Laporan Proyek Akhir Praktikum Basis Data Lanjut

MEMBUAT API MENGGUNAKAN NODE.JS DENGAN FRAMEWORK EXPRESS

Oleh :

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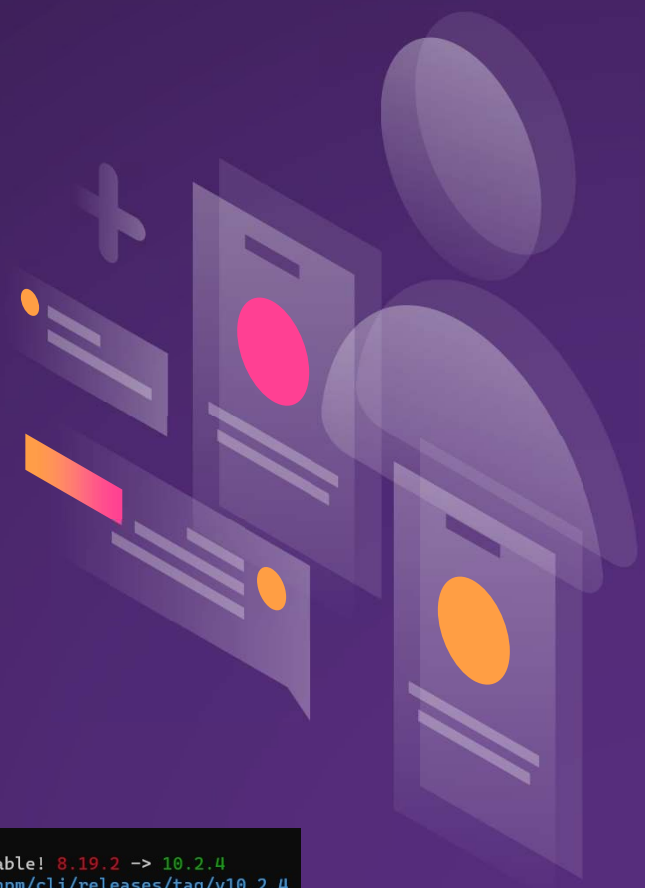
Inisialisasi dengan npm init

```
PS D:\matkul\sem 3\Basdat Lanjut\Project\car-data> 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: (car-data)
version: (1.0.0)
description: Express API
entry point: (index.js) server.js
test command:
git repository: github.com/illufoxKusanagi/example-app-API
keywords:
author: muhammadArief
license: (ISC)
About to write to D:\matkul\sem 3\Basdat Lanjut\Project\car-data\package.json:

{
  "name": "car-data",
  "version": "1.0.0",
  "description": "Express API",
  "main": "server.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "repository": {
    "type": "git",
    "url": "github.com/illufoxKusanagi/example-app-API"
  },
  "author": "muhammadArief",
  "license": "ISC"
}


Is this OK? (yes) yes
```



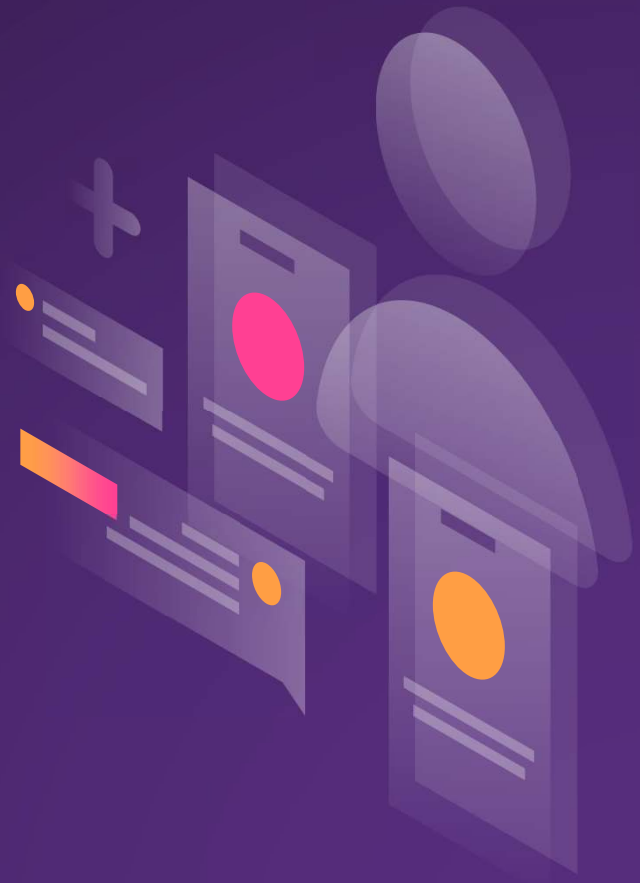
```
npm notice
npm notice New major version of npm available! 8.19.2 -> 10.2.4
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.2.4
npm notice Run npm install -g npm@10.2.4 to update!
npm notice
```

