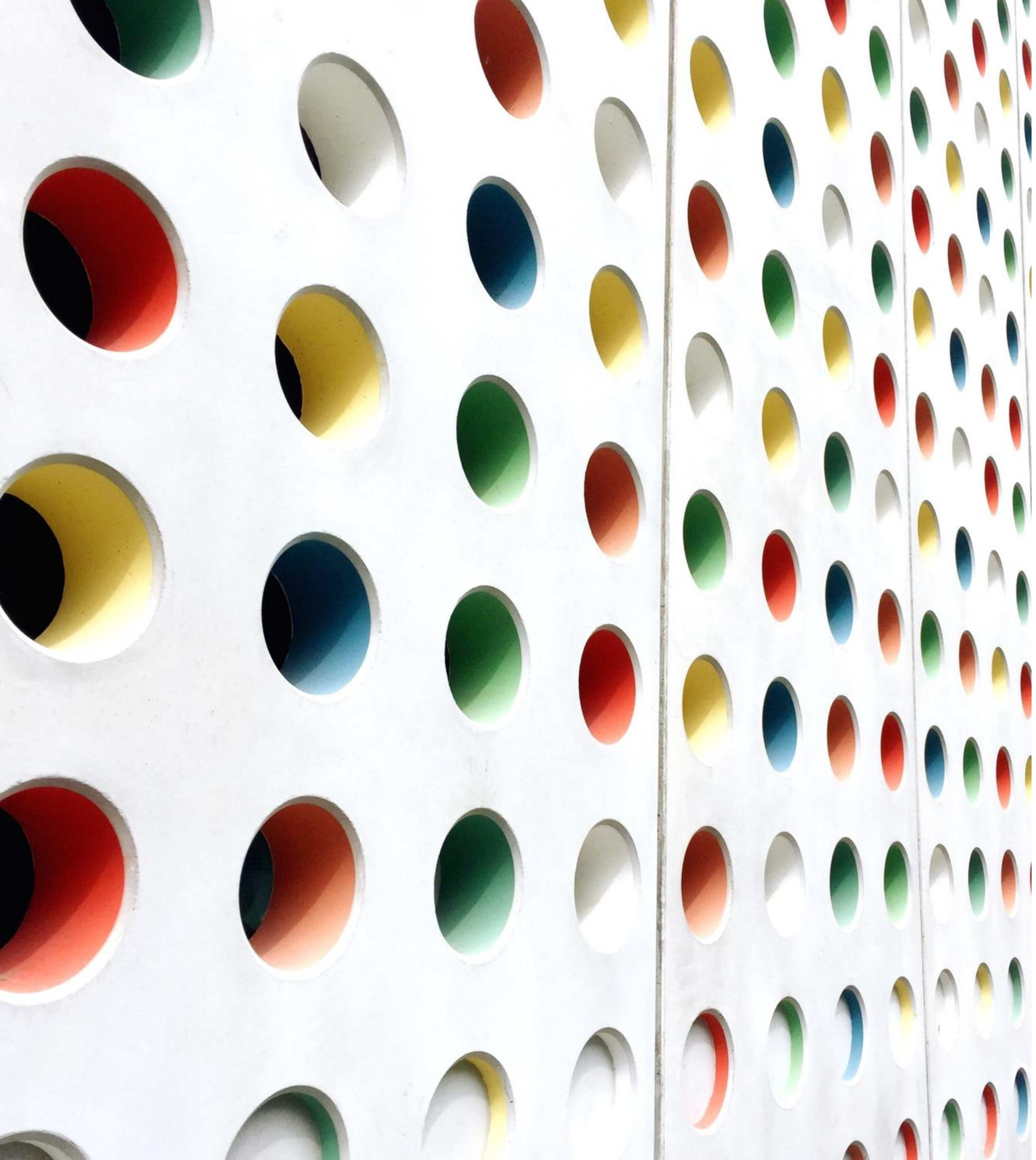


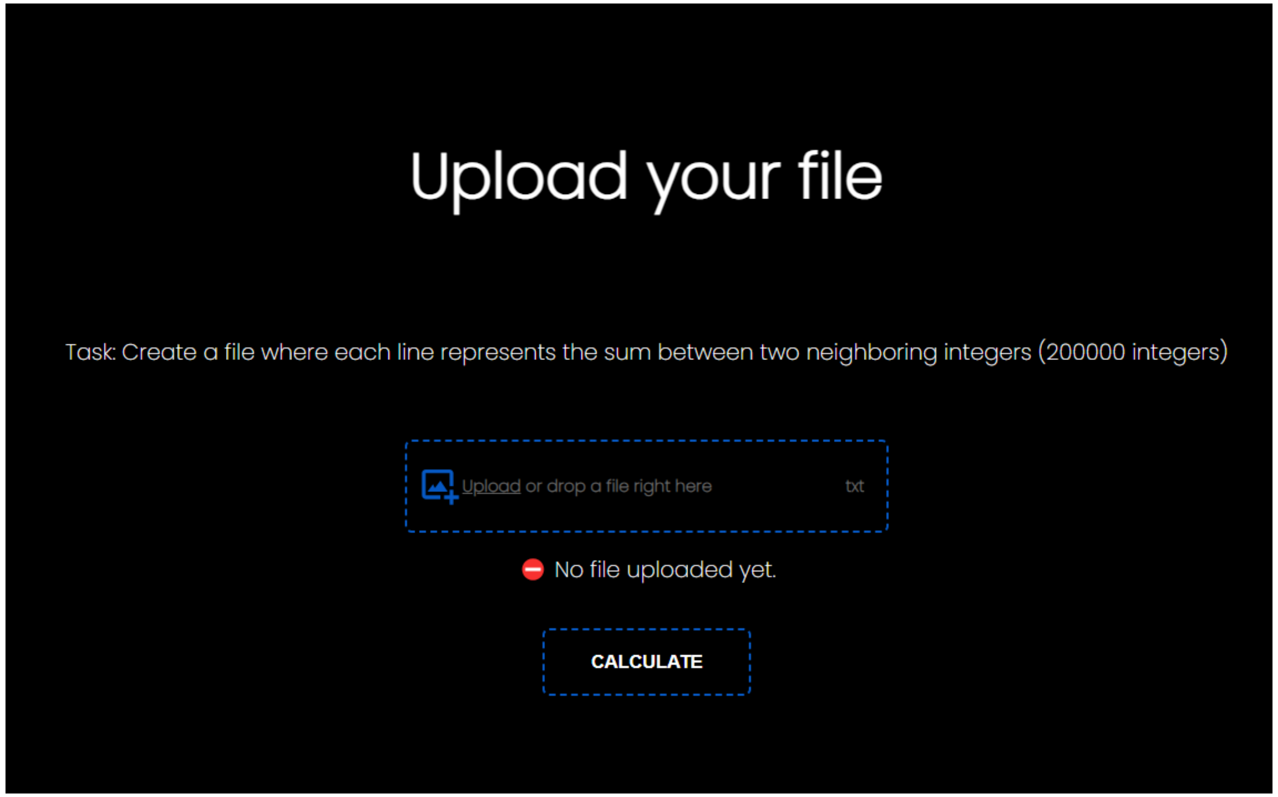
Хостирање веб апликација и API на Azure

ДАРИО МИТЕВ (192007)

Користени технологии

- UI: Javascript + React
- API: Node + Express
- Cloud: Azure (App Services, Function App)

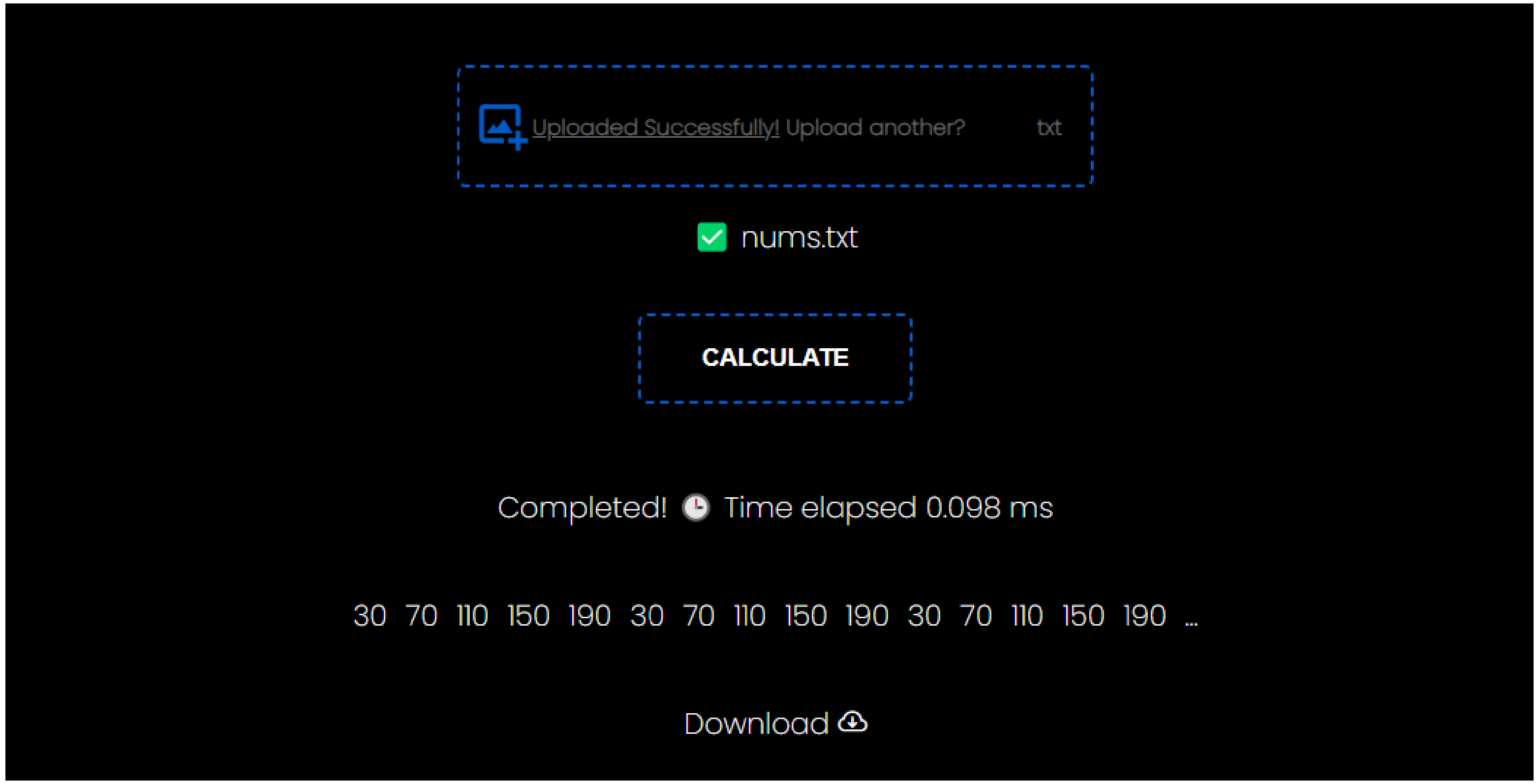
User Interface



Upload your file

Task: Create a file where each line represents the sum between two neighboring integers (200000 integers)

