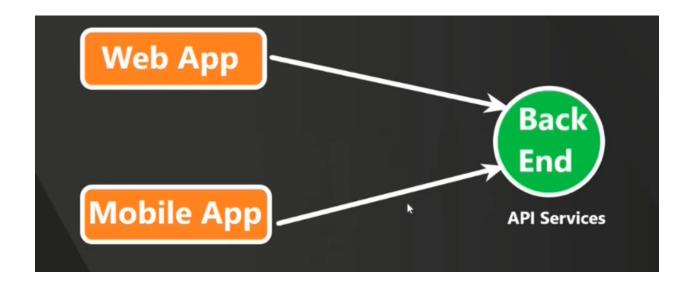
Node is NOT a Programming Language

Node is NOT a Framework

It's an runtime environment used for executing

JavaScript code.

We often use node to build back-end services like API's



Features of Node JS

Highly scalable, Data-intensive and real-time apps

Special Features in Node JS

Node is easy to get started

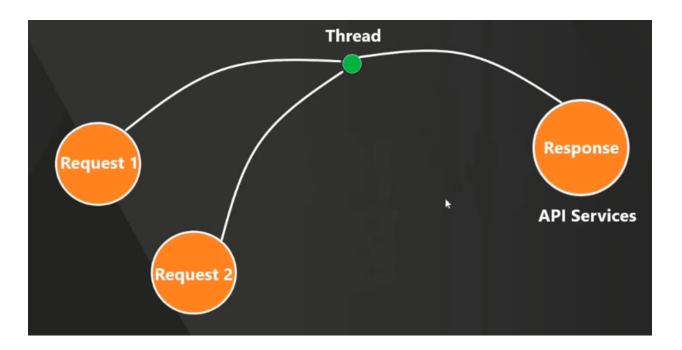
Superfast & highly scalable services

Large ecosystem of open source libs

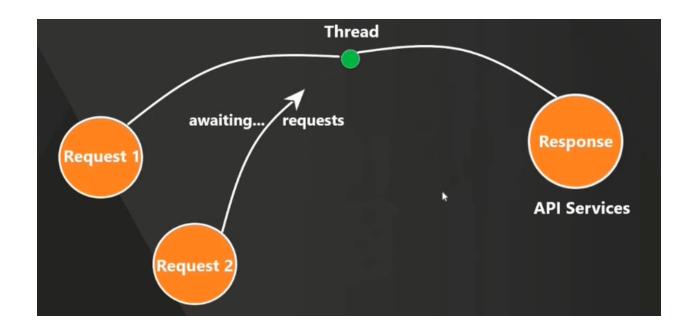
JavaScript Everywhere

NodeJS WorkFlow

→Asynchronous / Non-Blocking



→Synchronous / Blocking



→NodeJs is non-Blocking /Asynchronous



 \rightarrow <u>https://nodejs.org/en/download</u> (Download NodeJS)

Always use LTS Recommended For Most Users

For Checking NodeJs is installed or not?

Go to Cmd (Command Prompt):

```
Command Prompt × + v

Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\gudiw>node --version
v20.3.0

C:\Users\gudiw>
```

C:\Users\gudiw>**node --version** v20.3.0

C:\Users\gudiw>cd Documents

C:\Users\gudiw\Documents> cd tuts

C:\Users\gudiw\Documents\tuts>mkdir NodeJS-TSH

C:\Users\gudiw\Documents\tuts>cd NodeJS-TSH

C:\Users\gudiw\Documents\tuts\NodeJS-TSH>code . ##(Open VS Code)

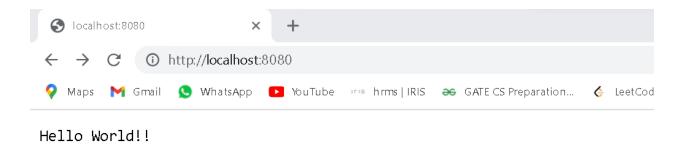
HTTP Module

server.js

```
var http = require('http');

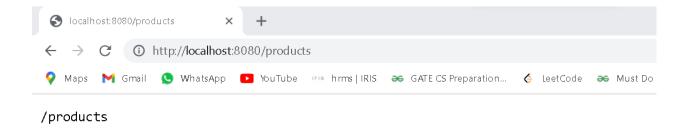
http.createServer((req, res) => {
    res.write('Hello World!!');
    res.end();
    console.log("Sever Running ....");
}).listen(8080)
```

