From Grant and modify a little bit

Using python , Using the AWS CDK, deploy a basic Lambda REST API using AWS Lambda and AWS API Gateway with the following requirements:

The API Gateway should have one endpoint (or resource) called /barometer that has the allowed methods: GET|POST. The endpoint should be able to integrate with and call the Lambda function you'll create next.

The Lambda function that will be integrated with your API endpoint should return Getting… when the HTTP method is a GET request, and Posting… when the HTTP method is a POST request. The API Gateway should have one endpoint (or resource) called /barometer that has the allowed methods: GET|POST", "post" is the buying item like { "unitprice": 1.83, "weight": 10"}, "Get" should return the total: 18.3 (I didn't do it due to the limited time but it is easy using dynomodb to store the data)

How to run and use zip files?

Step 1, Preparation

❯ npm --version
9.5.1
❯ npm install -g aws-cdk

added 2 packages in 1s
npm notice
npm notice New minor version of npm available! 9.5.1 -> 9.6.5
npm notice Changelog: https://github.com/npm/cli/releases/tag/v9.6.5
npm notice Run npm install -g npm@9.6.5 to update!
npm notice

❯ mkdir Apr25
❯ cd Apr25

❯ cdk init app --language python

Applying project template app for python

Welcome to your CDK Python project!

This is a blank project for CDK development with Python.

The `cdk.json` file tells the CDK Toolkit how to execute your app.

This project is set up like a standard Python project. The initialization
process also creates a virtualenv within this project, stored under the `.venv`
directory. To create the virtualenv it assumes that there is a `python3`
(or `python` for Windows) executable in your path with access to the `venv`
package. If for any reason the automatic creation of the virtualenv fails,
you can create the virtualenv manually.

To manually create a virtualenv on MacOS and Linux:

```
$ python3 -m venv .venv
```

After the init process completes and the virtualenv is created, you can use the following
step to activate your virtualenv.

```
$ source .venv/bin/activate
```

If you are a Windows platform, you would activate the virtualenv like this:

```
% .venv\Scripts\activate.bat
```

Once the virtualenv is activated, you can install the required dependencies.

```
$ pip install -r requirements.txt
```

At this point you can now synthesize the CloudFormation template for this code.

```
$ cdk synth
```

To add additional dependencies, for example other CDK libraries, just add
them to your `setup.py` file and rerun the `pip install -r requirements.txt`
command.

Useful commands

 * `cdk ls`   list all stacks in the app
 * `cdk synth`   emits the synthesized CloudFormation template
 * `cdk deploy`   deploy this stack to your default AWS account/region
 * `cdk diff`   compare deployed stack with current state
 * `cdk docs`   open CDK documentation

Enjoy!

Please run 'python3 -m venv .venv'!
Executing Creating virtualenv...
✅ All done!

❯ python3 -m venv .env

```
python3 -m venv .env
source .env/bin/activate
```

❯ source .venv/bin/activate
❯ pip install aws-cdk.aws-lambda aws-cdk.aws-apigatewayv2 aws-cdk.aws-apigatewayv2-integrations aws-cdk.core aws-cdk.aws-s3

