Cloud Development, 2021 fall.
Homework 5

Report

Web API

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Almaty 2021

Task

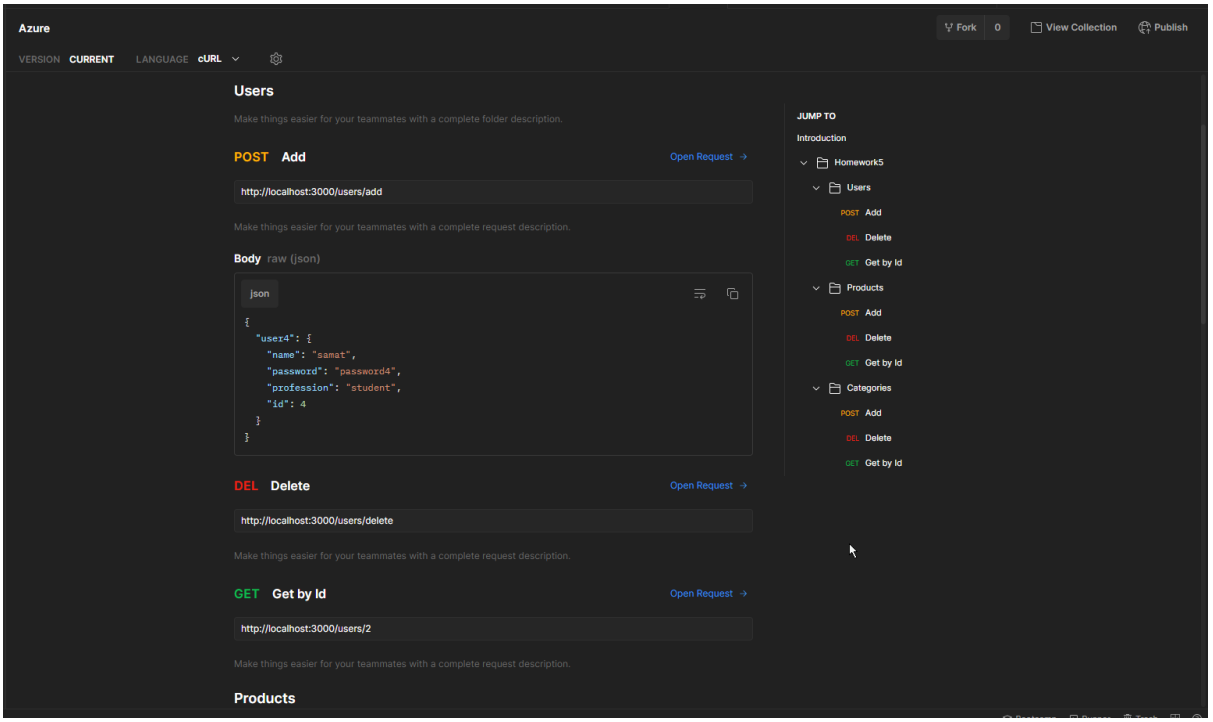
- [x] ~~You have to develop a simple Web API and publish it as a Web Apps Azure service.~~
- [x] ~~Then, using APIM, create a Product, including methods of your published API.~~

Additionally

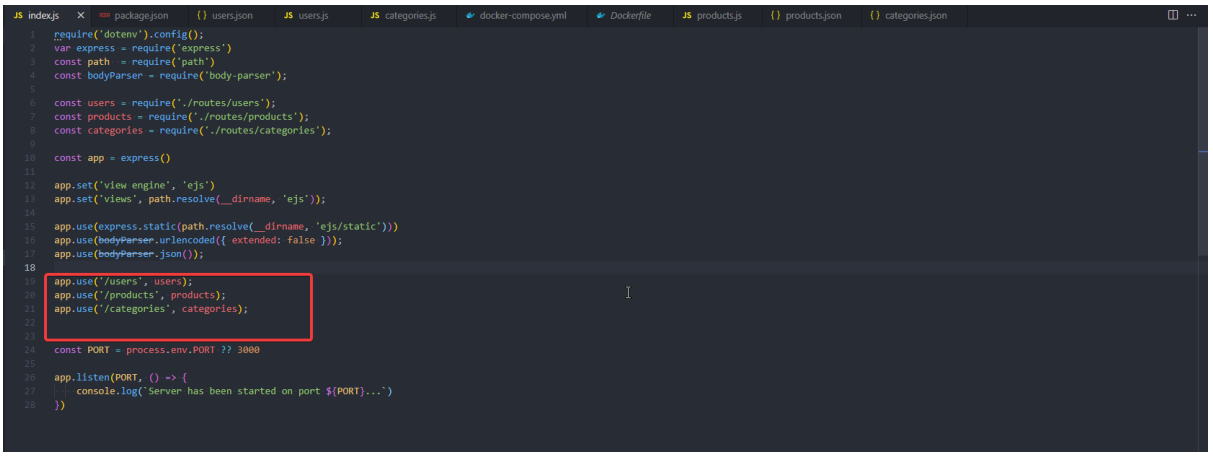
- [x] ~~Added subscriptions to divide products~~

