Work Flow:

A. Work On BackEnd Part: [Node.js + Express.js + MySQL]

1. Installing Express.js

[(Prepare the Backend code)]

1.1 Create the dependencies <express, body-parser, cors , mysql2>
1.2 Create the express:: Install
1.3 Cors setup:: Install
1.4 db connection:: Install mysql2
1.5 Defining API routes
1.6 Define the port

2. MySQL

2.1: Configure the user
2.2: Define the table in the dB

- Create DB
- Create TABLE inside DB

B. Work On Front-End Part: Angular

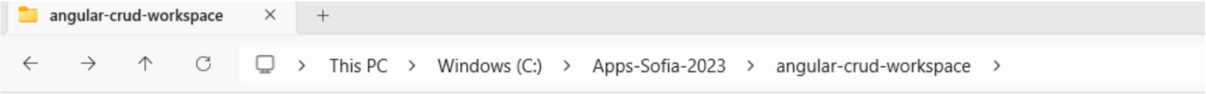
3.1: Define the **angular components** and the **endpoints**

Project DEMO: CRUD OPERATION

Backend Part: [Express.js+Node.js+MySQL]

Step-1: Create Angular Project

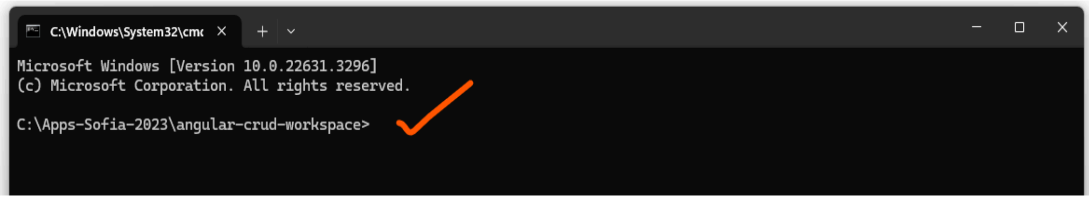
- Go to the workspace folder, where you want to create a project
- Select the path—>



angular-crud-workspace
This PC > Windows (C:) > Apps-Sofia-2023 > angular-crud-workspace >

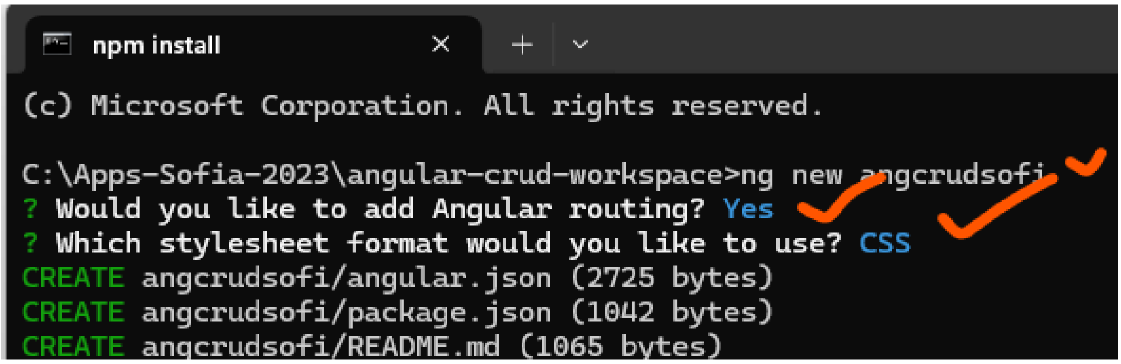
-

- Then write **cmd** → It will open automatically the following window



```
Microsoft Windows [Version 10.0.22631.3296]
(c) Microsoft Corporation. All rights reserved.

C:\Apps-Sofia-2023\angular-crud-workspace>
```

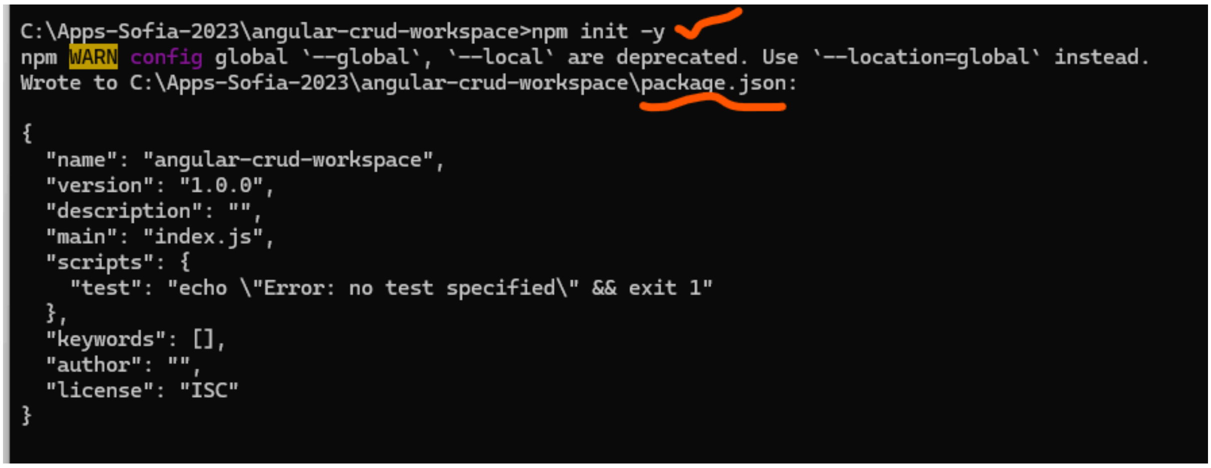
- Then create an angular project, by using the command: **ng new <projectName>**



```
(c) Microsoft Corporation. All rights reserved.

C:\Apps-Sofia-2023\angular-crud-workspace>ng new angcrudsofi
? Would you like to add Angular routing? Yes
? Which stylesheet format would you like to use? CSS
CREATE angcrudsofi/angular.json (2725 bytes)
CREATE angcrudsofi/package.json (1042 bytes)
CREATE angcrudsofi/README.md (1065 bytes)
```

Notice: **<Without opening VSCODE, Till Yet>**

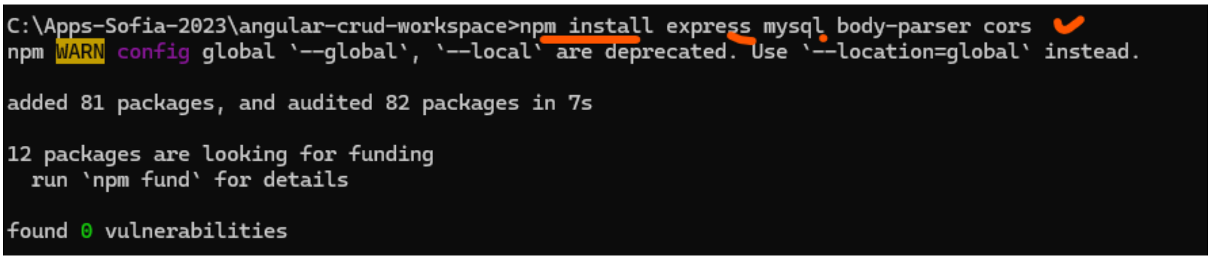
Step-2: Install Express.js



```
C:\Apps-Sofia-2023\angular-crud-workspace>npm init -y
npm WARN config global `--global`, `--local` are deprecated. Use `--location=global` instead.
Wrote to C:\Apps-Sofia-2023\angular-crud-workspace\package.json:

{
  "name": "angular-crud-workspace",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC"
}
```

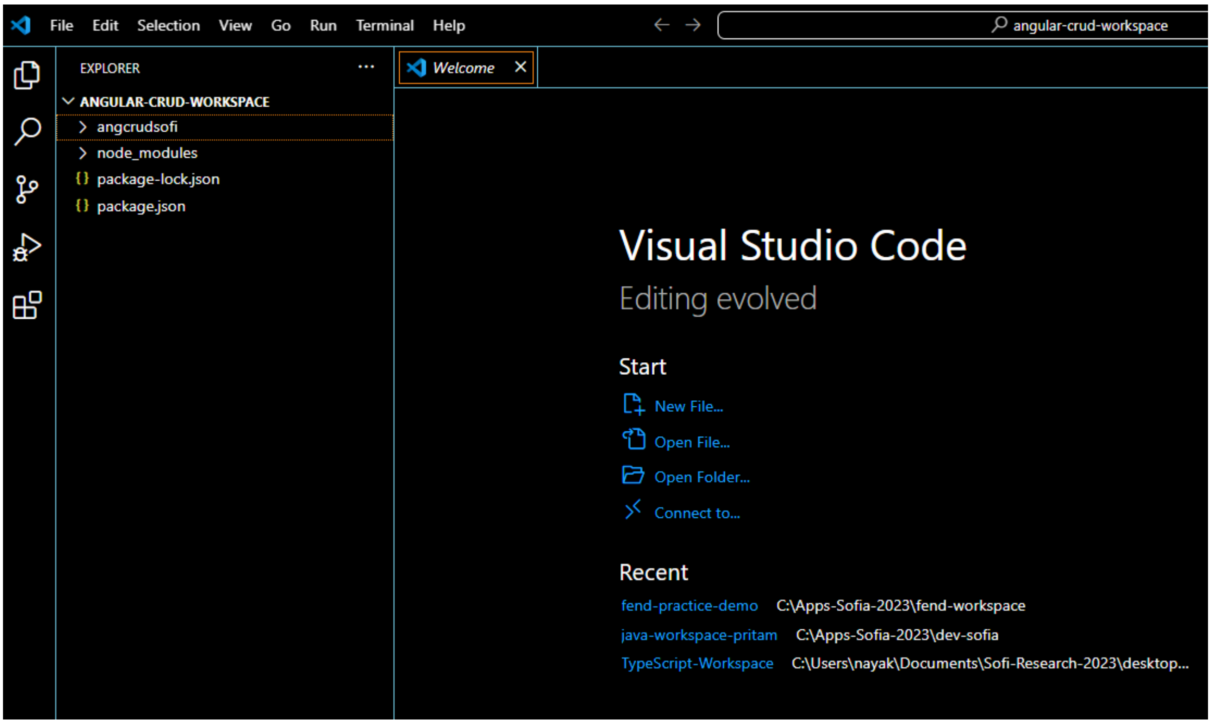
Whatever operation we will do, it will update the **package.json** file

Step-3 Install to connect with MySQL <Dependencies: express,mysql,body-parser, cors>



```
C:\Apps-Sofia-2023\angular-crud-workspace>npm install express mysql body-parser cors
npm WARN config global `--global`, `--local` are deprecated. Use `--location=global` instead.

added 81 packages, and audited 82 packages in 7s

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

found 0 vulnerabilities
```

Step-4 Open VSCODE



Visual Studio Code

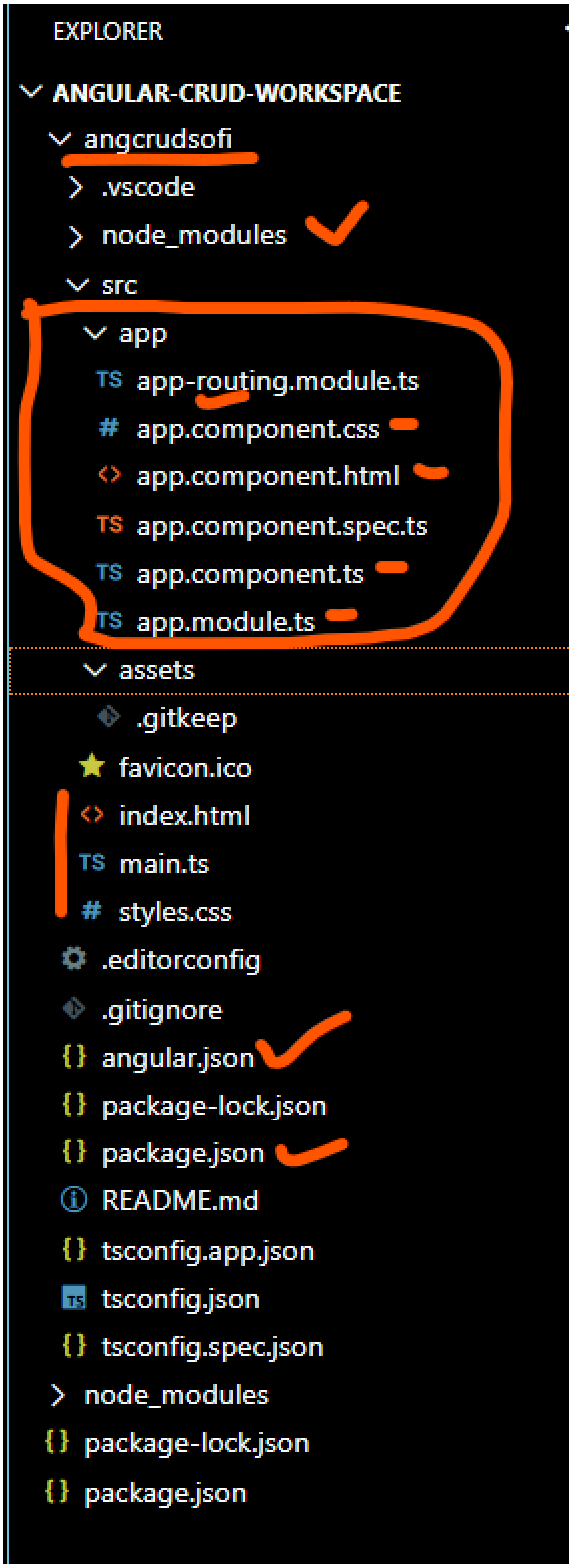
Editing evolved

Start

Recent

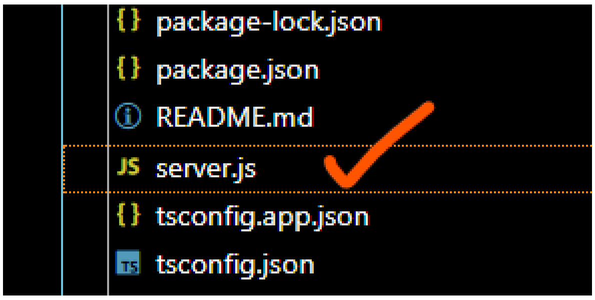
fend-practice-demo	C:\Apps-Sofia-2023\fend-workspace
java-workspace-pritam	C:\Apps-Sofia-2023\dev-sofia
TypeScript-Workspace	C:\Users\nayak\Documents\Sofi-Research-2023\desktop...