Collecting aws-cdk.aws-lambda
  Using cached aws_cdk.aws_lambda-1.199.0-py3-none-any.whl (712 kB)
Collecting aws-cdk.aws-apigatewayv2
  Using cached aws_cdk.aws_apigatewayv2-1.199.0-py3-none-any.whl (455 kB)
Collecting aws-cdk.aws-apigatewayv2-integrations
  Using cached aws_cdk.aws_apigatewayv2_integrations-1.199.0-py3-none-any.whl (57 kB)
Collecting aws-cdk.core
  Using cached aws_cdk.core-1.199.0-py3-none-any.whl (1.4 MB)
Collecting aws-cdk.aws-s3
  Using cached aws_cdk.aws_s3-1.199.0-py3-none-any.whl (561 kB)
Collecting aws-cdk.aws-sqs==1.199.0
  Using cached aws_cdk.aws_sqs-1.199.0-py3-none-any.whl (120 kB)
Collecting aws-cdk.aws-sns==1.199.0
  Using cached aws_cdk.aws_sns-1.199.0-py3-none-any.whl (136 kB)
Collecting aws-cdk.region-info==1.199.0
  Using cached aws_cdk.region_info-1.199.0-py3-none-any.whl (98 kB)

```
Collecting aws-cdk.aws-cloudwatch==1.199.0
  Using cached aws_cdk.aws_cloudwatch-1.199.0-py3-none-any.whl (397 kB)
Collecting aws-cdk.aws-ecr==1.199.0
  Using cached aws_cdk.aws_ecr-1.199.0-py3-none-any.whl (140 kB)
Collecting aws-cdk.aws-kms==1.199.0
  Using cached aws_cdk.aws_kms-1.199.0-py3-none-any.whl (168 kB)
Collecting jsii<2.0.0,>=1.74.0
  Using cached jsii-1.80.0-py3-none-any.whl (571 kB)
Collecting aws-cdk.aws-efs==1.199.0
  Using cached aws_cdk.aws_efs-1.199.0-py3-none-any.whl (141 kB)
Collecting aws-cdk.aws-iam==1.199.0
  Using cached aws_cdk.aws_iam-1.199.0-py3-none-any.whl (511 kB)
Collecting aws-cdk.aws-s3-assets==1.199.0
  Using cached aws_cdk.aws_s3_assets-1.199.0-py3-none-any.whl (48 kB)
Collecting aws-cdk.aws-signer==1.199.0
  Using cached aws_cdk.aws_signer-1.199.0-py3-none-any.whl (51 kB)
Collecting aws-cdk.aws-ecr-assets==1.199.0
  Using cached aws_cdk.aws_ecr_assets-1.199.0-py3-none-any.whl (56 kB)
Collecting typeguard~=2.13.3
  Using cached typeguard-2.13.3-py3-none-any.whl (17 kB)
Collecting publication>=0.0.3
  Using cached publication-0.0.3-py2.py3-none-any.whl (7.7 kB)
Collecting aws-cdk.aws-applicationautoscaling==1.199.0
  Using cached aws_cdk.aws_applicationautoscaling-1.199.0-py3-none-any.whl (217 kB)
Collecting aws-cdk.aws-codeguruprofiler==1.199.0
  Using cached aws_cdk.aws_codeguruprofiler-1.199.0-py3-none-any.whl (49 kB)
Collecting aws-cdk.cx-api==1.199.0
  Using cached aws_cdk.cx_api-1.199.0-py3-none-any.whl (171 kB)
Collecting constructs<4.0.0,>=3.3.69
  Using cached constructs-3.4.293-py3-none-any.whl (69 kB)
Collecting aws-cdk.aws-logs==1.199.0
  Using cached aws_cdk.aws_logs-1.199.0-py3-none-any.whl (213 kB)
Collecting aws-cdk.aws-ec2==1.199.0
  Using cached aws_cdk.aws_ec2-1.199.0-py3-none-any.whl (2.4 MB)
Collecting aws-cdk.aws-events==1.199.0
  Using cached aws_cdk.aws_events-1.199.0-py3-none-any.whl (365 kB)
Collecting aws-cdk.cloud-assembly-schema==1.199.0
  Using cached aws_cdk.cloud_assembly_schema-1.199.0-py3-none-any.whl (219 kB)
Collecting aws-cdk.aws-autoscaling-common==1.199.0
```

```
  Using cached aws_cdk.aws_autoscaling_common-1.199.0-py3-none-any.whl (34 kB)
Collecting aws-cdk.aws-ssm==1.199.0
  Using cached aws_cdk.aws_ssm-1.199.0-py3-none-any.whl (287 kB)
Collecting aws-cdk.assets==1.199.0
  Using cached aws_cdk.assets-1.199.0-py3-none-any.whl (27 kB)
Collecting aws-cdk.aws-codestarnotifications==1.199.0
  Using cached aws_cdk.aws_codestarnotifications-1.199.0-py3-none-any.whl (56 kB)
Collecting aws-cdk.aws-certificatemanager==1.199.0
  Using cached aws_cdk.aws_certificatemanager-1.199.0-py3-none-any.whl (288 kB)
Collecting aws-cdk.aws-route53==1.199.0
  Using cached aws_cdk.aws_route53-1.199.0-py3-none-any.whl (391 kB)
Collecting aws-cdk.aws-acmpca==1.199.0
  Using cached aws_cdk.aws_acmpca-1.199.0-py3-none-any.whl (197 kB)
Collecting aws-cdk.custom-resources==1.199.0
  Using cached aws_cdk.custom_resources-1.199.0-py3-none-any.whl (136 kB)
Collecting aws-cdk.aws-cloudformation==1.199.0
  Using cached aws_cdk.aws_cloudformation-1.199.0-py3-none-any.whl (226 kB)
Collecting aws-cdk.aws-elasticloadbalancingv2==1.199.0
  Using cached aws_cdk.aws_elasticloadbalancingv2-1.199.0-py3-none-any.whl (589 kB)
Collecting aws-cdk.aws-servicediscovery==1.199.0
  Using cached aws_cdk.aws_servicediscovery-1.199.0-py3-none-any.whl (175 kB)
Collecting importlib-resources>=5.2.0
  Using cached importlib_resources-5.12.0-py3-none-any.whl (36 kB)
Collecting attrs<23.0,>=21.2
  Using cached attrs-22.2.0-py3-none-any.whl (60 kB)
Collecting cattrs<22.3,>=1.8
  Using cached cattrs-22.2.0-py3-none-any.whl (35 kB)
Collecting python-dateutil
  Using cached python_dateutil-2.8.2-py2.py3-none-any.whl (247 kB)
Collecting typing-extensions<5.0,>=3.7
  Using cached typing_extensions-4.5.0-py3-none-any.whl (27 kB)
Collecting exceptiongroup
  Using cached exceptiongroup-1.1.1-py3-none-any.whl (14 kB)
Collecting zipp>=3.1.0
  Using cached zipp-3.15.0-py3-none-any.whl (6.8 kB)
Collecting six>=1.5
  Using cached six-1.16.0-py2.py3-none-any.whl (11 kB)
Installing collected packages: publication, zipp, typing-extensions, typeguard, six,
exceptiongroup, attrs, python-dateutil, importlib-resources, cattrs, jsii, constructs,
```