Report

Develop Web API

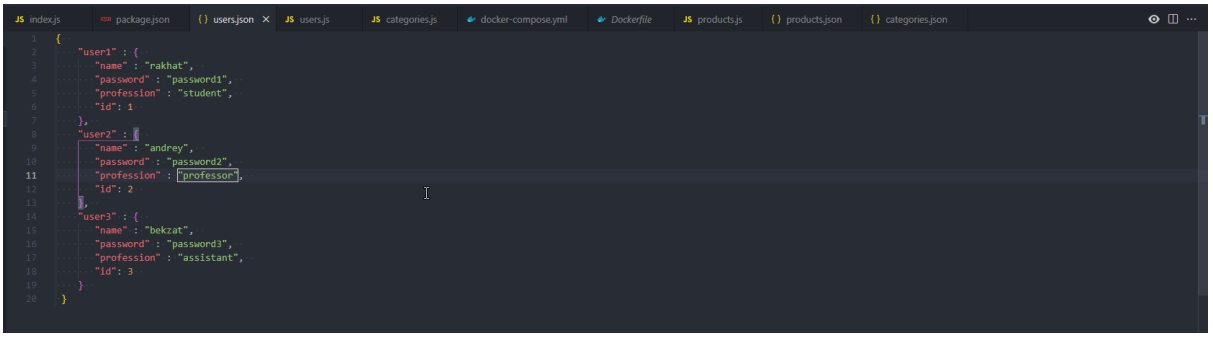


Below in the code only users is described, as the rest (products, categories) are identically implemented



```
require('dotenv').config();
var express = require('express')
const path  = require('path')
const bodyParser = require('body-parser');

const users = require('./routes/users');
const products = require('./routes/products');
const categories = require('./routes/categories');

const app = express()

app.set('view engine', 'ejs')
app.set('views', path.resolve(__dirname, 'ejs'));

app.use(express.static(path.resolve(__dirname, 'ejs/static')))
app.use(bodyParser.urlencoded({ extended: false }));
app.use(bodyParser.json());

app.use('/users', users);
app.use('/products', products);
app.use('/categories', categories);


const PORT = process.env.PORT ?? 3000

app.listen(PORT, () => {
    console.log(`Server has been started on port ${PORT}...`)
})
```

mock file




```json
{
    "user1" : {
        "name" : "rakhat",
        "password" : "password1",
        "profession" : "student",
        "id": 1
    },
    "user2" : {
        "name" : "andrey",
        "password" : "password2",
        "profession" : "professor",
        "id": 2
    },
    "user3" : {
        "name" : "bekzat",
        "password" : "password3",
        "profession" : "assistant",
        "id": 3
    }
}
```

routing

```js
var express = require('express');
var router = express.Router();
var fs = require("fs");
const path = process.cwd()+'/restapi/'

router.get('/list',
  async function (req, res) {
    fs.readFile(path + "users.json", 'utf8', function (err, data) {
      console.log( data );
      res.json( data );
    });
  }
);

router.get('/:id',
  async function(req, res) {
    fs.readFile(path + "users.json", 'utf8', function (err, data) {
      users = JSON.parse( data );
      console.log(req.params.id);
      var user = users["user" + req.params.id]
      console.log( user );
      res.json( user);
    });
  }
);

router.post('/add',
  async function(req, res) {
    const body = req.body
    res.json(body)
  }
);

router.delete('/delete/:id',
  async function(req, res) {
    fs.readFile(path + "users.json", 'utf8', function (err, data) {
    data = JSON.parse( data );
    delete data["user" + req.params.id];
    console.log( data );
    res.json( data);
  });
  }
);


module.exports = router;
```

Dockerfile

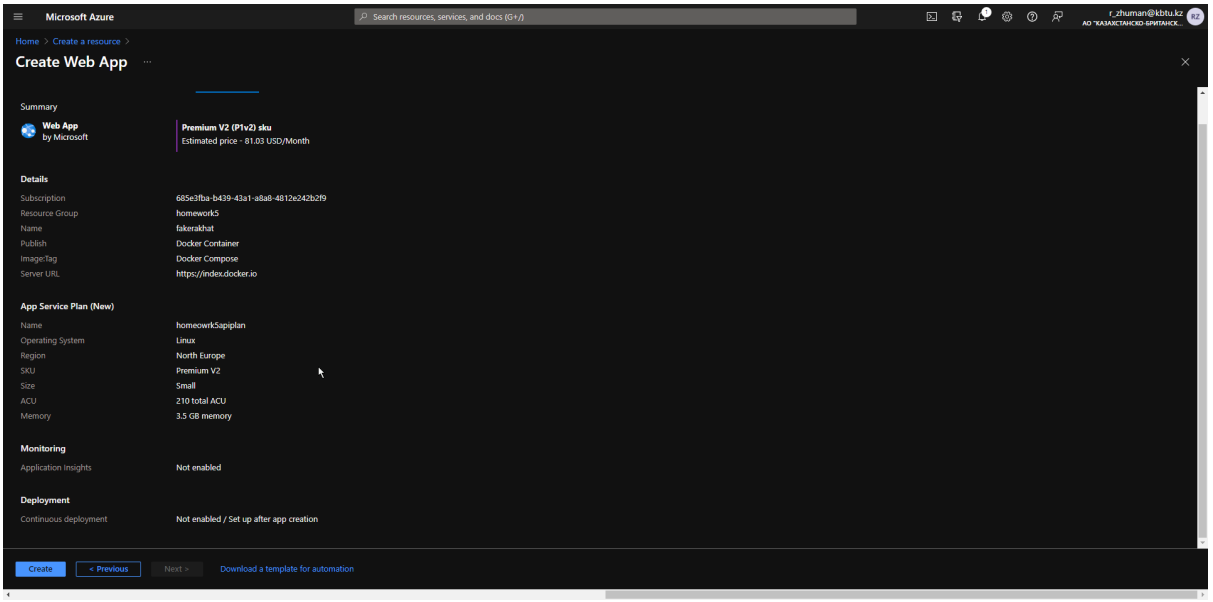
```
FROM node:14-alpine

WORKDIR /usr/src/app

COPY . /usr/src/app

RUN npm install

EXPOSE 3000

CMD [ "npm", "start" ]
```

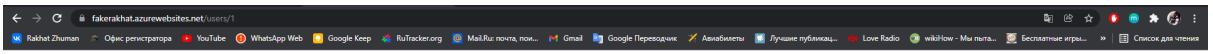
Build

```
D:\Source\NodeJS\Azure\HW5>docker build -t zethuman/fakeapi:latest .
[+] Building 7.0s (10/10) FINISHED
 => [internal] load build definition from Dockerfile                                                                0.0s
 => => transferring dockerfile: 31B                                                                                 0.0s
 => [internal] load .dockerignore                                                                                   0.0s
 => => transferring context: 70B                                                                                    0.0s
 => [internal] load metadata for docker.io/library/node:14-alpine                                                   2.7s
 => [auth] library/node:pull token for registry-1.docker.io                                                         0.0s
 => [internal] load build context                                                                                   0.1s
 => => transferring context: 4.34kB                                                                                 0.0s
 => [1/4] FROM docker.io/library/node:14-alpine@sha256:8cb2598886478afc2212b652c5f0f093ca078dd03ff4fa0710b326321bb2e620  0.0s
 => CACHED [2/4] WORKDIR /usr/src/app                                                                               0.0s
 => [3/4] COPY . /usr/src/app                                                                                       0.0s
 => [4/4] RUN npm install                                                                                           3.9s
 => exporting to image                                                                                              0.2s
 => => exporting layers                                                                                             0.2s
 => => writing image sha256:be75a6458a4f3349535990b7ce7e6110d10a4e74c2253e28501d7d9aa01d7044                        0.0s
 => => naming to docker.io/zethuman/fakeapi:latest                                                                  0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

D:\Source\NodeJS\Azure\HW5>docker push zethuman/fakeapi:latest
The push refers to repository [docker.io/zethuman/fakeapi]
63babf36d883: Pushed
a3e99919f1dd: Pushed
f4436867d5f5: Layer already exists
0f9a2482a558: Layer already exists
8a5d6c9c178c: Layer already exists
124a9240d0af: Layer already exists
e2eb06d8af82: Layer already exists
latest: digest: sha256:24468b530d5148559b0aa8fb196d8bfcc04733f8d3ad4252d8151fc8dff0bbe2 size: 1784
```

