

2. Creating a Serverless API

Objective: Develop a serverless API using AWS Lambda and API Gateway.

Approach:

- **Define API:** Design a simple RESTful API (e.g., for a todo list application).
- **Lambda Functions:** Create Lambda functions for each API method (GET, POST, PUT, DELETE).
- **API Gateway Setup:** Use API Gateway to set up the API endpoints, connecting each endpoint to the corresponding Lambda function.
- **Testing:** Test the API using tools like Postman or AWS API Gateway test functionality.

Goal: Gain hands-on experience in building and deploying a serverless API, understanding the integration between Lambda and API Gateway.

Solution:

1. Created the lambda function and assigned the LabRole

The screenshot shows the 'Create function' page in the AWS Lambda console. At the top, there are three tabs: 'Author from scratch' (selected), 'Use a blueprint', and 'Container image'. Below the tabs, the 'Basic information' section is visible. It includes a 'Function name' field with the value 'my-old-lambda', a 'Runtime' dropdown set to 'Python 3.12', and an 'Architecture' dropdown set to 'x86_64'. The 'Permissions' section is expanded, showing 'Change default execution role' with options to 'Create a new role with basic Lambda permissions', 'Use an existing role' (selected), or 'Create a new role from AWS policy templates'. The 'Existing role' dropdown is set to 'LabRole'. At the bottom right, there are 'Cancel' and 'Create function' buttons.

2. Created the 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

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.

Cancel **Create API**

3. Created the resources

[API Gateway](#) > [APIs](#) > [Resources - my-old-api \(5veaindhg2\)](#) > Create resource

Create resource

Resource details

☒ **Proxy resource** [Info](#)
Proxy resources handle requests to all sub-resources. To create a proxy resource use a path parameter that ends with a plus sign, for example {proxy+}.

Resource path

Resource name

☒ **CORS (Cross Origin Resource Sharing)** [Info](#)
Create an OPTIONS method that allows all origins, all methods, and several common headers.

Cancel **Create resource**

4. Created method inside the resources

[API Gateway](#) > [APIs](#) > [Resources - my-old-api \(5veaindhg2\)](#) > [Create method](#)

Create 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.

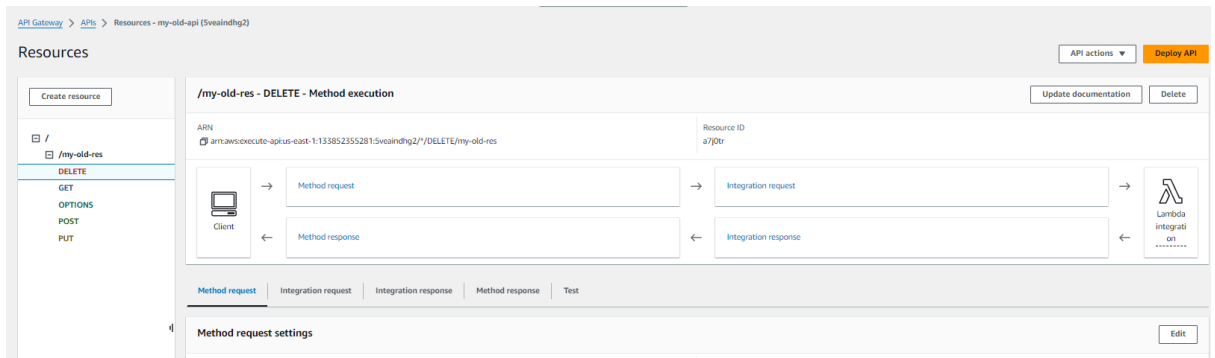
us-east-1 ▼

❗ 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.

