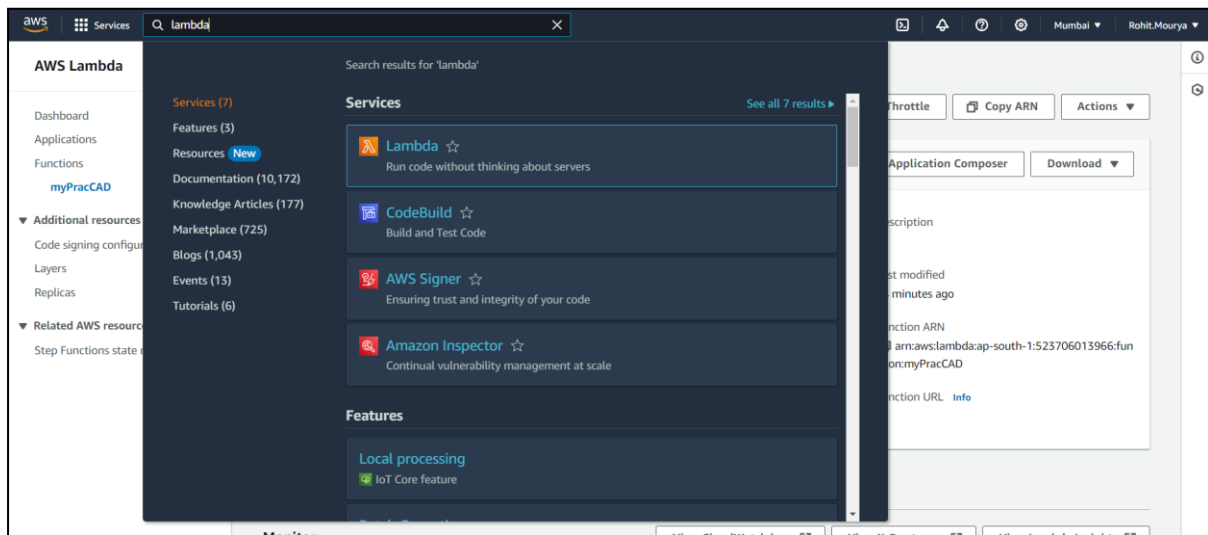


Serverless EMI Calculator using AWS Lambda and API Gateway

Steps to be followed:-

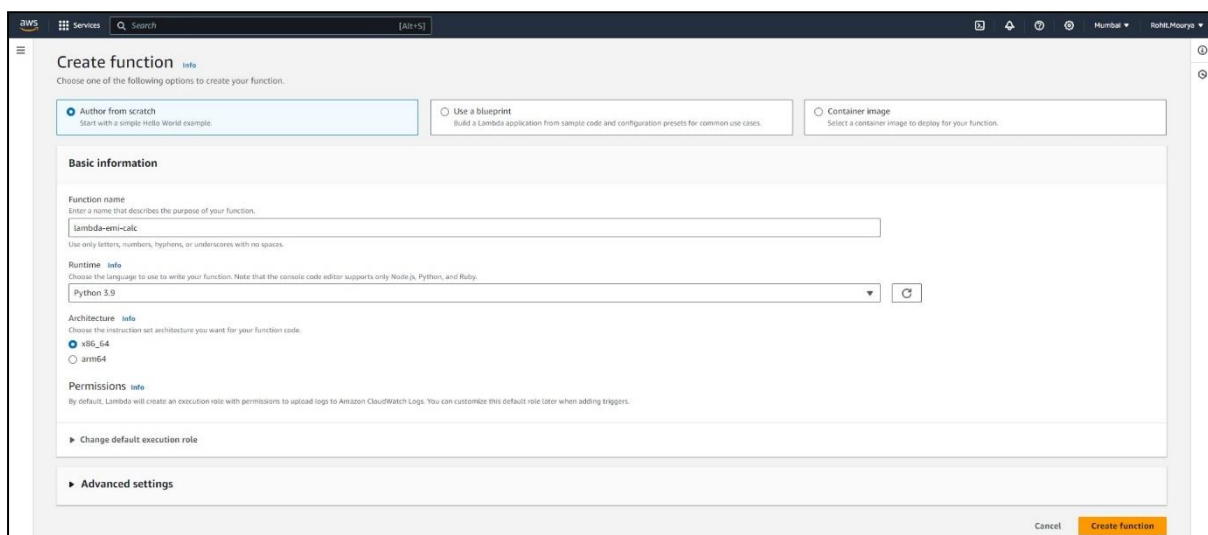
Step: 01

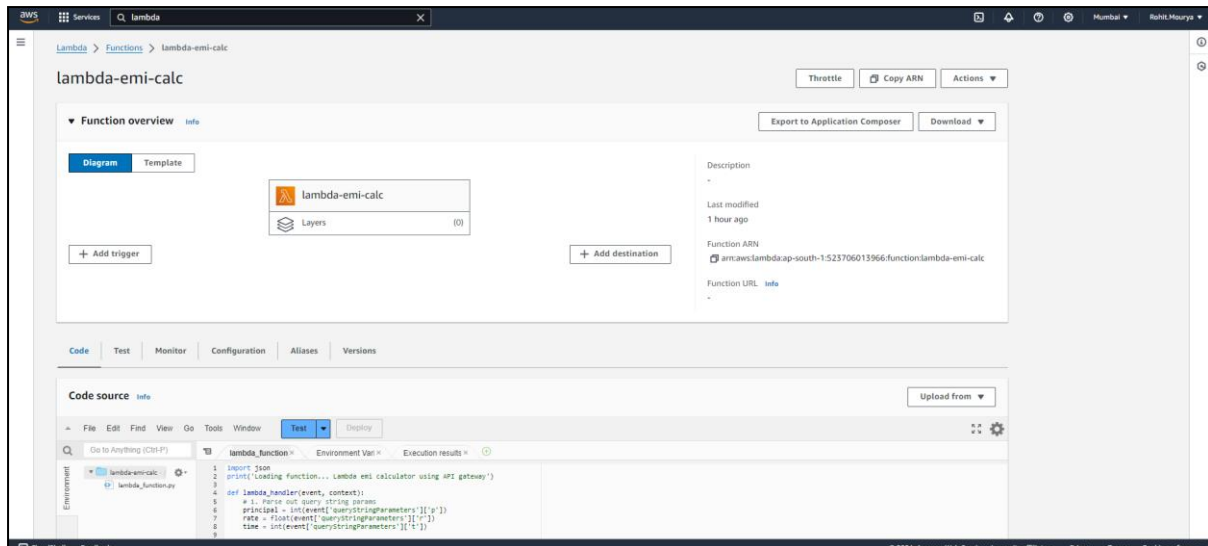
- Login into the AWS console.
- Search for lambda on the service bar.



Then, create a lambda function of name **lambda-emi-calc**.

And select the Runtime of function as **Python 3.9**, then click on create function.





Step: 02

Next step is to clear existing code and write emi calculator python code as below :

Code:

```
import json
```

```
print('Loading function... Lambda emi calculator using API gateway')
```

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

```
    # 1. Parse out query string params
```

```
    principal = int(event['queryStringParameters']['p'])
```

```
    rate = float(event['queryStringParameters']['r'])
```

```
    time = int(event['queryStringParameters']['t'])
```

```
    emi = emi_calculator(principal, rate, time)
```

```
    # 2. Construct the body of the response object
```

```
    transactionResponse = {
```

```
        'p': principal,
```

```
        'r': rate,