User Interface



Uploaded Successfully! Upload another? txt

✓ nums.txt

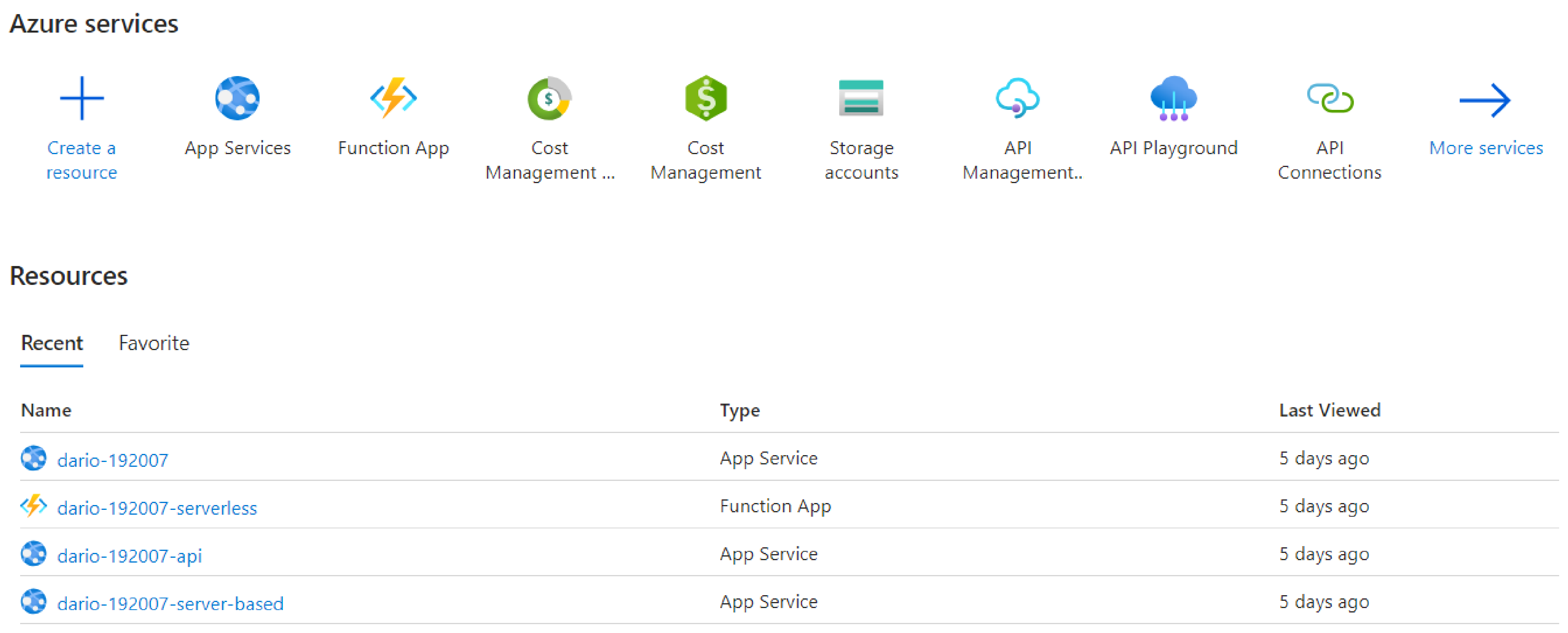
CALCULATE

Completed! Time elapsed 0.098 ms

```
30  70  110  150  190  30  70  110  150  190  30  70  110  150  190  ...
```

Download

Azure Portal



Azure services

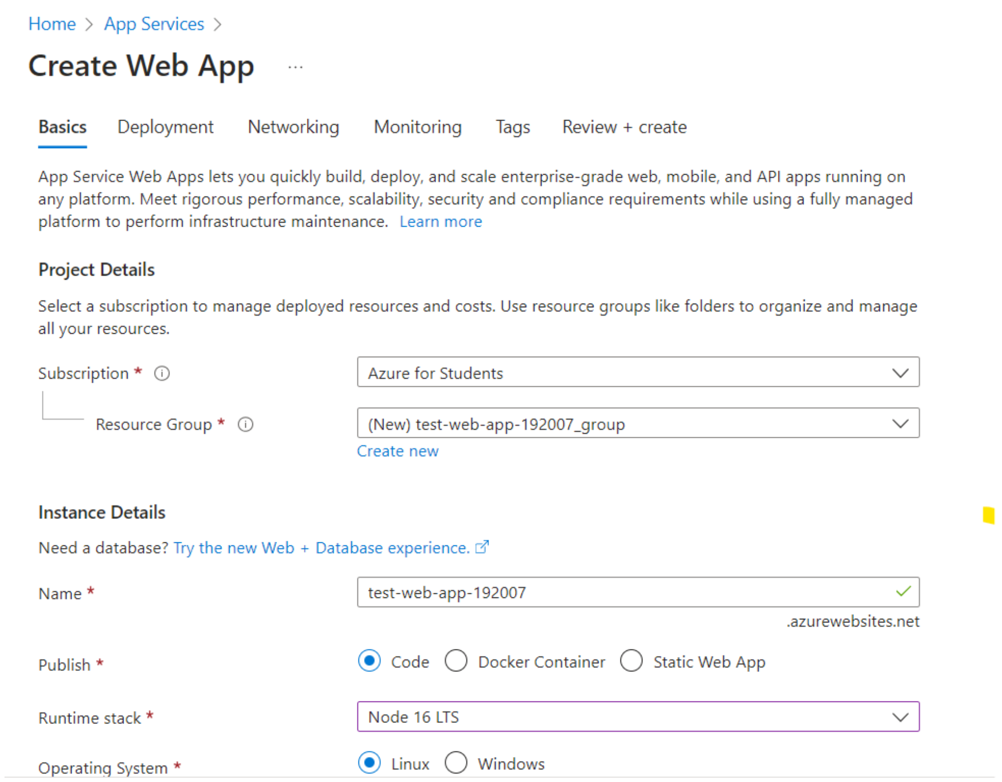
Create a resource · App Services · Function App · Cost Management ... · Cost Management · Storage accounts · API Management.. · API Playground · API Connections · More services

Resources

Recent Favorite

Name	Type	Last Viewed
dario-192007	App Service	5 days ago
dario-192007-serverless	Function App	5 days ago
dario-192007-api	App Service	5 days ago
dario-192007-server-based	App Service	5 days ago

Create Web App



Home > App Services >

Create Web App ...

Basics | Deployment | Networking | Monitoring | Tags | Review + create

App Service Web Apps lets you quickly build, deploy, and scale enterprise-grade web, mobile, and API apps running on any platform. Meet rigorous performance, scalability, security and compliance requirements while using a fully managed platform to perform infrastructure maintenance. Learn more

Project Details

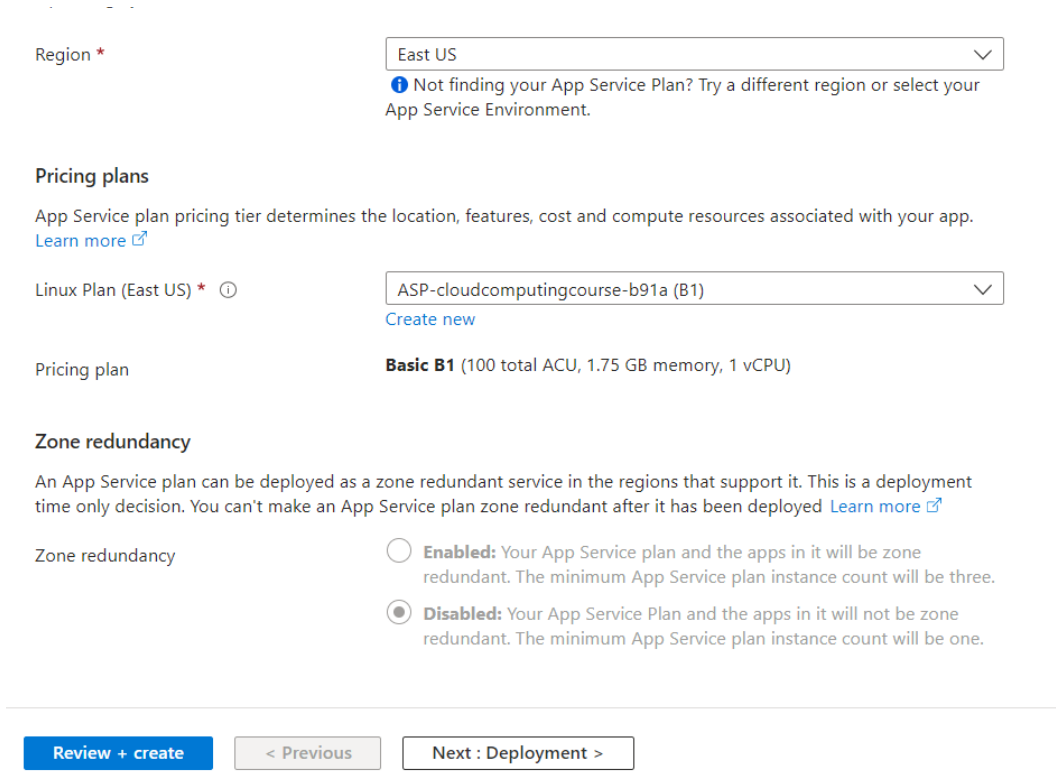
Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *	Azure for Students
Resource Group *	(New) test-web-app-192007_group
	Create new

Instance Details

Need a database? Try the new Web + Database experience.