Menginstall nodemon supaya tidak perlu mematikan server ketika ingin melakukan perubahan

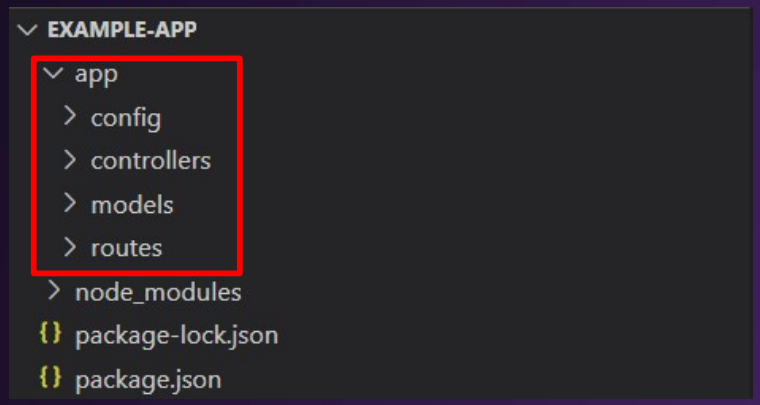
```
PS D:\matkul\sem 3\Basdat Lanjut\Project\car-data> npm install express mongoose cors --save

added 86 packages, and audited 87 packages in 13s

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

found 0 vulnerabilities
```

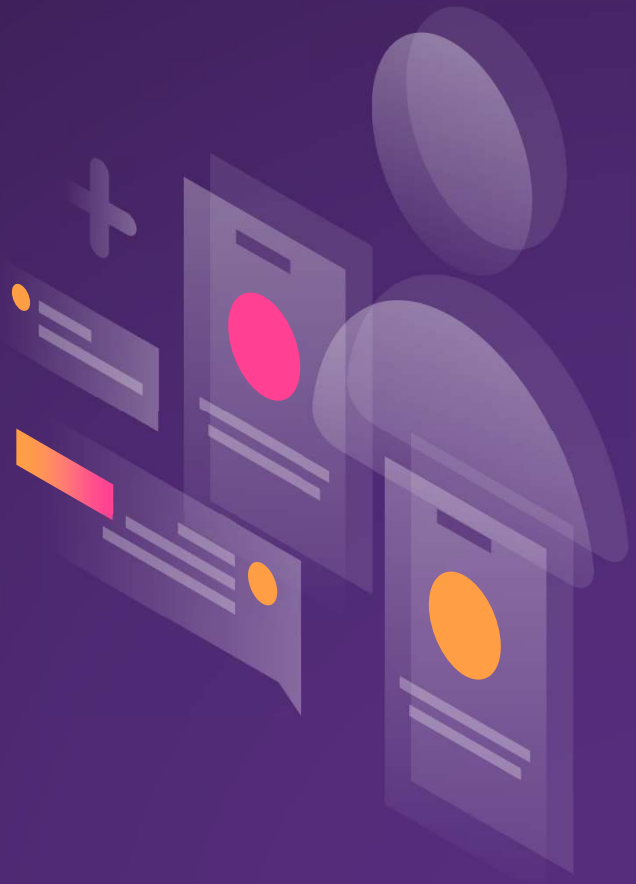
Dan menambahkan scriptbaru di package.js

```
{
  "name": "example-app",
  "version": "1.0.0",
  "description": "Express API",
  "main": "server.js",
  ▷ Debug
  "scripts": {
    "dev": "nodemon server.js",
    "test": "echo \"Error: no test specified\" && exit 1"
  },
```