File Structure:



```
EXPLORER
ANGULAR-CRUD-WORKSPACE
  angcrudsofi
    .vscode
    node_modules
    src
      app
        app-routing.module.ts
        app.component.css
        app.component.html
        app.component.spec.ts
        app.component.ts
        app.module.ts
      assets
        .gitkeep
      favicon.ico
      index.html
      main.ts
      styles.css
    .editorconfig
    .gitignore
    angular.json
    package-lock.json
    package.json
    README.md
    tsconfig.app.json
    tsconfig.json
    tsconfig.spec.json
  node_modules
  package-lock.json
  package.json
```

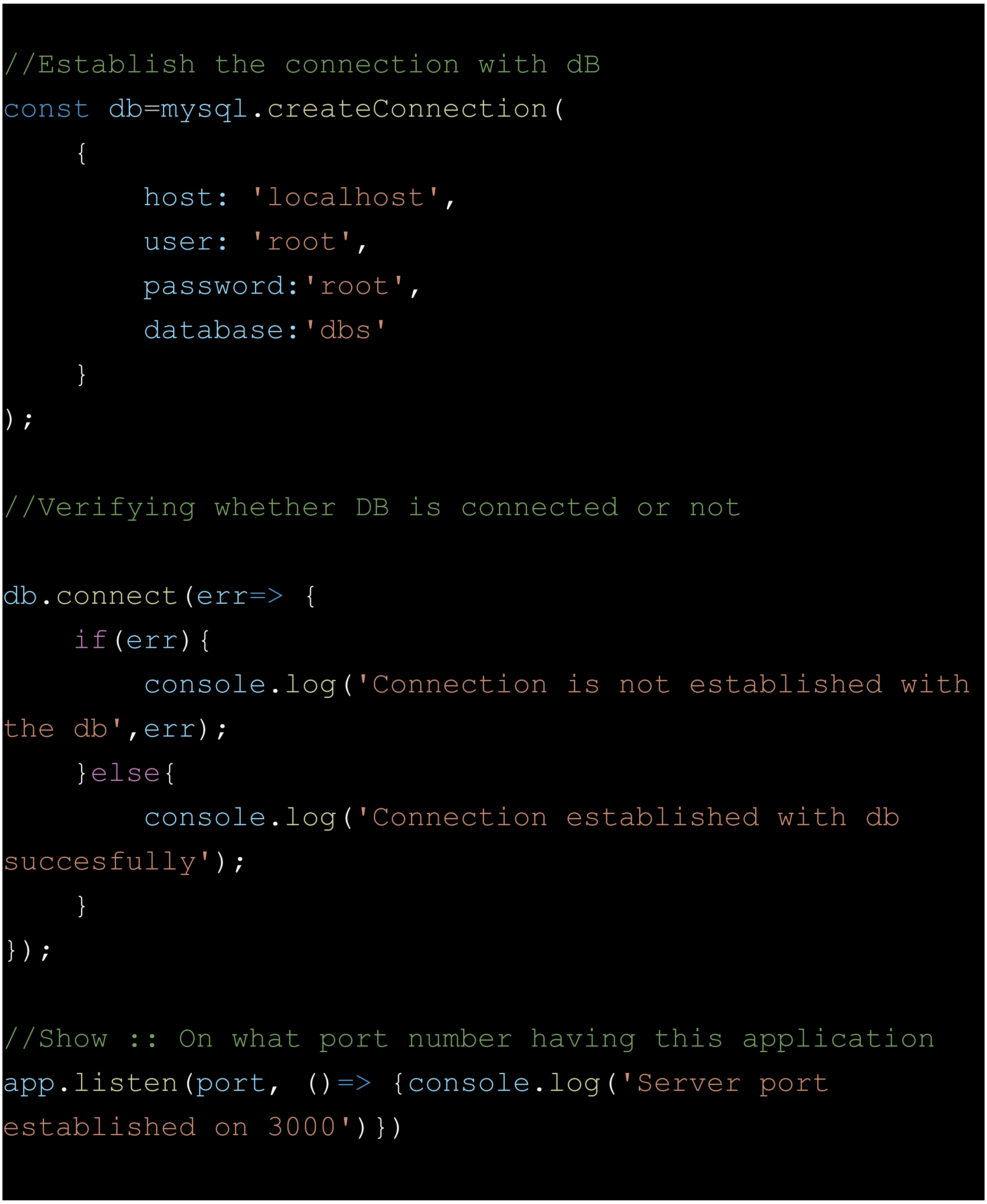
Step-5: Create file **server.js**



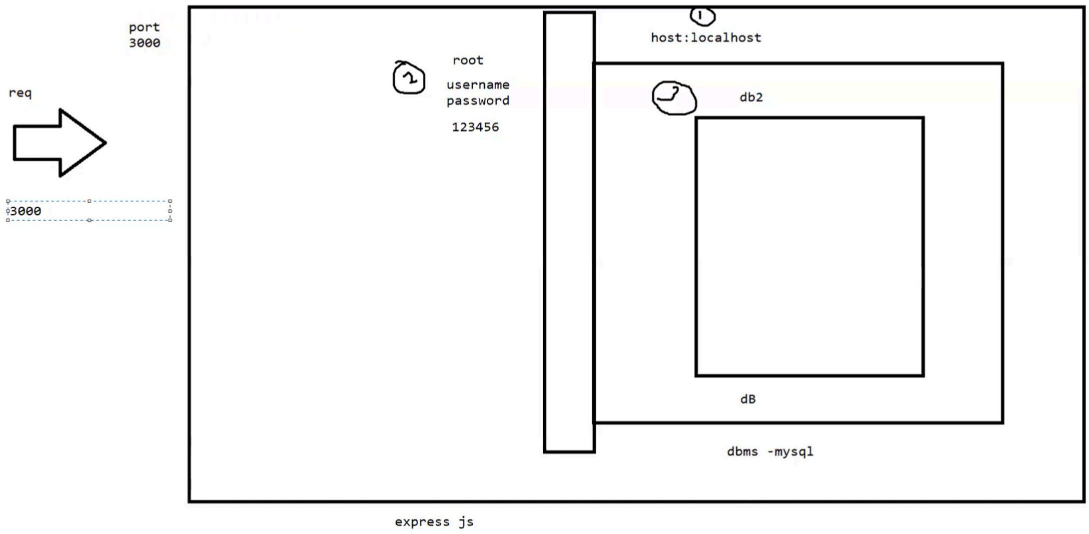
Work on server.js :: In **server.js**, Let's **define the configuration** :

1.1 Create the dependencies <express, body-parser, cors , mysql2>
1.2 Create the express:: Install
1.3 Cors setup:: Install
1.4 db connection:: Install mysql2
1.5 Defining API routes
1.6 Define the port

```
//let's define : dependencies
const express = require('express')
const bodyParser = require('body-parser') //to understand json data body-parser is required
const cors = require('cors')
const mysql = require('mysql')

//let's define : express operations
const app=express();  //express is initiated

//let's define : port
const port=3000;

//defining the cors- cross origin by receiving the data in json format
app.use(cors()); //open to cross origin
app.use(bodyParser.json())
```

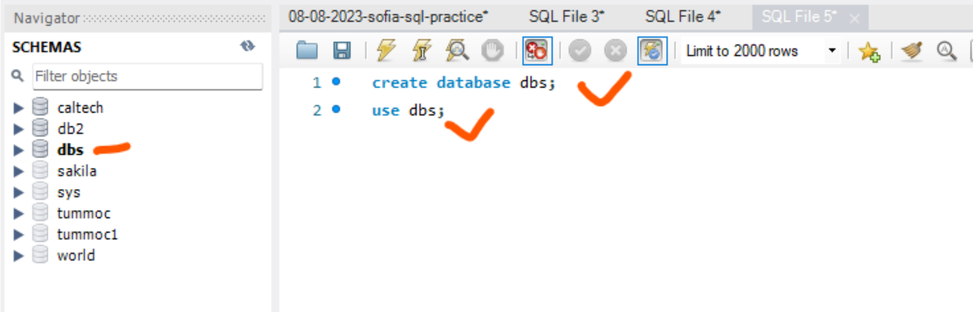


```
//Establish the connection with dB
const db=mysql.createConnection(
    {
        host: 'localhost',
        user: 'root',
        password:'root',
        database:'dbs'
    }
);

//Verifying whether DB is connected or not

db.connect(err=> {
    if(err){
        console.log('Connection is not established with
the db',err);
    }else{
        console.log('Connection established with db
succesfully');
    }
});

//Show :: On what port number having this application
app.listen(port, ()=> {console.log('Server port
established on 3000')})
```



Step-6 : Create Database <My DB Name: dbs>

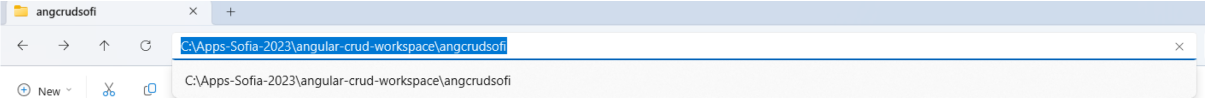
- Open MYSQL WorkBench
- Create database



```
create database dbs;
use dbs;
```

Step-7 : Connect to Server.js

- Open command prompt→ Go to path of project -> Select the path up to **server.js** → Write **cmd** → **It automatically opens the cmd window**



C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi

- **Write: *__node server.js__***
-

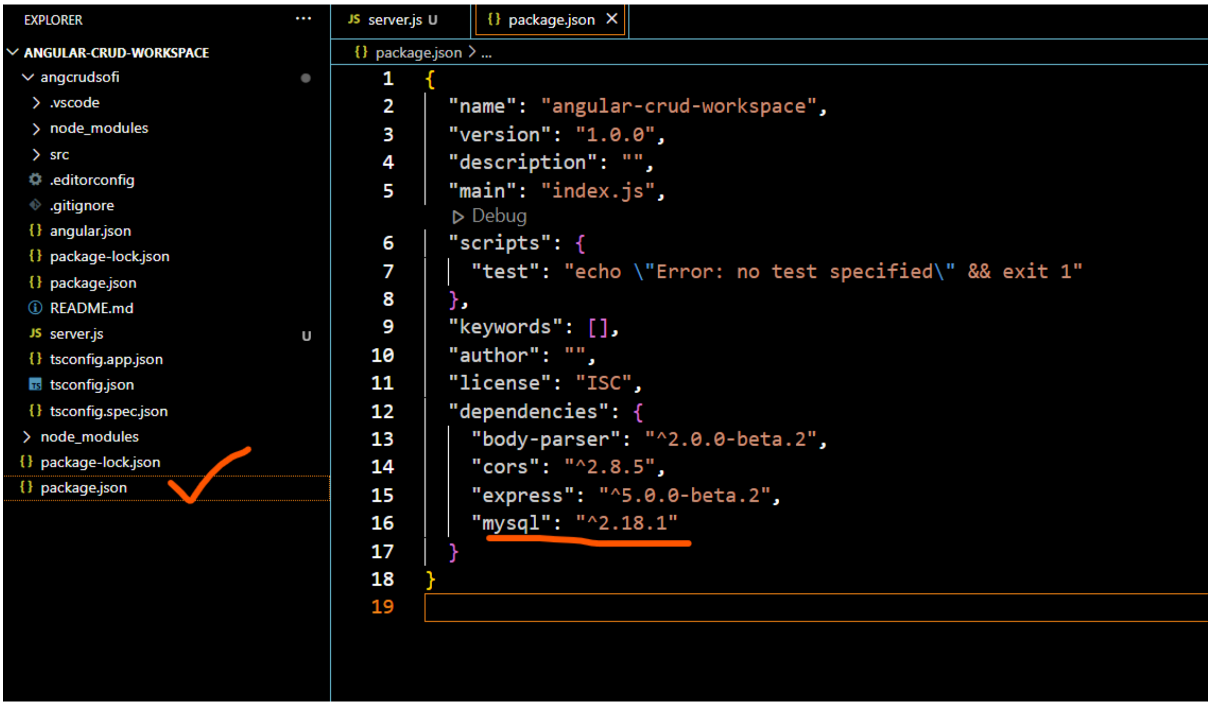
Issue-1: Got Error Message:

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>node server.js

```
Server port established on 3000
Connection is not established with the db Error: ER_NOT_SUPPORTED_AUTH_MODE:
Client does not support authentication protocol requested by server; consider upgrading
MySQL client
    at Handshake.Sequence._packetToError
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\protocol\sequences\S
equence.js:47:14)
    at Handshake.ErrorPacket
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\protocol\sequences\H
andshake.js:123:18)
    at Protocol._parsePacket
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\protocol\Protocol.js:2
91:23)
    at Parser._parsePacket
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\protocol\Parser.js:433
:10)
    at Parser.write
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\protocol\Parser.js:43:
10)
    at Protocol.write
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\protocol\Protocol.js:3
8:16)
    at Socket.<anonymous>
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\Connection.js:88:28)
    at Socket.<anonymous>
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\Connection.js:526:10
)
    at Socket.emit (node:events:527:28)
    at addChunk (node:internal/streams/readable:315:12)
    --------------------
    at Protocol._enqueue
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\protocol\Protocol.js:1
44:48)
    at Protocol.handshake
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\protocol\Protocol.js:5
1:23)
    at Connection.connect
(C:\Apps-Sofia-2023\angular-crud-workspace\node_modules\mysql\lib\Connection.js:116:18)
    at Object.<anonymous>
(C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi\server.js:29:4)
    at Module._compile (node:internal/modules/cjs/loader:1105:14)
    at Object.Module._extensions..js (node:internal/modules/cjs/loader:1159:10)
    at Module.load (node:internal/modules/cjs/loader:981:32)
    at Function.Module._load (node:internal/modules/cjs/loader:822:12)
    at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:77:12)
    at node:internal/main/run_main_module:17:47 {
  code: 'ER_NOT_SUPPORTED_AUTH_MODE',
  errno: 1251,
  sqlMessage: 'Client does not support authentication protocol requested by server; consider upgrading MySQL client',
  sqlState: '08004',
  fatal: true
}
```

Figure Out Error and Resolve Error: Way-1

Inside package.json → mysql version is: 2.18.1



```json
{
  "name": "angular-crud-workspace",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC",
  "dependencies": {
    "body-parser": "^2.0.0-beta.2",
    "cors": "^2.8.5",
    "express": "^5.0.0-beta.2",
    "mysql": "^2.18.1"
  }
}
```

To upgrade it:

- **Update package.json** with the following code

  ```
  "dependencies": {
     "mysql": "^2.20.0"
  }
  ```

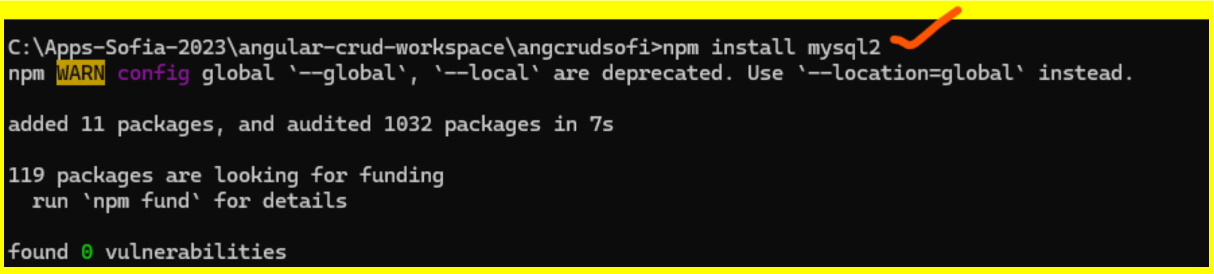
- Then run >> npm install

Figure Out and Resolve Error: Way-2: Switch from using **mysql** library to **mysql2**. <I did it>

Things to do:

>> Install `mysql2`: Run the following command in your terminal to install the `mysql2` library:

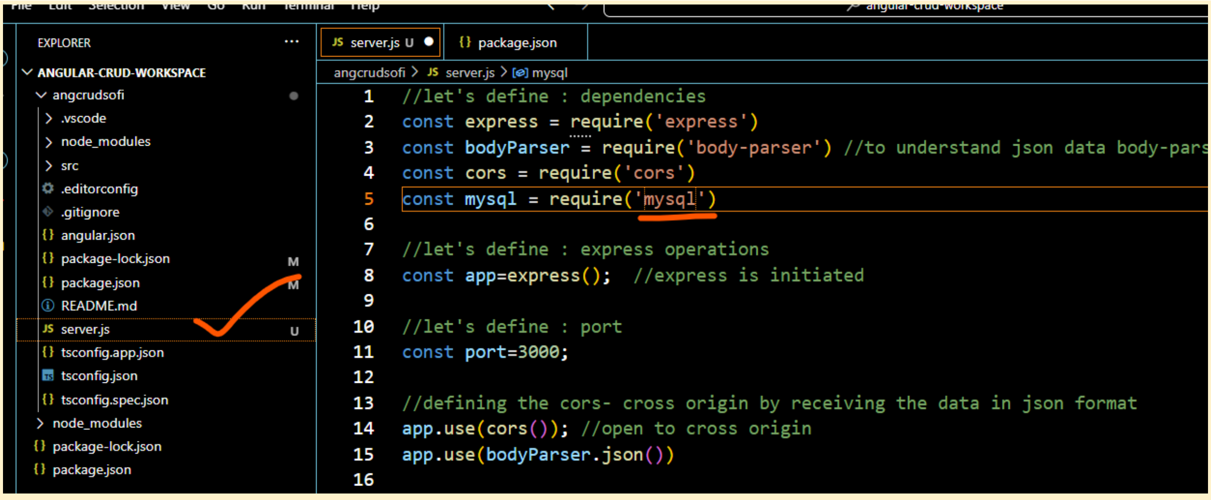
npm install mysql2



```
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>npm install mysql2
npm WARN config global `--global`, `--local` are deprecated. Use `--location=global` instead.

added 11 packages, and audited 1032 packages in 7s

119 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

>> Update Your Code: You'll need to update any references to the `mysql` module in your code to use `mysql2` instead. This typically involves changing your `require` statements. For example, if you previously had:

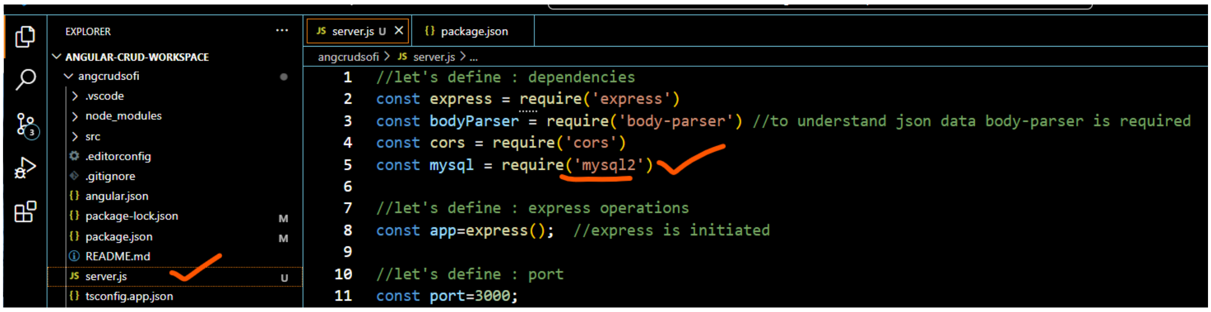
const mysql = require('mysql');



```
//let's define : dependencies
const express = require('express')
const bodyParser = require('body-parser') //to understand json data body-pars
const cors = require('cors')
const mysql = require('mysql')

//let's define : express operations
const app=express();  //express is initiated

//let's define : port
const port=3000;

//defining the cors- cross origin by receiving the data in json format
app.use(cors()); //open to cross origin
app.use(bodyParser.json())

```

You would change it to:

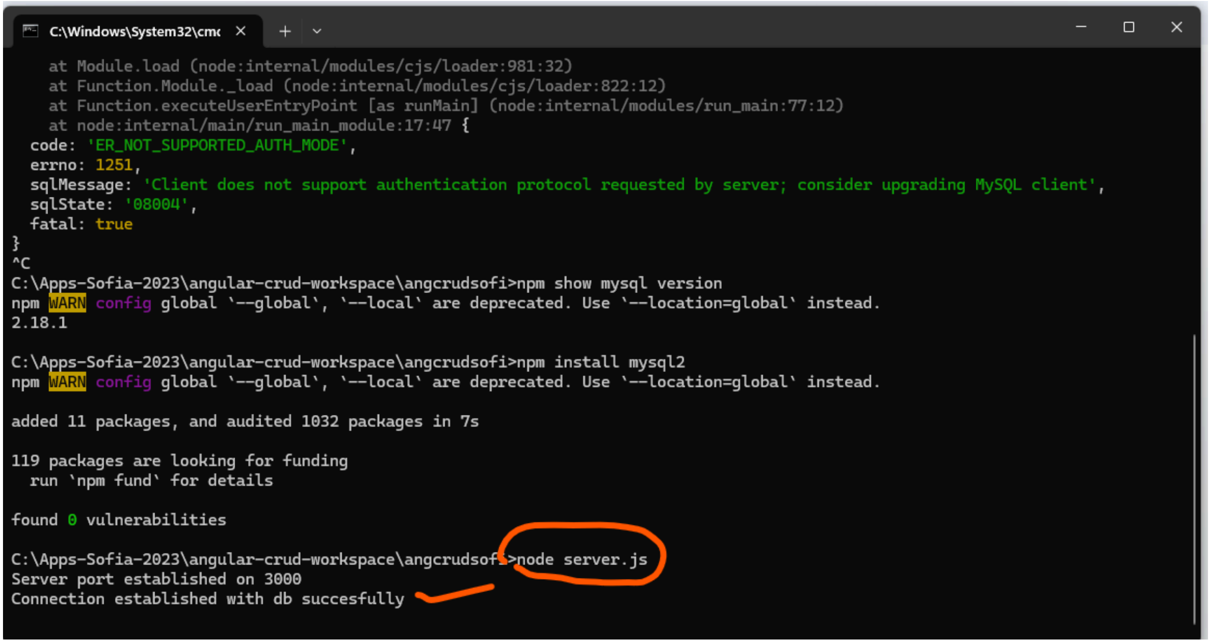
const mysql = require('mysql2');



```
//let's define : dependencies
const express = require('express')
const bodyParser = require('body-parser') //to understand json data body-parser is required
const cors = require('cors')
const mysql = require('mysql2')

//let's define : express operations
const app=express();  //express is initiated

//let's define : port
const port=3000;
```

Issue-1 Resolved: Connection Established with Database

Now Go to the cmd→ run >> node server.js



```
    at Module.load (node:internal/modules/cjs/loader:981:32)
    at Function.Module._load (node:internal/modules/cjs/loader:822:12)
    at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:77:12)
    at node:internal/main/run_main_module:17:47 {
  code: 'ER_NOT_SUPPORTED_AUTH_MODE',
  errno: 1251,
  sqlMessage: 'Client does not support authentication protocol requested by server; consider upgrading MySQL client',
  sqlState: '08004',
  fatal: true
}
^C
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>npm show mysql version
npm WARN config global `--global`, `--local` are deprecated. Use `--location=global` instead.
2.18.1

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>npm install mysql2
npm WARN config global `--global`, `--local` are deprecated. Use `--location=global` instead.

added 11 packages, and audited 1032 packages in 7s

119 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>node server.js
Server port established on 3000
Connection established with db succesfully
```

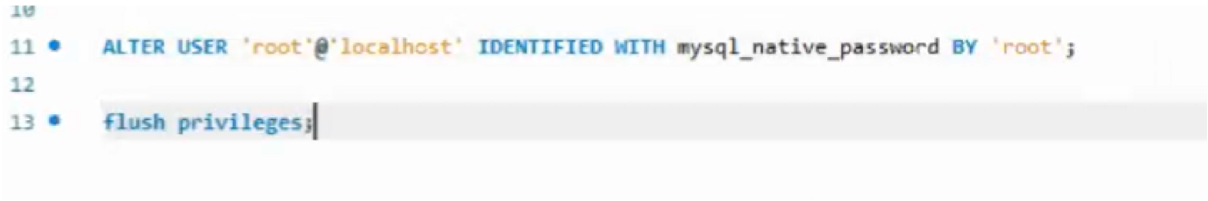
<u>Connection established successfully.</u>

Tip:

- To stop the server click: **CTRL + C**
- I have opened **three Command Prompt Windows** for :
  1. For **Git Operation**
  2. For **Server connection**
  3. For **Operation in the angular part**

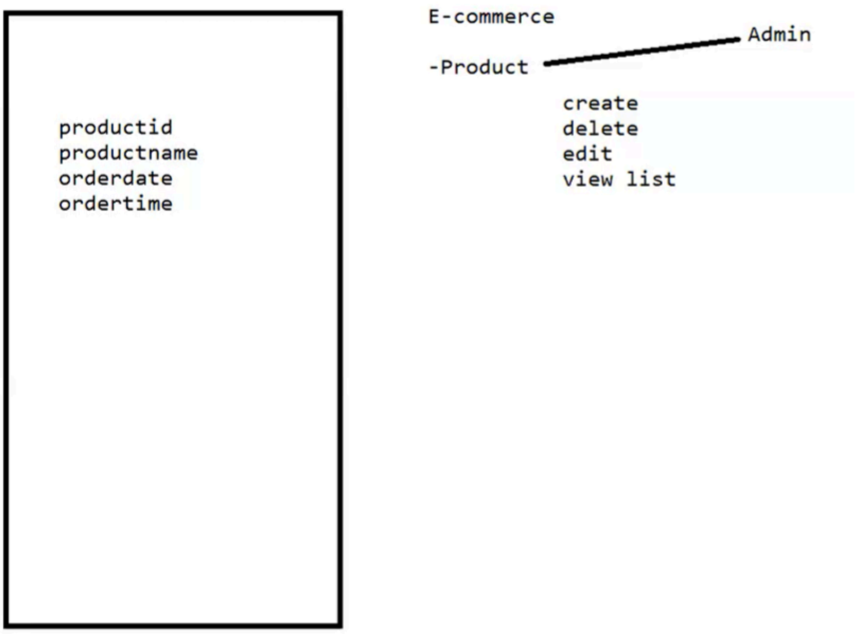
Figure Out Error <Issue-1> : Way-3:

In My SQL Run This



```
ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'root';

flush privileges;
```

[1:25:59] : Establishing Connection With Server <Done Successfully>



Step-8: Create a Table Inside the database

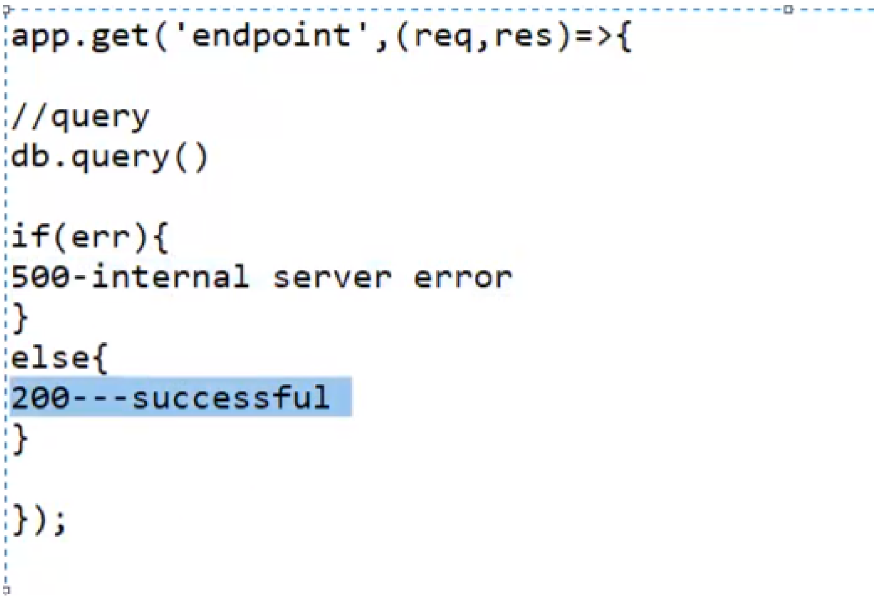
> create database dbs;
> use dbs;
> create table product(id int primary key, name varchar(30) , orderdate date, ordertime datetime);

Step-9: Define API inside the **server.js** file.

```
//Define API

//to get all the products--To view list
app.get()

//to get product on Id
app.get()

//to insert product into db
app.post()

//update of product
app.put()

//delete of product
app.delete()
```

Inside these methods, we define **End Points**.

General structure to write down 👍



```
app.get('endpoint',(req,res)=>{

//query
db.query()

if(err){
500-internal server error
}
else{
200---successful
}

});
```

if -else: portion is not mandatory. It is just there to check the connection.

Define the API 👍

For Adding[post] Product:

```
//to insert product into db
//       endpoints
app.post('/addProduct',(req,res)=>{

    //Pass the data in the form of json
    const{id,name,orderdate,ordertime} = req.body;

    //Write sql query
    const sql = 'insert into product values(?,?,?,?)';

    //Connect the db and Access the query method

db.query(sql,[id,name,orderdate,ordertime],(err,result)
=>{

        if(err){
            console.error('Error in Adding the
Product',err);
            res.status(500).json({error:'An error
occured'});
        }else{
            res.status(200).json({message:'Product
Added Successfully'});
        }

    });

});
```

To Get/View[get] all the products:

```
//to get all the products--To view list

app.get('/getProducts',(req,res)=>{
    //Because it is a get operation , there is no data
supply here.
    //write sql query
    const sql = 'select * from product';

    //connect db and call the query method
    db.query(sql,(err,result)=>{
        if(err){
            console.error('Error in fetching the
product',err);
            res.status(500).json({error:'An error
occured'});
        }else{
            res.status(200).json(result); //No message here like, result object is passed directly
        }
    });

});
```

To Get[get] Product by id:

```
app.get('/getProducts/:id',(req,res)=>{

    const id = req.params.id;
    //Define query,No datasupply here as it is a get operation
    const sql = 'select * from product where id=?';

    //connect db and access query method
    db.query(sql,[id],(err,result)=>{
        if(err){
            console.error('Error in fetching the product by id',err);
            res.status(500).json({error:'An error occured'});
        }else{
            res.status(200).json(result);
        }
    });

});
```

To Update[put] the Product

```
app.put('/updateProduct',(req,res)=>{

    //Pass the data in the form of jshon
    const {id, name, orderdate,ordertime}=req.body;

    //Write sql query
    const sql ='update product set name=? , orderdate=? , ordertime=? where id=? ';

    //Connect db and access the query method
    db.query(sql,[name,orderdate,ordertime,id],(err,result)=>{
        if(err){
            console.error('Error in Updating Product Values',err);
            res.status(500).json({error: 'An error occured'});
        }else{
            res.status(200).json({message: 'Product Updated Succesfully'})
```

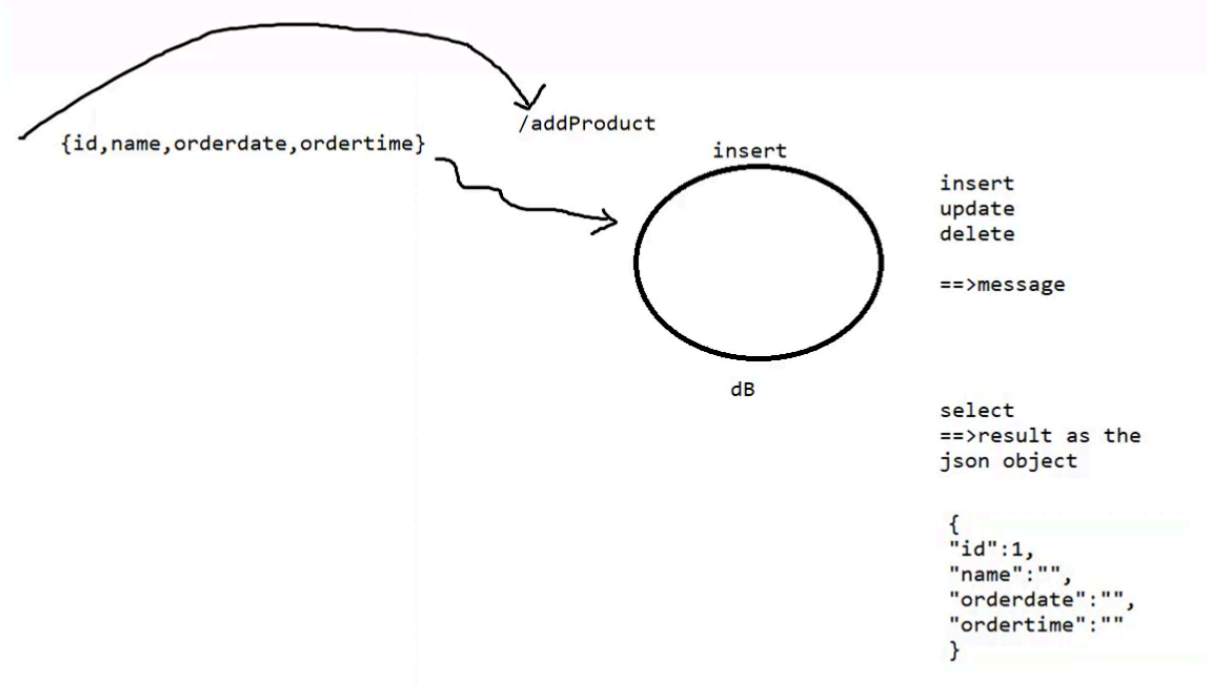
To Delete[delete] the Product