Publish a Web Apps on Azure

```yaml
version: "3.0"

services:
  app:
    image: zethuman/fakeapi:latest
    ports:
      - 3000:3000
```

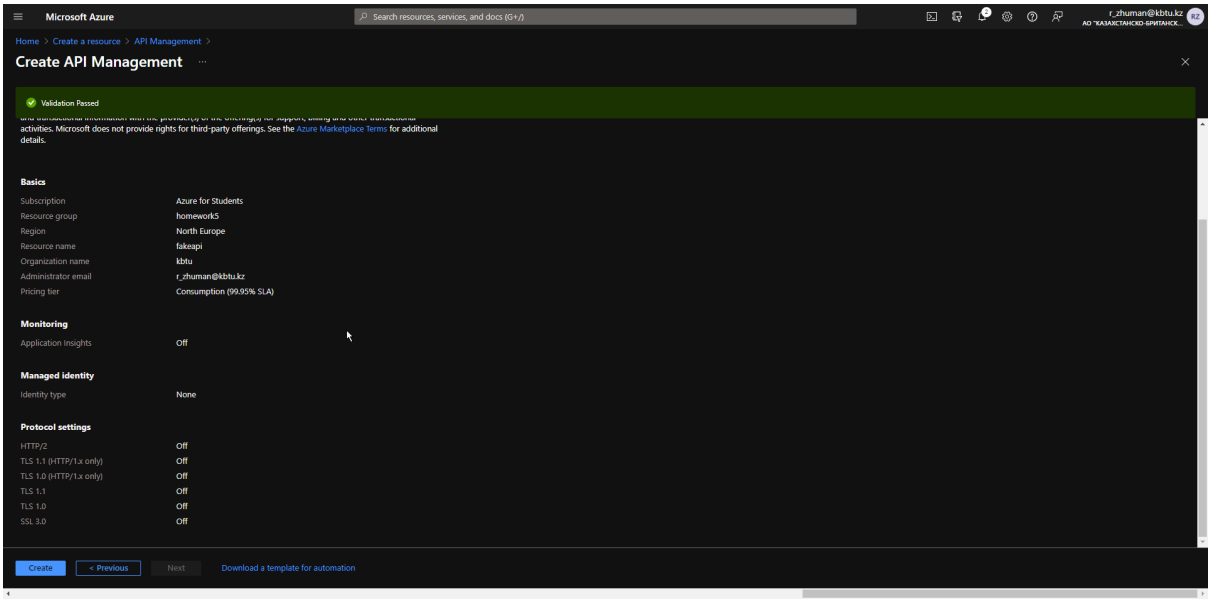




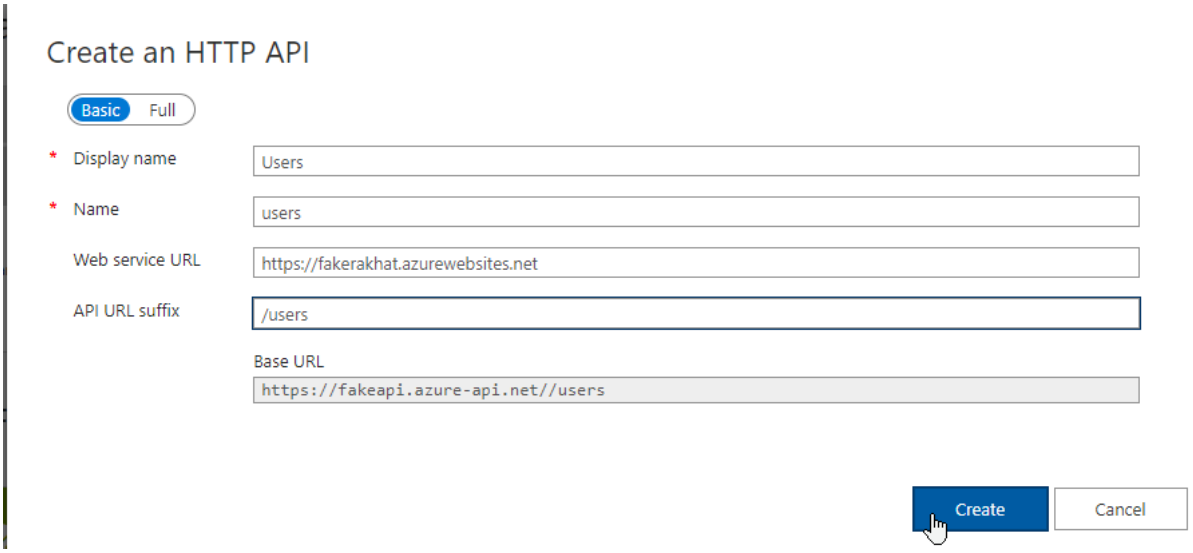
{"name":"rakhat","password":"password1","profession":"student","id":1}