Membuat folder baru

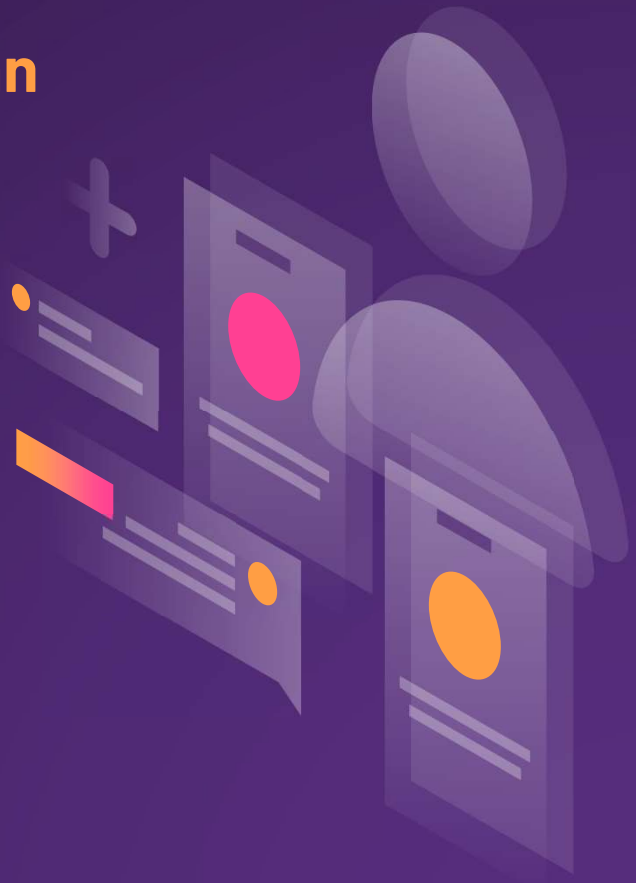




Menambahkan file server.js, dan menuliskan beberapa kode untuk konfigurasi

JS server.js > app.get("/") callback > message

```
1   const express = require("express")
2   const cors = require("cors")
3   const app = express();
4
5   const corsOption = {
6       origin: "*"
7   };
8
9   //register cors middleware
10
11  app.use(cors(corsOption));
12  app.use(express.json());
13
14  //routes
15  app.get("/", (req, res) => {
16      res.json({ message: "Hello" });
17  });
18  const PORT = process.env.PORT || 8000;
19
20  app.listen(PORT, () => console.log(`server started on port ${PORT}`));
```