O/P:



```
var http = require('http');

http.createServer((req, res) => {
    //res.write('Hello World!!');
    res.write(req.url);
    res.end();
    console.log("Sever Running ....");
}).listen(8080)
```



File System Module

File Read & Write

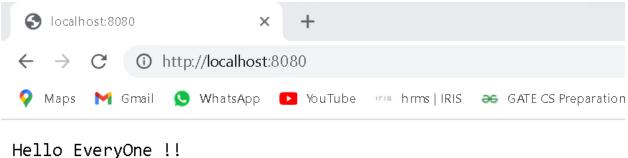
server.js

```
var http = require('http');
var fs = require('fs');    //import modules fs ->file System

http.createServer((req, res) => {
    fs.readFile('test.txt', (err, data) =>{
        res.write(data);
        res.end();
    })
}).listen(8080)
```

test.txt

Hello EveryOne!!



→Modified "test.txt" file

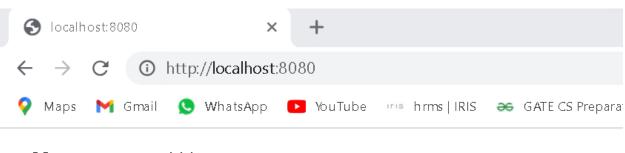
test.txt

Hello EveryOne !!!

Test is modified

Have a nice day ### See you soon

O/P:



Hello EveryOne !!!

Test is modified

Have a nice day ### See you soon

→We need add data to the existing File

server.js

O/P:

test.txt is appended with "Thank You"

Hello EveryOne !!!

Test is modified

Have a nice day ### See you soon Thank You

→Overriding the message

```
var http = require('http');
var fs = require('fs');    //import modules fs ->file System

http.createServer((req, res) => {
    fs.writeFile('test.txt', 'overrided the current data',
    (err, data) =>{
```

```
res.write(data);
res.end();
})
}).listen(8080)
```

- →Entire test is replaced new test overrided the current data
- →We can create file using fs.writeFile (Suppose if the given file is not Present)
- →**Initial**

```
NODEJS... [♣ □♣ ひ ⑤
{} data.json
JS server.js
≡ test.txt
```

```
}).listen(8080)
```

```
| Time | Edit | Selection | View | Go | Run | Terminal | Help | Serverijs | Node/35-TSH) | Serverijs |
```

test.txt is deleted

URL Module

→Query Params

```
var url = require('url');

//Query Params
var addrs =
  'https://www.google.com/search?q=react.js&oq=reac&gs_lcrp=EgZj
aHJvbWUqBggEEEUYOzIGCAAQRRg8MgYIARBFGDsyBggCEEUYOzIGCAMQRRg5Mg
```

```
YIBBBFGDsyBggFEEUYPTIGCAYQRRg8MgYIBxBFGDzSAQg0NjczajBqN6gCALAC

AA&sourceid=chrome&ie=UTF-8'

var q = url.parse(address, true);

console.log(q.host);
```

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH>node server.js www.google.com

server.js

```
var url = require('url');

//Query Params
var addrs =
'https://www.google.com/search?q=react.js&oq=reac&gs_lcrp=EgZj
aHJvbWUqBggEEEUYOzIGCAAQRRg8MgYIARBFGDsyBggCEEUYOzIGCAMQRRg5Mg
YIBBBFGDsyBggFEEUYPTIGCAYQRRg8MgYIBxBFGDzSAQg0NjczajBqN6gCALAC
AA&sourceid=chrome&ie=UTF-8'

var q = url.parse(addrs, true);
console.log(q.pathname);
```

O/P:

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH>node server.js /search

server.js

```
var url = require('url');

//Query Params
var addrs =
  'https://www.google.com/search?q=react.js&oq=reac&gs_lcrp=EgZj
aHJvbWUqBggEEEUYOzIGCAAQRRg8MgYIARBFGDsyBggCEEUYOzIGCAMQRRg5Mg
YIBBBFGDsyBggFEEUYPTIGCAYQRRg8MgYIBxBFGDzSAQg0NjczajBqN6gCALAC
AA&sourceid=chrome&ie=UTF-8'

var q = url.parse(addrs, true);
console.log(q.search);
```

O/P"

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH>node server.js

?q=react.js&oq=reac&gs_lcrp=EgZjaHJvbWUqBggEEEUYOzIGCAAQRR g8MgYIARBFGDsyBggCEEUYOzIGCAMQRRg5MgYIBBBFGDsyBggFE EUYPTIGCAYQRRg8MgYIBxBFGDzSAQg0NjczajBqN6gCALACAA&sou rceid=chrome&ie=UTF-8

Node JS NPM

Using npm we need to install your packages.

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH>npm install upper-case

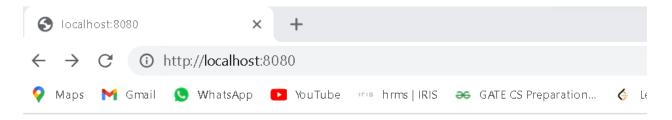
added 2 packages in 2s

server.js

```
var http = require('http');
var uc = require('upper-case');

http.createServer((req, res) => {
    res.write(uc.upperCase('Hello, World!'));
    res.end();
}).listen(8080)
```

O/P:



HELLO, WORLD!

Node JS Email

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH>npm install nodemailer

added 1 package, and audited 4 packages in 3s

found 0 vulnerabilities

```
var nodemailer = require('nodemailer');
var transporter = nodemailer.createTransport({
   service: 'gmail',
   auth: {
        user: 'gudiwadaraghava999@gmail.com',
        pass: 'rag' //Please Give the Correct Answer
});
var options ={
    from : 'gudiwadaraghava999@gmail.com',
    to : 'raghava2k21@gmail.com',
    subject : 'Testing Mail',
    text : 'Thats easy to send mail to others'
transporter.sendMail(options, (err, info) =>{
    if(err){
        console.log(err);
   else{
        console.log("Email is Sent" + info.response)
    }
```

```
PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH>node server.js
Error: connect ECONNREFUSED ::1:587
            at TCPConnectWrap.afterConnect [as oncomplete] (node:net:1574:16) {
      errno: -4078,
      code: 'ESOCKET',
      syscall: 'connect',
      address: '::1',
     port: 587,
      command: 'CONN'
PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH> node server.js
Error: Invalid login: 535-5.7.8 Username and Password not accepted. Learn more at
535 5.7.8 https://support.google.com/mail/?p=BadCredentials
x18-20020aa784d2000000b0068288aaf23esm4841931pfn.100 - gsmtp
            at SMTPConnection. formatError
(C:\label{locality} Locuments \tuts \label{locality} NodeJS-TSH \node\_modules \nodemailer \lib \smtp-locality \nodemailer \n
connection\index.js:790:19)
            at SMTPConnection. actionAUTHComplete
(C:\Users\gudiw\Documents\tuts\NodeJS-TSH\node modules\nodemailer\lib\smtp-
connection\index.js:1564:34)
            at SMTPConnection.<anonymous>
(C:\Users\gudiw\Documents\tuts\NodeJS-TSH\node modules\nodemailer\lib\smtp-
connection\index.js:546:26)
            at SMTPConnection. processResponse
(C:\Users\gudiw\Documents\tuts\NodeJS-TSH\node\_modules\nodemailer\lib\smtp-lib\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemailer\nodemai
connection\index.js:969:20)
```

```
at SMTPConnection._onData
(C:\Users\gudiw\Documents\tuts\NodeJS-TSH\node_modules\nodemailer\lib\smtp-
connection\index.js:755:14)
at SMTPConnection._onSocketData
(C:\Users\gudiw\Documents\tuts\NodeJS-TSH\node_modules\nodemailer\lib\smtp-
connection\index.js:193:44)
code: 'EAUTH',
response: '535-5.7.8 Username and Password not accepted. Learn more at\n'
+
    '535 5.7.8 https://support.google.com/mail/?p=BadCredentials
x18-20020aa784d2000000b0068288aaf23esm4841931pfn.100 - gsmtp',
responseCode: 535,
command: 'AUTH PLAIN'
}
```