Name *	test-web-app-192007 ✓
	.azurewebsites.net
Publish *	[✓ Code] Docker Container Static Web App
Runtime stack *	Node 16 LTS
Operating System *	[✓ Linux] Windows



Region *	East US
	Not finding your App Service Plan? Try a different region or select your App Service Environment.

Pricing plans

App Service plan pricing tier determines the location, features, cost and compute resources associated with your app. Learn more

Linux Plan (East US) *	ASP-cloudcomputingcourse-b91a (B1)
	Create new
Pricing plan	**Basic B1** (100 total ACU, 1.75 GB memory, 1 vCPU)

Zone redundancy

An App Service plan can be deployed as a zone redundant service in the regions that support it. This is a deployment time only decision. You can't make an App Service plan zone redundant after it has been deployed Learn more

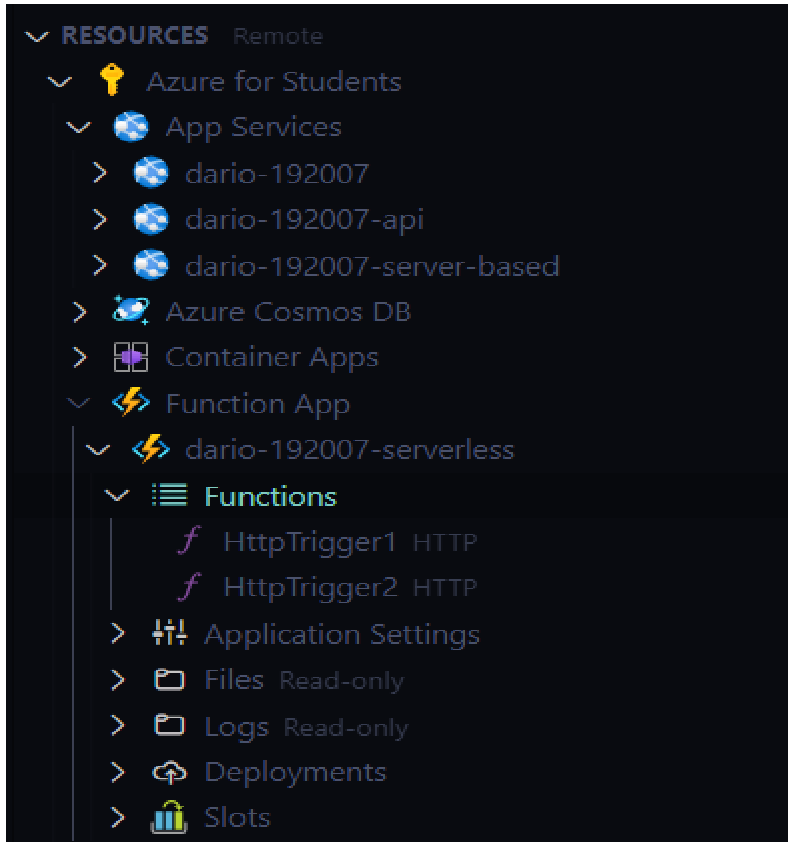
Zone redundancy

Enabled: Your App Service plan and the apps in it will be zone redundant. The minimum App Service plan instance count will be three.

[✓ **Disabled:** Your App Service Plan and the apps in it will not be zone redundant. The minimum App Service plan instance count will be one.]

Deployment

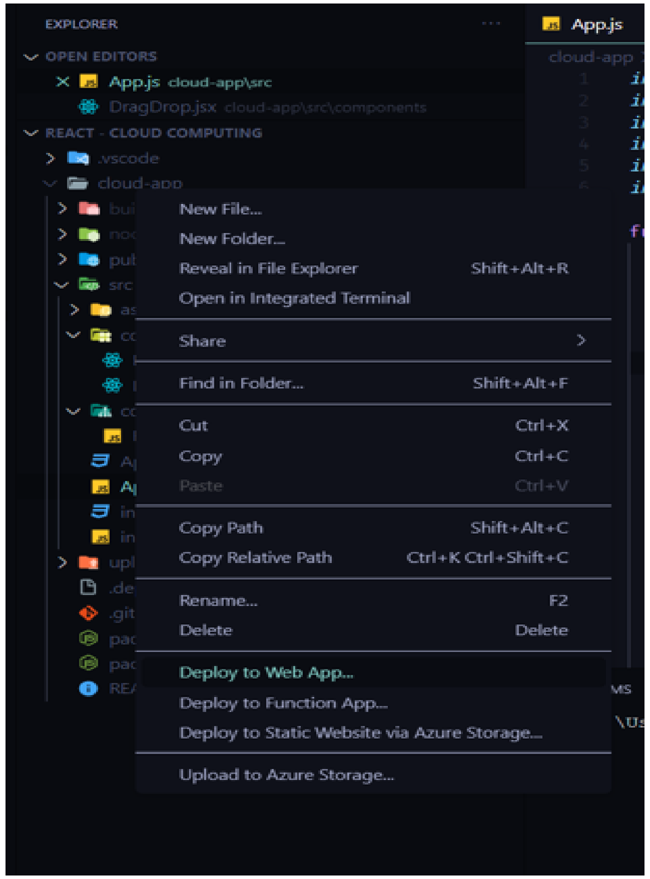
Во Visual Studio Code има одлична екстензија за Azure која ни овозможува целата работа да ја завршиме преку IDE-то.



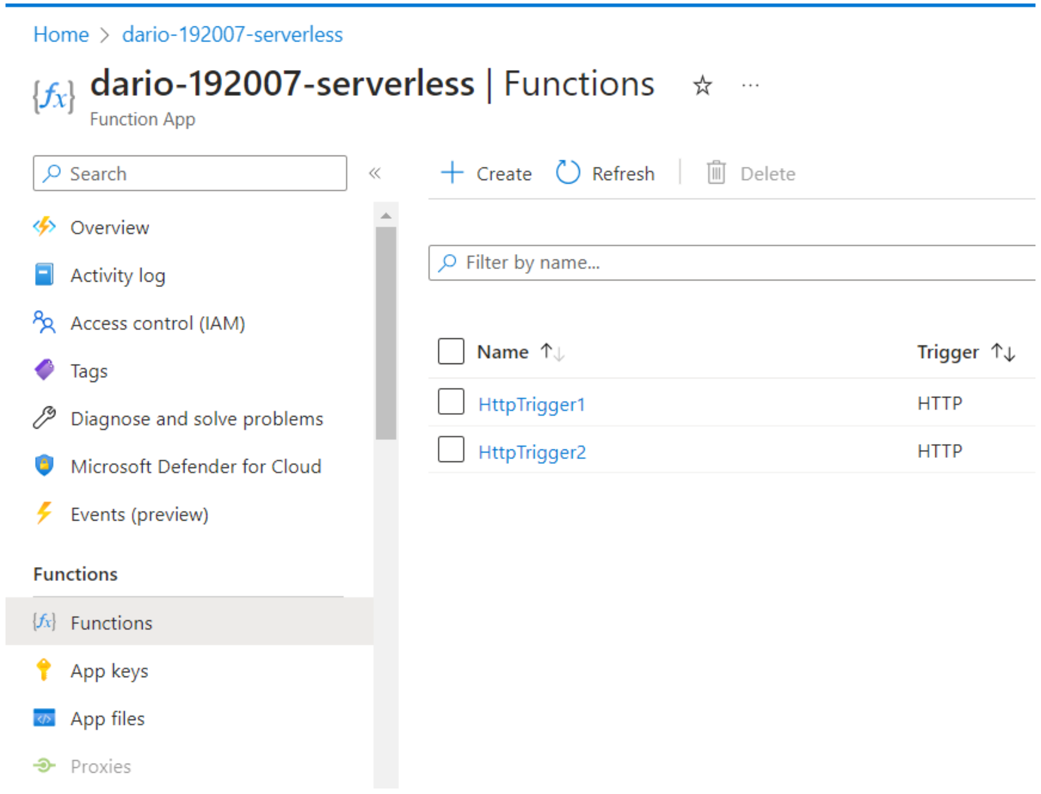
```
RESOURCES  Remote
  Azure for Students
    App Services
      dario-192007
      dario-192007-api
      dario-192007-server-based
    Azure Cosmos DB
    Container Apps
    Function App
      dario-192007-serverless
        Functions
          HttpTrigger1  HTTP
          HttpTrigger2  HTTP
        Application Settings
        Files  Read-only
        Logs  Read-only
        Deployments
        Slots
```

Deployment cont

- ➢Deploy to web app
  - ➢Select resource


EXPLORER
OPEN EDITORS
App.js cloud-app\src
DragDrop.jsx cloud-app\src\components
REACT - CLOUD COMPUTING
.vscode
cloud-app
App.js
New File...
New Folder...
Reveal in File Explorer Shift+Alt+R
Open in Integrated Terminal
Share
Find in Folder... Shift+Alt+F
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Copy Path Shift+Alt+C
Copy Relative Path Ctrl+K Ctrl+Shift+C
Rename... F2
Delete Delete
Deploy to Web App...
Deploy to Function App...
Deploy to Static Website via Azure Storage...
Upload to Azure Storage...