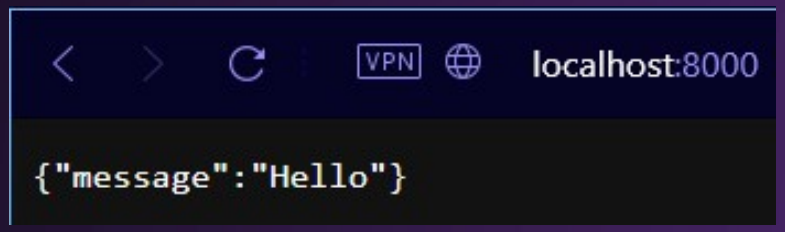


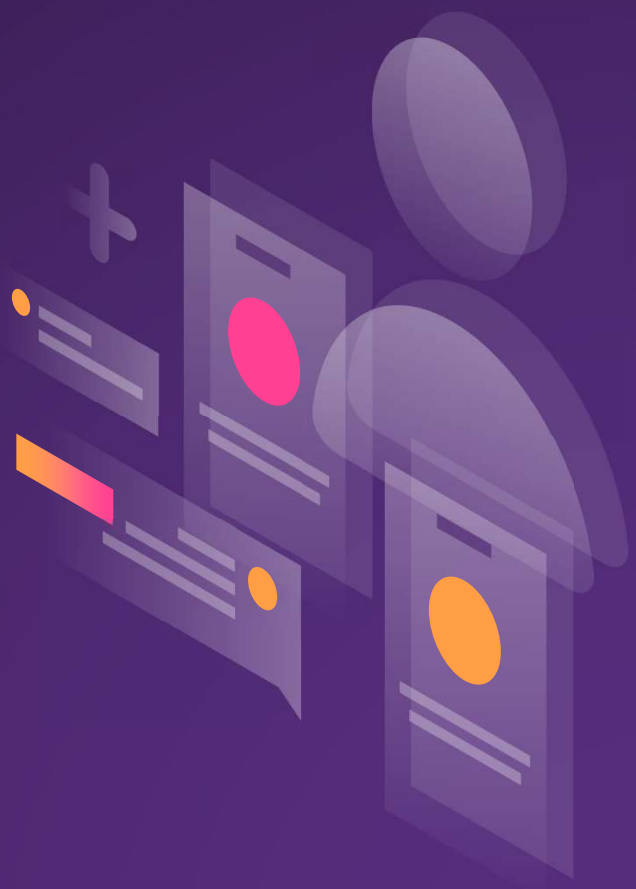
Mencoba untuk menjalankan server menggunakan terminal

```
PS D:\matkul\sem 3\Basdat Lanjut\Project\example-app> node server.js
server started on port 8000
```

Kemudian buka browser dan ketikkan
http://localhost:8000

Jika berhasil, akan muncul tampilan berikut





Menambahkan database.js untuk koneksi ke database

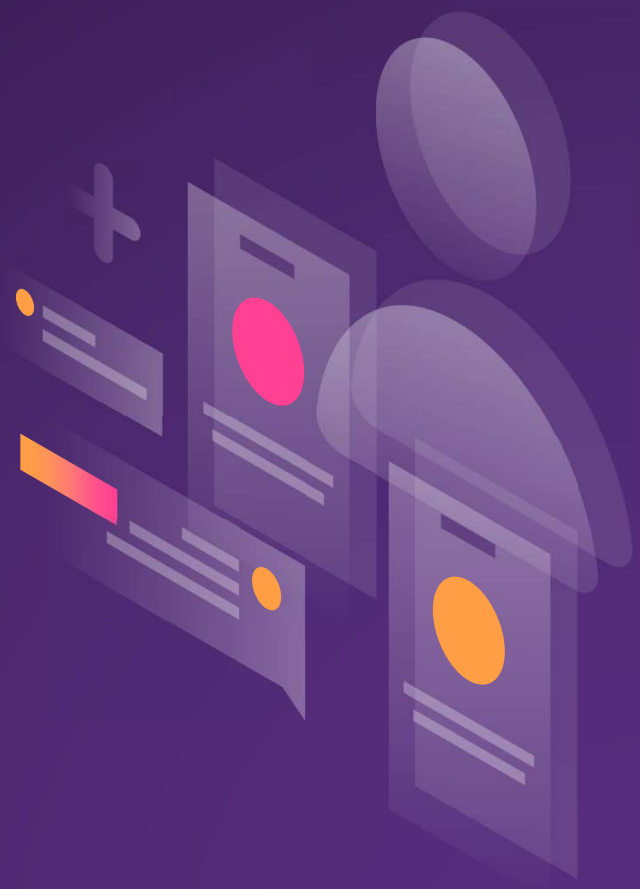
Menambahkan file database.js pada direktori berikut

```
app
  config
    database.js
```

Serta menulis beberapa kode pada database.js

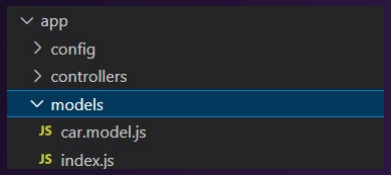
app > config > JS database.js > <unknown> > url

```
1   module.exports = {
2     url: "mongodb://localhost:27017/express_api"
3   };
```