→ We have to give authentication from Our Mail

Fetching Data from API

```
var http = require('http');
var fs = require('fs');

http.createServer((req, res) => {
    fs.readFile('data.json', (err, data) => {
        res.write(data);
        res.end();
        console.log('API is Running..')
    })
}).listen(8080)
```

data.json

```
{
    "id" : "1",
    "name" : "Hyderabad"
},
{
    "id" : "2",
    "name" : "Warangal"
},
{
    "id" : "3",
    "name" : "Visakhapatnam"
},
{
    "id" : "4",
    "name" : "Vijayawada"
},
{
    "id" : "5",
    "name" : "Guntur"
},
{
    "id" : "6",
    "name" : "Nellore"
},
{
    "id" : "7",
    "name" : "kurnool"
},
{
    "id" : "8",
```

```
"name" : "kadapa"
},
{
    "id" : "9",
    "name" : "Tirupati"
},
{
    "id" : "10",
    "name" : "Anantapuram"
},
{
    "id" : "11",
    "name" : "Ongole"
},
{
    "id" : "12",
    "name" : "Chittoor"
},
{
    "id" : "13",
    "name" : "Machilipatnam"
},
{
    "id" : "14",
    "name" : "Chilakaluripeta"
},
{
    "id" : "15",
    "name" : "Srikakulam"
},
{
    "id" : "16",
    "name" : "Bhimavaram"
```

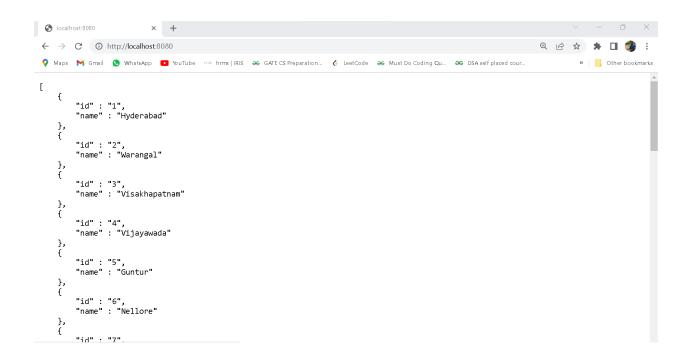
```
},
{
    "id" : "17",
    "name" : "Hindupur"
},
{
    "id" : "18",
    "name" : "Khammam"
},
{
    "id" : "19",
    "name" : "Peddapalli"
},
{
    "id" : "20",
    "name" : "Suryapet"
},
{
    "id" : "21",
    "name" : "Karimnagar"
},
{
    "id" : "22",
    "name" : "Adilabad"
},
{
    "id" : "23",
    "name" : "Nagarkurnool"
},
{
    "id" : "24",
    "name" : "Nalgonda"
},
```

```
{
    "id" : "25",
    "name" : "Rajamma Sircilla"
},
{
    "id" : "26",
    "name" : "Sangareddy"
}
```

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH> node server.js

API is Running..

API is Running..



How to Create API with Node.js Express MangoDB

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH> **npm install mongoose** added 24 packages, and audited 86 packages in 23s

9 packages are looking for funding run 'npm fund' for details

found 0 vulnerabilities

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH> npm install express added 58 packages, and audited 62 packages in 6s

8 packages are looking for funding run 'npm fund' for details

found 0 vulnerabilities

→nodemon is for running our server Continuously

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH> npm install -D nodemon added 33 packages, and audited 119 packages in 7s

12 packages are looking for funding run 'npm fund' for details

found 0 vulnerabilities

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH> npm init

This utility will walk you through creating a package.json file. It only covers the most common items, and tries to guess sensible defaults.

See 'npm help init' for definitive documentation on these fields and exactly what they do.