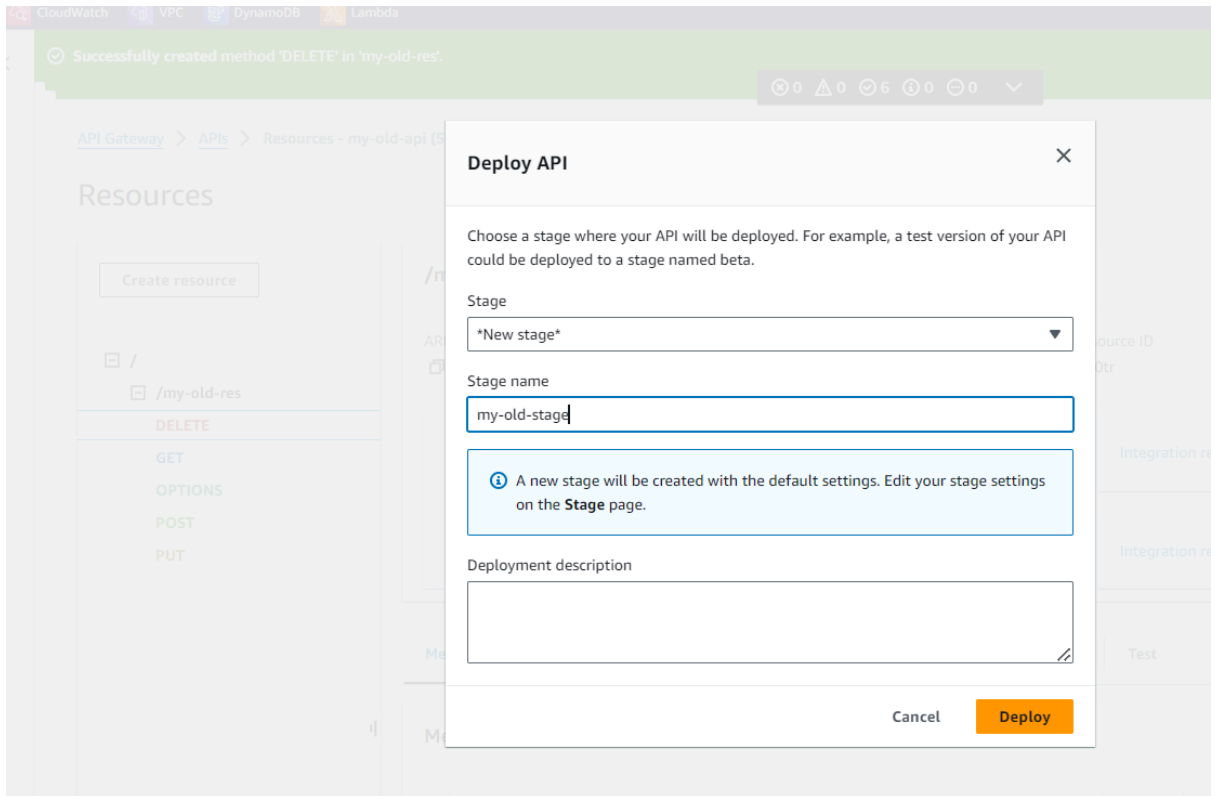
☒ **Default timeout**
The default timeout is 29 seconds.

[Cancel](#) [Create method](#)

5. In similar way all four methods were created: PUT, POST, DELETE, GET



6. And then the API was deployed



- Now, go to DynamoDb and create table

Create table

Table details [Info](#)

DynamoDB is a schemaless database that requires only a table name and a primary key when you create the table.

Table name
This will be used to identify your table.

Between 3 and 255 characters, containing only letters, numbers, underscores (_), hyphens (-), and periods (.).

Partition key
The partition key is part of the table's primary key. It is a hash value that is used to retrieve items from your table and allocate data across hosts for scalability and availability.

String ▼

1 to 255 characters and case sensitive.

