a6	975050011662/Project-1	975050011662	Private

Create launch template

Creating a launch template allows you to create a saved instance configuration that can be reused, shared and launched at a later time. Templates can have multiple versions.

Launch template name and description

Launch template name - *required*

Must be unique to this account. Max 128 chars. No spaces or special characters like '&', '*', '@'.

Template version description

Max 255 chars

Auto Scaling guidance | [Info](#)

Select this if you intend to use this template with EC2 Auto Scaling

☒ Provide guidance to help me set up a template that I can use with EC2 Auto Scaling

► **Template tags**

► **Source template**

[EC2](#) > [Auto Scaling groups](#) > Create Auto Scaling group

Step 1

Choose launch template

Step 2

Choose instance launch options

Step 3 - *optional*

Integrate with other services

Step 4 - *optional*

Configure group size and scaling

Step 5 - *optional*

Add notifications

Step 6 - *optional*

Add tags

Step 7

Choose launch template [Info](#)

Specify a launch template that contains settings common to all EC2 instances that are launched by this Auto Scaling group.

Name

Auto Scaling group name

Enter a name to identify the group.

Must be unique to this account in the current Region and no more than 255 characters.

Launch template [Info](#)

i For accounts created after May 31, 2023, the EC2 console only supports creating Auto Scaling groups with launch templates. Creating Auto Scaling groups with launch configurations is not recommended but still available via the CLI and API until December 31, 2023.

Network [Info](#)

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

VPC

Choose the VPC that defines the virtual network for your Auto Scaling group.

vpc-03b0e0bbc81c66196 (Default)

172.31.0.0/16 Default



[Create a VPC](#)

Availability Zones and subnets

Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.

Select Availability Zones and subnets



us-east-1a | subnet-0c94964afa13db9f8 ✕

172.31.32.0/20 Default

us-east-1b | subnet-03b6219d2a0af6037 ✕

172.31.0.0/20 Default

us-east-1c | subnet-00a595d64ca074a6e ✕

172.31.80.0/20 Default

Step 4 - optional

[Configure group size and scaling](#)

Step 5 - optional

[Add notifications](#)

Step 6 - optional

[Add tags](#)

Step 7

[Review](#)

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

☐ No load balancer
Traffic to your Auto Scaling group will not be fronted by a load balancer.

☐ Attach to an existing load balancer
Choose from your existing load balancers.

☒ Attach to a new load balancer
Quickly create a basic load balancer to attach to your Auto Scaling group.

Attach to a new load balancer

Define a new load balancer to create for attachment to this Auto Scaling group.

Load balancer type

Choose from the load balancer types offered below. Type selection cannot be changed after the load balancer is created. If you need a different type of load balancer than those offered here, [visit the Load Balancing console](#).

☒ Application Load Balancer
HTTP, HTTPS

☐ Network Load Balancer
TCP, UDP, TLS

Load balancer name

Names cannot be changed after the load balancer is created.

Group size Info

Set the initial size of the Auto Scaling group. After creating the group, you can change its size to meet demand, either manually or by using automatic scaling.

Desired capacity type

Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instances groups configured with a set of instance attributes.

Units (number of instances)

Desired capacity

Specify your group size.

2

Scaling Info

You can resize your Auto Scaling group manually or automatically to meet changes in demand.

Scaling limits

Set limits on how much your desired capacity can be increased or decreased.

Min desired capacity

2

Equal or less than desired capacity

Max desired capacity

3

Equal or greater than desired capacity

EC2 > Auto Scaling groups

Auto Scaling groups (1/1) Info

Launch configurations

Launch templates

Actions

Create Auto Scaling group

Q Search your Auto Scaling groups

< 1 >

<input checked="" type="checkbox"/>	Name	Launch template/configuration	Instances	Status	Desired capacity	Min
<input checked="" type="checkbox"/>	Project-1	Aniket-Project1 Version Default	2	-	2	2

Load balancers (1)

Actions

Create load balancer

Q Filter load balancers

< 1 >

<input type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	T
<input type="checkbox"/>	Project-1-1	Project-1-1-1267431449.us-east-1...	Active	vpc-03b0e0bbc81c66...	6 Availability Zones	a

0 load balancers selected

Load balancer ARN
arn:aws:elasticloadbalancing:us-east-1:975050011662:loadbalancer/app/Project-1-1/4ea256a024f0b725

Project-1-1-1267431449.us-east-1.elb.amazonaws.com (A Record)

Listeners and rules

Network mapping

Resource map - new

Security

Monitoring

Integrations

Attributes

Capacity - new

Listeners and rules (1) Info

Manage rules

Manage listener

Add listener


A listener checks for connection requests on its configured protocol and port. Traffic received by the listener is routed according to the default action and any additional rules.

Filter listeners

< 1 >

Protocol:Port	Default action	Rules	ARN	Security policy	Default
<input type="checkbox"/> HTTP:80	Forward to target group <ul style="list-style-type: none">Project-1-1 [2]: 1 (100%)Target group stickiness: Off	1 rule	ARN	Not applicable	Not applicable

← → ↺ ⚠ Not secure project-1-1-1267431449.us-east-1.elb.amazonaws.com ☆ 📄 📄 📄 📄



Name:

Email:

Submit