Use 'npm install <pkg>' afterwards to install a package and save it as a dependency in the package.json file.

```
Press ^C at any time to quit.
package name: (nodejs-tsh)
version: (1.0.0)
description: testing api
entry point: (server.js)
git repository:
keywords:
author: Raghava
license: (ISC) MIT
About to write to C:\Users\gudiw\Documents\tuts\NodeJS-TSH\package.json:
 "dependencies": {
  "express": "^4.18.2",
  "mongoose": "^7.3.4",
  "nodemailer": "^6.9.3",
  "upper-case": "^2.0.2"
 "devDependencies": {
  "nodemon": "^3.0.1"
 },
 "scripts": {
  "start": "node server.js"
```

```
},
"name": "nodejs-tsh",
"version": "1.0.0",
"description": "testing api",
"main": "server.js",
"author": "Raghava",
"license": "MIT"
}
Is this OK? (yes)
```

```
{} package.json ×
{} package.json > ...
            mongoose: "7.5.4,
           "nodemailer": "^6.9.3",
   5
           "upper-case": "^2.0.2"
   6
         "devDependencies": {
   8
           "nodemon": "^3.0.1"
   9
         },
  10
         Debug
         "scripts": {
  11
         "start": "node server.js",
  12
         "server": "nodemon server.js"
  13
  14
         "name": "nodejs-tsh",
  15
         "version": "1.0.0",
  16
         "description": "testing api",
  17
```

PS C:\Users\gudiw\Documents\tuts\NodeJS-TSH>npm run server

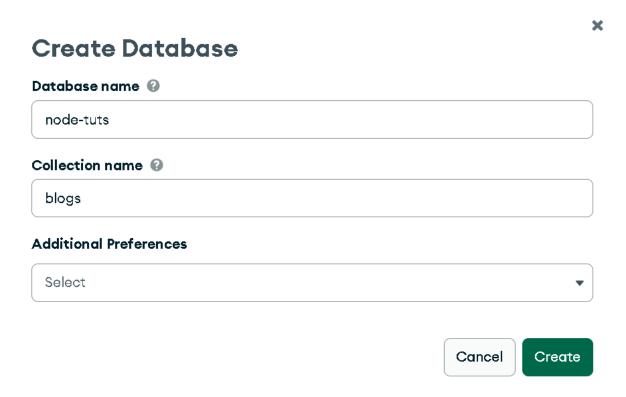
```
> nodejs-tsh@1.0.0 server
> nodemon server.js
[nodemon] 3.0.1
[nodemon] to restart at any time, enter 'rs'
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting 'node server.js'
Server Running ....
```

MangoDB Setup & Atlas

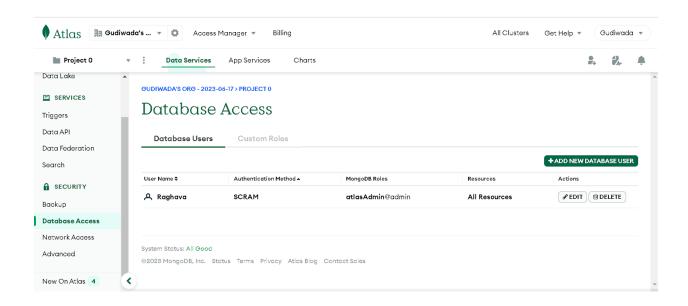
https://www.mongodb.com/atlas/database

Go to the Website signUP

- 1. Create cluster (given cluster name \rightarrow nodetuts)
- 2. Create database



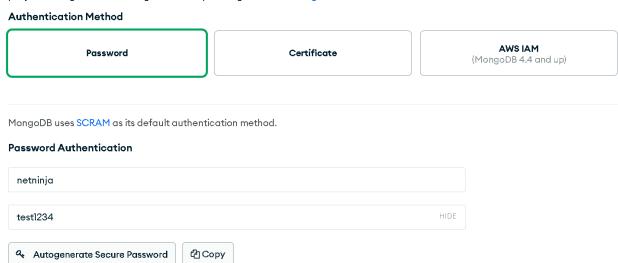
Go to Database Access



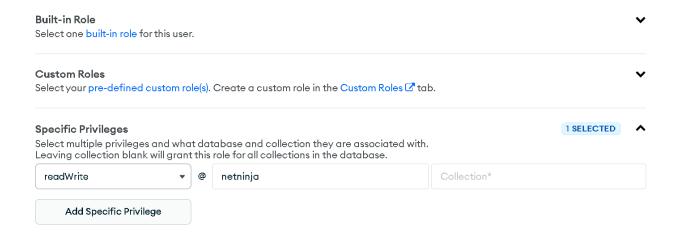
Add new database user

Add New Database User

Create a database user to grant an application or user, access to databases and collections in your clusters in this Atlas project. Granular access control can be configured with default privileges or custom roles. You can grant access to an Atlas project or organization using the corresponding Access Manager 🗗