```

```
        't': time,
```

```
        'emi': emi
```

```
    }
```

3. Construct http response object

```
responseObject = {  
    'statusCode': 200,  
    'headers': {  
        'Content-Type': 'application/json'  
    },  
    'body': json.dumps(transactionResponse)  
}
```

4. Return the response object

```
return responseObject
```

def emi_calculator(p, r, t):

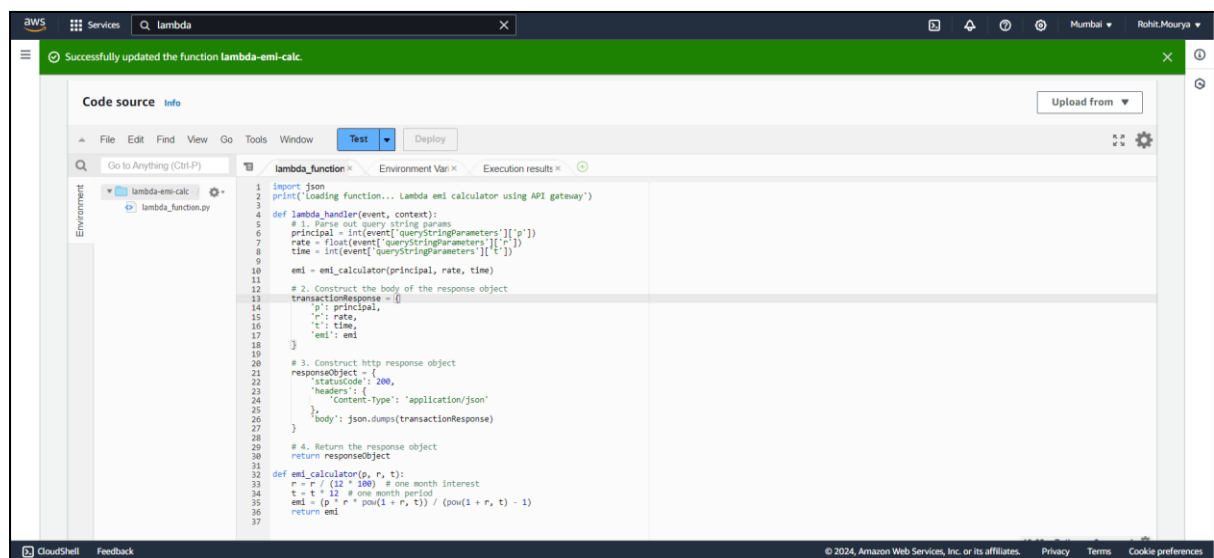
```
    r = r / (12 * 100) # one month interest
```

```
    t = t * 12 # one month period
```

```
    emi = (p * r * pow(1 + r, t)) / (pow(1 + r, t) - 1)
```

```
    return emi
```

Deploy the lambda function



Step: 03

Then go to dropdown besides test and configure test event with sample input values for testing lambda function code.

Code:

```
{
  "queryStringParameters": {
    "p": 10000,
    "r": 2.5,
    "t": 5
  }
}
```

Configure test event [X]

A test event is a JSON object that mocks the structure of requests emitted by AWS services to invoke a Lambda function. Use it to see the function's invocation result.

To invoke your function without saving an event, configure the JSON event, then choose Test.