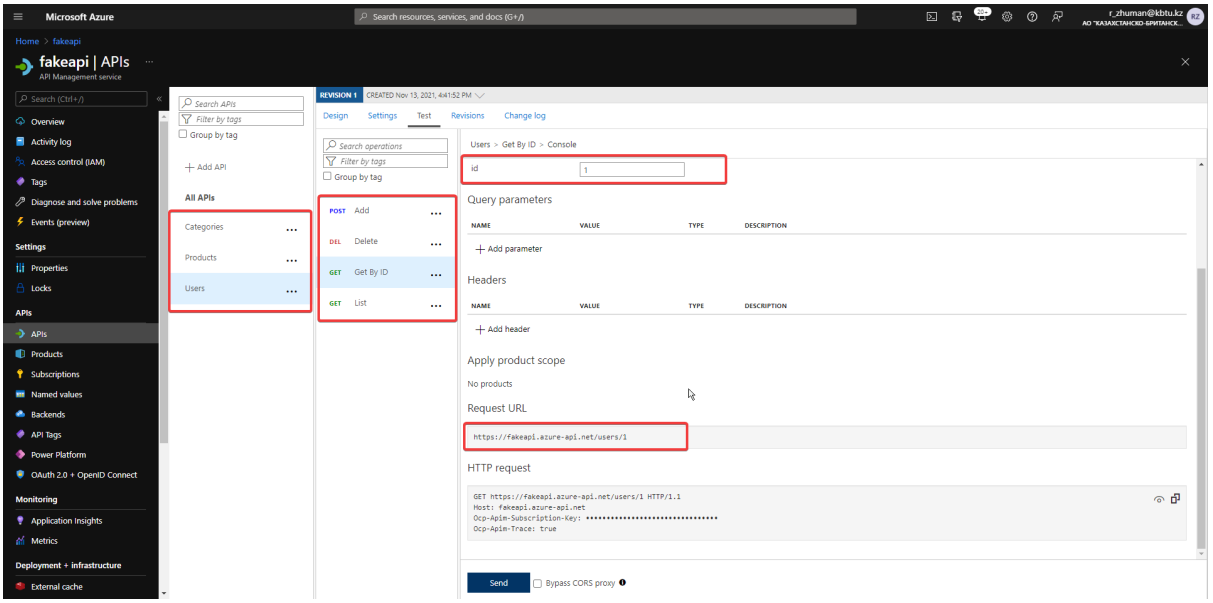
Create a Product using APIM

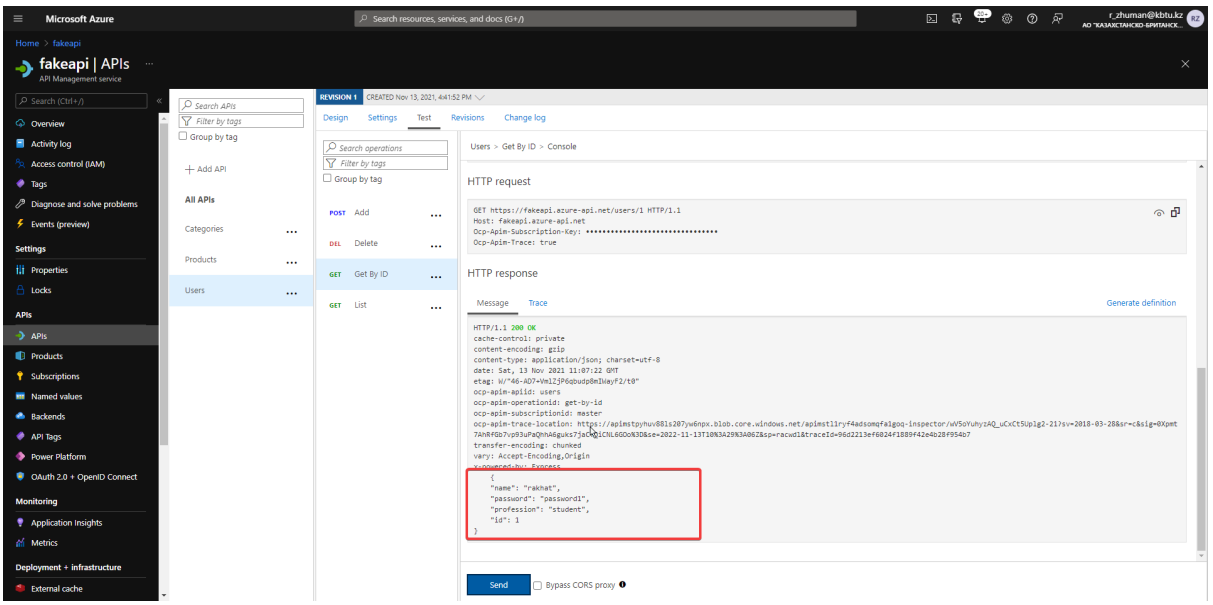
Create API Management



Create & Test APIs






Microsoft Azure
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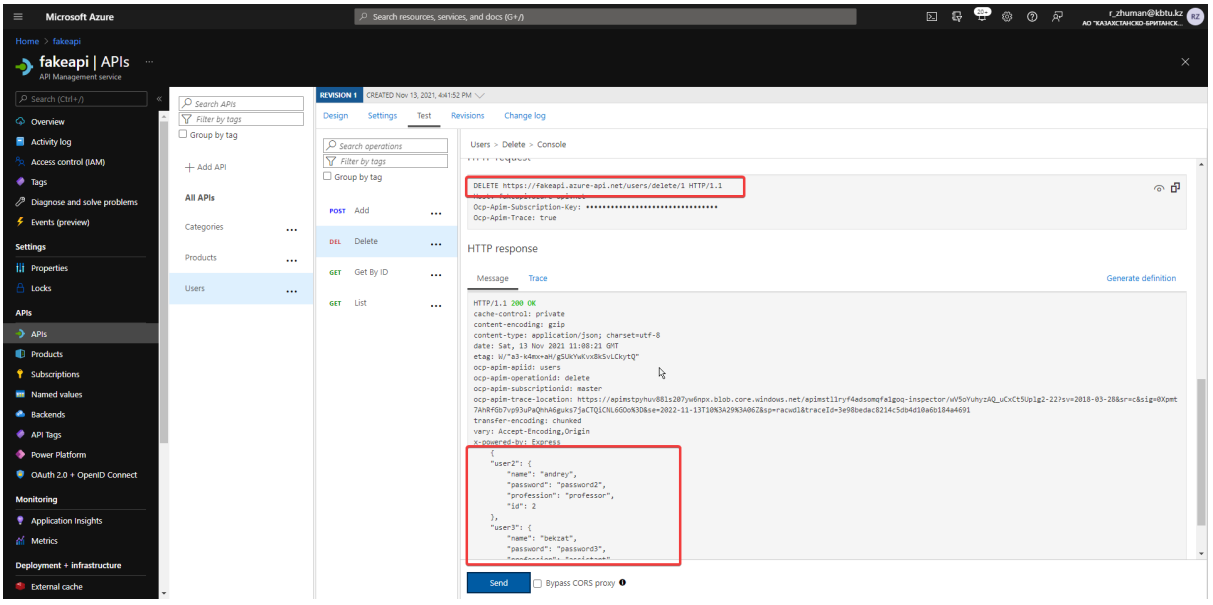
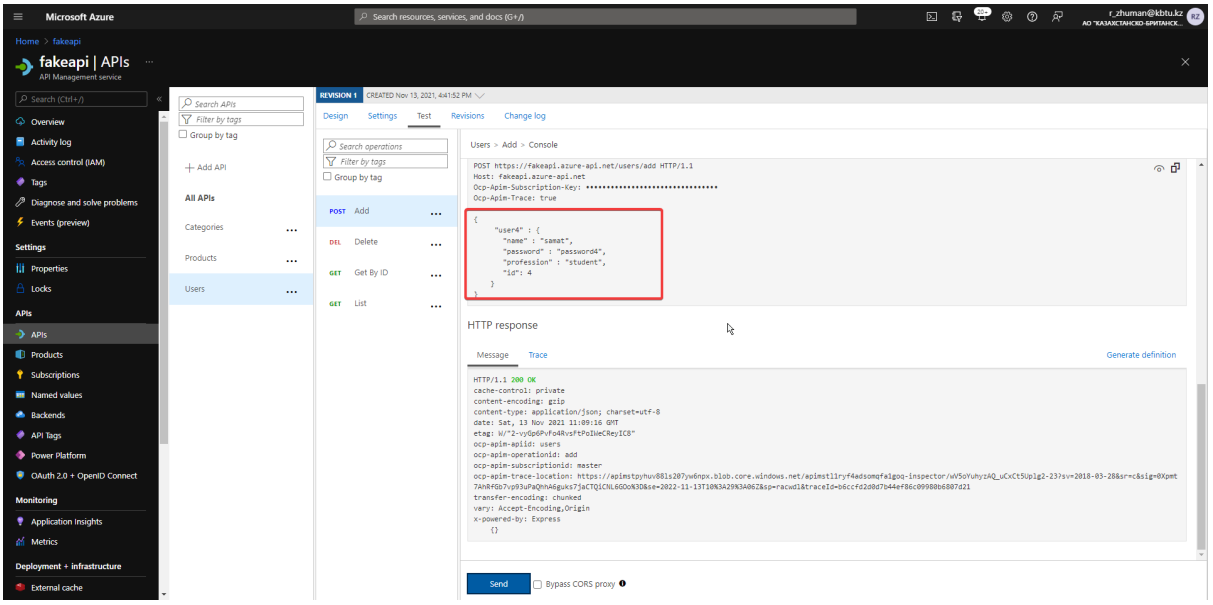
Home > fakeapi
fakeapi | APIs
API Management service
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Events (preview)
Settings
Properties
Locks
APIs
APIs
Products
Subscriptions
Named values
Backends
API Tags
Power Platform
OAuth 2.0 + OpenID Connect
Monitoring
Application Insights
Metrics
Deployment + infrastructure
External cache
Search APIs
Filter by tags
Group by tag
Add API
All APIs
Categories
Products
Users
REVISION 1
CREATED Nov 13, 2021, 4:41:52 PM
Design
Settings
Test
Revisions
Change log
Search operations
Filter by tags
Group by tag
POST Add
DEL Delete
GET Get By ID
GET List
Users > Get By ID > Console
HTTP request
GET https://fakeapi.azure-api.net/users/1 HTTP/1.1
Host: fakeapi.azure-api.net
Ocp-Apim-Subscription-Key: ••••••••••••••••••••••••••••••••
Ocp-Apim-Trace: true
HTTP response
Message
Trace
Generate definition
HTTP/1.1 200 OK
cache-control: private
content-encoding: gzip