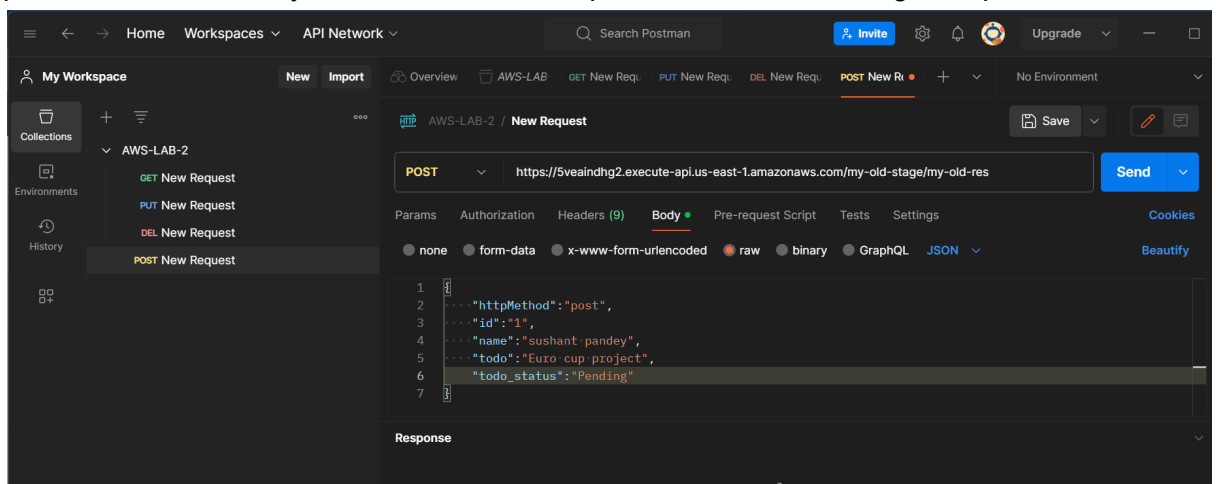
Sort key - optional
You can use a sort key as the second part of a table's primary key. The sort key allows you to sort or search among all items sharing the same partition key.

String ▼

1 to 255 characters and case sensitive.

Table settings

- Inside the Postman all four request were created and the url of post request was posted, inside the body, data was inserted to post and then sent using the api



9. Here the data was successfully loaded in the table

```
1 {
2   "statusCode": 200,
3   "body": "\"Successfully saved to database!\""
4 }
```

DynamoDB > Explore items > my-old-table

my-old-table Autopreview View table details

Tables (4)