```
//delete of product
app.delete('/deleteProduct/:id',(req,res)=>{
    //define id
    const id = req.params.id;
    //define sql query
    const sql = 'delete from product where id=? ';

    //connect db and access query
    db.query(sql,[id],(err,result)=>{
        if(err){
         console.error('Error in deleting product',err);
```

```
            res.status(500).json({error:'An error ocurred'});
           }else{
            res.status(200).json({message:'Product Deleted Successfully'});
           }
      });

});
```

Time: 2:2:28

Pic Representation: Define API

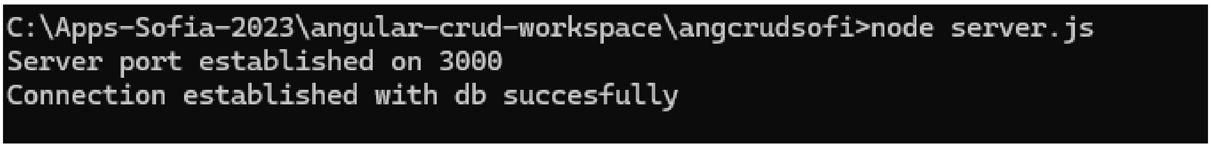


```
{
"id":1,
"name":"",
"orderdate":"",
"ordertime":""
}
```

To Connect With Server: <In Command prompt>

Recheck > CTRL +C

Then Write : node server.js

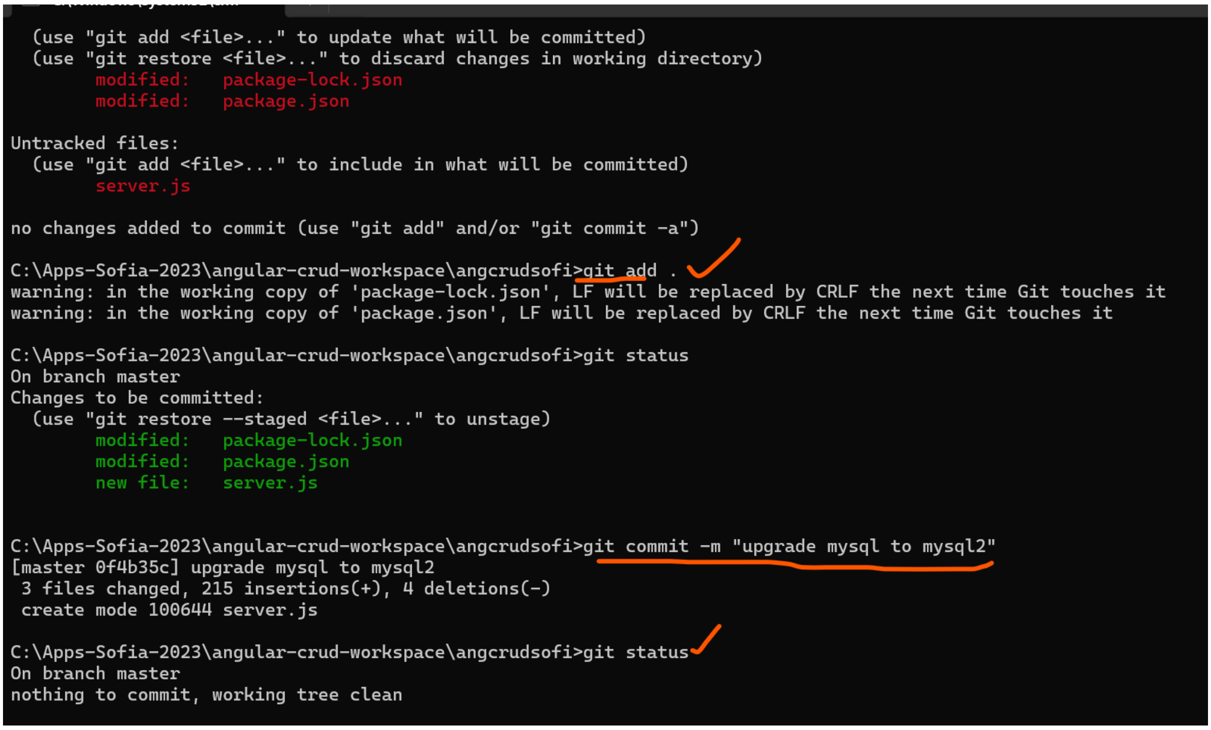


```
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>node server.js
Server port established on 3000
Connection established with db succesfully
```

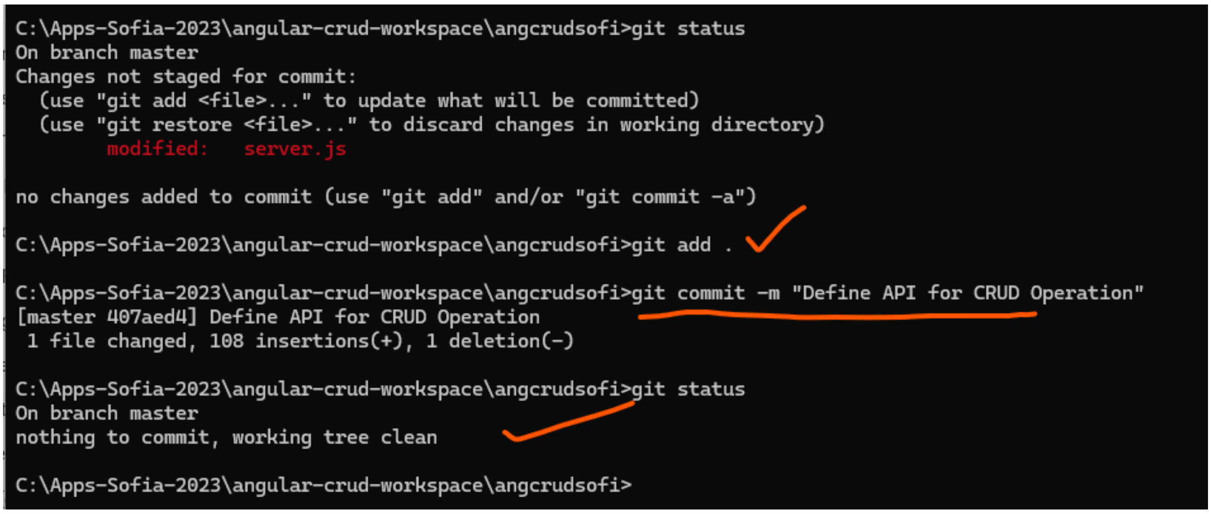
Backend Part Done Successfully. [2:12:08]

Use Git:In Backend Part

>> Go to the path of the angular project → Then type cmd→ It will open command prompt window → then check git status → write following command to commit :



```
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   package-lock.json
        modified:   package.json

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        server.js

no changes added to commit (use "git add" and/or "git commit -a")

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git add .
warning: in the working copy of 'package-lock.json', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'package.json', LF will be replaced by CRLF the next time Git touches it

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   package-lock.json
        modified:   package.json
        new file:   server.js


C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git commit -m "upgrade mysql to mysql2"
[master 0f4b35c] upgrade mysql to mysql2
 3 files changed, 215 insertions(+), 4 deletions(-)
 create mode 100644 server.js

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git status
On branch master
nothing to commit, working tree clean
```



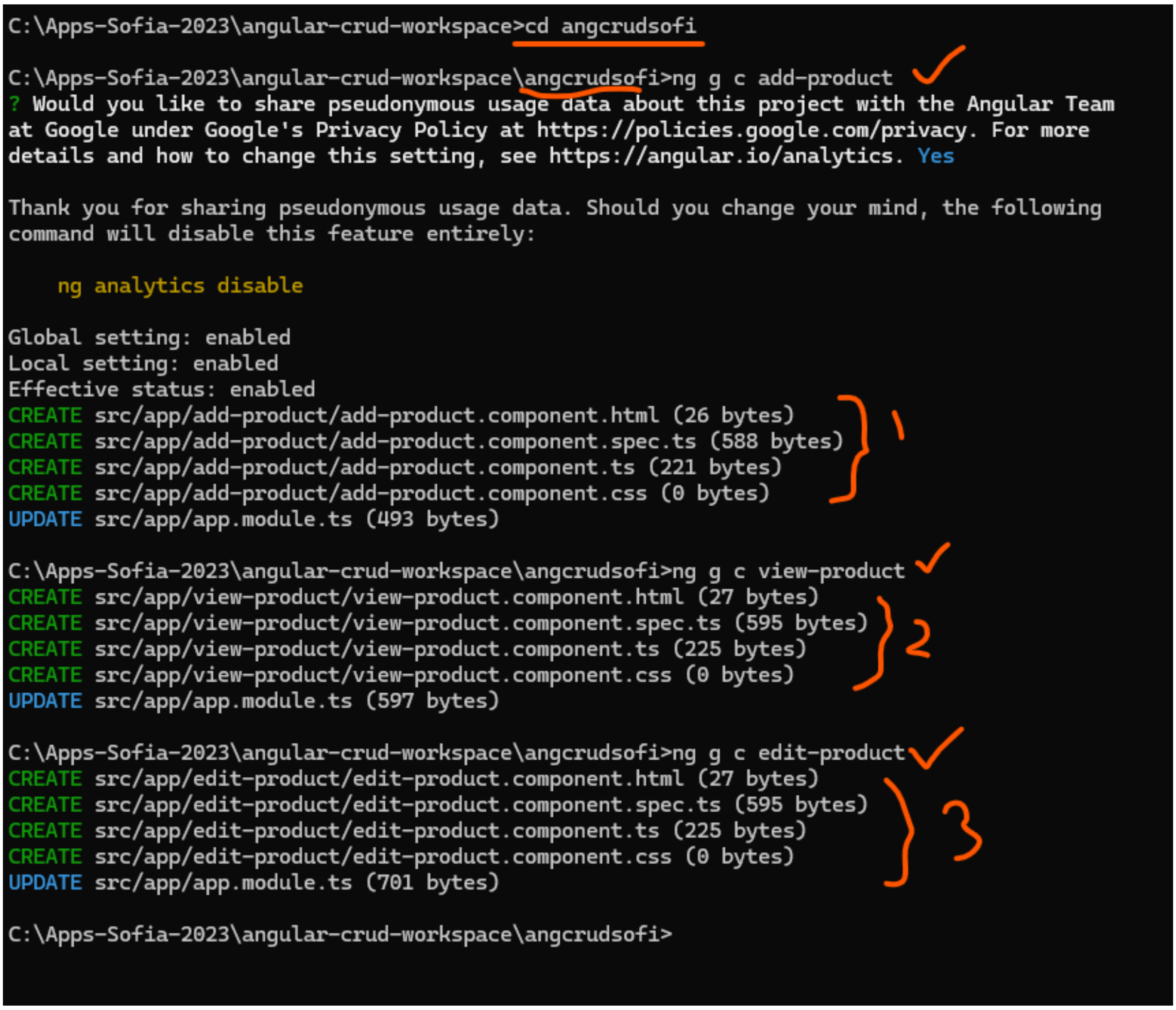
```
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   server.js

no changes added to commit (use "git add" and/or "git commit -a")

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git add .

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git commit -m "Define API for CRUD Operation"
[master 407aed4] Define API for CRUD Operation
 1 file changed, 108 insertions(+), 1 deletion(-)

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git status
On branch master
nothing to commit, working tree clean

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>
```

Frontend Part: Angular

Time: 2:12:08

Step-10: Create Components

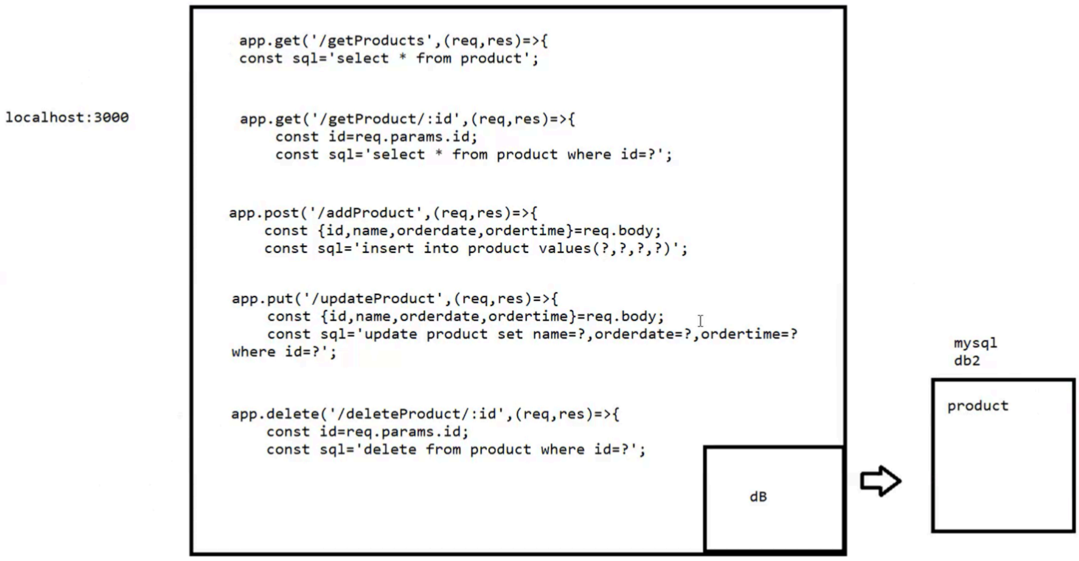
1. Go to the project folder in the command prompt window >> cd angcrudsofi
2. Then create components >>
    - ng g c add-product
    - ng g c view-product
    - ng g c edit-product



```
C:\Apps-Sofia-2023\angular-crud-workspace>cd angcrudsofi

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>ng g c add-product
? Would you like to share pseudonymous usage data about this project with the Angular Team
at Google under Google's Privacy Policy at https://policies.google.com/privacy. For more
details and how to change this setting, see https://angular.io/analytics. Yes

Thank you for sharing pseudonymous usage data. Should you change your mind, the following
command will disable this feature entirely:

    ng analytics disable

Global setting: enabled
Local setting: enabled
Effective status: enabled
CREATE src/app/add-product/add-product.component.html (26 bytes)
CREATE src/app/add-product/add-product.component.spec.ts (588 bytes)
CREATE src/app/add-product/add-product.component.ts (221 bytes)
CREATE src/app/add-product/add-product.component.css (0 bytes)
UPDATE src/app/app.module.ts (493 bytes)

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>ng g c view-product
CREATE src/app/view-product/view-product.component.html (27 bytes)
CREATE src/app/view-product/view-product.component.spec.ts (595 bytes)
CREATE src/app/view-product/view-product.component.ts (225 bytes)
CREATE src/app/view-product/view-product.component.css (0 bytes)
UPDATE src/app/app.module.ts (597 bytes)

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>ng g c edit-product
CREATE src/app/edit-product/edit-product.component.html (27 bytes)
CREATE src/app/edit-product/edit-product.component.spec.ts (595 bytes)
CREATE src/app/edit-product/edit-product.component.ts (225 bytes)
CREATE src/app/edit-product/edit-product.component.css (0 bytes)
UPDATE src/app/app.module.ts (701 bytes)