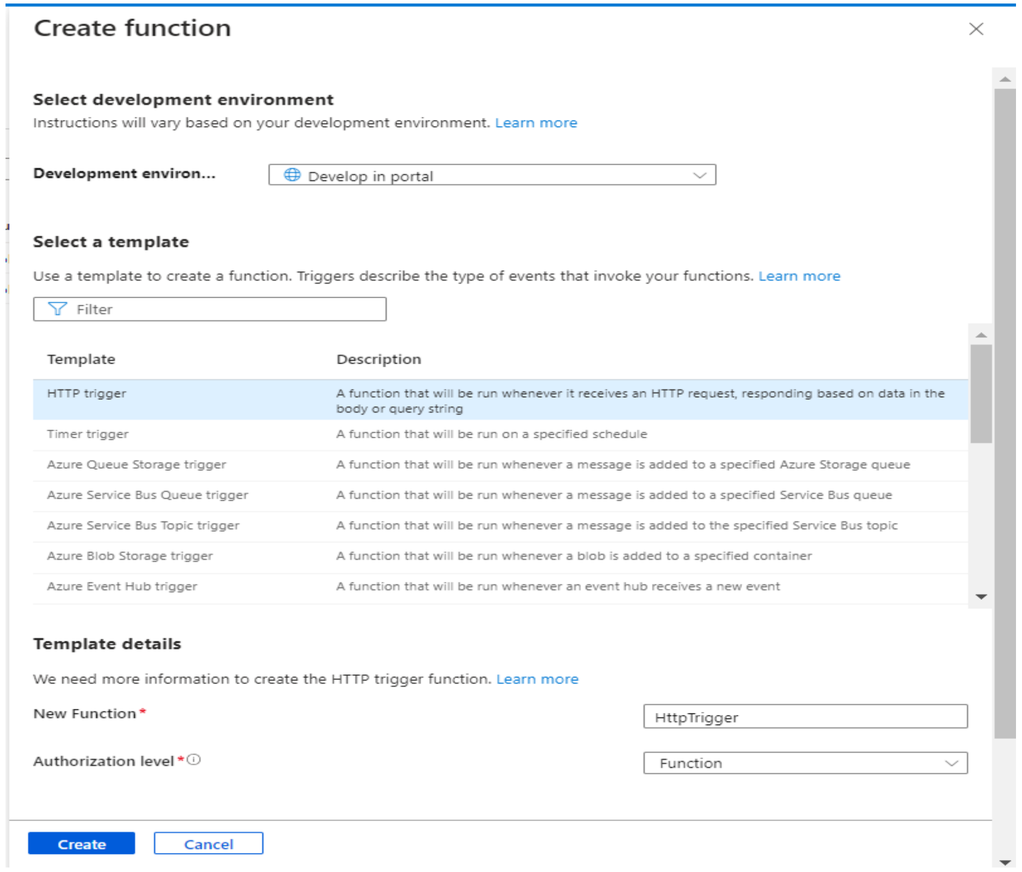
Function App



dario-192007-serverless | Functions

Function App

Name	Trigger
HttpTrigger1	HTTP
HttpTrigger2	HTTP



Create function

Select development environment

Instructions will vary based on your development environment. Learn more

Development environ... Develop in portal

Select a template

Use a template to create a function. Triggers describe the type of events that invoke your functions. Learn more

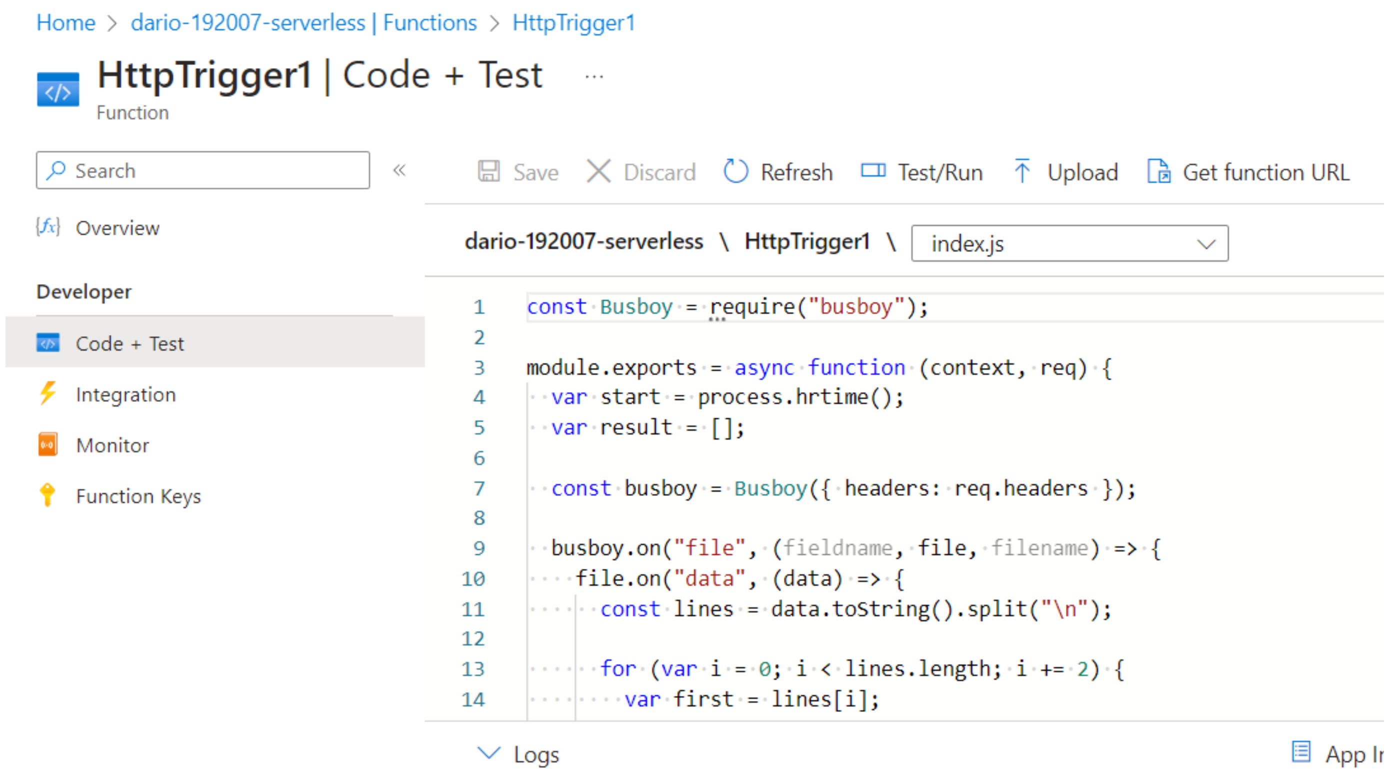
Template	Description
HTTP trigger	A function that will be run whenever it receives an HTTP request, responding based on data in the body or query string
Timer trigger	A function that will be run on a specified schedule
Azure Queue Storage trigger	A function that will be run whenever a message is added to a specified Azure Storage queue
Azure Service Bus Queue trigger	A function that will be run whenever a message is added to a specified Service Bus queue
Azure Service Bus Topic trigger	A function that will be run whenever a message is added to the specified Service Bus topic
Azure Blob Storage trigger	A function that will be run whenever a blob is added to a specified container
Azure Event Hub trigger	A function that will be run whenever an event hub receives a new event

Template details

We need more information to create the HTTP trigger function. Learn more

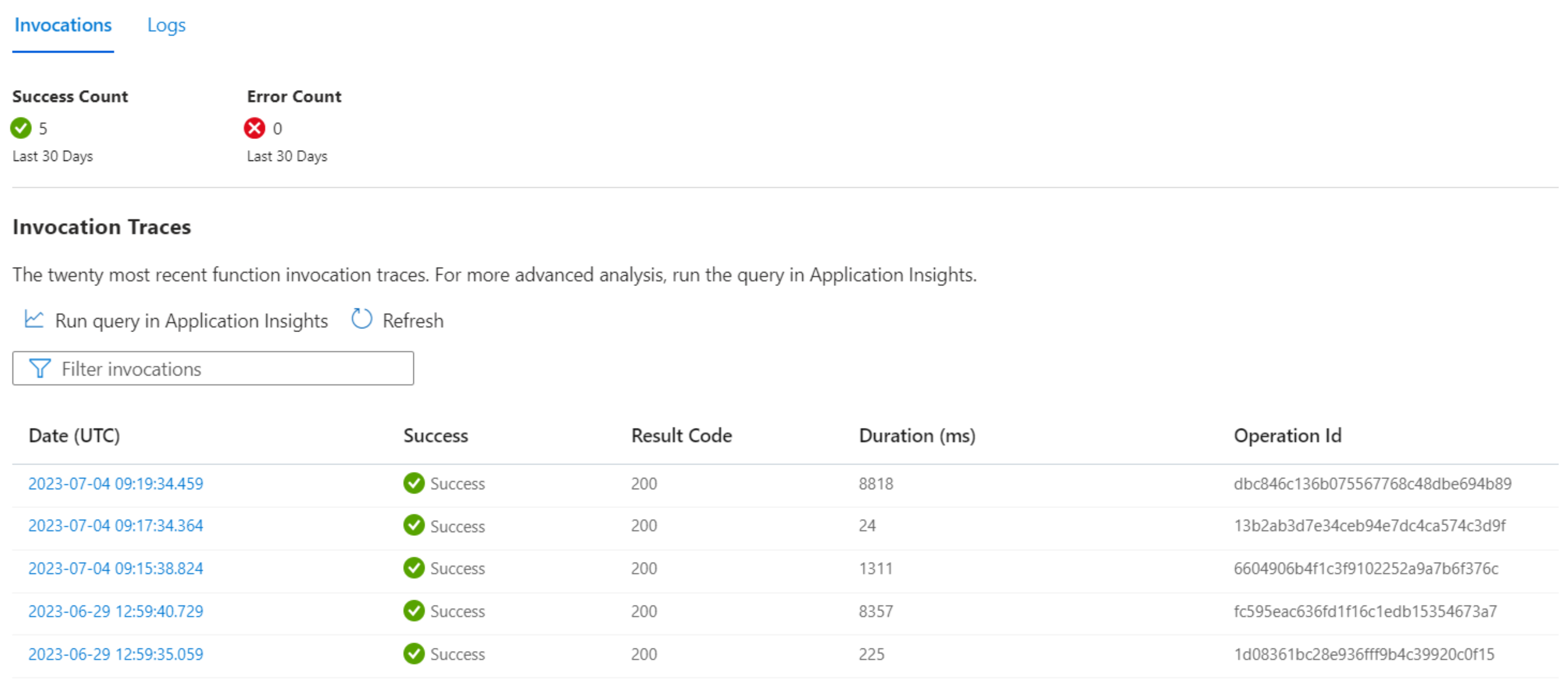
New Function *	HttpTrigger
Authorization level *	Function