aws-cdk.region-info, aws-cdk.cloud-assembly-schema, aws-cdk.cx-api, aws-cdk.core,
aws-cdk.aws-signer, aws-cdk.aws-iam, aws-cdk.aws-codestarnotifications,
aws-cdk.aws-acmpca, aws-cdk.assets, aws-cdk.aws-kms, aws-cdk.aws-events,
aws-cdk.aws-codeguruprofiler, aws-cdk.aws-cloudwatch,
aws-cdk.aws-autoscaling-common, aws-cdk.aws-ssm, aws-cdk.aws-sqs,
aws-cdk.aws-s3, aws-cdk.aws-ecr, aws-cdk.aws-applicationautoscaling,
aws-cdk.aws-sns, aws-cdk.aws-s3-assets, aws-cdk.aws-ecr-assets, aws-cdk.aws-logs,
aws-cdk.aws-ec2, aws-cdk.aws-efs, aws-cdk.aws-lambda, aws-cdk.aws-cloudformation,
aws-cdk.custom-resources, aws-cdk.aws-route53, aws-cdk.aws-certificatemanager,
aws-cdk.aws-elasticloadbalancingv2, aws-cdk.aws-apigatewayv2,
aws-cdk.aws-servicediscovery, aws-cdk.aws-apigatewayv2-integrations
Successfully installed attrs-22.2.0 aws-cdk.assets-1.199.0
aws-cdk.aws-acmpca-1.199.0 aws-cdk.aws-apigatewayv2-1.199.0
aws-cdk.aws-apigatewayv2-integrations-1.199.0
aws-cdk.aws-applicationautoscaling-1.199.0
aws-cdk.aws-autoscaling-common-1.199.0 aws-cdk.aws-certificatemanager-1.199.0
aws-cdk.aws-cloudformation-1.199.0 aws-cdk.aws-cloudwatch-1.199.0
aws-cdk.aws-codeguruprofiler-1.199.0 aws-cdk.aws-codestarnotifications-1.199.0
aws-cdk.aws-ec2-1.199.0 aws-cdk.aws-ecr-1.199.0 aws-cdk.aws-ecr-assets-1.199.0
aws-cdk.aws-efs-1.199.0 aws-cdk.aws-elasticloadbalancingv2-1.199.0
aws-cdk.aws-events-1.199.0 aws-cdk.aws-iam-1.199.0 aws-cdk.aws-kms-1.199.0
aws-cdk.aws-lambda-1.199.0 aws-cdk.aws-logs-1.199.0 aws-cdk.aws-route53-1.199.0
aws-cdk.aws-s3-1.199.0 aws-cdk.aws-s3-assets-1.199.0
aws-cdk.aws-servicediscovery-1.199.0 aws-cdk.aws-signer-1.199.0
aws-cdk.aws-sns-1.199.0 aws-cdk.aws-sqs-1.199.0 aws-cdk.aws-ssm-1.199.0
aws-cdk.cloud-assembly-schema-1.199.0 aws-cdk.core-1.199.0
aws-cdk.custom-resources-1.199.0 aws-cdk.cx-api-1.199.0 aws-cdk.region-info-1.199.0
cattrs-22.2.0 constructs-3.4.293 exceptiongroup-1.1.1 importlib-resources-5.12.0
jsii-1.80.0 publication-0.0.3 python-dateutil-2.8.2 six-1.16.0 typeguard-2.13.3
typing-extensions-4.5.0 zipp-3.15.0
WARNING: You are using pip version 22.0.4; however, version 23.1.1 is available.
You should consider upgrading via the
'/Users/maxwellli/Documents/AWS/AWS-boto3/Apr25/.venv/bin/python3 -m pip install
--upgrade pip' command.