content-type: application/json; charset=utf-8
date: Sat, 13 Nov 2021 11:07:22 GMT
ocp-apim-apiid: users
ocp-apim-operationid: get-by-id
ocp-apim-subscriptionid: master
transfer-encoding: chunked
vary: Accept-Encoding,Origin
{
"name": "rakhat",
"password": "password1",
"profession": "student",
"id": 1
}
Send
Bypass CORS proxy


Microsoft Azure
Search resources, services, and docs (G+/)
Home > fakeapi
fakeapi | APIs
API Management service
REVISION 1
CREATED Nov 13, 2021, 4:41:52 PM
Design
Settings
Test
Revisions
Change log
Users > Delete > Console
DELETE https://fakeapi.azure-api.net/users/delete/1 HTTP/1.1
Ocp-Apim-Subscription-Key: ••••••••••••••••••••••••••••••••
Ocp-Apim-Trace: true
HTTP response
Message
Trace
Generate definition
HTTP/1.1 200 OK
cache-control: private
content-encoding: gzip
content-type: application/json; charset=utf-8
date: Sat, 13 Nov 2021 11:08:21 GMT
ocp-apim-apiid: users
ocp-apim-operationid: delete
ocp-apim-subscriptionid: master
transfer-encoding: chunked
vary: Accept-Encoding,Origin
x-powered-by: Express
{
"user2": {
"name": "andrey",
"password": "password2",
"profession": "professor",
"id": 2
},
"user3": {
"name": "bekzat",
"password": "password3",
Send
Bypass CORS proxy


