

## Project Documentation:

- Using AWS Elastic Beanstalk to Set Up RDS and Access It from an EC2 Instance

## Objective:

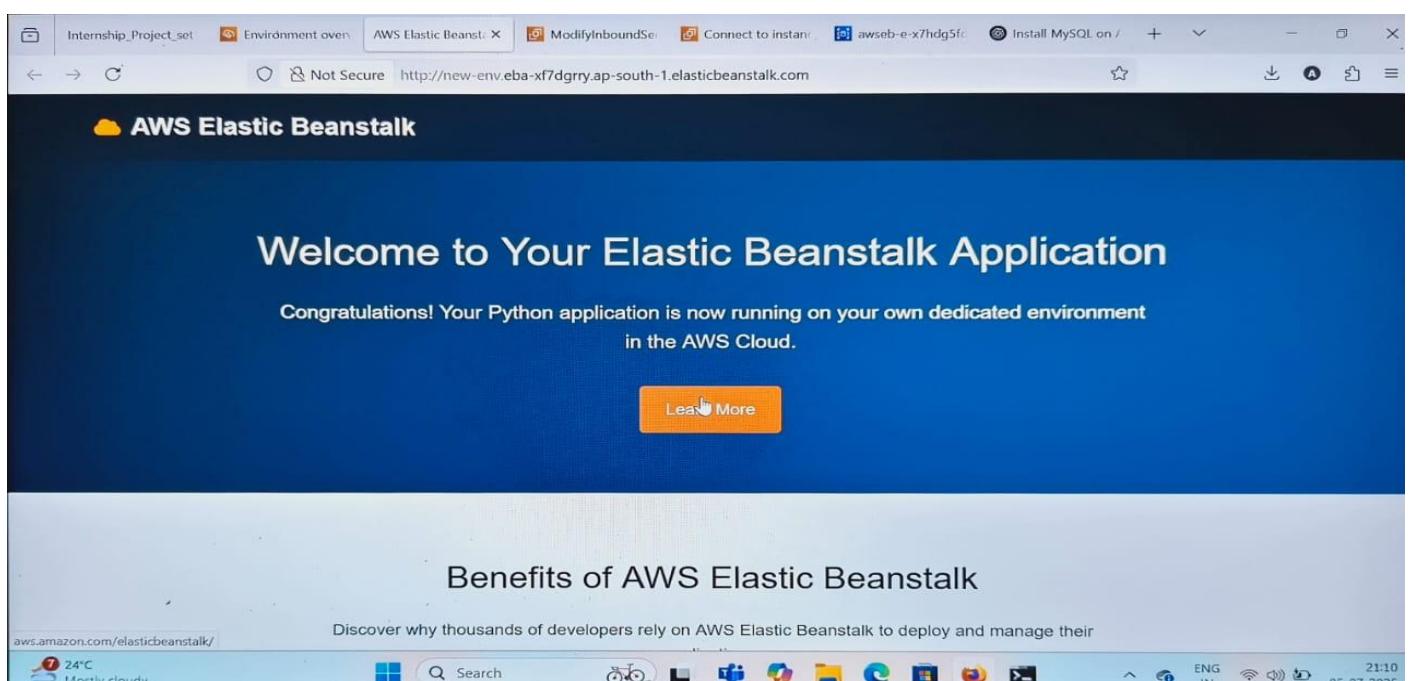
- Deploy a Python application using AWS Elastic Beanstalk with an integrated RDS database and allow EC2 access to the RDS instance.

## Step-by-Step Implement:

### 1. Create an Elastic Beanstalk Application

1. Go to **AWS Console** → **Elastic Beanstalk**.
2. Click “**Create application**”.
3. Fill in:
  - **Application name:** my-web-app
  - **Platform:** Choose (e.g., Python, Node.js, PHP)
  - **Application code:** Select **Sample Application**
4. Click **Next / Configure more options**.

## Elastic Beanstalk Deployment



## Environment & RDS Launch View

The screenshot shows the AWS Elastic Beanstalk environment dashboard for 'New-env'. A prominent green banner at the top states 'Environment successfully launched.' Below this, a log table displays the deployment process:

Time	Type	Details
July 5, 2025 20:16:01 (UTC+5:30)	INFO	Removed instance [i-0b4f699a5e31144fd] from your environment.
July 5, 2025 20:15:01 (UTC+5:30)	INFO	Added instance [i-0ba172eadf412e161] to your environment.
July 5, 2025 20:15:01 (UTC+5:30)	INFO	Environment health has transitioned from Pending to No Data. None of the instances are sending data.
July 5, 2025 20:06:31 (UTC+5:30)	INFO	Successfully launched environment: New-env
July 5, 2025 20:06:02 (UTC+5:30)	INFO	Added instance [i-0b4f699a5e31144fd] to your environment.
July 5, 2025 20:05:24 (UTC+5:30)	INFO	Instance deployment completed successfully.
July 5, 2025 20:05:21 (UTC+5:30)	INFO	Instance deployment successfully generated a 'Profile'.