→while adding database user give access to the privileges



We can also mention whatever the database we want

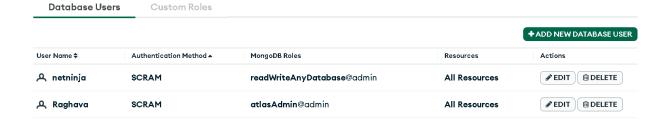


→After creation of Database user look like this

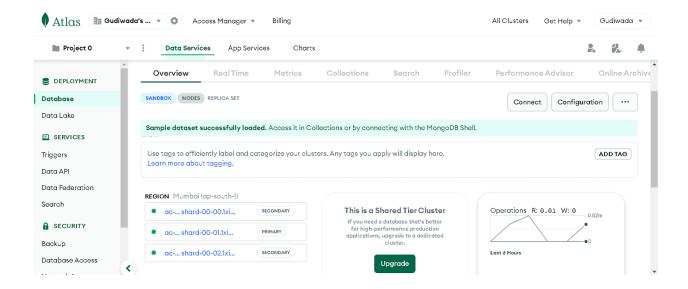
Database Access



Database Access

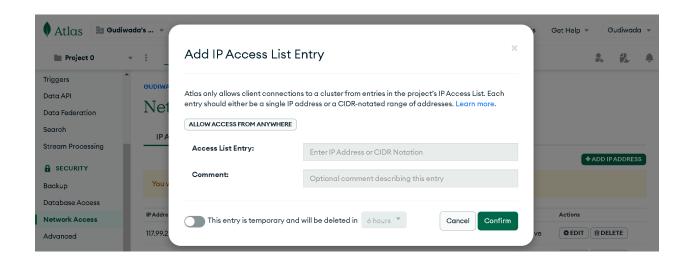


-->Go To Connect



3. Add IP Address

→Click on "Allow Access From ANYWHERE"



→Click on Confirm

Atlas only allows client connections to a cluster from entries in the project's IP Access List. Each entry should either be a single IP address or a CIDR-notated range of addresses. Learn more. ALLOW ACCESS FROM ANYWHERE Access List Entry: 0.0.0.0/0 Comment: Optional comment describing this entry Cancel Confirm

\rightarrow Active



→Drivers (select go to your Application)

mongodb+srv://<username>:<password>@nodetuts.1xigocw.mongodb.net/test?retryWrites=true&w=majority

Example:

mongodb+srv://netninja:test1234@nodetuts.1xigocw.mongodb.net/node-tuts?retryWrites=true&w=majority

```
<username> → netninja (add new database user)

password> → test1234
    test → node-tuts (database name)
```

```
const express = require('express');
const mongoose = require('mongoose');
const BrandName = require('./model');

const app = express();

app.use(express.json()) //middleware
```

```
mongoose.connect('mongodb+srv://netninja:test1234@nodetuts.1xi
gocw.mongodb.net/node-tuts?retryWrites=true&w=majority')
    .then(() => console.log('DB Connected ...'))
    .catch(err => console.log(err));
app.get('/getallbrands', async (req, res) =>{
    try{
        const allData = await BrandName.find();
        return res.json(allData);
    }
    catch(err) {
        console.log(err.message);
    }
})
app.post('/addbrands', async (req, res) => {
    const {brandname} = req.body;
    try{
        const newData = new BrandName({brandname});
        await newData.save();
        return res.json(await BrandName.find())
    }
    catch (err) {
        console.log(err.message);
    }
})
app.get('/getallbrands/:id', async (req, res) => {
    try{
       const Data = await BrandName.findById(req.params.id)
       return res.json(Data);
    }
```

```
catch(err) {
      console.log(err.message);
}

})

app.delete('/deletebrand/:id', async (req, res) => {
    try {
      await BrandName.findByIdAndDelete(req.params.id);
      return res.json(await BrandName.find())
    }
    catch(err) {
      console.log(err.message);
    }

})

app.listen(3000, () => console.log('Server Running ....'))
```