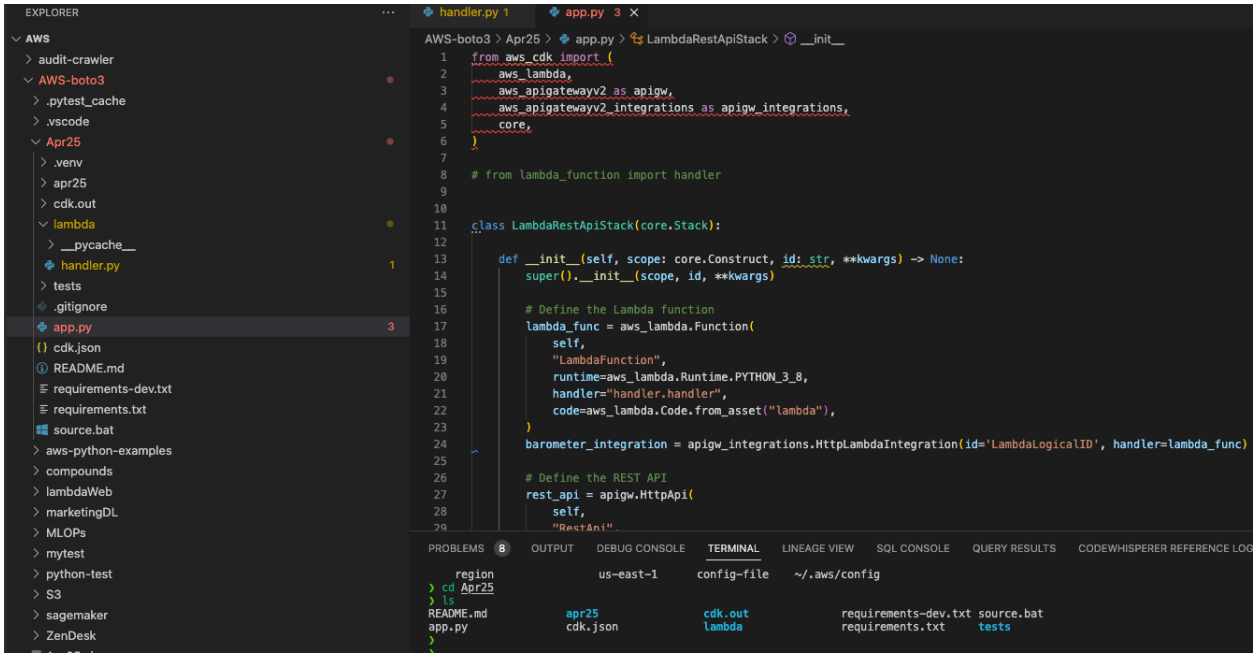
~/Documents/AWS/AWS-boto3/Apr25 main ⇣2 ?33
····· 9s Apr25 base 03:32:40 PM
❯