- ☐ bmi-table
- ☐ contact-form
- ☒ my-old-table
- ☐ silence

▼ Scan or query items

☒ Scan ☐ Query

Select a table or index: Table - my-old-table

Select attribute projection: All attributes

Filters

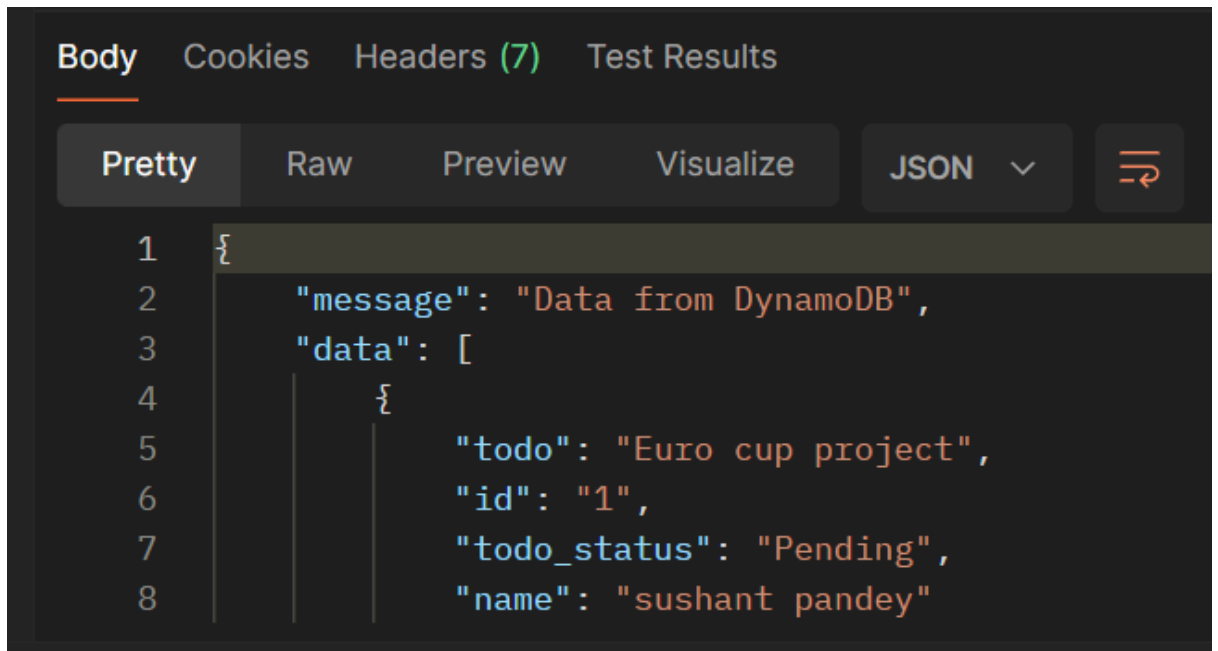
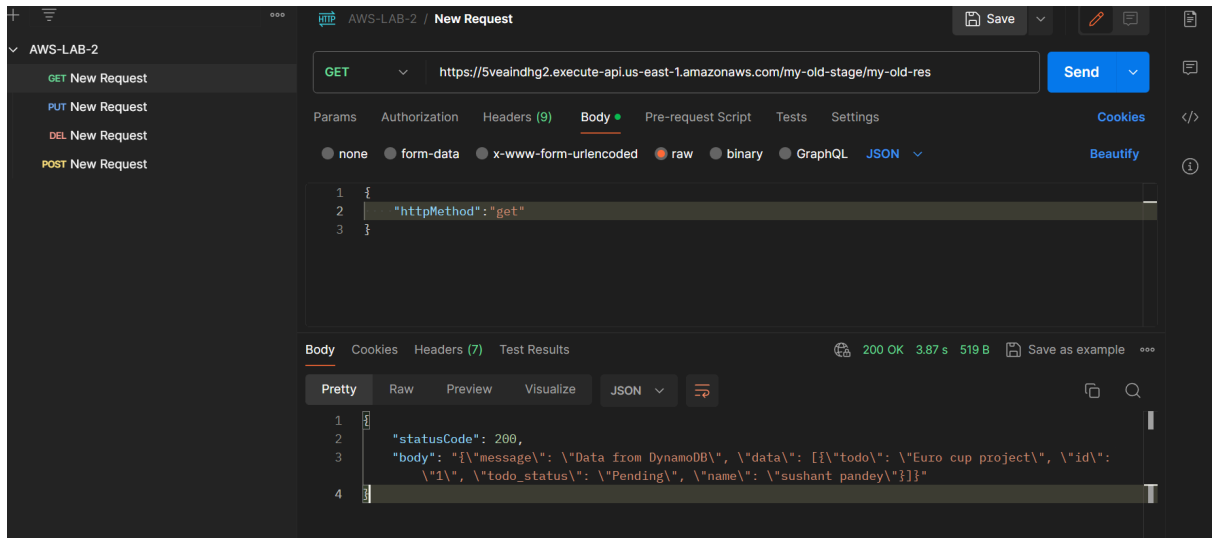
Run Reset