Menambahkan model

Menambahkan file mahasiswaModel.js dan index.js pada direktori berikut



Isi dari mahasiswaModel.js dan index.js

app > models > JS car.model.js > ...

```
1   module.exports = mongoose => {
2
3       const schema = mongoose.Schema(
4           {
5               car_brand: String,
6               car_model: String,
7               car_price: String,
8               year_produced: String,
9           }, {
10          timestamps: true
11      }
12      );
13      return mongoose.model("car", schema);
14  }
```

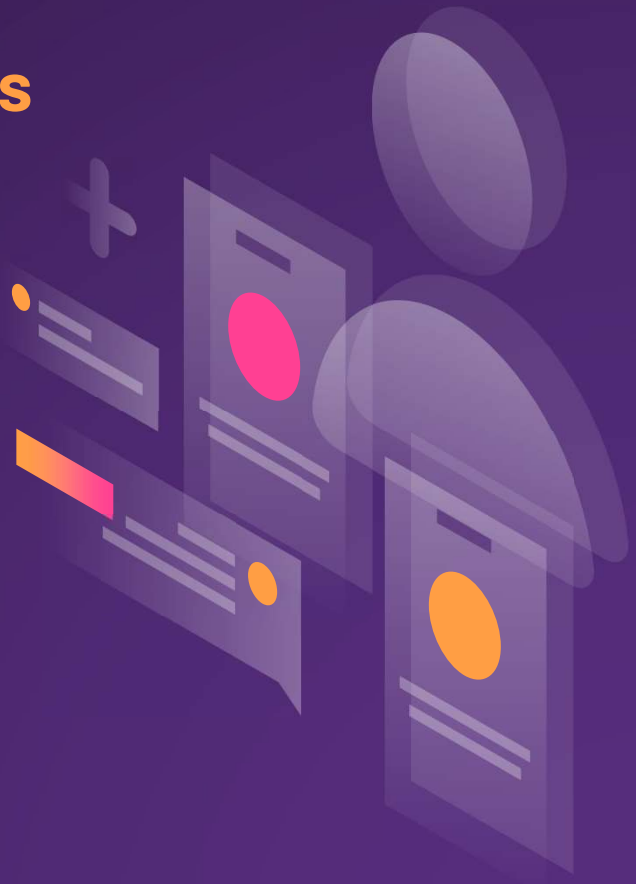
app > models > JS index.js > ...

```
1   const dbConfig = require("../config/database");
2   const mongoose = require("mongoose");
3
4   module.exports = {
5       mongoose,
6       url: dbConfig.url,
7       car: require("./car.model.js")(mongoose)
8   }
```

Setting koneksi database pada server.js

Pada server.js tambahkan kode berikut

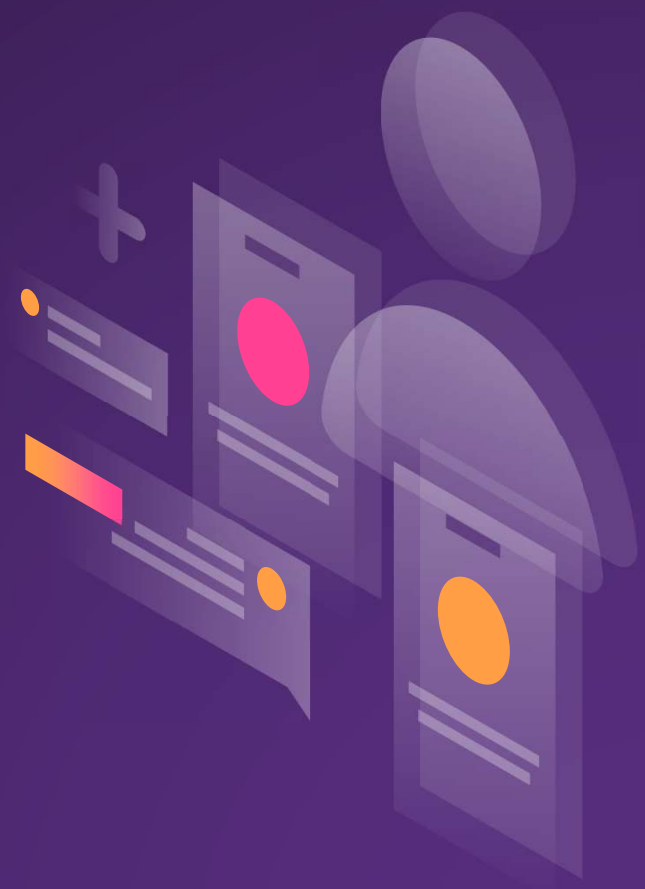
```
const express = require("express")
const cors = require("cors")
const db = require("./app/models")
const app = express();

const corsOption = {
    origin: "*"
};

//register cors middleware
app.use(cors(corsOption));
app.use(express.json());

const mongooseConfig = {
    useNewUrlParser: true,
    useUnifiedTopology: true
};

//connect ke database
db.mongoose.connect(db.url, mongooseConfig)
    .then(() => console.log("Database.connected"))
    .catch(err => console.log(`Connection failed${err.message}`));
```