Http Trigger


Home > dario-192007-serverless | Functions > HttpTrigger1
HttpTrigger1 | Code + Test
Function
Search
Overview
Developer
Code + Test
Integration
Monitor
Function Keys
Save
Discard
Refresh
Test/Run
Upload
Get function URL
dario-192007-serverless \ HttpTrigger1 \ index.js
Logs
App I

```
const Busboy = require("busboy");

module.exports = async function (context, req) {
  var start = process.hrtime();
  var result = [];

  const busboy = Busboy({ headers: req.headers });

  busboy.on("file", (fieldname, file, filename) => {
    file.on("data", (data) => {
      const lines = data.toString().split("\n");

      for (var i = 0; i < lines.length; i += 2) {
        var first = lines[i];
```

Monitor Http Triggers



Success Count

✓ 5

Last 30 Days

Error Count

✗ 0

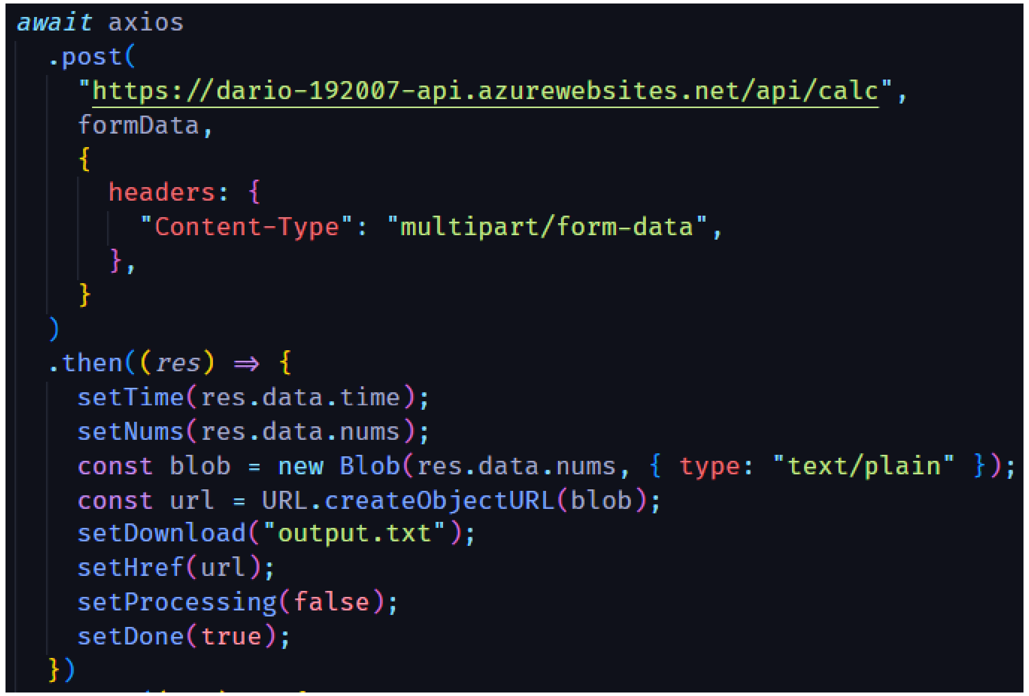
Last 30 Days

Invocation Traces

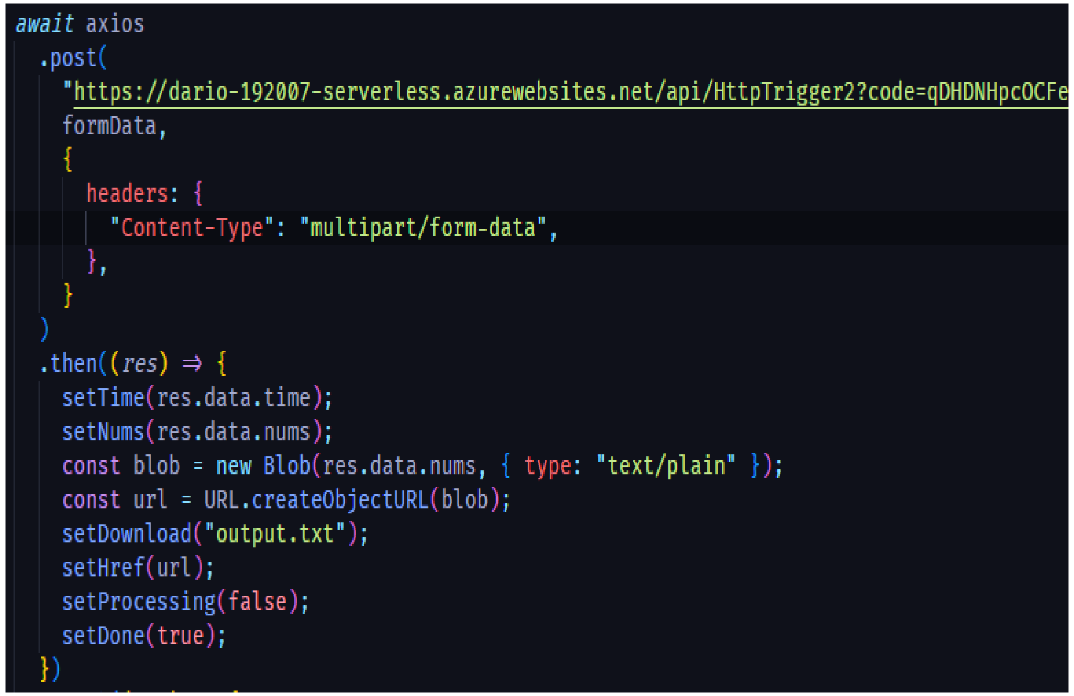
The twenty most recent function invocation traces. For more advanced analysis, run the query in Application Insights.

Date (UTC)	Success	Result Code	Duration (ms)	Operation Id
2023-07-04 09:19:34.459	✓ Success	200	8818	dbc846c136b075567768c48dbe694b89
2023-07-04 09:17:34.364	✓ Success	200	24	13b2ab3d7e34ceb94e7dc4ca574c3d9f
2023-07-04 09:15:38.824	✓ Success	200	1311	6604906b4f1c3f9102252a9a7b6f376c
2023-06-29 12:59:40.729	✓ Success	200	8357	fc595eac636fd1f16c1edb15354673a7
2023-06-29 12:59:35.059	✓ Success	200	225	1d08361bc28e936fff9b4c39920c0f15

Http Requests (Axios)

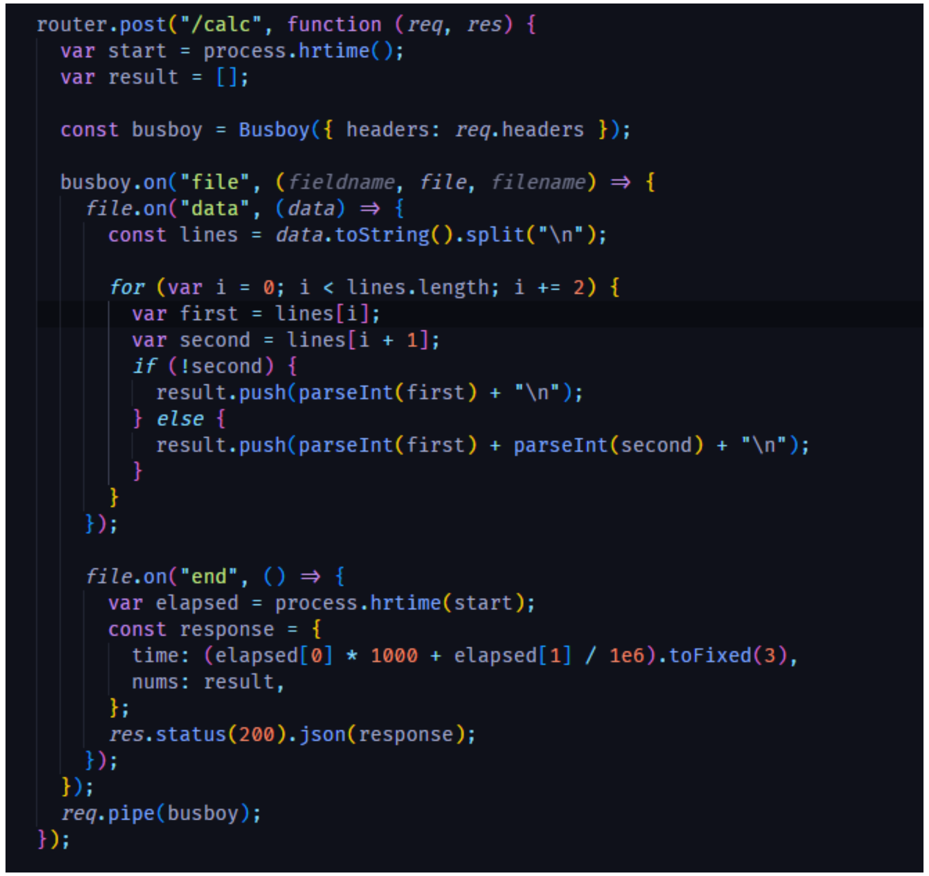


```
await axios
  .post(
    "https://dario-192007-api.azurewebsites.net/api/calc",
    formData,
    {
      headers: {
        "Content-Type": "multipart/form-data",
      },
    }
  )
  .then((res) => {
    setTime(res.data.time);
    setNums(res.data.nums);
    const blob = new Blob(res.data.nums, { type: "text/plain" });
    const url = URL.createObjectURL(blob);
    setDownload("output.txt");
    setHref(url);
    setProcessing(false);
    setDone(true);
  })
```



