



Module 14 – Project 1

Project- Amplify- Lambda- API Gateway- IAM.

In this Project we are going to use Amplify which will work as the web server and we will upload the index.html file.

Lambda – we will create the lambda function which will list the number of EC2 instances that are in running state.

API Gateway – API gateway will trigger the Lambda function.

So first let's create the Lambda function.

```
import boto3
```

```
region = 'us-east-1'
```

```
ec2 = boto3.client('ec2', region_name=region)
```

```
def lambda_handler(event, context):
```

```
    instance_ids = []
```

```
    response = ec2.describe_instances(Filters=[{'Name': 'instance-state-name', 'Values': ['running']}])
```

```
    instances_full_details = response['Reservations']
```

```
    for instance_detail in instances_full_details:
```

```
        group_instances = instance_detail['Instances']
```

```
        for instance in group_instances:
```

```
            instance_id = instance['InstanceId']
```

```
            instance_ty = instance['InstanceType']
```

```
            instance_publicip = instance['PublicDnsName']
```

```
            instance_ids.append(instance_id)
```

```
            instance_ids.append(instance_ty)
```

```
            instance_ids.append(instance_publicip)
```

```
    return instance_ids
```

Lambda is running fine. Now let's create the API Gateway which will trigger the Lambda function. We will create Rest API

Create REST API

API details

☒ New API

Create a new REST API.

☐ Clone existing API

Create a copy of an API in this AWS account.

☐ Import API

Import an API from an OpenAPI definition.

☐ Example API

Learn about API Gateway with an example API.

API name

Project1

Description - *optional*

API endpoint type

Regional APIs are deployed in the current AWS Region. Edge-optimized APIs route requests to the nearest CloudFront Point of Presence. Private APIs are only accessible from VPCs.

Regional

Cancel

Create API


Now create a method.


Method details


Method type


POST


Integration type

☒ **Lambda function**
 Integrate your API with a Lambda function.
 

☐ **HTTP**
 Integrate with an existing HTTP endpoint.
 

☐ **Mock**
 Generate a response based on API Gateway mappings and transformations.
 

☐ **AWS service**
 Integrate with an AWS Service.
 

☐ **VPC link**
 Integrate with a resource that isn't accessible over the public internet.
 

☐ **Lambda proxy integration**
 Send the request to your Lambda function as a structured event.

Lambda function

Provide the Lambda function name or alias. You can also provide an ARN from another account.

us-east-1

☐ Grant API Gateway permission to invoke your Lambda function. To turn off, update the function's resource policy yourself, or provide an invoke role that API Gateway uses to invoke your function.

☒ **Default timeout**

Now Deploy the API.

Copy this Invoke URL this will be used in Index.html

Let create the Amplify. Zip the Index.html page and upload.

Index.html

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<meta charset="UTF-8">
<title>EC2 List</title>
<!-- Styling for the client UI -->
<style>
h1 {
  color: #8f2222;
  font-family: system-ui;
  margin-left: 20px;
}
body {
  background-color: #7b7c79;
}
label {
  color: #86C232;
  font-family: system-ui;
  font-weight: bold;
  font-size: 20px;
  margin-left: 20px;
  margin-top: 20px;
}
button {
  background-color: #86C232;
  border-color: #86C232;
  color: #FFFFFFF;
```

```
font-family: system-ui;
font-size: 15px;
    font-weight: bold;
margin-left: 30px;
    margin-top: 20px;
    width: 140px;
}
    input {
color: #292223;
font-family: system-ui;
font-weight: bold;
font-size: 20px;
margin-left: 10px;
    margin-top: 20px;
    width: 100px;
}
</style>
<script> function target_popup(form) {
    window.open("", 'formpopup', 'width=1000,height=300,resizeable,scrollbars');
    form.target = 'formpopup';
}
</script>

</head>
```

```
<body>
  <h1>Running EC2 Instance id's </h1>
  <table border="1" cellpadding="1" cellspacing="1">
    <tr>
      <th>AWS Account Name</th>
      <th>AWS Account No</th>
      <th>Result</th>
    </tr>
    <tr>
      <td>Demo</td>
      <td>550387307646</td>
      <td><form id="myform" action="https://md2uwwznia.execute-api.us-east-1.amazonaws.com/Dev" method="post" onsubmit="target_popup(this)">
        <button class="deploy_button" type="submit" formmethod="post">Click Here</button>
      </form>
    </td>
    </tr>
  </tr>
</body>
</html>
```

Now Browse the URL.