Membuat controller

app > controllers > JS car.controller.js > ...

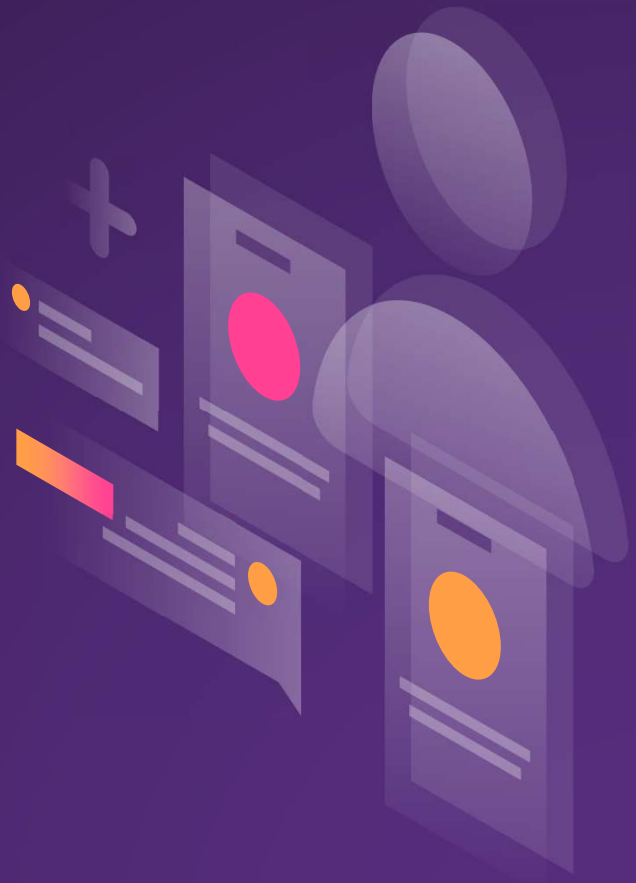
```
1   const db = require("../models");
2   const Car = db.car;
3
4   exports.create = (req, res) => {
5
6   }
7
8   exports.findAll = (req, res) => {
9       res.send({ message: "it works" });
10  }
11
12  exports.show = (req, res) => {
13
14  }
15
16  exports.update = (req, res) => {
17
18  }
19
20  exports.delete = (req, res) => {
21
22  }
```



Menambahkan route

app > routes > JS car.route.js > <unknown> > exports

```
1   module.exports = app => {
2       const car = require("../controllers/car.controller")
3       const routes = require("express").Router();
4
5       routes.get("/", car.findAll);
6       routes.get("/:id", car.show);
7       routes.post("/", car.create);
8       routes.put("/:id", car.update);
9       routes.delete("/:id", car.delete);
10
11      app.use("/car", routes)
12  }
```