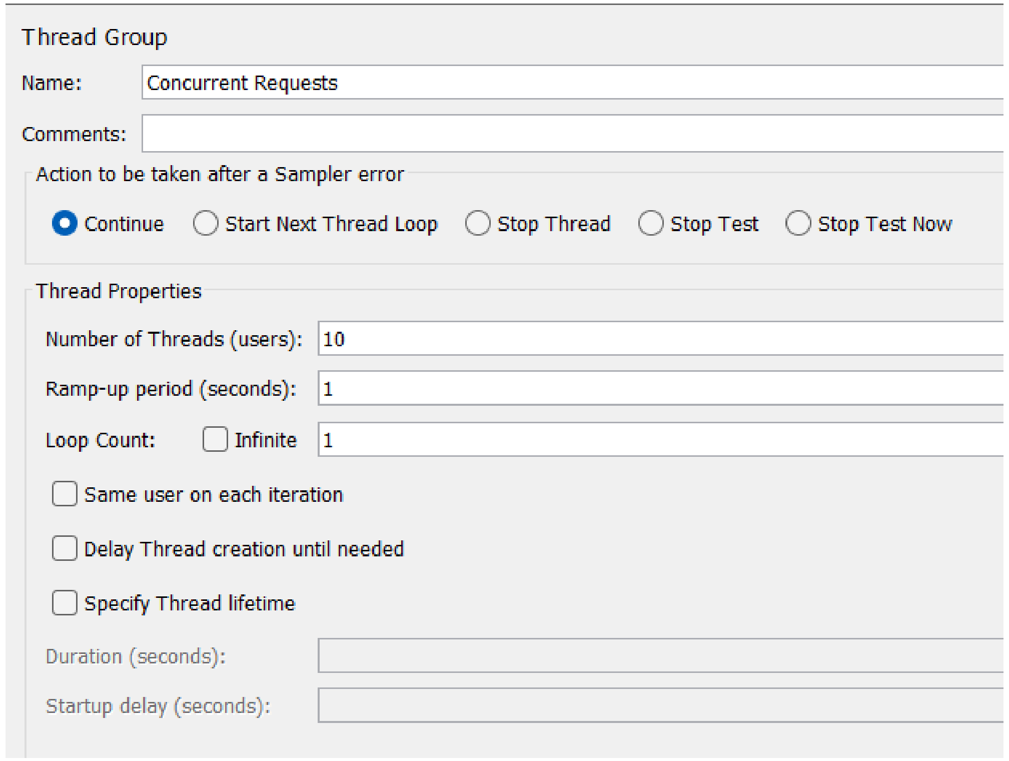
```
await axios
  .post(
    "https://dario-192007-serverless.azurewebsites.net/api/HttpTrigger2?code=qDHDNHpcOCFe
    formData,
    {
      headers: {
        "Content-Type": "multipart/form-data",
      },
    }
  )
  .then((res) => {
    setTime(res.data.time);
    setNums(res.data.nums);
    const blob = new Blob(res.data.nums, { type: "text/plain" });
    const url = URL.createObjectURL(blob);
    setDownload("output.txt");
    setHref(url);
    setProcessing(false);
    setDone(true);
  })
```

Post Request Handler



```javascript
router.post("/calc", function (req, res) {
  var start = process.hrtime();
  var result = [];

  const busboy = Busboy({ headers: req.headers });

  busboy.on("file", (fieldname, file, filename) => {
    file.on("data", (data) => {
      const lines = data.toString().split("\n");

      for (var i = 0; i < lines.length; i += 2) {
        var first = lines[i];
        var second = lines[i + 1];
        if (!second) {
          result.push(parseInt(first) + "\n");
        } else {
          result.push(parseInt(first) + parseInt(second) + "\n");
        }
      }
    });

    file.on("end", () => {
      var elapsed = process.hrtime(start);
      const response = {
        time: (elapsed[0] * 1000 + elapsed[1] / 1e6).toFixed(3),
        nums: result,
      };
      res.status(200).json(response);
    });
  });
  req.pipe(busboy);
});
```

Testing APIs (Apache jMeter)



Thread Group

Name: Concurrent Requests

Comments:

Action to be taken after a Sampler error

[✓ Continue] Start Next Thread Loop Stop Thread Stop Test Stop Test Now

Thread Properties

Number of Threads (users): 10

Ramp-up period (seconds): 1

Loop Count: ☐ Infinite 1

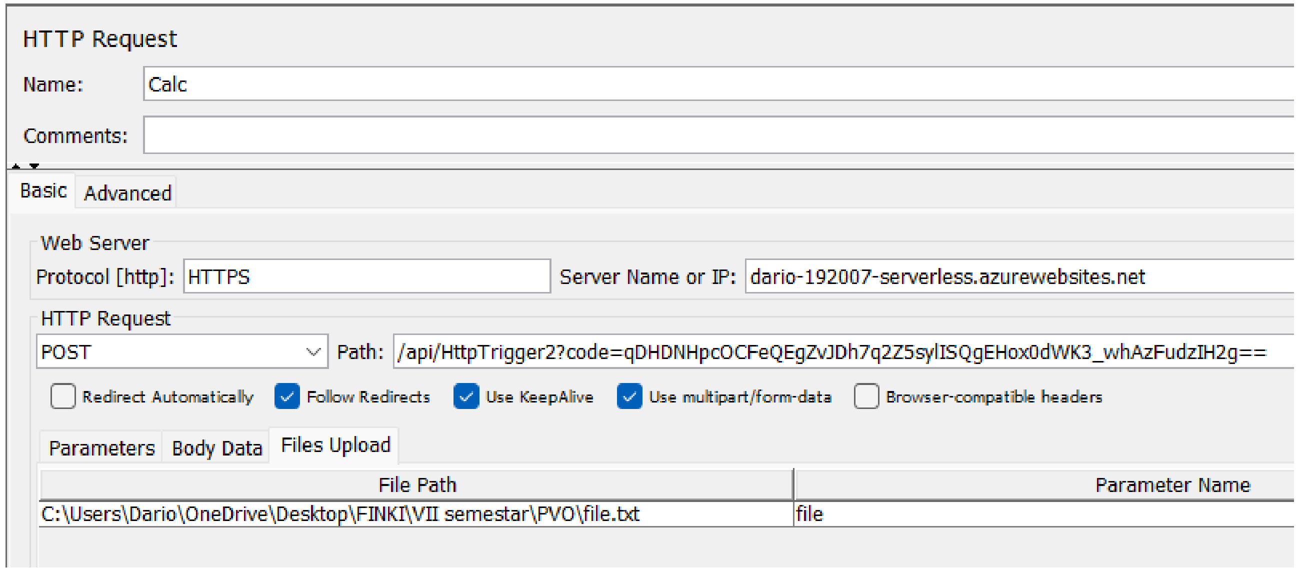
☐ Same user on each iteration

☐ Delay Thread creation until needed

☐ Specify Thread lifetime

Duration (seconds):

Startup delay (seconds):



HTTP Request

Name: Calc

Comments:

Basic Advanced

Web Server

Protocol [http]: HTTPS Server Name or IP: dario-192007-serverless.azurewebsites.net

HTTP Request

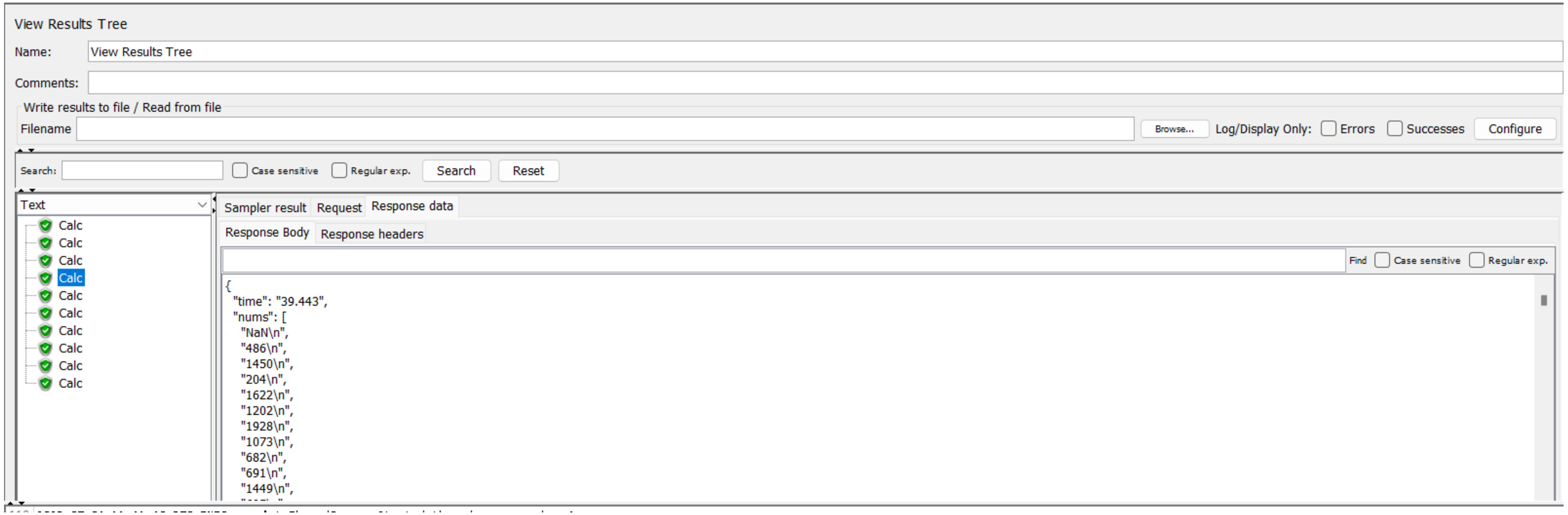
POST Path: /api/HttpTrigger2?code=qDHDNHpcOCFeQEgZvJDh7q2Z5sylISQgEHox0dWK3_whAzFudzIH2g==

☐ Redirect Automatically ✓ Follow Redirects ✓ Use KeepAlive ✓ Use multipart/form-data ☐ Browser-compatible headers