## 🛠 2. Add RDS Database During Environment Configuration

1. In the **Configure more options** screen:
2. Under **Database**, click **Modify**:
  - **Engine**: MySQL
  - **Version**: 8.x (or required)
  - **Instance Class**: db.t3.micro
  - **Storage**: 20 GB (or more)
  - **Username**: admin
  - **Password**: YourStrongPassword123
3. Click **Save**, then **Create Environment**.

ℹ Beanstalk will provision:

- EC2 instance
- RDS instance
- Security groups
- IAM roles

## RDS Instance Created

The screenshot shows the AWS RDS 'Connectivity & security' tab for a database named 'awseb-e-x7hdg5fd76-stack-awsebrdsdatabase-inbhy6mpogps'. The left sidebar lists various RDS management options like Dashboard, Databases, and Monitoring. The main panel is divided into three sections: Endpoint & port, Networking, and Security.

Endpoint & port	Networking	Security
<b>Endpoint</b> awseb-e-x7hdg5fd76-stac k-awsebrdsdatabase-inbhy6m pogps.c7u882mc6jgt.ap-sout h-1.rds.amazonaws.com	<b>Availability Zone</b> ap-south-1c	<b>VPC security groups</b> awseb-e-x7hdg5fd76-stack- AWSEBRDSDBSecurityGroup- nUmRW7UVvwAH (sg-0031792696af5b573d) Active
<b>Port</b> 3306	<b>VPC</b> vpc-0b98aa61adb7cfcae	<b>Subnet group</b> default
	<b>Subnets</b> subnet-0c4c2560cd6b4f066 subnet-0e34266d7a4cb6008 subnet-044052deb7c960040	<b>Publicly accessible</b> Yes
		<b>Certificate authority</b> Info rds-ca-rsa2048-g1
		<b>Certificate authority date</b> May 20, 2061, 00:10

## 3. Access RDS from Another EC2 Instance

Step 1: Launch a new EC2 instance

- Go to **EC2 → Launch Instance**
- Choose Amazon Linux 2
- Select same **VPC** and **Subnet** as Beanstalk app
- Choose a **Key Pair** (for SSH access)

Step 2: Allow EC2 to Access RDS

- Go to **RDS → Databases → Your DB → Connectivity & Security**
- Find **Security Group** attached to RDS
- Edit **Inbound Rules**:
  - Type: MySQL/Aurora
  - Protocol: TCP
  - Port Range: 3306
  - Source: **Security group of the EC2 instance** or EC2 instance's private IP

## Ec2 Instance:

The screenshot shows the AWS EC2 Instances details page for an instance named i-0c365555df7c7a44b. The instance is currently running. Key details displayed include:

- Instance ID:** i-0c365555df7c7a44b
- Public IPv4 address:** 13.201.137.36
- Private IP4 addresses:** 172.31.7.177
- Public DNS:** ec2-13-201-137-36.ap-south-1.compute.amazonaws.com
- Instance state:** Running
- Hostname type:** IP name: ip-172-31-7-177.ap-south-1.compute.internal
- Answer private resource DNS name:** IPv4 (A)
- Instance type:** t2.micro
- VPC ID:** vpc-0b98aa61adbf7cfae
- Elastic IP addresses:** None
- AWS Compute Optimizer finding:** Opt-in to AWS Compute Optimizer for reco



## 4. Connect to EC2 Instance via SSH

```
ssh -i "your-key.pem" ec2-user@<EC2-Public-IP>
```



## 5. Install MySQL Client on EC2 and Connect to RDS

```
sudo yum update -y & sudo yum install -y mysql
```

```
sudo mysql -u root -p -h (end point)
```

## MYSQL Access Form EC2

```
rds.amazonaws.com
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 45
Server version: 8.0.41 Source distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

MySQL [(none)]> create database facebook;
Query OK, 1 row affected (0.017 sec)

MySQL [(none)]> show database;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'database' at line 1
MySQL [(none)]> show databases;
+-----+
| Database |
+-----+
| ebdb   |
| facebook |
| information_schema |
| mysql   |
| performance_schema |
| sys     |
+-----+
6 rows in set (0.004 sec)

MySQL [(none)]> use facebook;
Database changed
MySQL [facebook]> client_loop; send disconnect: Connection reset
PS C:\Users\Admin\Downloads>
```

```
PowerShell          X  ec2-user@ip-172-31-7-177:~ + | 
-> course VARCHAR(100),
-> address TEXT
-> );
Query OK, 0 rows affected (0.062 sec)

MySQL [facebook]> seletc for user;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'seletc for user' at line 1
MySQL [facebook]> select * from users;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'from users' at line 1
MySQL [facebook]> SHOW TABLES;
+-----+
| Tables_in_facebook |
+-----+
| students           |
+-----+
1 row in set (0.002 sec)

MySQL [facebook]> DESCRIBE students;
+-----+
| Field    | Type      | Null | Key | Default | Extra       |
+-----+
| id       | int       | NO   | PRI  | NULL    | auto_increment
| name     | varchar(100) | YES  |      | NULL    |
| email    | varchar(100) | YES  |      | NULL    |
| phone    | varchar(20)  | YES  |      | NULL    |
| course   | varchar(100) | YES  |      | NULL    |
| address  | text      | YES  |      | NULL    |
+-----+
6 rows in set (0.006 sec)

MySQL [facebook]> |
```

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