Test event action

☒ Create new event ☐ Edit saved event

Event name

emi-calc

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Event sharing settings

☒ Private
This event is only available in the Lambda console and to the event creator. You can configure a total of 10. [Learn more](#)

☐ Shareable
This event is available to IAM users within the same account who have permissions to access and use shareable events. [Learn more](#)

Template - optional

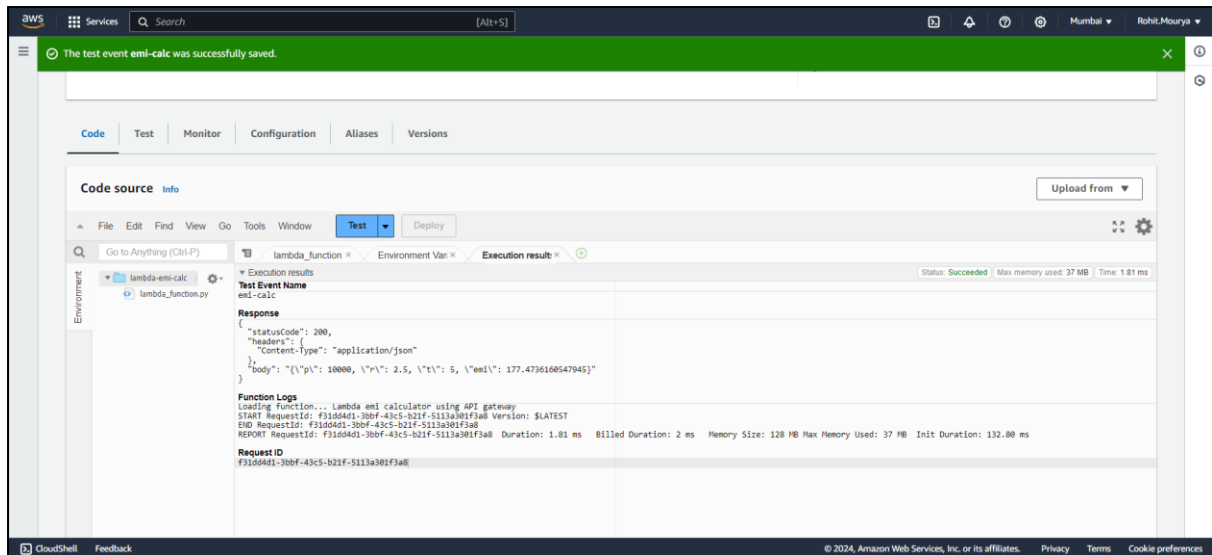
hello-world

Event JSON [Format JSON]

```
1 {
2   "queryStringParameters": {
3     "p": 10000,
4     "r": 2.5,
5     "t": 5
6   }
7 }
8
9
```

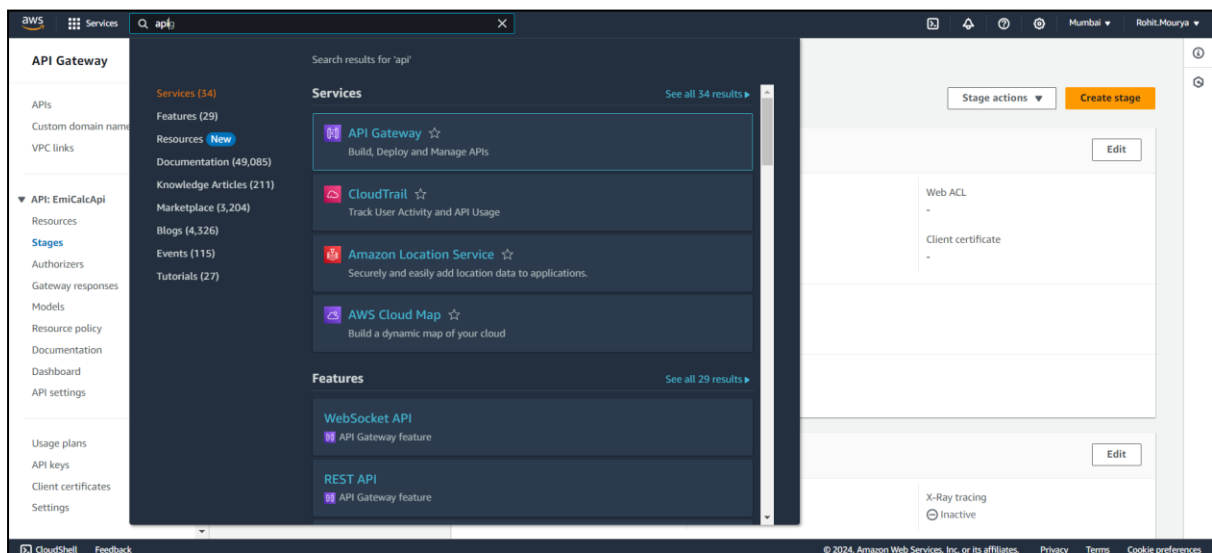
Cancel Invoke Save

Test the code and get output without any errors.