Parameters Body Data Files Upload

File Path	Parameter Name
C:\Users\Dario\OneDrive\Desktop\FINKI\VII semestar\PVO\file.txt	file

Testing APIs cont



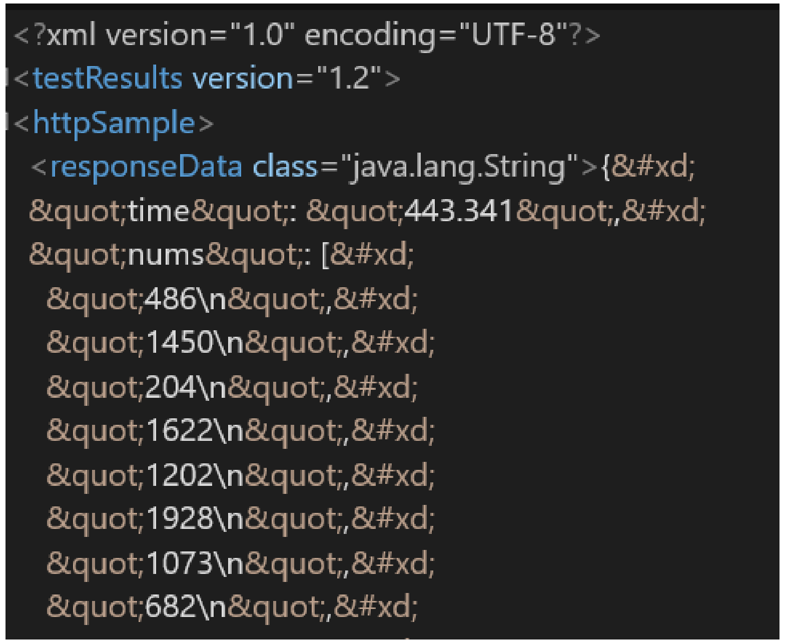
Name: View Results Tree

Comments:

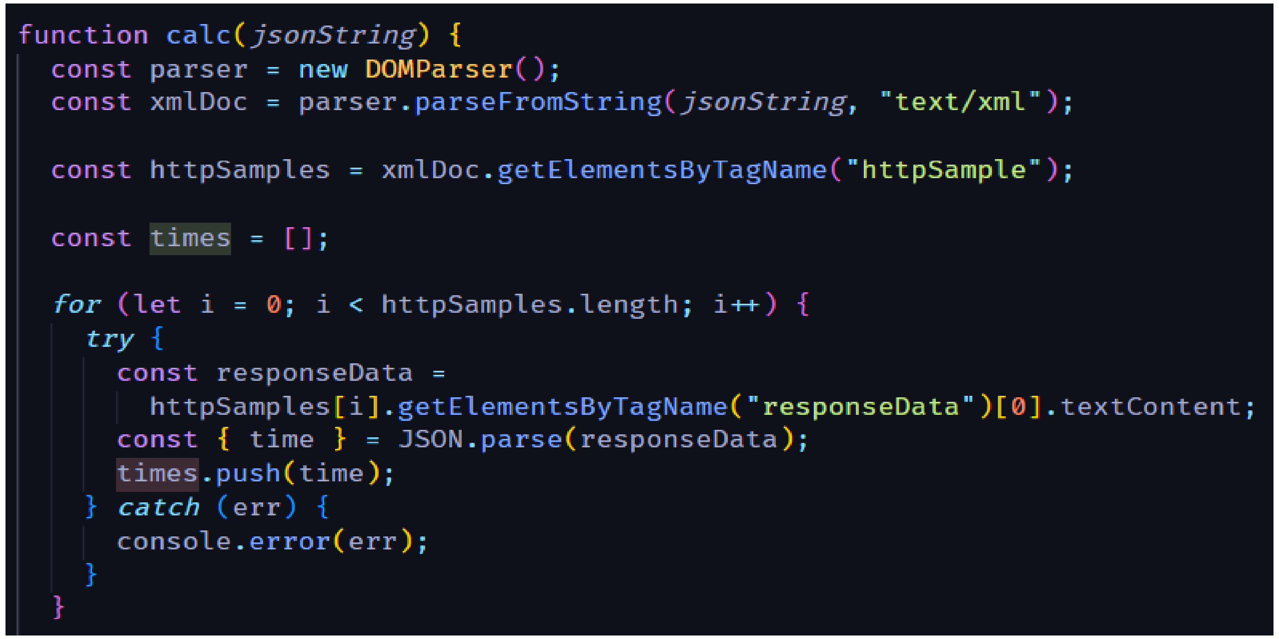
Calc
Calc
Calc
Calc
Calc
Calc
Calc
Calc
Calc
Calc

```
{
 "time": "39.443",
 "nums": [
  "NaN\n",
  "486\n",
  "1450\n",
  "204\n",
  "1622\n",
  "1202\n",
  "1928\n",
  "1073\n",
  "682\n",
  "691\n",
  "1449\n",
```

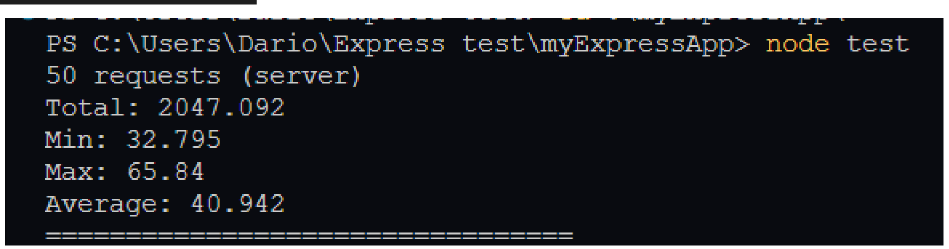
Calculating min, max, total & average time



```
<?xml version="1.0" encoding="UTF-8"?>
<testResults version="1.2">
<httpSample>
 <responseData class="java.lang.String">{&#xd;
 &quot;time&quot;: &quot;443.341&quot;,&#xd;
 &quot;nums&quot;: [&#xd;
   &quot;486\n&quot;,&#xd;
   &quot;1450\n&quot;,&#xd;
   &quot;204\n&quot;,&#xd;
   &quot;1622\n&quot;,&#xd;
   &quot;1202\n&quot;,&#xd;
   &quot;1928\n&quot;,&#xd;
   &quot;1073\n&quot;,&#xd;
   &quot;682\n&quot;,&#xd;
```

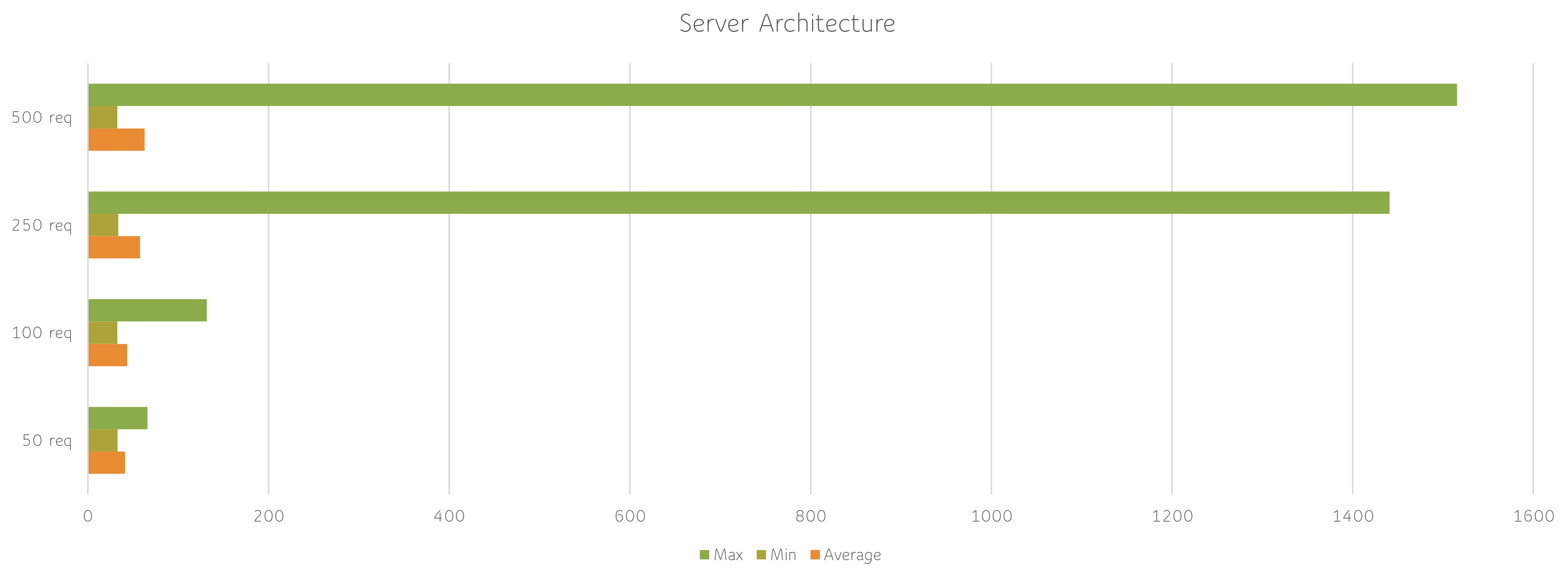


```javascript
function calc(jsonString) {
  const parser = new DOMParser();
  const xmlDoc = parser.parseFromString(jsonString, "text/xml");

  const httpSamples = xmlDoc.getElementsByTagName("httpSample");

  const times = [];

  for (let i = 0; i < httpSamples.length; i++) {
    try {
      const responseData =
        httpSamples[i].getElementsByTagName("responseData")[0].textContent;
      const { time } = JSON.parse(responseData);
      times.push(time);
    } catch (err) {
      console.error(err);
    }
  }
```