Microsoft Azure
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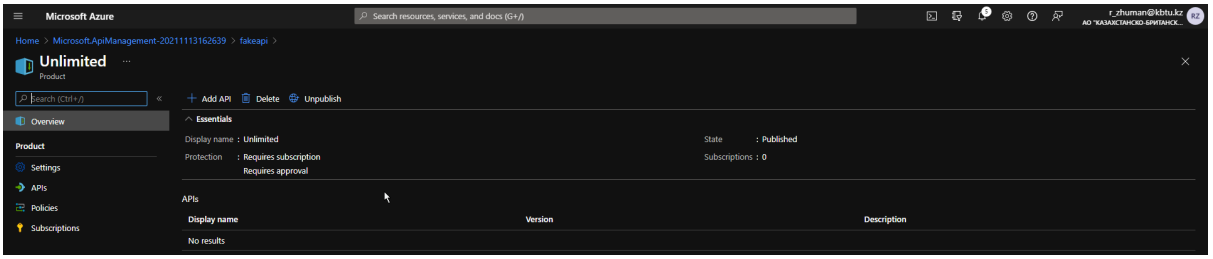
Home > fakeapi
fakeapi | APIs
API Management service
REVISION 1
CREATED Nov 13, 2021, 4:41:52 PM
Design
Settings
Test
Revisions
Change log
Users > Add > Console
POST https://fakeapi.azure-api.net/users/add HTTP/1.1
Host: fakeapi.azure-api.net
Ocp-Apim-Subscription-Key: ••••••••••••••••••••••••••••••••
Ocp-Apim-Trace: true
{
"user4" : {
"name" : "samat",
"password" : "password4",
"profession" : "student",
"id": 4
}
}
HTTP response
Message
Trace
Generate definition
HTTP/1.1 200 OK
cache-control: private
content-encoding: gzip
content-type: application/json; charset=utf-8
date: Sat, 13 Nov 2021 11:09:16 GMT
ocp-apim-apiid: users
ocp-apim-operationid: add
ocp-apim-subscriptionid: master
transfer-encoding: chunked
vary: Accept-Encoding,Origin
x-powered-by: Express
{}
Send
Bypass CORS proxy

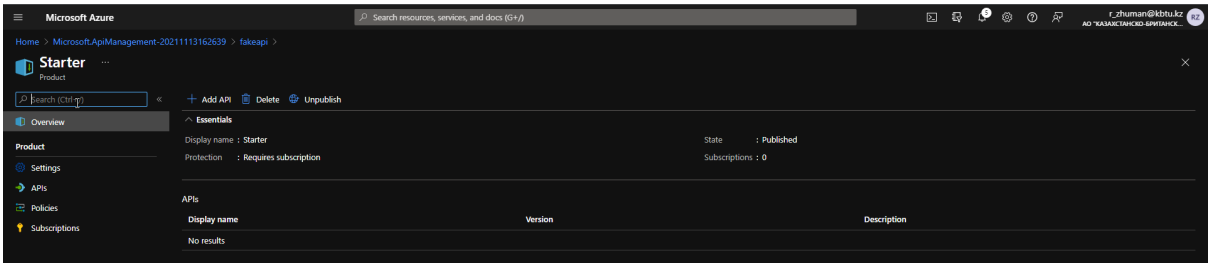
Create products

1. Starter

   Subscribers will be call only **users** and 5 calls/min
2. Unlimited

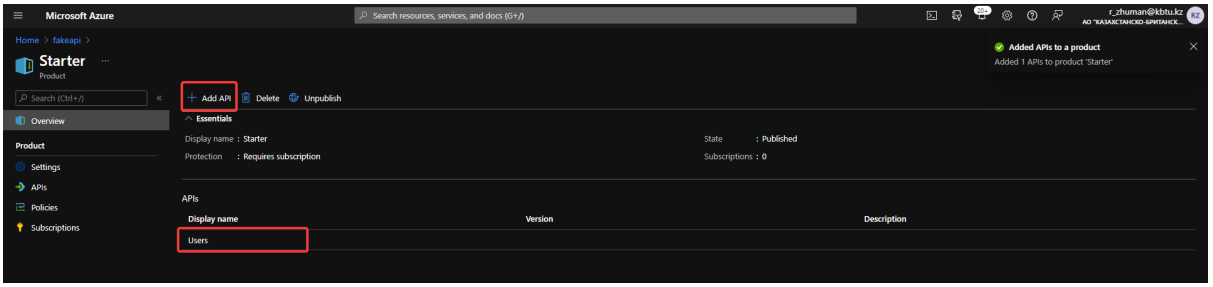
   Subscribers will be call **all** methods unlimited calls per minute