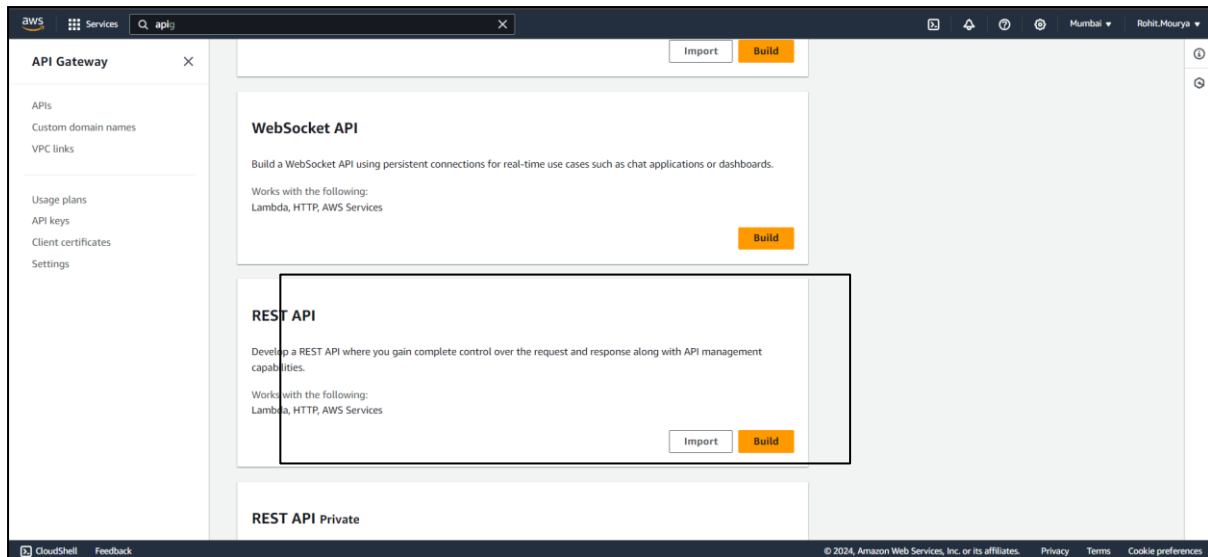


Step: 04

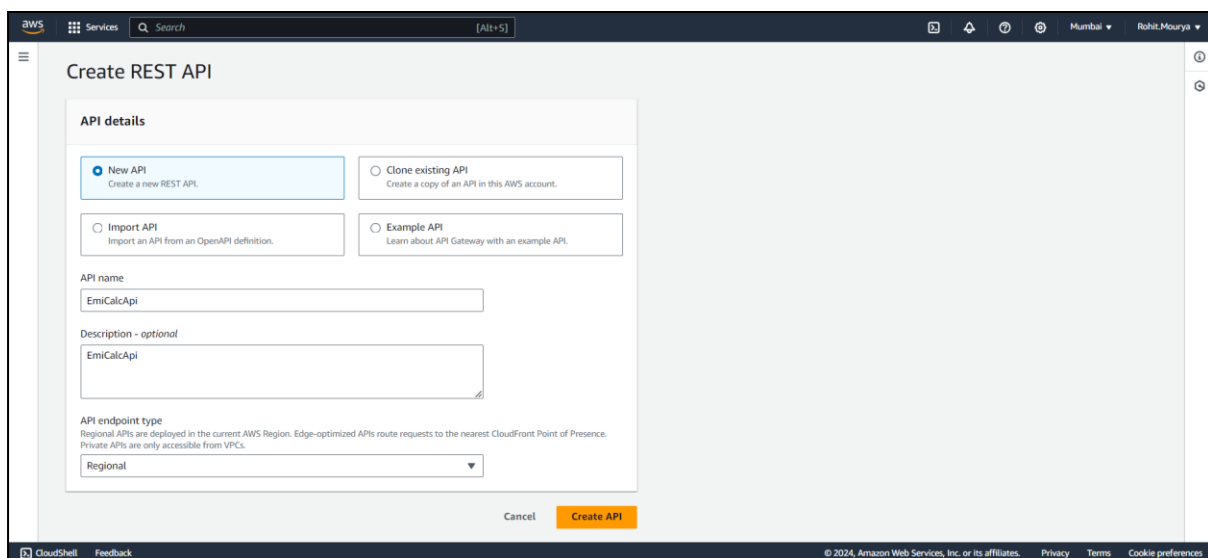
Go above and search for API gateway on the service bar and open it.