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>
```

At Localhost 3000: Express<server.js>

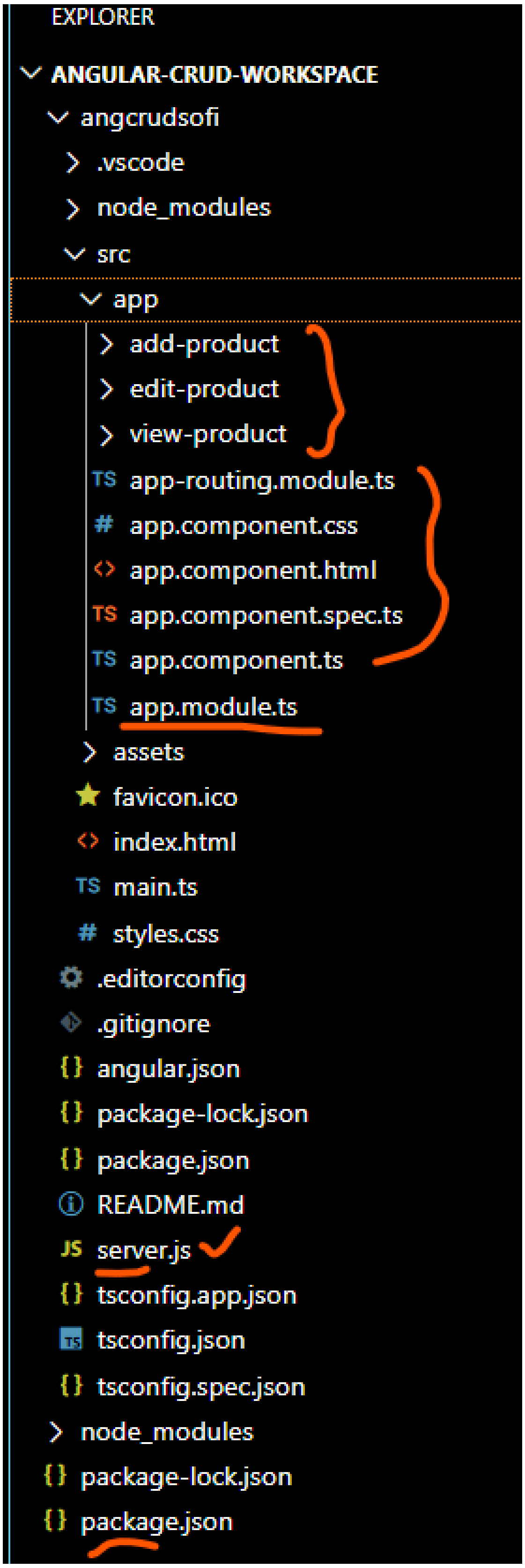
These endpoints are there :



```
app.get('/getProducts',(req,res)=>{
const sql='select * from product';


app.get('/getProduct/:id',(req,res)=>{
    const id=req.params.id;
    const sql='select * from product where id=?';


app.post('/addProduct',(req,res)=>{
    const {id,name,orderdate,ordertime}=req.body;
    const sql='insert into product values(?,?,?,?)';


app.put('/updateProduct',(req,res)=>{
    const {id,name,orderdate,ordertime}=req.body;
    const sql='update product set name=?,orderdate=?,ordertime=?
where id=?';


app.delete('/deleteProduct/:id',(req,res)=>{
    const id=req.params.id;
    const sql='delete from product where id=?';
```

Time: 2:43:03

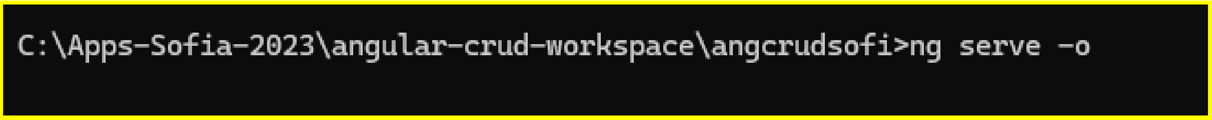
Project File Structure: Angular



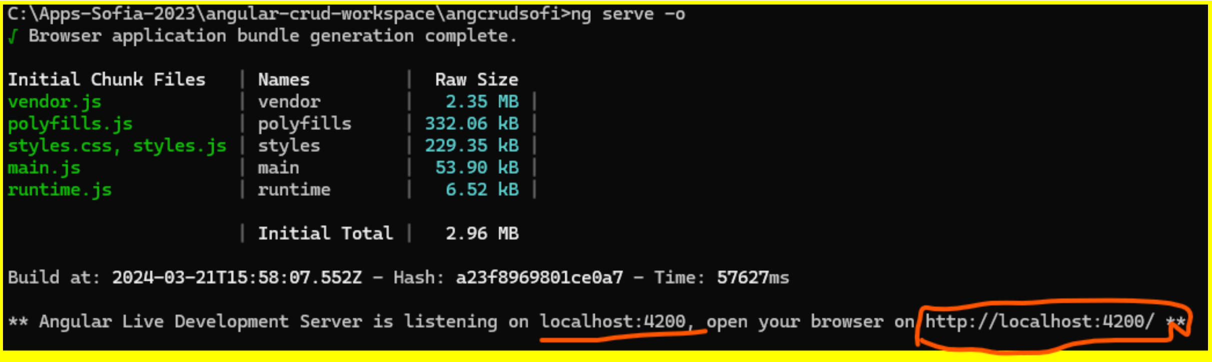
```
EXPLORER
∨ ANGULAR-CRUD-WORKSPACE
  ∨ angcrudsofi
    > .vscode
    > node_modules
    ∨ src
      ∨ app
        > add-product
        > edit-product
        > view-product
        TS app-routing.module.ts
        #  app.component.css
        <> app.component.html
        TS app.component.spec.ts
        TS app.component.ts
        TS app.module.ts
      > assets
      ★ favicon.ico
      <> index.html
      TS main.ts
      #  styles.css
    .editorconfig
    .gitignore
    {} angular.json
    {} package-lock.json
    {} package.json
    ⓘ README.md
    JS server.js ✓
    {} tsconfig.app.json
    TS tsconfig.json
    {} tsconfig.spec.json
  > node_modules
  {} package-lock.json
  {} package.json
```

Step-11 : Run the server on angular

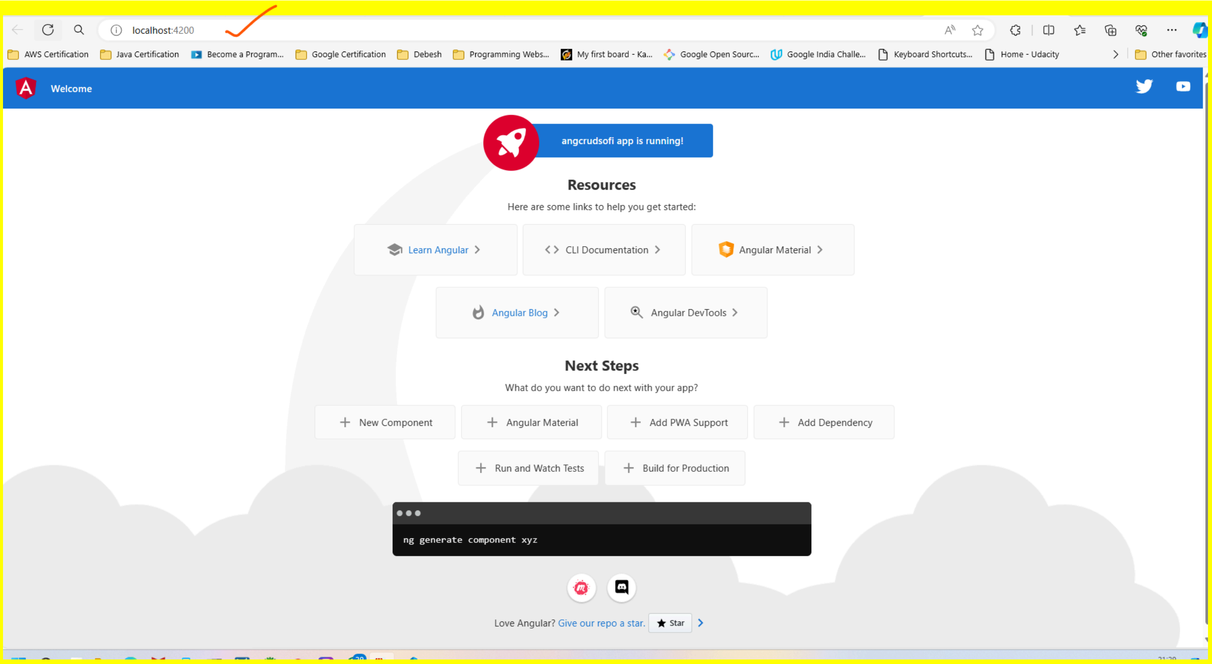
>> ng serve -o



```
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>ng serve -o
```



```
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>ng serve -o
√ Browser application bundle generation complete.

Initial Chunk Files   | Names         |  Raw Size
vendor.js             | vendor        |   2.35 MB |
polyfills.js          | polyfills     | 332.06 kB |
styles.css, styles.js | styles        | 229.35 kB |
main.js               | main          |  53.90 kB |
runtime.js            | runtime       |   6.52 kB |

                      | Initial Total |   2.96 MB

Build at: 2024-03-21T15:58:07.552Z - Hash: a23f8969801ce0a7 - Time: 57627ms

** Angular Live Development Server is listening on localhost:4200, open your browser on http://localhost:4200/ **
```



angcrudsofi app is running!

Resources

Here are some links to help you get started:

Next Steps

What do you want to do next with your app?

```
ng generate component xyz
```

Love Angular? Give our repo a star.

Step-12 : app.module.ts → start to work

- 1st : Configure routers

```
//Configure routes
const routes:Routes=[
//If nothing is present
{path:'',redirectTo:'/view',pathMatch:'full'},
{path:'view', component:ViewProductComponent},
{path:'add',component:AddProductComponent},
{path:'edit',component:EditProductComponent}
]
```

- 2nd: Configure http modules, form module etc.

```
import { FormsModule } from '@angular/forms'; //Add
import { HttpClient, HttpClientModule} from
'@angular/common/http'; //Add
```

- 3rd: `imports:`

```
    BrowserModule,
    AppRoutingModule,
    HttpClientModule, //Add
    FormsModule, //Add
    RouterModule.forRoot(routes) //Add
  ],
```

Code: app.module.ts

```
import { NgModule } from '@angular/core';
import { BrowserModule } from
'@angular/platform-browser';
```

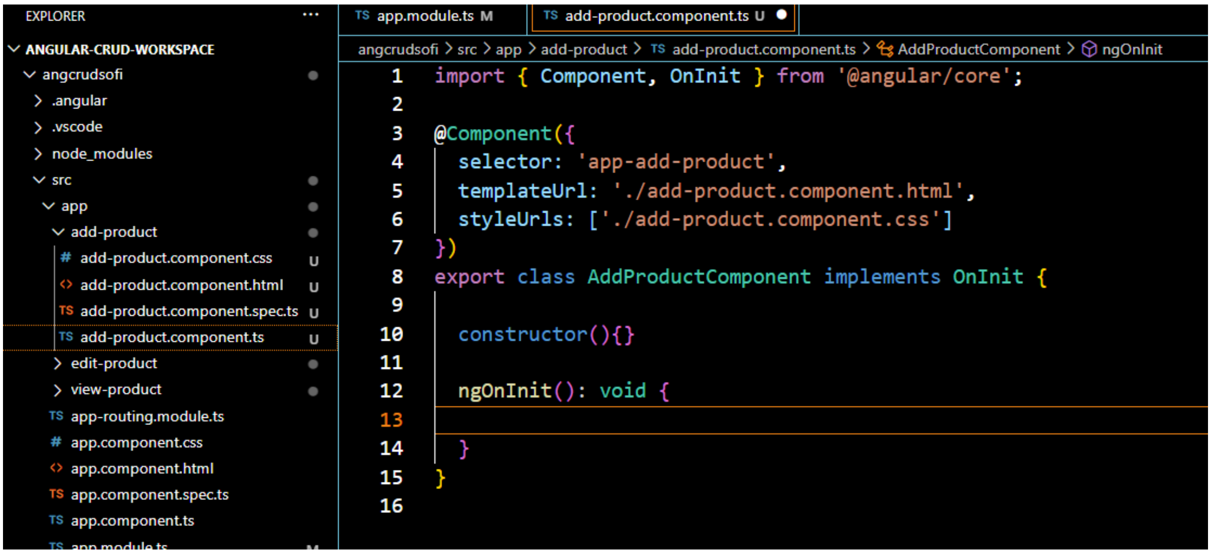
```
import { AppRoutingModule } from
'./app-routing.module';
import { AppComponent } from './app.component';
import { AddProductComponent } from
'./add-product/add-product.component';
import { ViewProductComponent } from
'./view-product/view-product.component';
import { EditProductComponent } from
'./edit-product/edit-product.component';
import { RouterModule, Routes } from '@angular/router';
import { FormsModule } from '@angular/forms'; //Add
import { HttpClient, HttpClientModule} from
'@angular/common/http'; //Add

//Configure routes
const routes:Routes=[
//If nothing is present
{path:'',redirectTo:'/view',pathMatch:'full'},
{path:'view', component:ViewProductComponent},
{path:'add',component:AddProductComponent},
{path:'edit',component:EditProductComponent}
]

@NgModule({
  declarations: [
    AppComponent,
    AddProductComponent,
    ViewProductComponent,
    EditProductComponent
  ],
  imports: [
    BrowserModule,
    AppRoutingModule,
    HttpClientModule, //Add
    FormsModule, //Add
    RouterModule.forRoot(routes) //Add
  ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

Assignment: Use **Service Layer** For All these

Here, we do write in individual .ts files Replace it using the service layer.

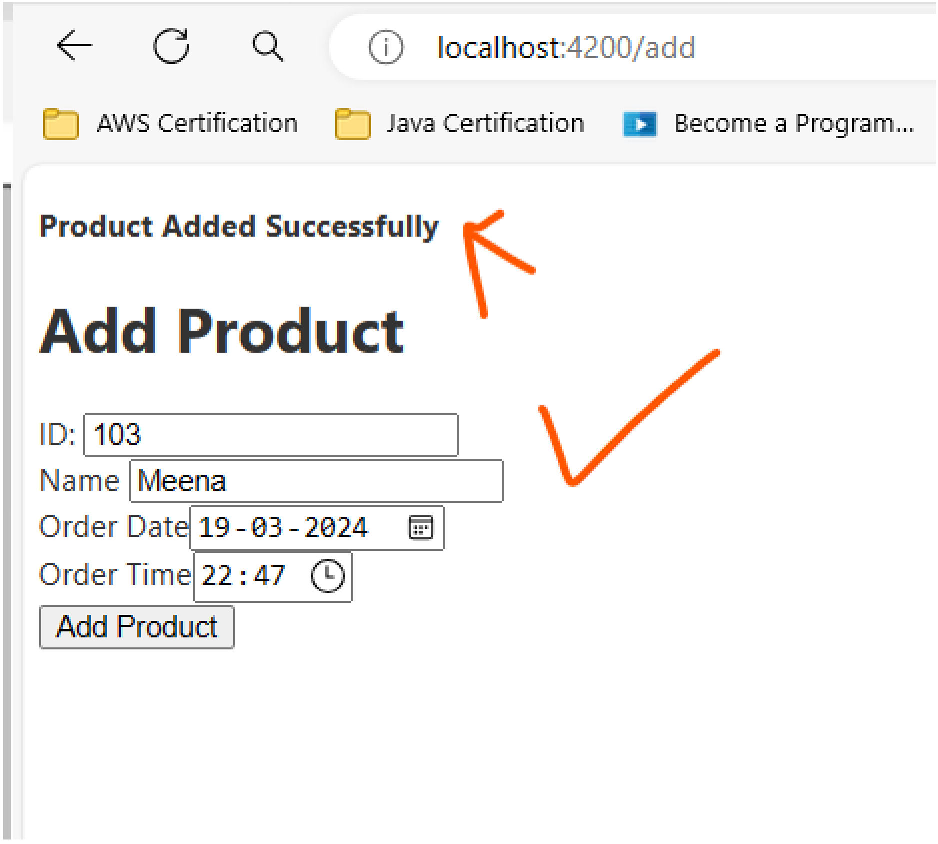
- How to make service for application level