Check AWS CLI side, make sure that you can use admin role to deploy CDK

```
❯ aws configure list
      Name                    Value             Type    Location
      ----                    -----             ----    --------
   profile                <not set>             None    None
access_key     ****************V4HX shared-credentials-file
secret_key     ****************VAL1 shared-credentials-file
    region                us-east-1      config-file    ~/.aws/config
```

Step 2, Coding,

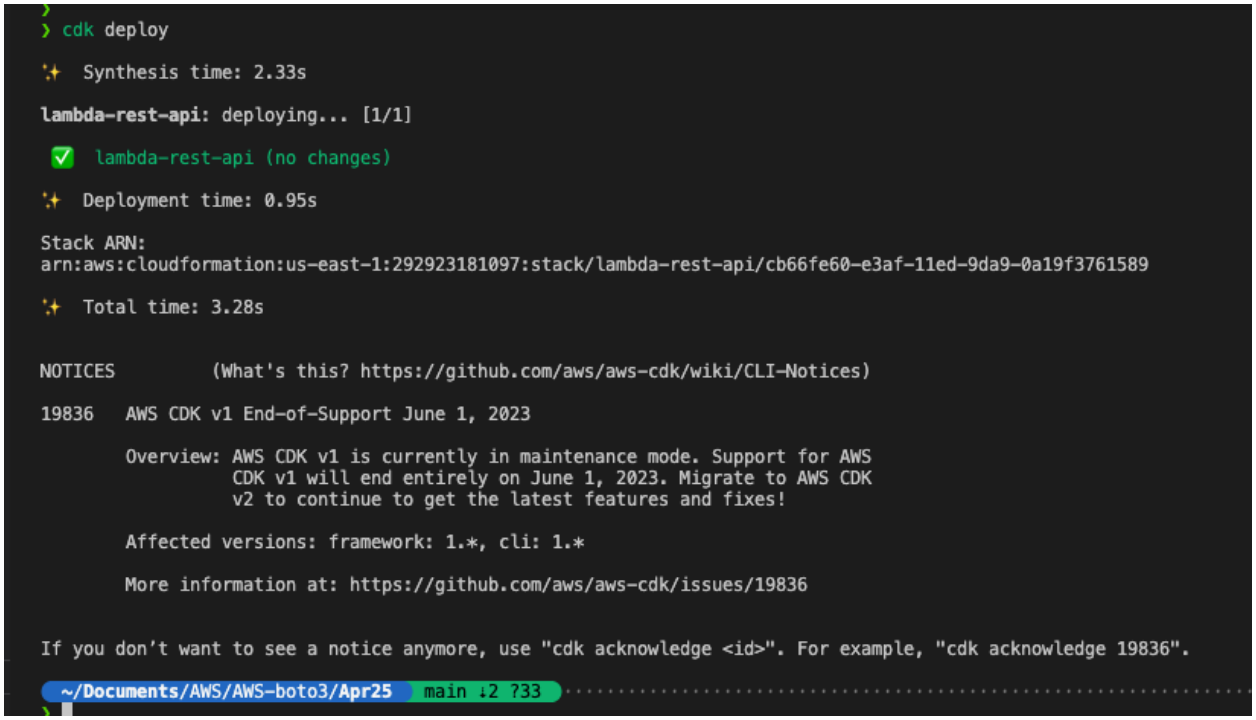
Copy app.py code to replace app.py
Copy handler.py to replace handler.py



Save them

Step 3, Deploy

cdk bootstrap
cdk deploy



Step 4 , Testing

❯ curl -X POST \
https://ea3l58mc1f.execute-api.us-east-1.amazonaws.com/barometer/ \
-H 'Content-Type: application/json' \
-d '{"unitprice": 1.83, "weight": 10}'

Posting... total: 18.3%
❯ curl -X GET \
https://ea3l58mc1f.execute-api.us-east-1.amazonaws.com/barometer/

Getting...%

Next Steps:

Install cdk dynomodb and modify lambda , save the data into the table in dynomodb

The “GET” read the total from the dynomodb