Completed. Read capacity units consumed: 0.5

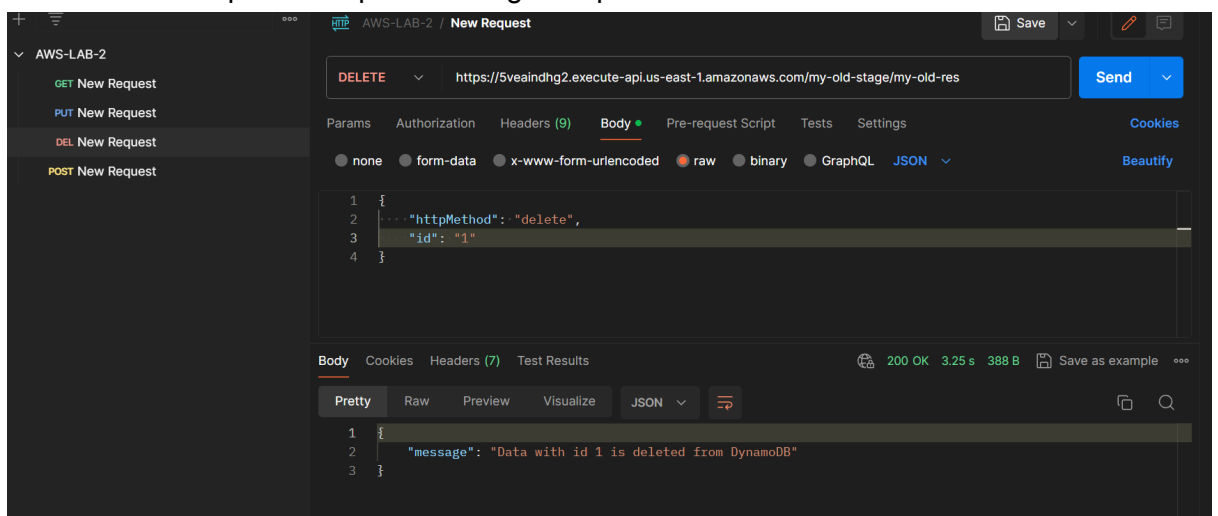
Items returned (1) Actions Create item

	id (String)	name	todo	todo_status
<input type="checkbox"/>	1	sushant pandey	Euro cup project	Pending

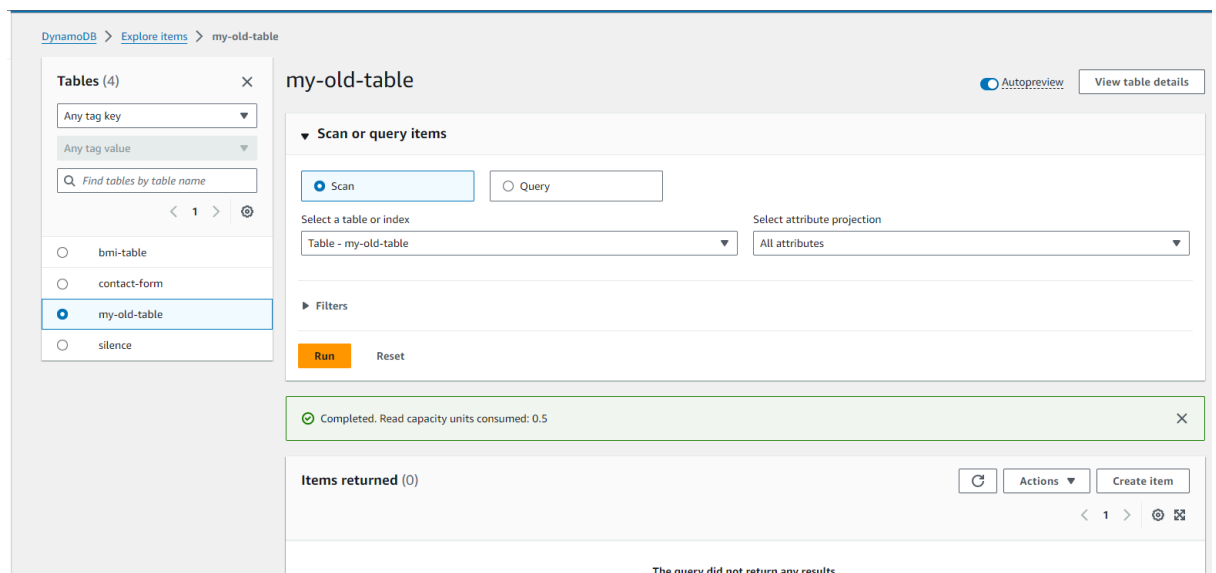
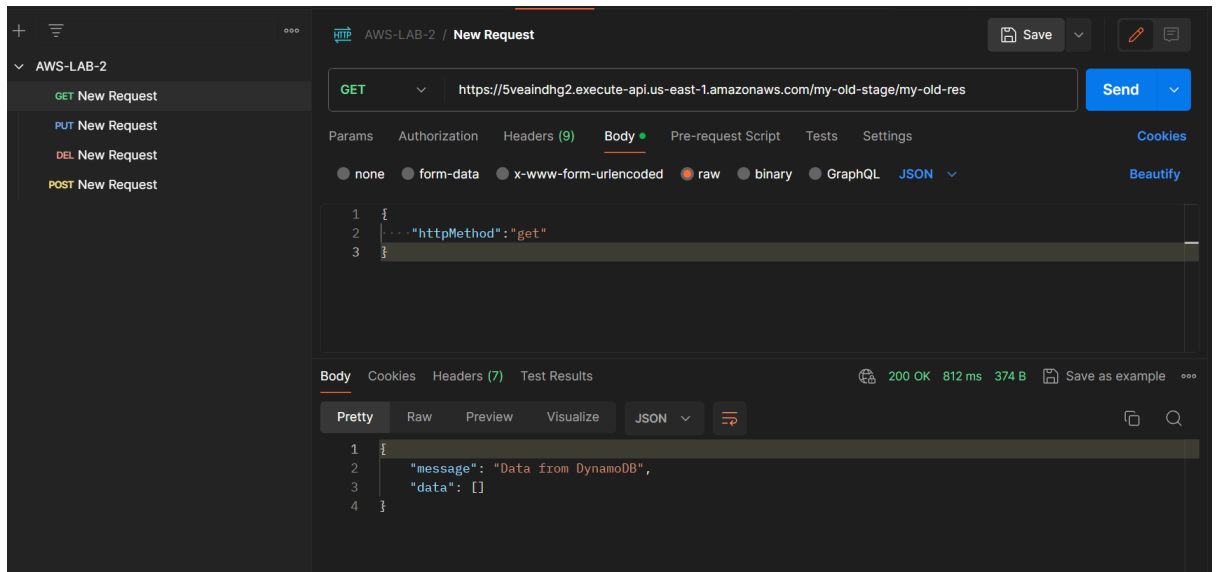
10. The GET request was placed and it returned the previously loaded data