- Click on create API gateway
- Choose Rest API
- Click on import

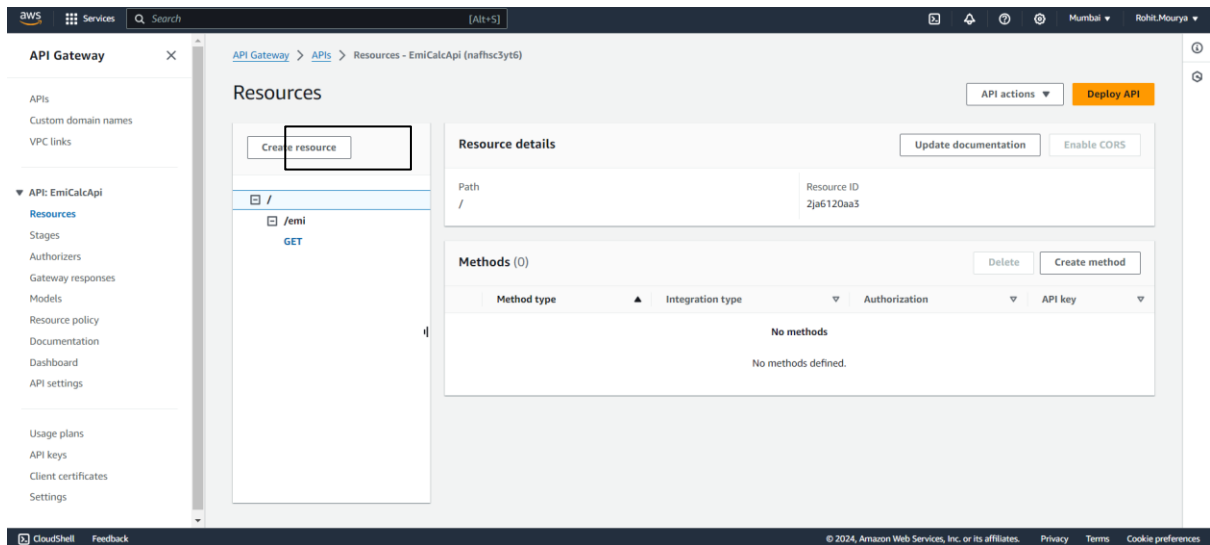


- Create new API
- API name = EmiCalcApi
- Description = EmiCalcApi
- Endpoint type = Regional
- Click on create tab

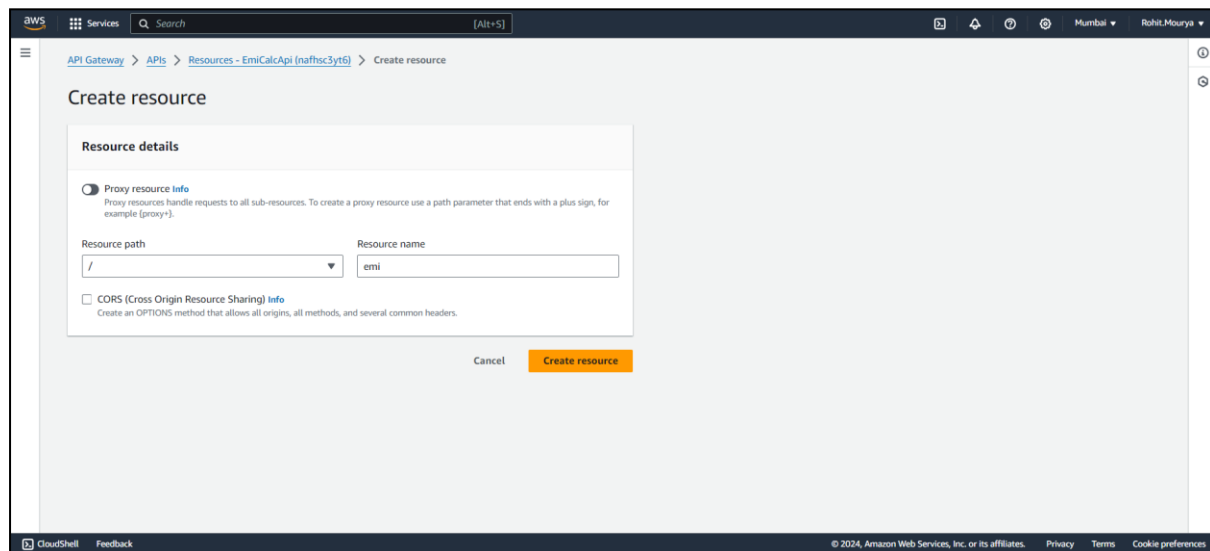


Step: 05

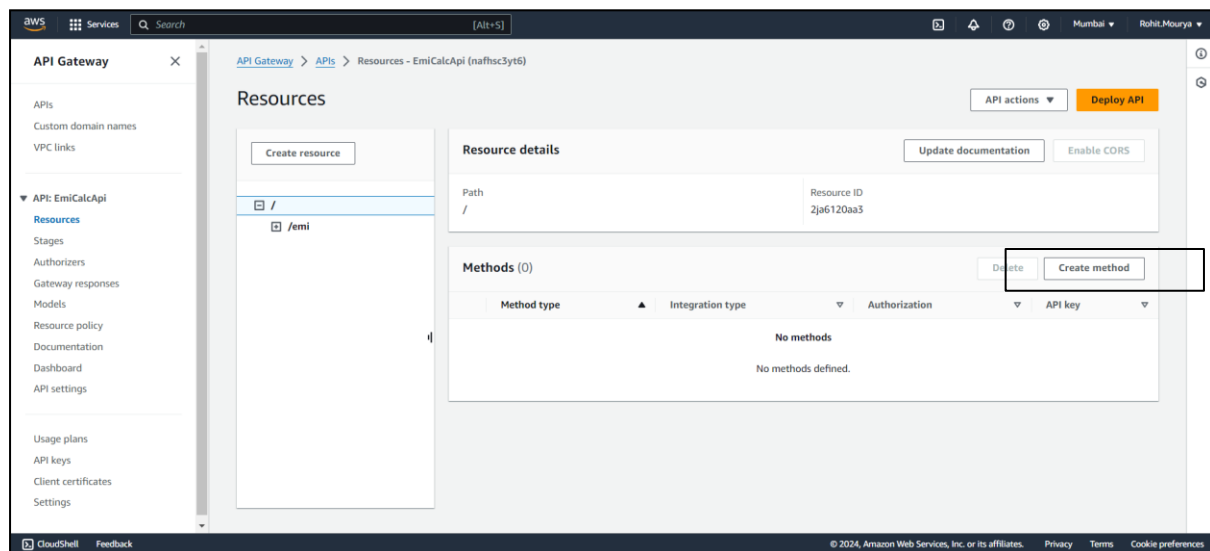
Next step click on actions then create resource