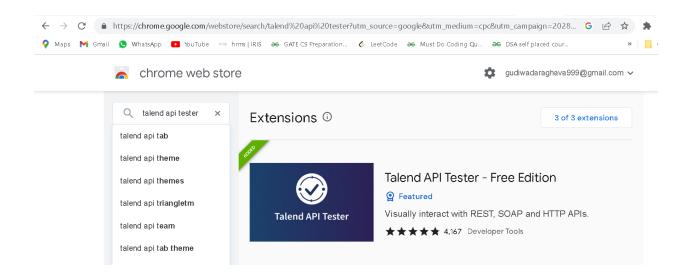
model.js

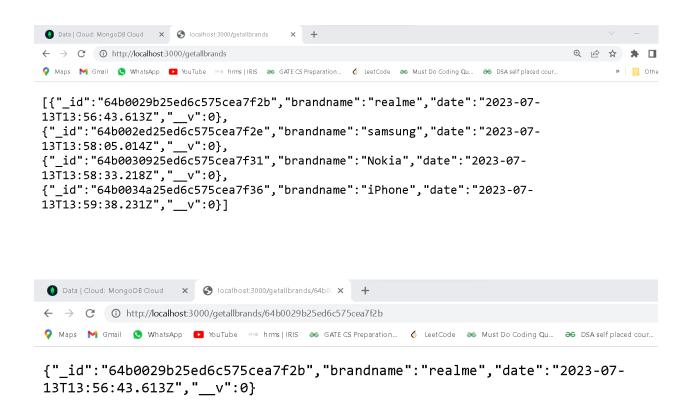
```
const mongoose = require('mongoose');

const BrandName = mongoose.Schema({
    brandname : {
        type : String,
        required : true,
    },
    date : {
        type : Date,
        default : Date.now
    }
})
```

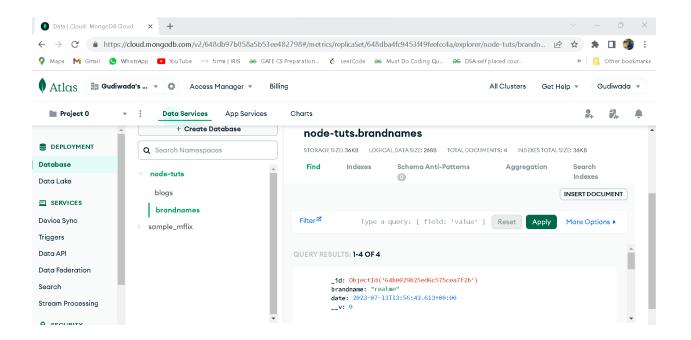
- →post request we need to add from browser
- →For that Chrome Extension "Talend API Tester"

https://chrome.google.com/webstore/search/talend%20api%20tester?utm_so_urce=google&utm_medium=cpc&utm_campaign=20282050520&utm_conte_nt=151103784475&utm_term=chrome%20web%20store&gclid=CjwKCAjwwb6lBhBJEiwAbuVUSswWzE5jdUPUv_rM9oe0LHNwQWKtGbfCkWnoYkVZvIMwoEzWvOcRlRoCYdgOAvD_BwE

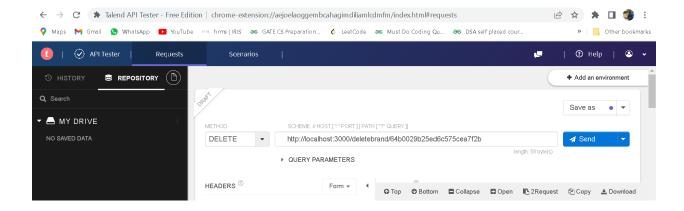




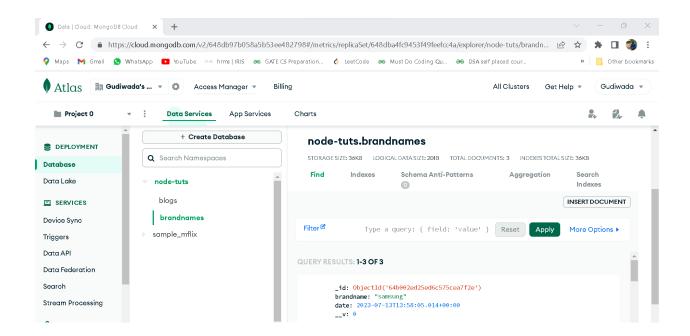
→All Post requests are merged in Database(MongoDB)