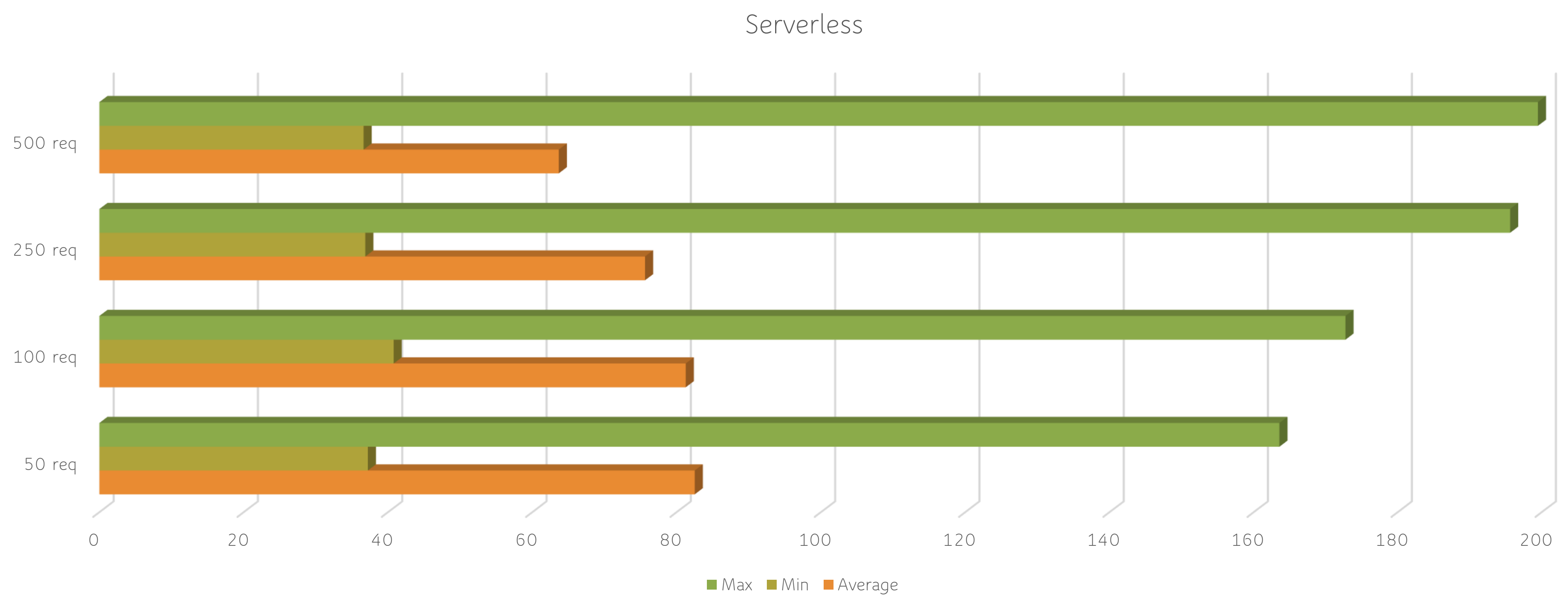


```
PS C:\Users\Dario\Express test\myExpressApp> node test
50 requests (server)
Total: 2047.092
Min: 32.795
Max: 65.84
Average: 40.942
==================================
```

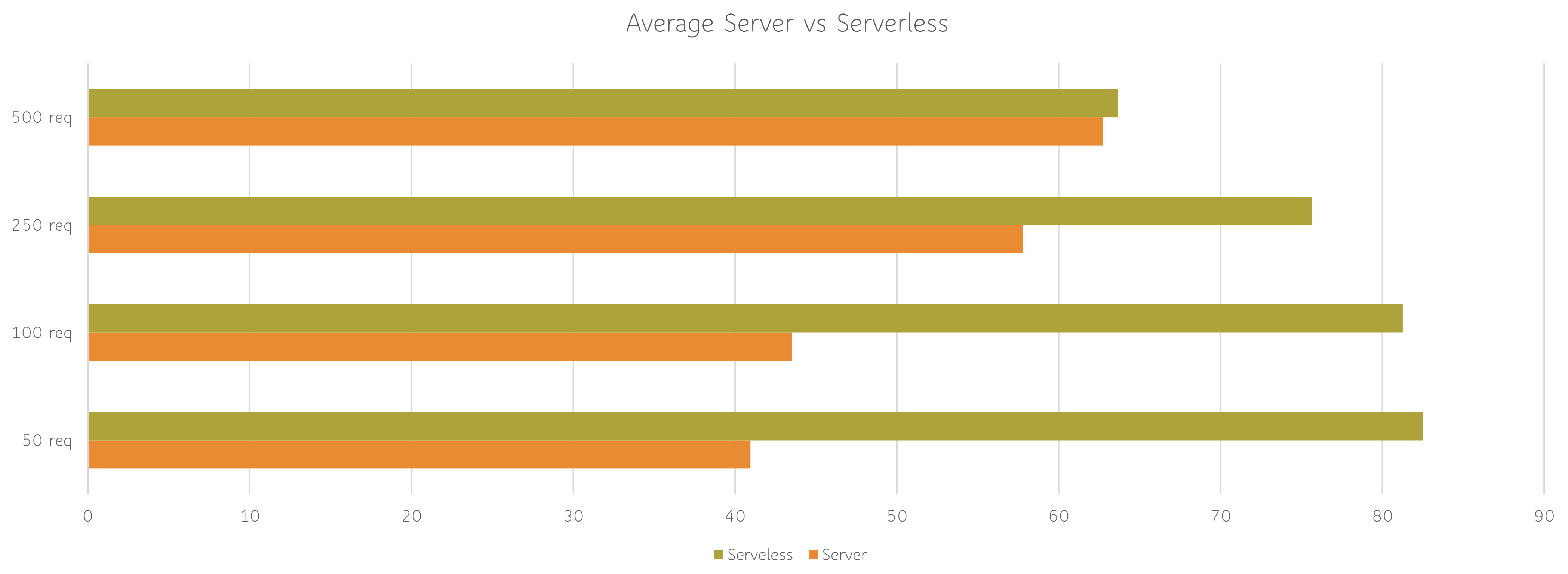
Results (Server-based)



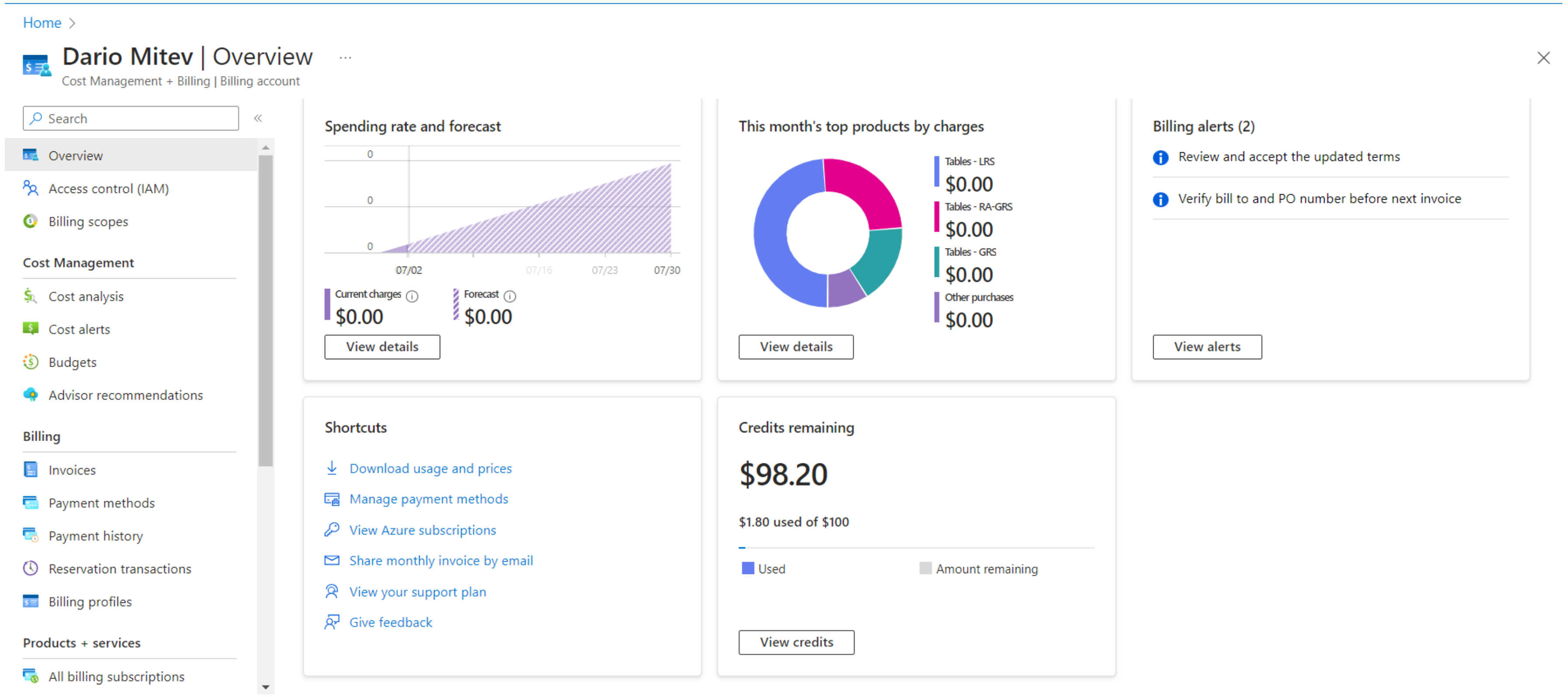
Results (Serverless)



Server vs Serverless



Cost management + Billing



Home >

Dario Mitev | Overview

Cost Management + Billing | Billing account

Spending rate and forecast

Current charges $0.00

Forecast $0.00

This month's top products by charges

Tables - LRS	$0.00
Tables - RA-GRS	$0.00
Tables - GRS	$0.00
Other purchases	$0.00

Billing alerts (2)

- Review and accept the updated terms
- Verify bill to and PO number before next invoice

Shortcuts

- Download usage and prices
- Manage payment methods
- View Azure subscriptions
- Share monthly invoice by email
- View your support plan
- Give feedback

Credits remaining

$98.20

$1.80 used of $100

Used | Amount remaining