Step-13: add-product → Work On


EXPLORER
ANGULAR-CRUD-WORKSPACE
angcrudsofi
.angular
.vscode
node_modules
src
app
add-product
add-product.component.css U
add-product.component.html U
add-product.component.spec.ts U
add-product.component.ts U
edit-product
view-product
app-routing.module.ts
app.component.css
app.component.html
app.component.spec.ts
app.component.ts
app.module.ts M
app.module.ts M
add-product.component.ts U
angcrudsofi > src > app > add-product > add-product.component.ts > AddProductComponent > ngOnInit

```
import { Component, OnInit } from '@angular/core';

@Component({
  selector: 'app-add-product',
  templateUrl: './add-product.component.html',
  styleUrls: ['./add-product.component.css']
})
export class AddProductComponent implements OnInit {

  constructor(){}

  ngOnInit(): void {

  }
}

```

Result:



Product Added Successfully

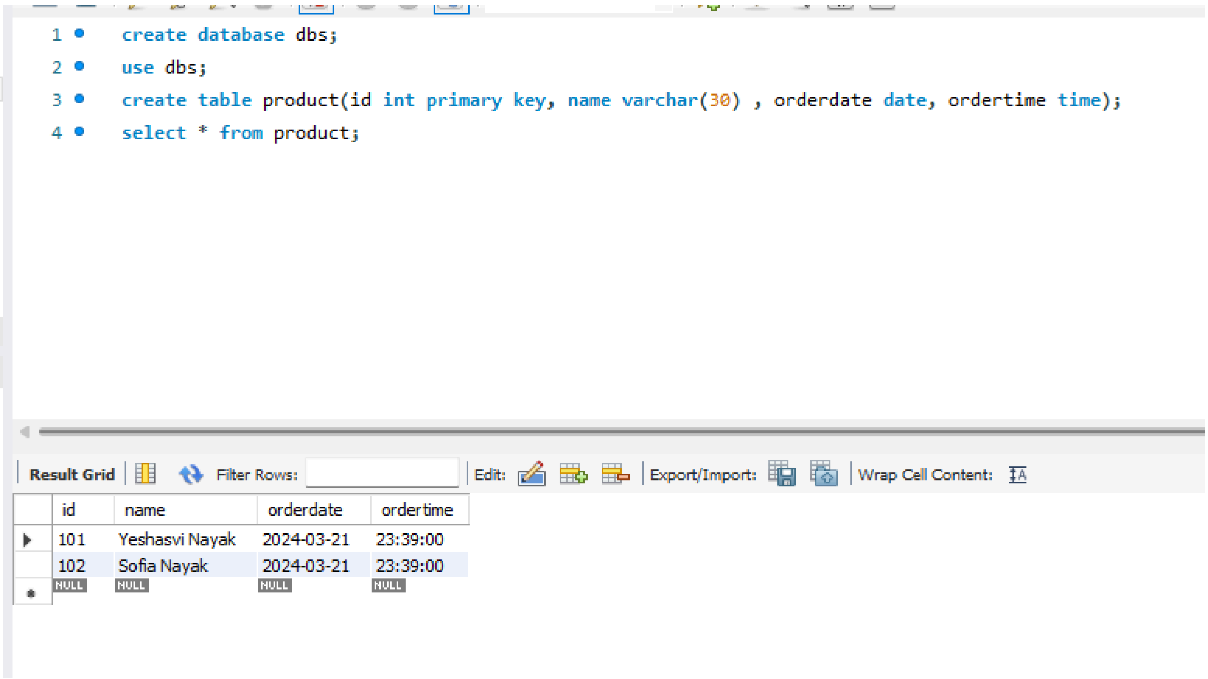
Add Product

ID: 103

Name Meena

Order Date 19-03-2024

Order Time 22:47



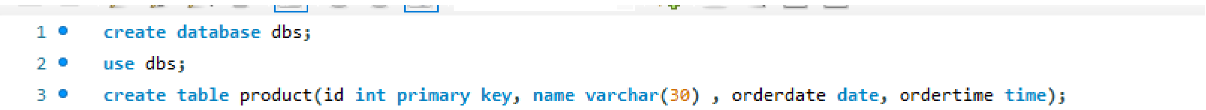
```
create database dbs;
use dbs;
create table product(id int primary key, name varchar(30) , orderdate date, ordertime time);
select * from product;
```

id	name	orderdate	ordertime
101	Yeshasvi Nayak	2024-03-21	23:39:00
102	Sofia Nayak	2024-03-21	23:39:00
NULL	NULL	NULL	NULL

Step-14: app.component.html

```
<router-outlet></router-outlet>
```

Step-15 : Create Table Inside Databse **dbs**

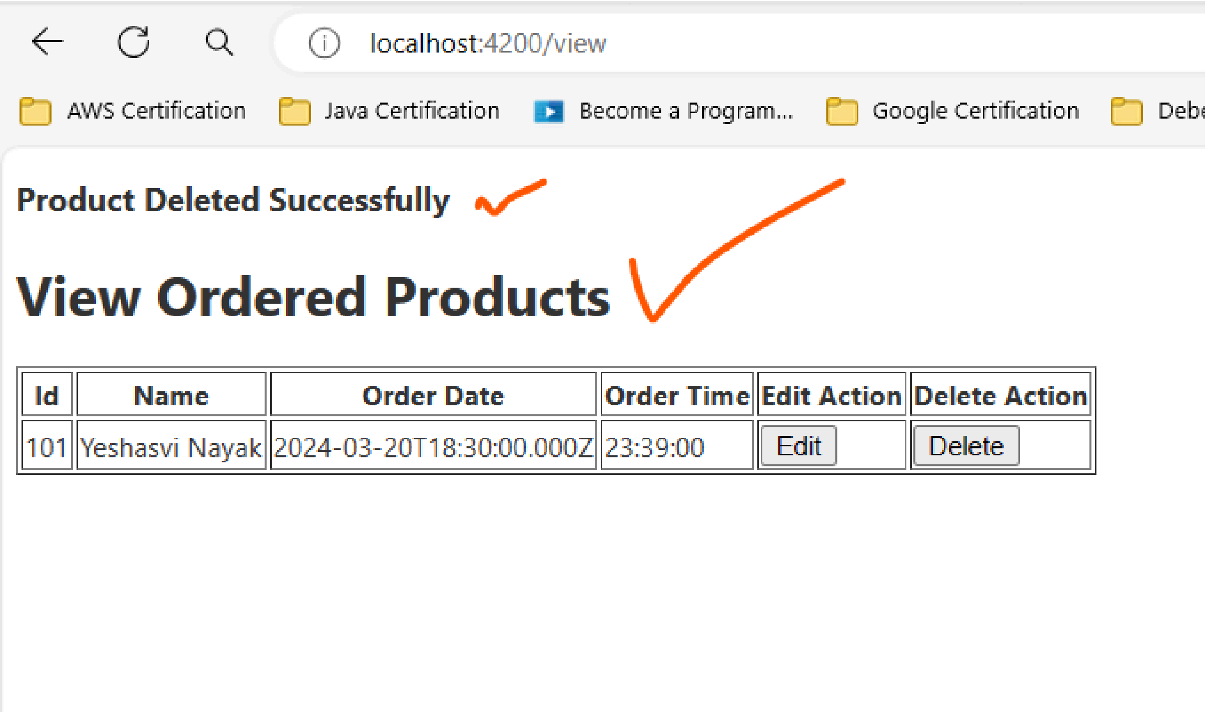


```
create database dbs;
use dbs;
create table product(id int primary key, name varchar(30) , orderdate date, ordertime time);
```

Step-16: view-product

Time: 3:13:43

Result:



Product Deleted Successfully

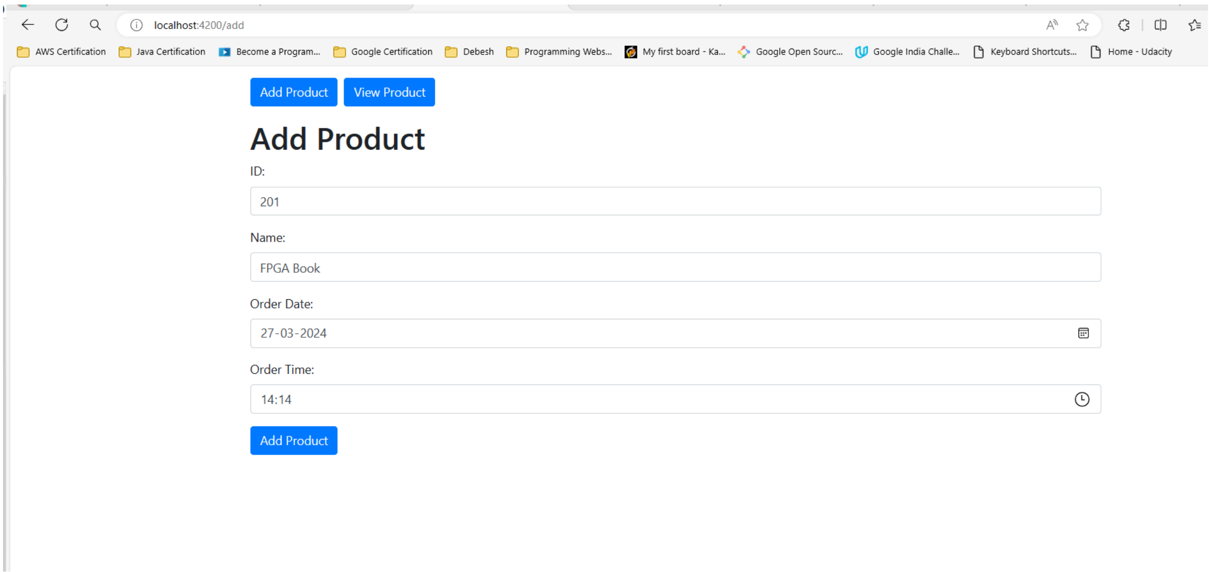
View Ordered Products

Id	Name	Order Date	Order Time	Edit Action	Delete Action
101	Yeshasvi Nayak	2024-03-20T18:30:00.000Z	23:39:00	Edit	Delete

Time: 3:41:37

Results: Adding Bootstrap Designing

Add Product 👍



Add Product

ID:

201

Name:

FPGA Book

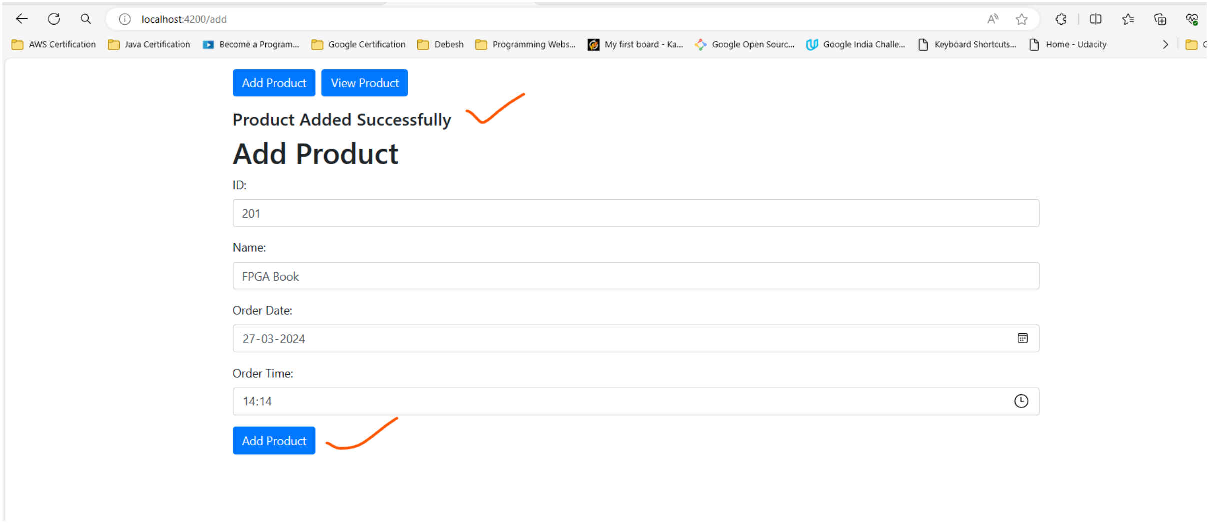
Order Date:

27-03-2024

Order Time:

14:14

Add Product



Product Added Successfully

Add Product

ID:

201

Name:

FPGA Book

Order Date:

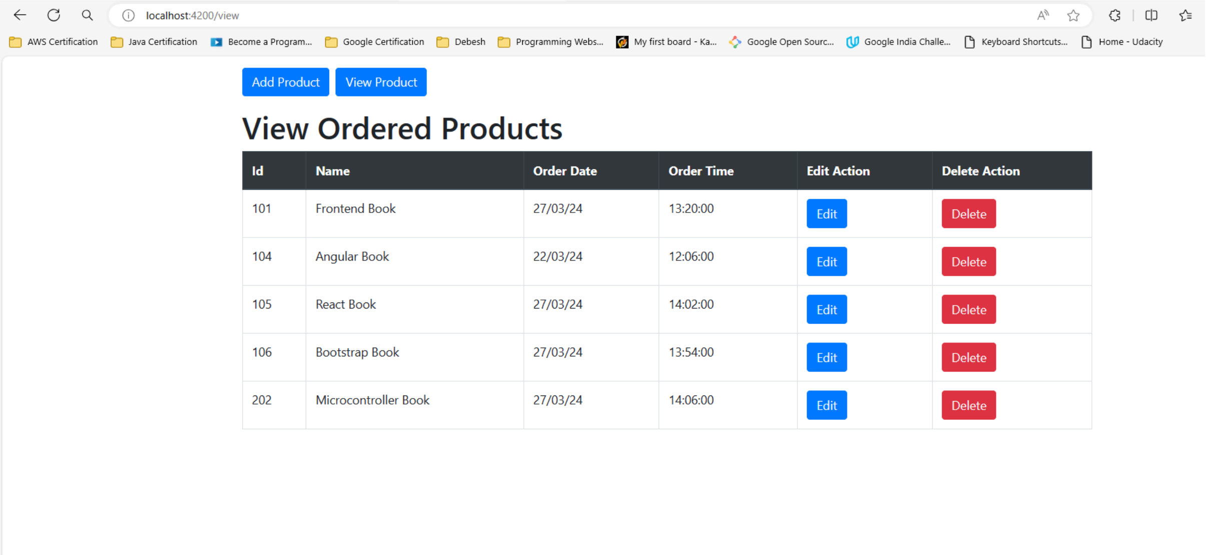
27-03-2024

Order Time:

14:14

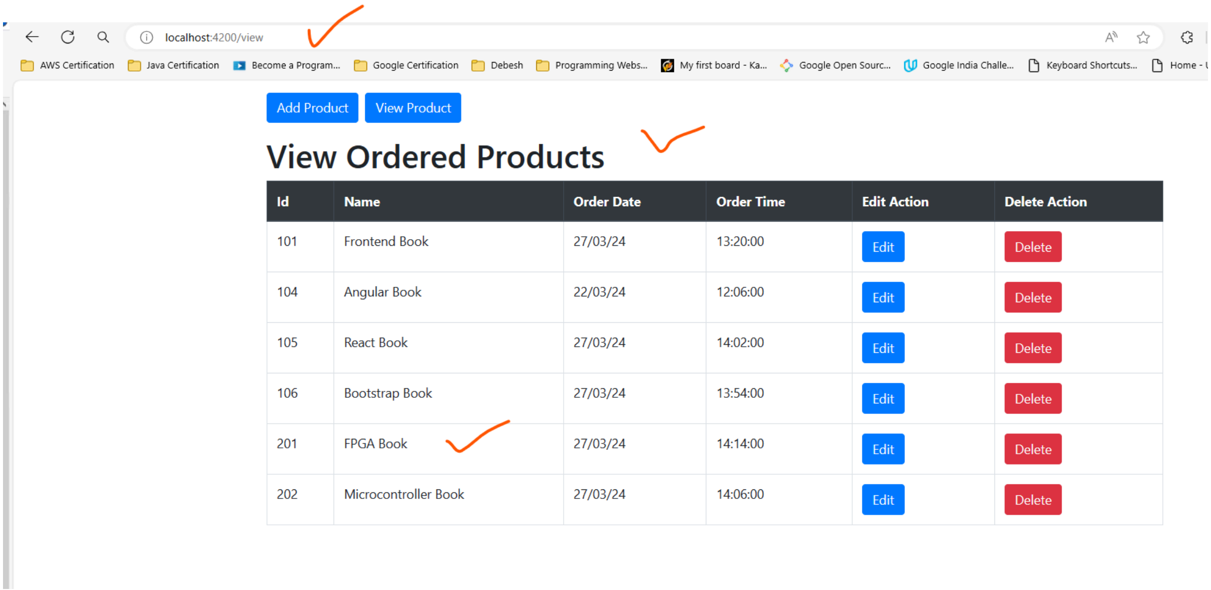
Add Product

View Product:



View Ordered Products

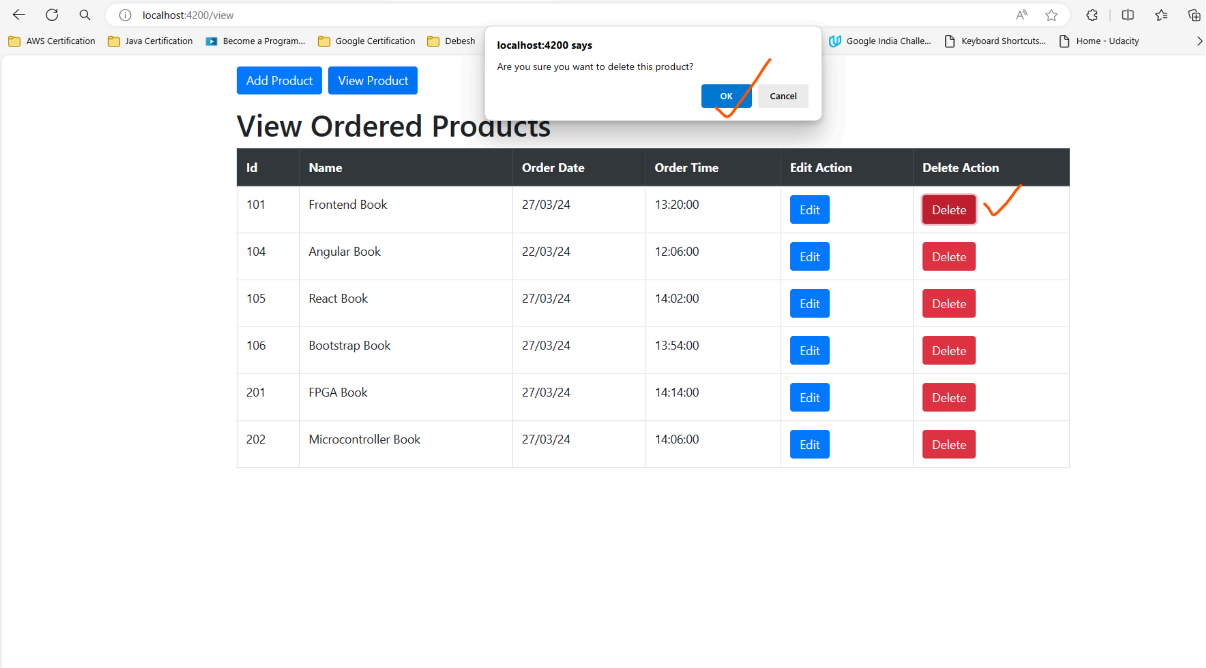
Id	Name	Order Date	Order Time	Edit Action	Delete Action
101	Frontend Book	27/03/24	13:20:00	Edit	Delete
104	Angular Book	22/03/24	12:06:00	Edit	Delete
105	React Book	27/03/24	14:02:00	Edit	Delete
106	Bootstrap Book	27/03/24	13:54:00	Edit	Delete
202	Microcontroller Book	27/03/24	14:06:00	Edit	Delete



View Ordered Products

Id	Name	Order Date	Order Time	Edit Action	Delete Action
101	Frontend Book	27/03/24	13:20:00	Edit	Delete
104	Angular Book	22/03/24	12:06:00	Edit	Delete
105	React Book	27/03/24	14:02:00	Edit	Delete
106	Bootstrap Book	27/03/24	13:54:00	Edit	Delete
201	FPGA Book ✓	27/03/24	14:14:00	Edit	Delete
202	Microcontroller Book	27/03/24	14:06:00	Edit	Delete

Delete Product:



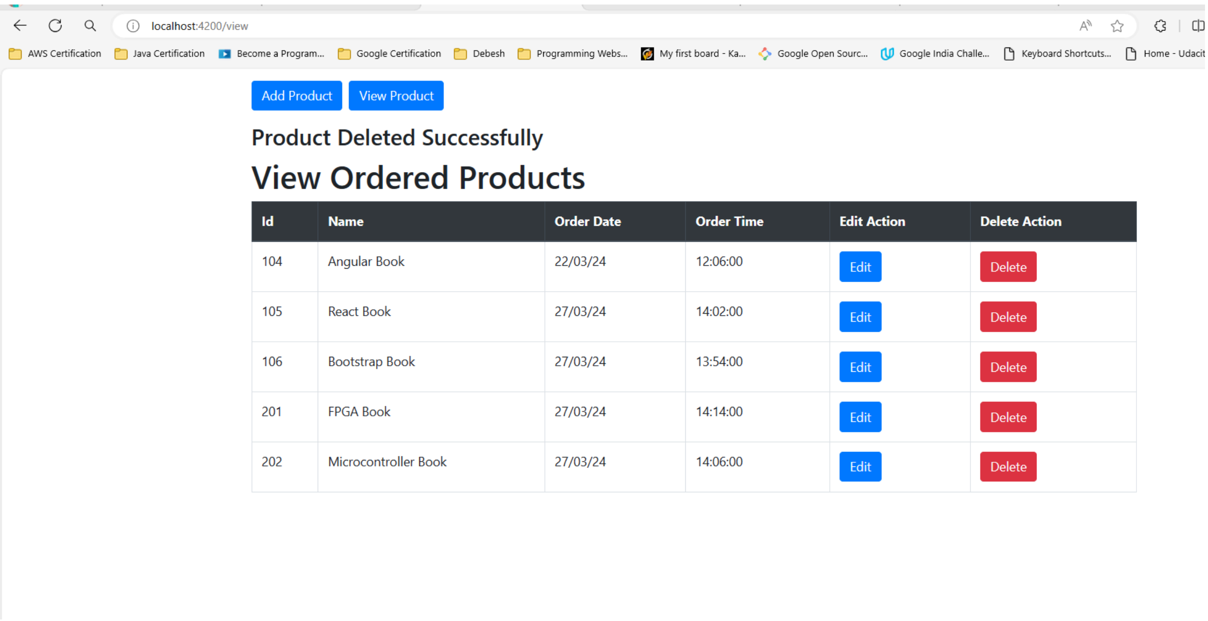
localhost:4200 says

Are you sure you want to delete this product?

View Ordered Products

Id	Name	Order Date	Order Time	Edit Action	Delete Action
101	Frontend Book	27/03/24	13:20:00	Edit	Delete
104	Angular Book	22/03/24	12:06:00	Edit	Delete
105	React Book	27/03/24	14:02:00	Edit	Delete
106	Bootstrap Book	27/03/24	13:54:00	Edit	Delete
201	FPGA Book	27/03/24	14:14:00	Edit	Delete
202	Microcontroller Book	27/03/24	14:06:00	Edit	Delete

After Deletion:

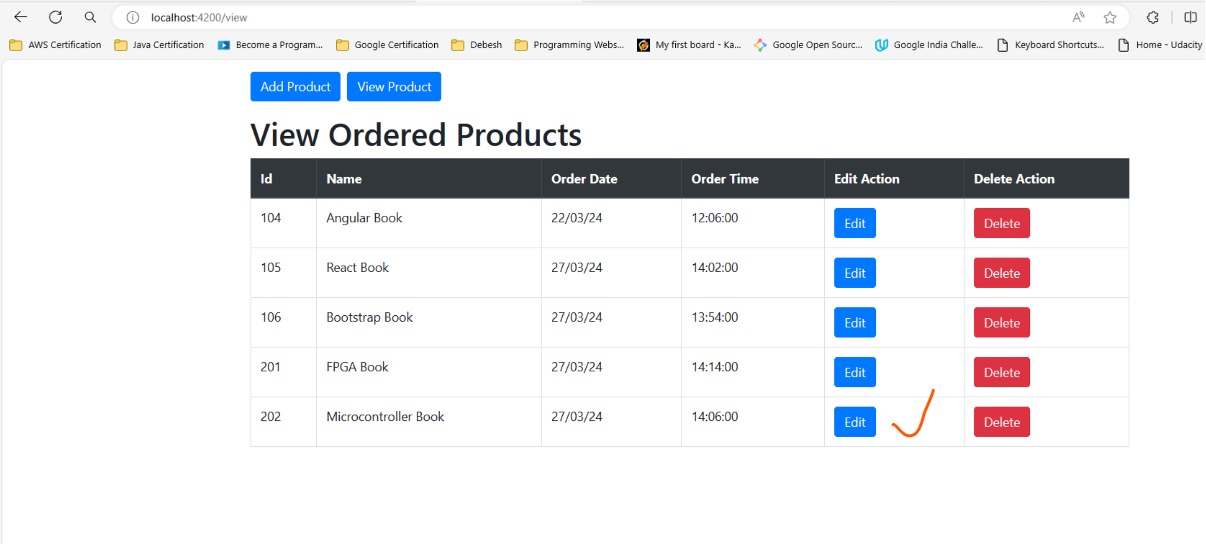


Product Deleted Successfully

View Ordered Products

Id	Name	Order Date	Order Time	Edit Action	Delete Action
104	Angular Book	22/03/24	12:06:00	Edit	Delete
105	React Book	27/03/24	14:02:00	Edit	Delete
106	Bootstrap Book	27/03/24	13:54:00	Edit	Delete
201	FPGA Book	27/03/24	14:14:00	Edit	Delete
202	Microcontroller Book	27/03/24	14:06:00	Edit	Delete

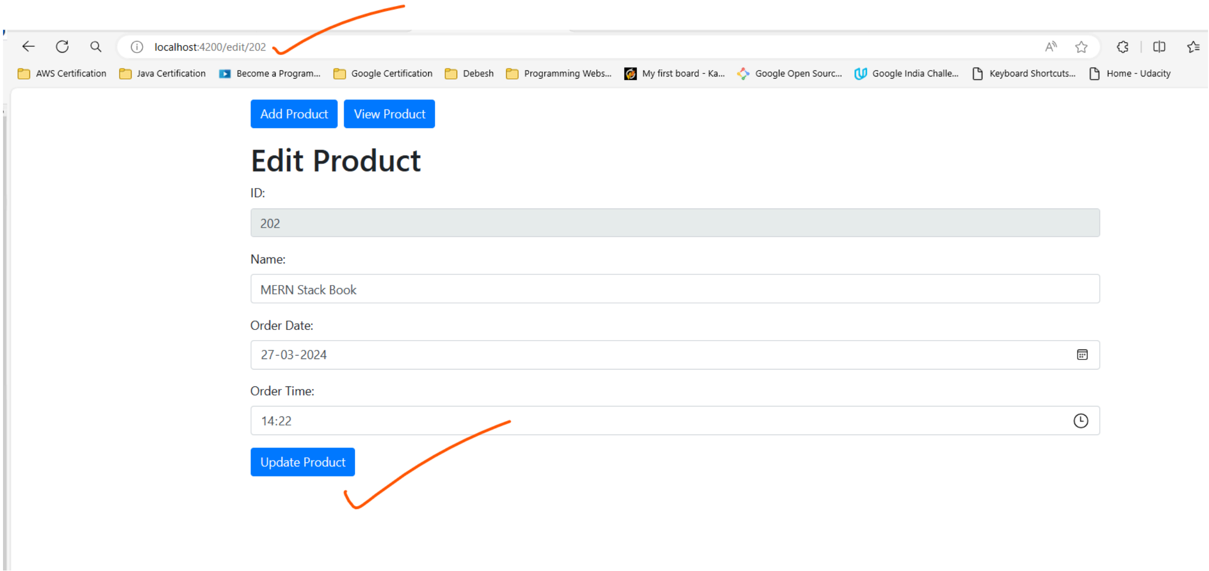
Edit Product:



View Ordered Products

Id	Name	Order Date	Order Time	Edit Action	Delete Action
104	Angular Book	22/03/24	12:06:00	Edit	Delete
105	React Book	27/03/24	14:02:00	Edit	Delete
106	Bootstrap Book	27/03/24	13:54:00	Edit	Delete
201	FPGA Book	27/03/24	14:14:00	Edit	Delete
202	Microcontroller Book	27/03/24	14:06:00	Edit ✓	Delete

After Editing 👍



Edit Product

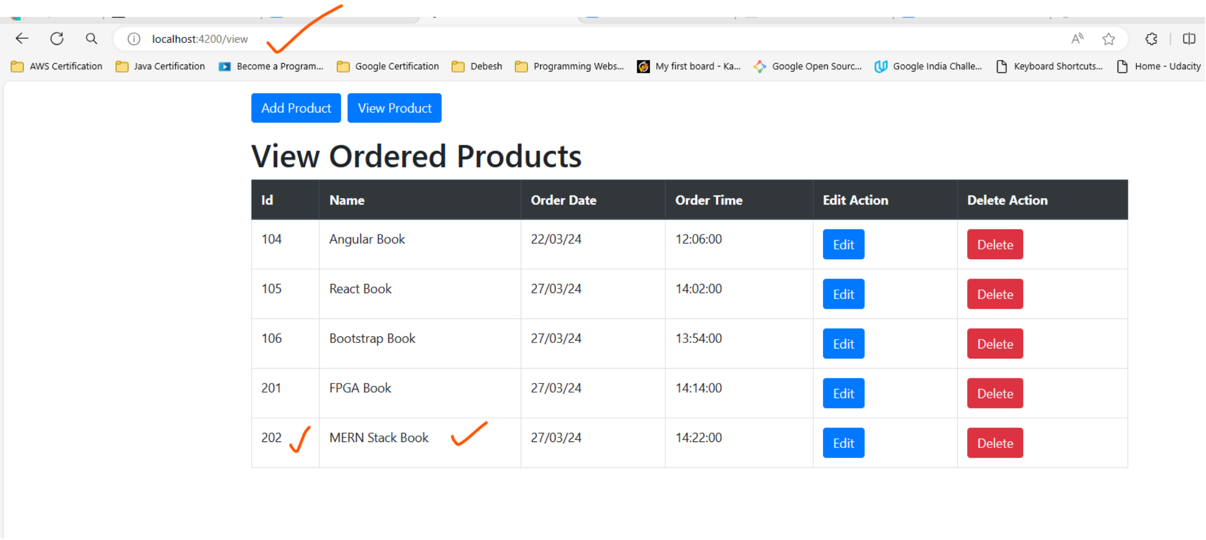
ID:
202

Name:
MERN Stack Book

Order Date:
27-03-2024

Order Time:
14:22

Update Product



View Ordered Products

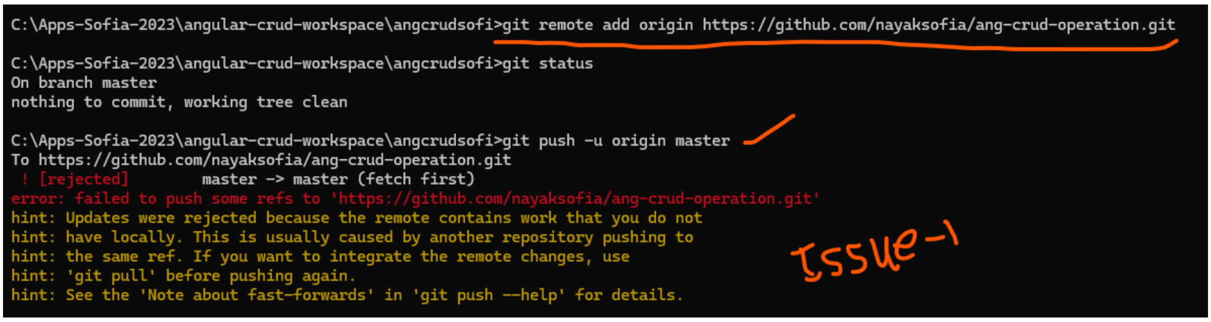
Id	Name	Order Date	Order Time	Edit Action	Delete Action
104	Angular Book	22/03/24	12:06:00	Edit	Delete
105	React Book	27/03/24	14:02:00	Edit	Delete
106	Bootstrap Book	27/03/24	13:54:00	Edit	Delete
201	FPGA Book	27/03/24	14:14:00	Edit	Delete
202	MERN Stack Book	27/03/24	14:22:00	Edit	Delete