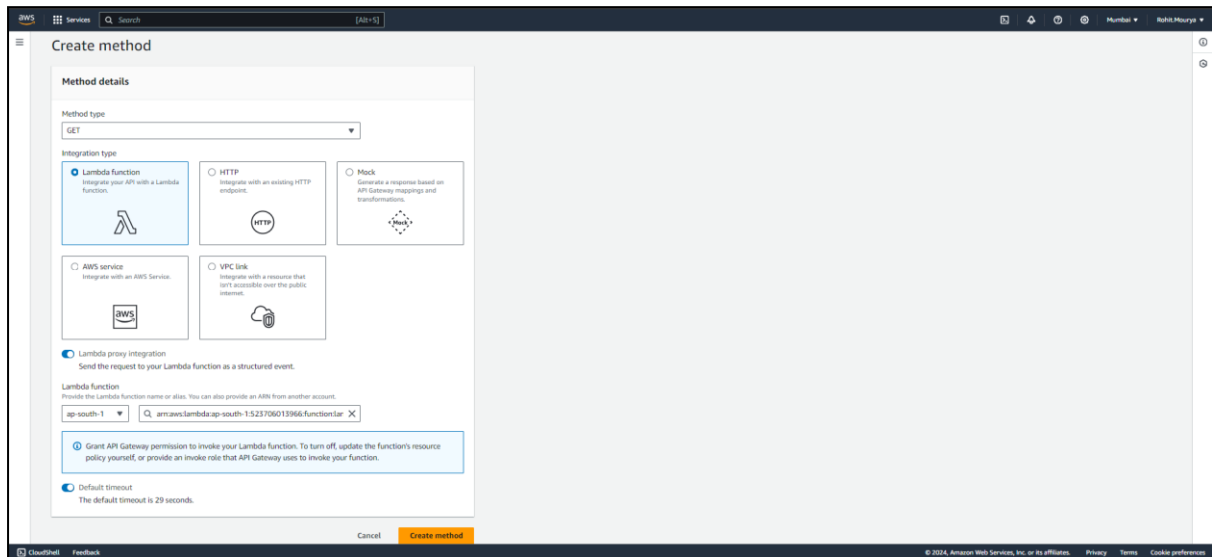
Enter resource name as **emi** and click create resource



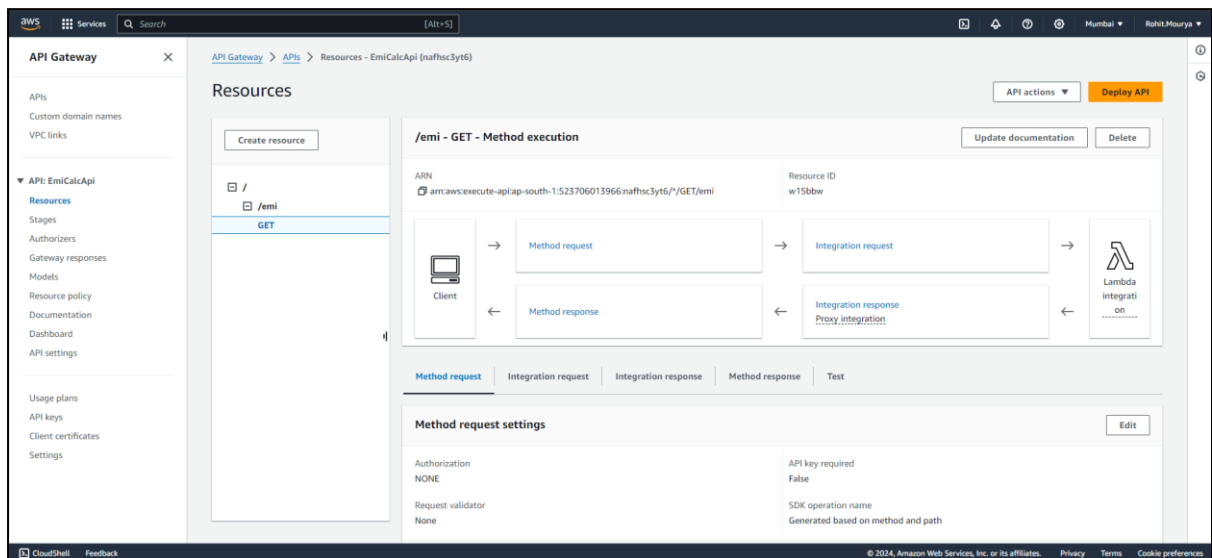
Now click on create method.



- Select Method as GET.
- Integration type as Lambda Function.
- Enable the Lambda proxy integration.
- Then, select the Lambda function which we have created previously.
- And click on create method.