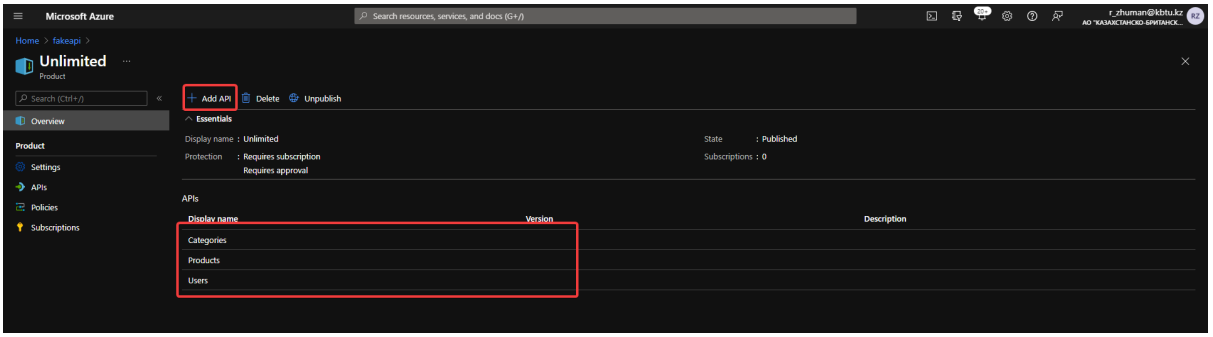


Add APIs to Products

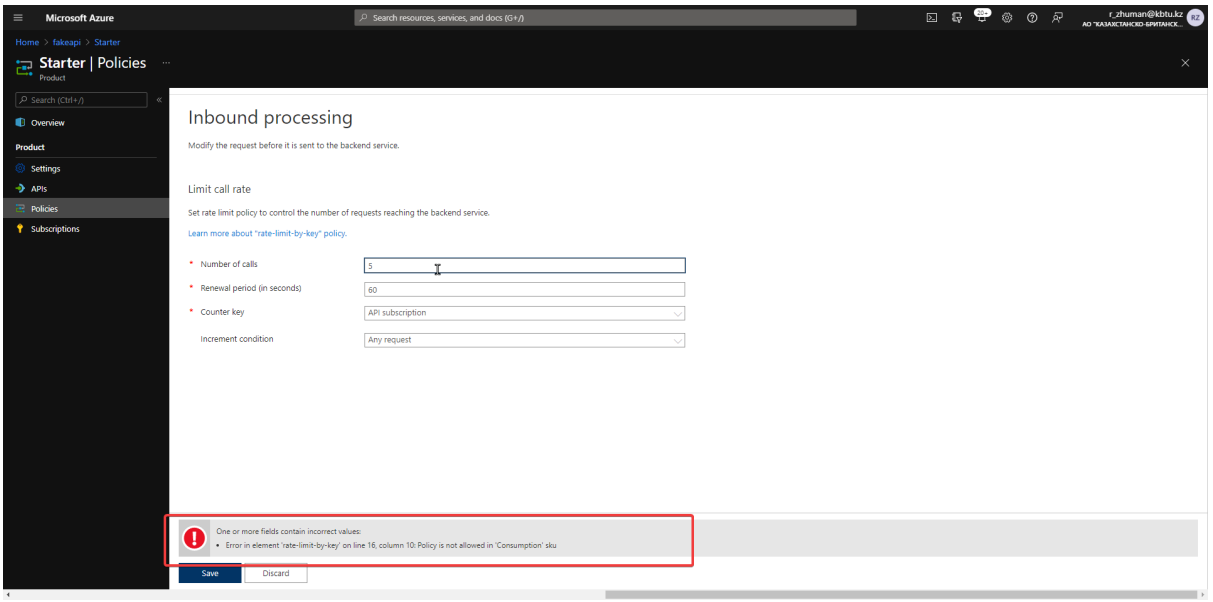
Starter



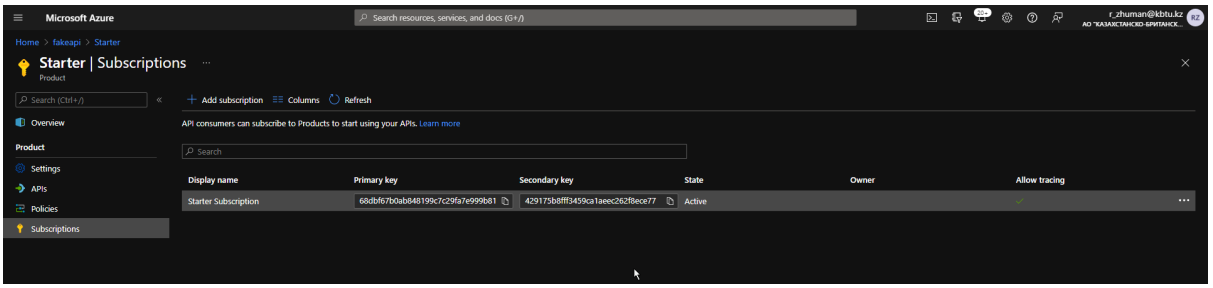
Unlimited

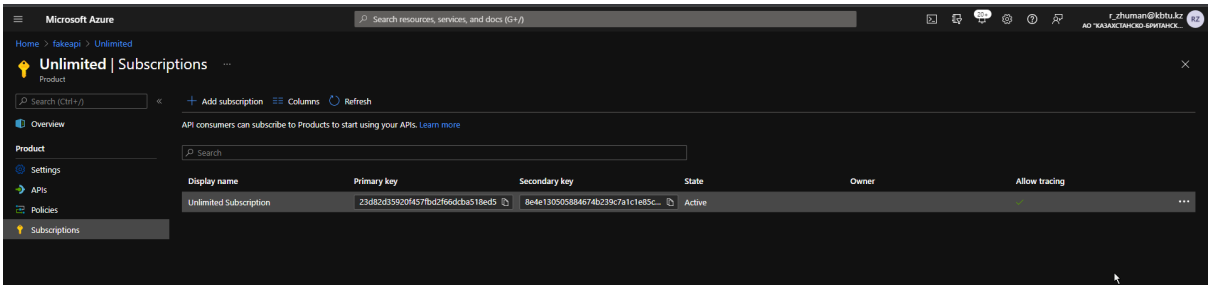


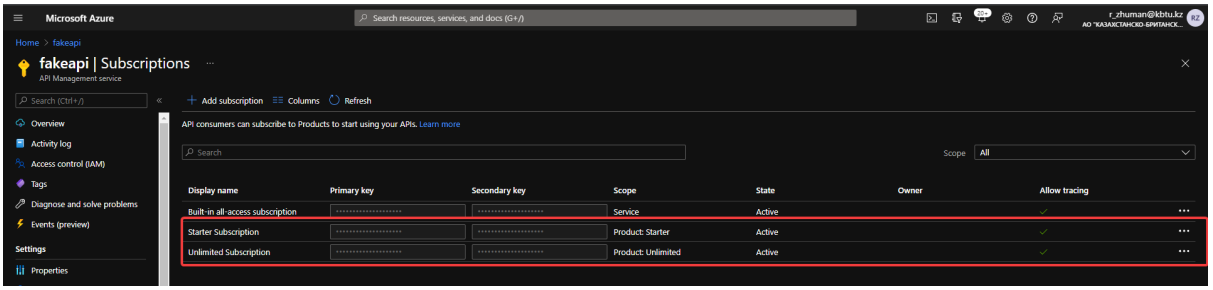
Unfortunately, in my Consumption sku it is **impossible** to limit the subscriber for **5 calls/min**