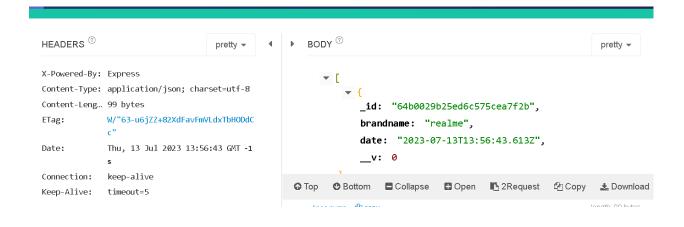
→Deleted "realme"

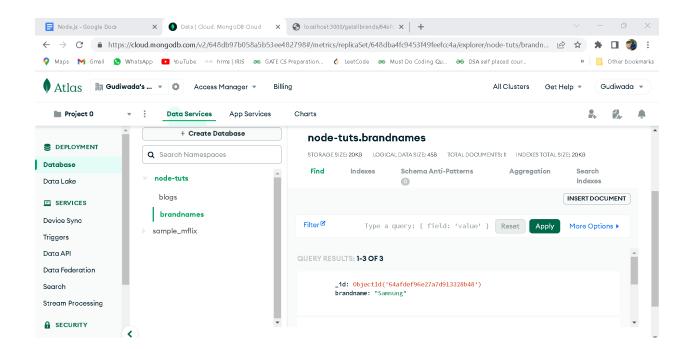


→After Deletion we have 3 in Database



→Post http://localhost:3000/addbrands





- \rightarrow ExpressJs is needed to handle with API's
- \rightarrow Store the data in database we need MangoDB

It's an back end web application framework for Node.js

It is designed for building web applications and APIs

https://expressjs.com/ (Official Website of Express Js)

https://www.npmjs.com/ (username :raghava45 pass: r....\$123)

https://www.npmjs.com/package/express

→Command to install >>>npm install express

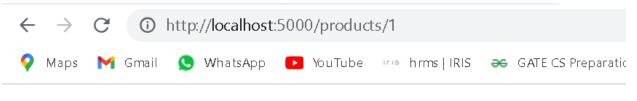
req.params.id is string →We are getting data from url is string

```
item.id \rightarrowis number/integer item.id.toString \rightarrowString
```

```
const express = require('express');
const app = express();
app.use(express.json())
app.get('/', function (req, res) {
    res.send('<h1>Hello World<h1>')
})
const products = [
    {
        id: 1,
        name: "iphone"
    },
    {
        id: 2,
        name: "mi"
    },
    {
        id: 3,
        name: "realme"
    }
```

```
app.get('/products', (req, res) =>{
    res.json(products);
})
app.get('/products/:id', (req, res) =>{
    const newData = products.filter(item => item.id.toString()
=== req.params.id )
    return res.json(newData);
})
//Post & put both similar
//put is updating data
app.post('/addproducts', (req, res) =>{
    const {id, name} = req.body;
    console.log(id, name);
    return res.send("data Stored !!")
})
app.listen(5000, () => console.log("server running..."))
```

```
← → C ① http://localhost:5000/products
• Maps M Gmail ⑤ WhatsApp ► YouTube ***s hrms | IRIS ★ GATE CS Preparation... ⑥ LeetCode ★ Must Do Codin
[{"id":1,"name":"iphone"},{"id":2,"name":"mi"},{"id":3,"name":"realme"}]
```



[{"id":1, "name": "iphone"}]

→By Using Post Method Sending the data

[nodemon] starting `node server.js` server running...

- 4 oppo
- 5 Nokia
- 6 BlackBerry