Step-final>> Github: Uploaded the project

First:

- Created a repository in github named ………………
- Add Readme.md file

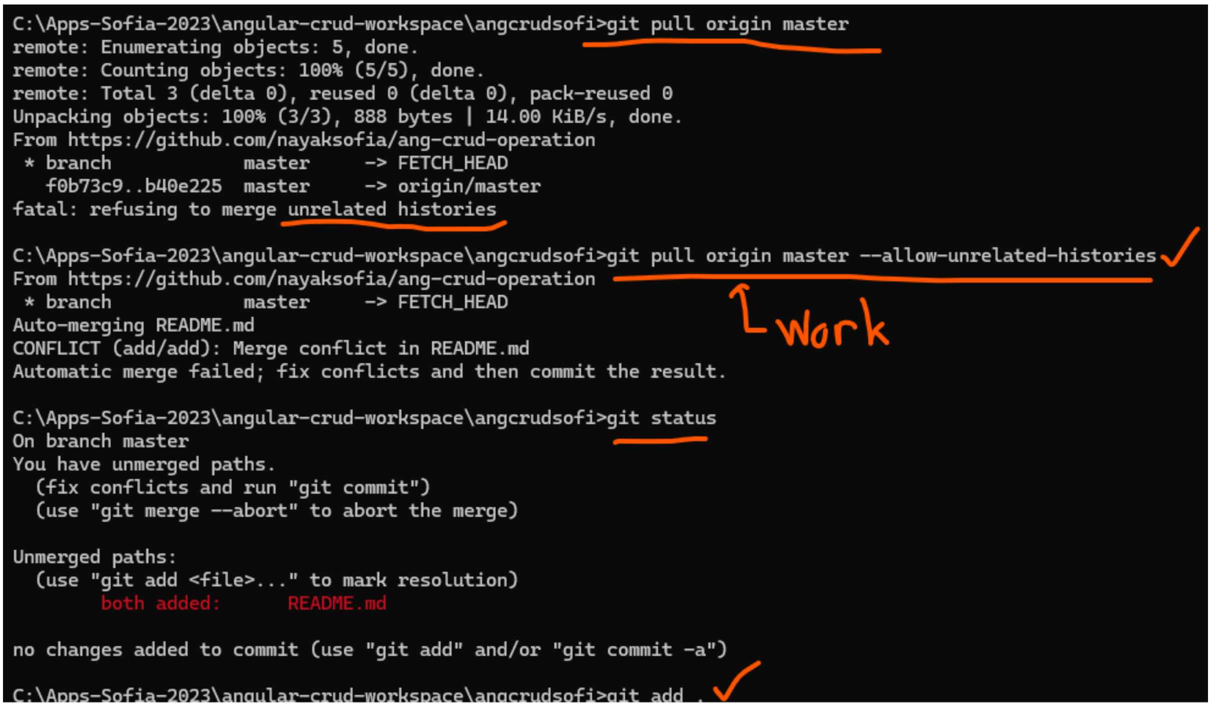
Second:



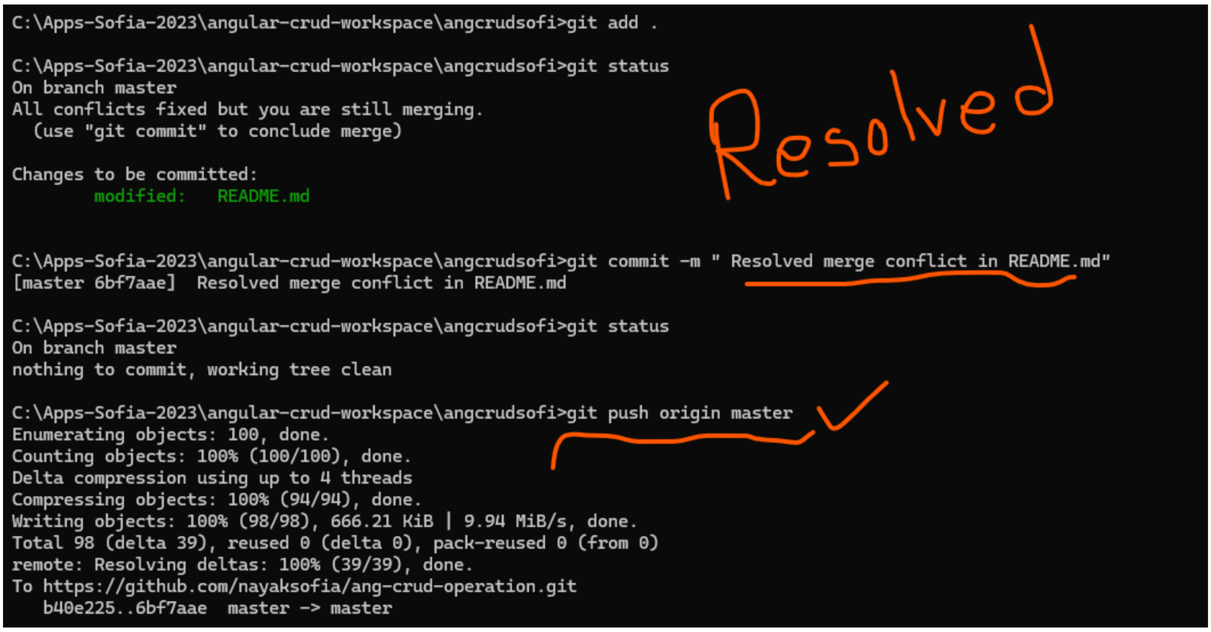
```
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git remote add origin https://github.com/nayaksofia/ang-crud-operation.git

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git status
On branch master
nothing to commit, working tree clean

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git push -u origin master
To https://github.com/nayaksofia/ang-crud-operation.git
 ! [rejected]        master -> master (fetch first)
error: failed to push some refs to 'https://github.com/nayaksofia/ang-crud-operation.git'
hint: Updates were rejected because the remote contains work that you do not
hint: have locally. This is usually caused by another repository pushing to
hint: the same ref. If you want to integrate the remote changes, use
hint: 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
```

Issue-1

Issue-1: Trying to resolve



```
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git pull origin master
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 888 bytes | 14.00 KiB/s, done.
From https://github.com/nayaksofia/ang-crud-operation
 * branch            master     -> FETCH_HEAD
   f0b73c9..b40e225  master     -> origin/master
fatal: refusing to merge unrelated histories

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git pull origin master --allow-unrelated-histories
From https://github.com/nayaksofia/ang-crud-operation
 * branch            master     -> FETCH_HEAD
Auto-merging README.md
CONFLICT (add/add): Merge conflict in README.md
Automatic merge failed; fix conflicts and then commit the result.

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git status
On branch master
You have unmerged paths.
  (fix conflicts and run "git commit")
  (use "git merge --abort" to abort the merge)

Unmerged paths:
  (use "git add <file>..." to mark resolution)
        both added:      README.md

no changes added to commit (use "git add" and/or "git commit -a")

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git add .
```

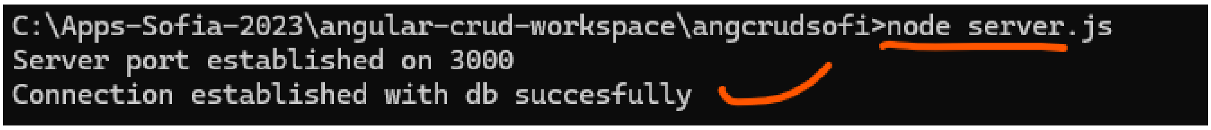


```
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git add .

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git status
On branch master
All conflicts fixed but you are still merging.
  (use "git commit" to conclude merge)

Changes to be committed:
        modified:   README.md


C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git commit -m " Resolved merge conflict in README.md"
[master 6bf7aae]  Resolved merge conflict in README.md

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git status
On branch master
nothing to commit, working tree clean

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git push origin master
Enumerating objects: 100, done.
Counting objects: 100% (100/100), done.
Delta compression using up to 4 threads
Compressing objects: 100% (94/94), done.
Writing objects: 100% (98/98), 666.21 KiB | 9.94 MiB/s, done.
Total 98 (delta 39), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (39/39), done.
To https://github.com/nayaksofia/ang-crud-operation.git
   b40e225..6bf7aae  master -> master
```

Project uploaded Successfully:

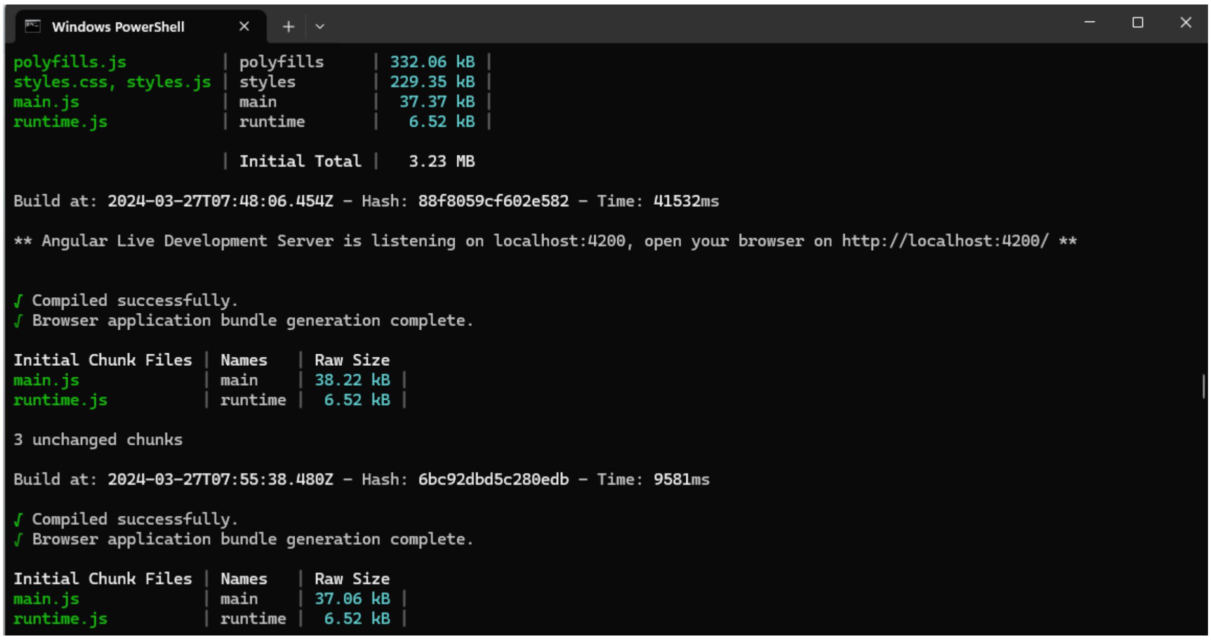
Three Command Prompts Window I Opened Simultaneously:

1. For connecting Server



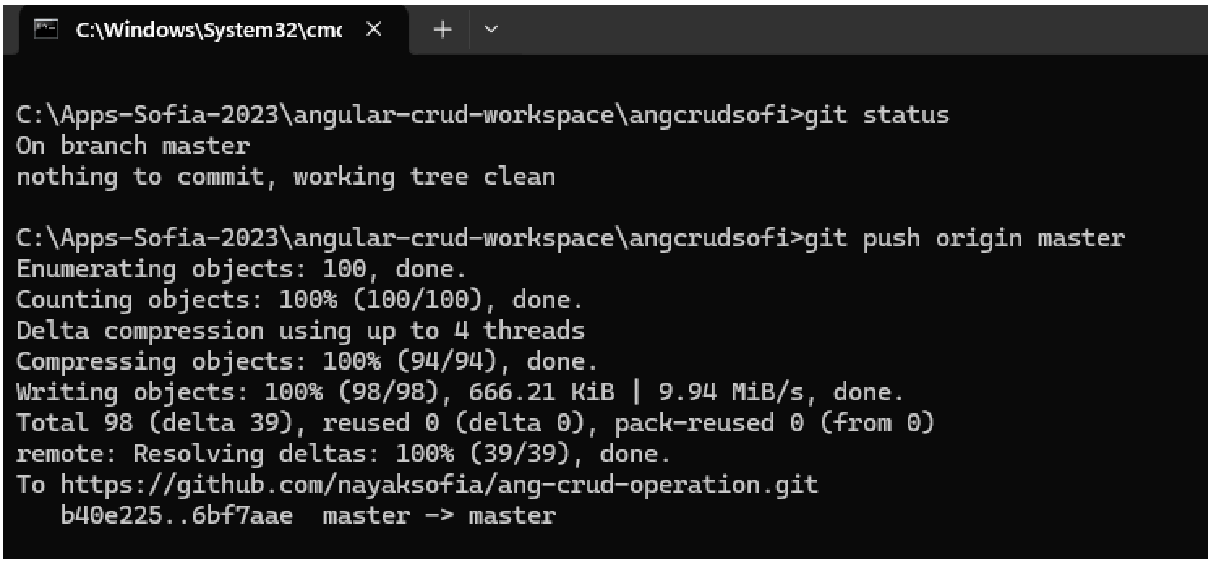
```
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>node server.js
Server port established on 3000
Connection established with db succesfully
```

2. For running angular project



```
polyfills.js          | polyfills     | 332.06 kB |
styles.css, styles.js | styles        | 229.35 kB |
main.js               | main          |  37.37 kB |
runtime.js            | runtime       |   6.52 kB |

                      | Initial Total |   3.23 MB

Build at: 2024-03-27T07:48:06.454Z - Hash: 88f8059cf602e582 - Time: 41532ms

** Angular Live Development Server is listening on localhost:4200, open your browser on http://localhost:4200/ **


√ Compiled successfully.
√ Browser application bundle generation complete.

Initial Chunk Files | Names   | Raw Size
main.js             | main    | 38.22 kB |
runtime.js          | runtime |  6.52 kB |

3 unchanged chunks

Build at: 2024-03-27T07:55:38.480Z - Hash: 6bc92dbd5c280edb - Time: 9581ms

√ Compiled successfully.
√ Browser application bundle generation complete.

Initial Chunk Files | Names   | Raw Size
main.js             | main    | 37.06 kB |
runtime.js          | runtime |  6.52 kB |
```

3. For github operation



```
C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git status
On branch master
nothing to commit, working tree clean

C:\Apps-Sofia-2023\angular-crud-workspace\angcrudsofi>git push origin master
Enumerating objects: 100, done.
Counting objects: 100% (100/100), done.
Delta compression using up to 4 threads
Compressing objects: 100% (94/94), done.
Writing objects: 100% (98/98), 666.21 KiB | 9.94 MiB/s, done.
Total 98 (delta 39), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (39/39), done.
To https://github.com/nayaksofia/ang-crud-operation.git
   b40e225..6bf7aae  master -> master
```

Note:[My Progress-Through the Project]

1. Until now I do know *< backend portion>* **how to establish a connection with MySQL server from angular through express.js + node.js** [Time; 1:25:49]
2. Until now, I know how to **commit my changes through the git command using the command prompt.** [Time; 1:25:49]
3. **Until now, I understand how to define API: Endpoint inside server.js file [**Time: 2:2:28]
4. Understand the backend part. Done successfully. [Time: 2:12:08]
5. Understand adding data, fetching data, delete data from angular
6. Understand use of github