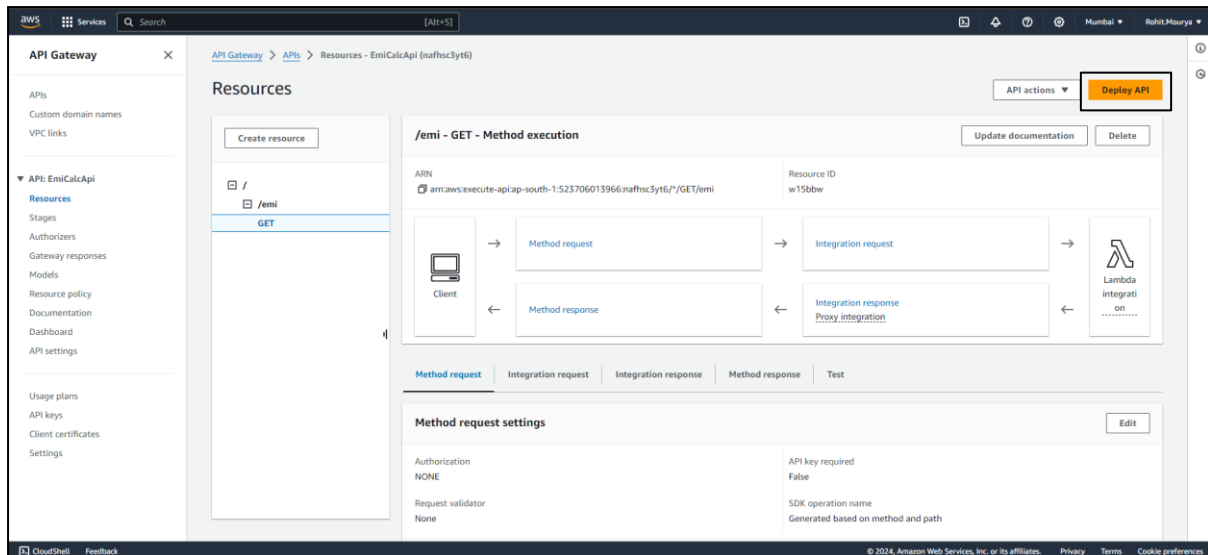


The GET method will look below.