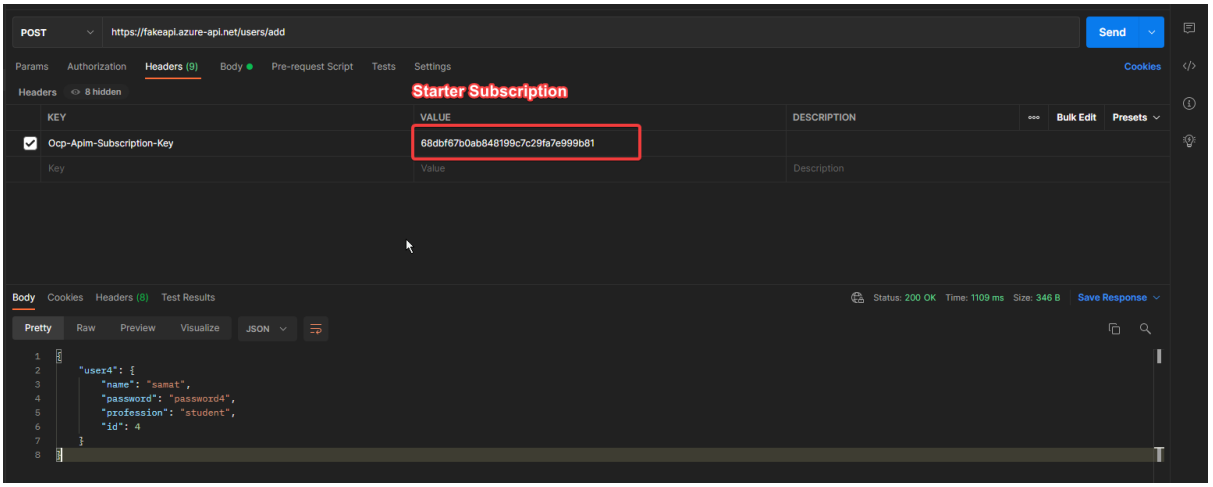
Add Subscriptions

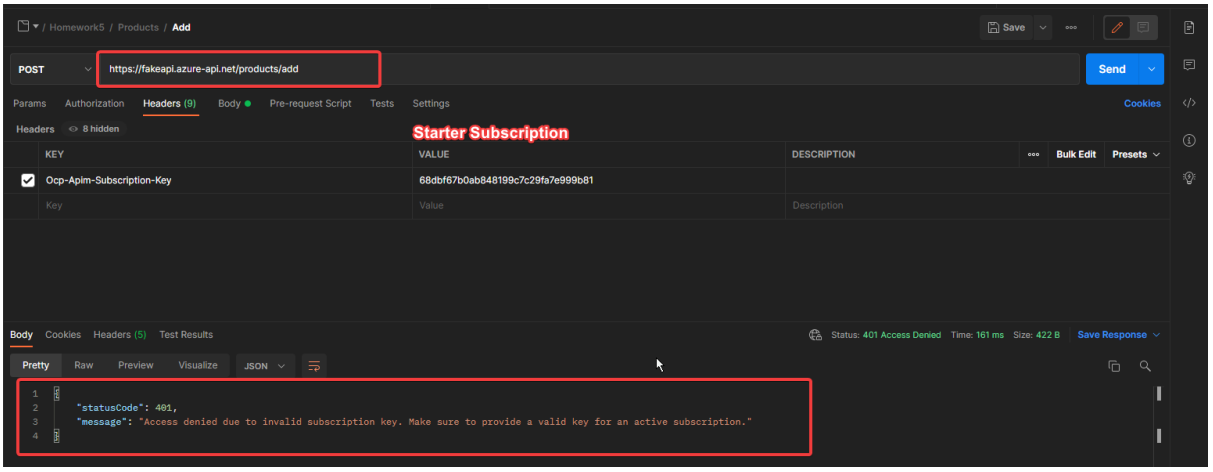


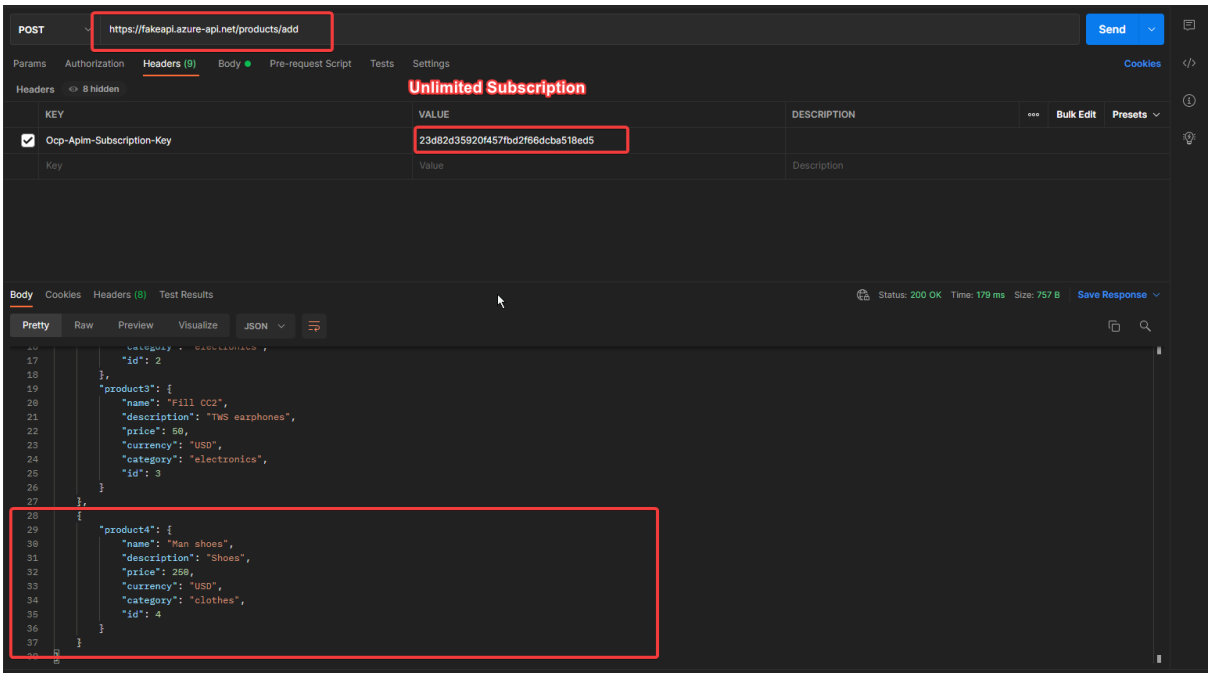




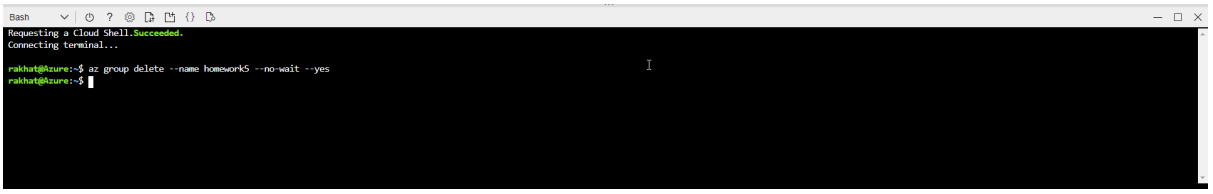
Tests







All tests completed successfully!

Clean up workspace

>> az group delete --name homework5 --no-wait --yes