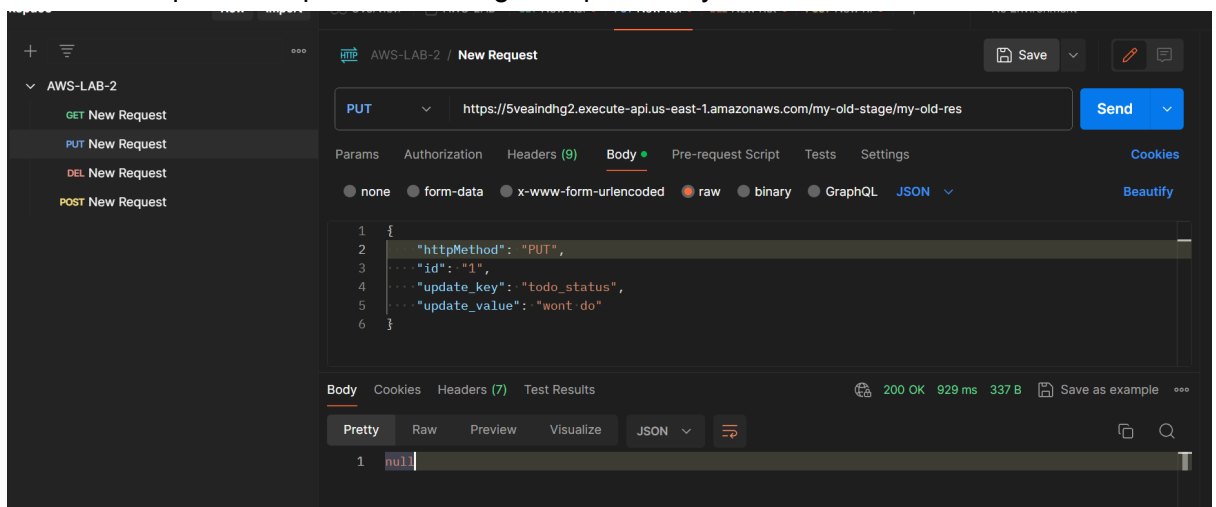
11. Now DELETE request was placed using the api



12. Here is the proof that data is deleted



13. Now PUT request was placed to change the previously entered data



14. The data is updated in our dynamodb table. Hurray!!

✔ Completed. Read capacity units consumed: 0.5

Items returned (2)

↺

Actions ▼

Create item

< 1 > ⚙️

<input type="checkbox"/>	id (String) ▼	name ▼	todo ▼	todo_status ▼
<input type="checkbox"/>	2	abacus insight	hire sushant	Pending
<input type="checkbox"/>	1	sushant pandey	Euro cup project	wont do