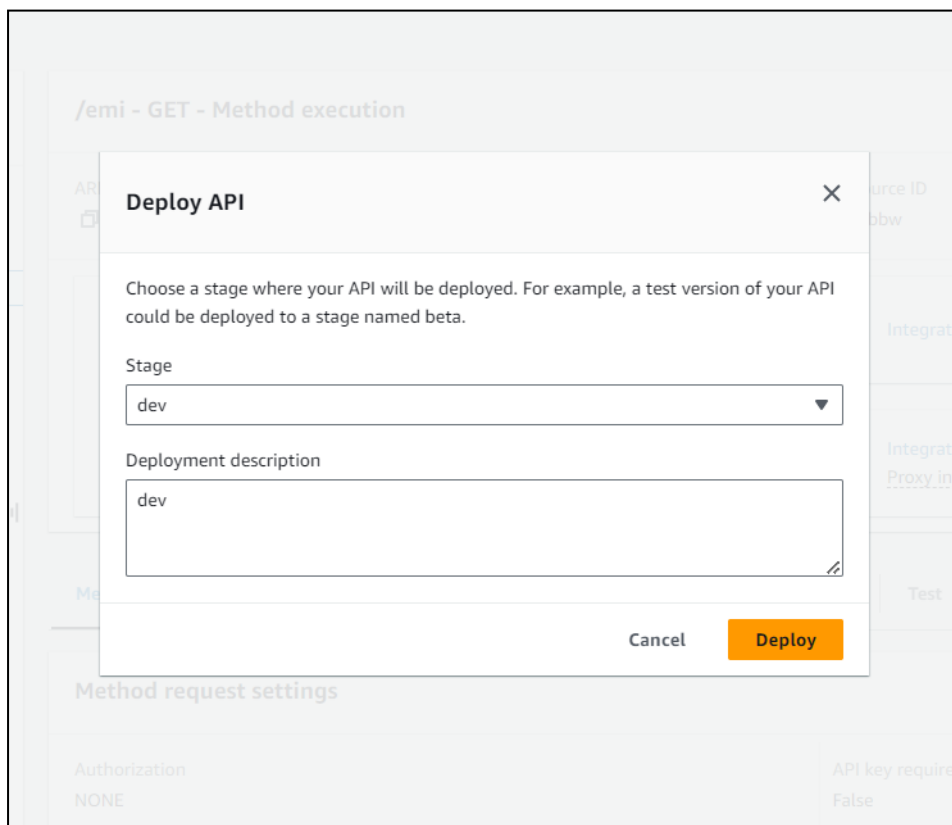
Step: 06

Now deploy the method by click on **Deploy API** button

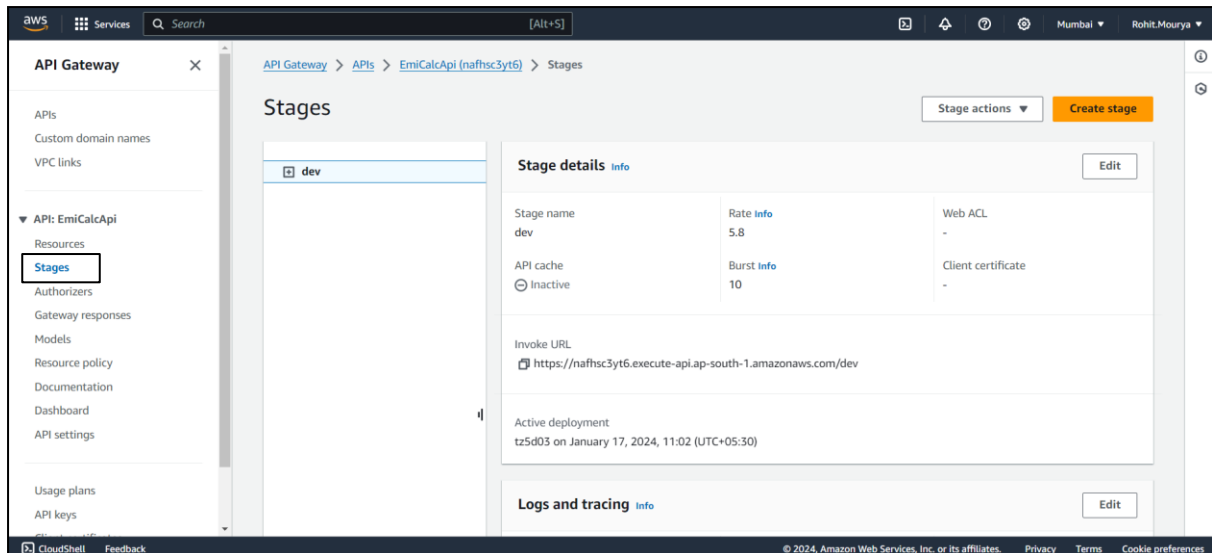


Enter stage name as **dev**.

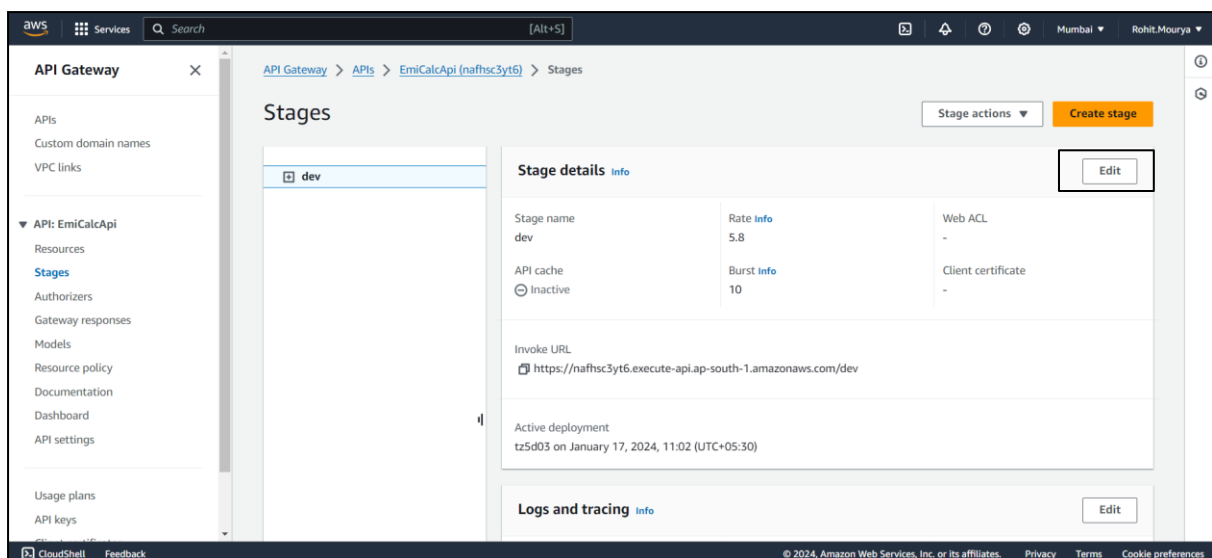
Deployment description as **dev**.



After deploying go to the Stage option from Api gateway column.



Then click on the edit button from the stage details tab.



- After clicking on edit now we have to change the rate and burst for calculating EMI.
- To calculate the EMI we have to place valid parameters
- Principle = p , Rate = r and Time = t
- Then add rate (r) as certain value 5.8 and the final value time as 10

Stage description - optional

dev

Additional settings

Cache settings

☒ API cache

You can enable API caching to cache your endpoint's responses. With caching, you can reduce the number of calls made to your endpoint and also improve the latency of requests to your API. Caching is charged by the hour based on cache size, see [API Gateway pricing](#) for details.

Throttling settings

☒ Throttling

Limit the rate that users can call your API.

Rate

Enter the rate, in requests per second, that clients can call your API.

5.8 requests per second

Burst

Enter the number of concurrent requests that clients can make to your API.

10 requests

Firewall and certificate settings

Web application firewall (AWS WAF)

None

Client certificate

Select the client certificate to verify that HTTP requests to your integrations are from API Gateway.

None

Cancel Save

Then copy the Invoke URL from the stage details and paste it in the browser.

Need to add after url - `/emi?p=10000&r=5.8&t=10`

API Gateway

APIs

Custom domain names

VPC links

API: EmiCalcApi

Resources

Stages

Authorizers

Gateway responses

Models

Resource policy

Documentation

Dashboard

API settings

Usage plans

API keys

CloudShell Feedback

API Gateway > APIs > EmiCalcApi (nafhsc3yt6) > Stages

Stage actions Create stage

Stages

dev

Stage details info Edit

Stage name	dev	Rate	5.8	Web ACL	-
API cache	Inactive	Burst	10	Client certificate	-

Invoke URL

<https://nafhsc3yt6.execute-api.ap-south-1.amazonaws.com/dev>

Active deployment

tz5d03 on January 17, 2024, 11:02 (UTC+05:30)

Logs and tracing info Edit

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Now copy and paste the whole url in the browser and you will have the required EMI.

OUTPUT:-

nafhsc3yt6.execute-api.ap-south-1.amazonaws.com

nafhsc3yt6.execute-api.ap-south-1.amazonaws.com/dev/emi?p=10000&r=5.8&t=10

AWS Skill Builder AWS re/Start canvas AWS management c...

`{"p": 10000, "r": 5.8, "t": 10, "emi": 110.0188101041876}`