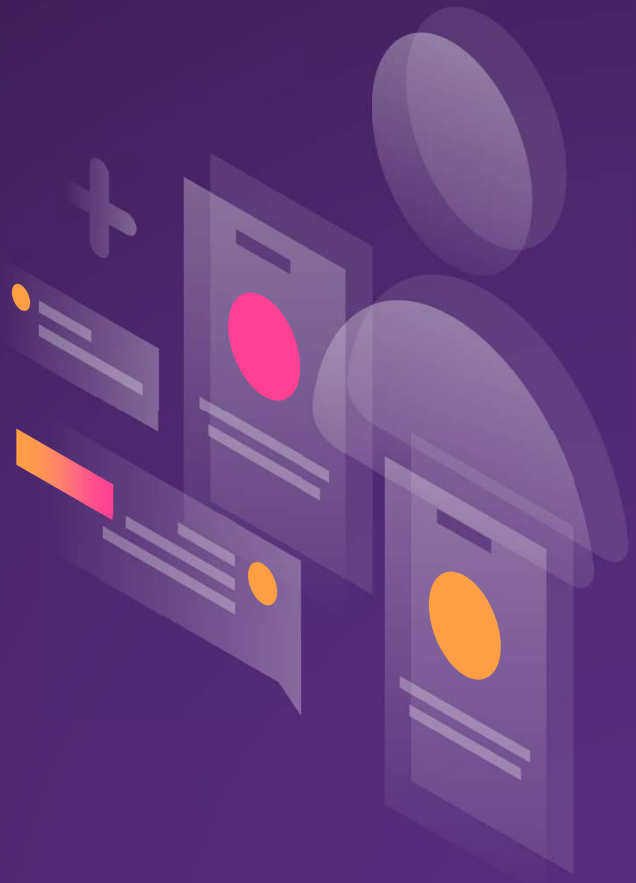


Mengubah server.js untuk pemanggilan route

server.js > ...

```
1   const express = require("express")
2   const cors = require("cors")
3   const db = require("./app/models")
4   const app = express();
5
6   const corsOption = {
7       origin: "*"
8   };
9
10
11  //connect to database
12  const mongooseConfig = {
13      useNewUrlParser: true,
14      useUnifiedTopology: true
15  };
16
17  db.mongoose.connect(db.url, mongooseConfig)
18      .then(() => console.log("database connected"))
19      .catch(err => {
20          console.log(`connection failed ${err.message}`);
21          process.exit(1);
22      });
23
24  //register cors middleware
25
26  app.use(cors(corsOption));
27  app.use(express.json());
28
29  //routes
30  require("./app/routes/car.route")(app);
```

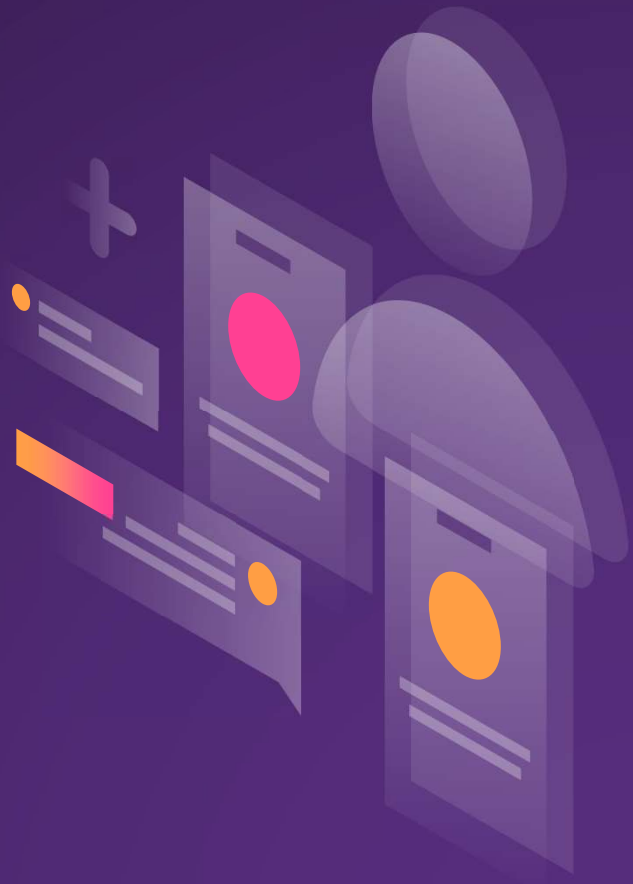
Pada server.js tambahkan kode berikut yang digunakan untuk memanggil route yang nantinya akan digunakan



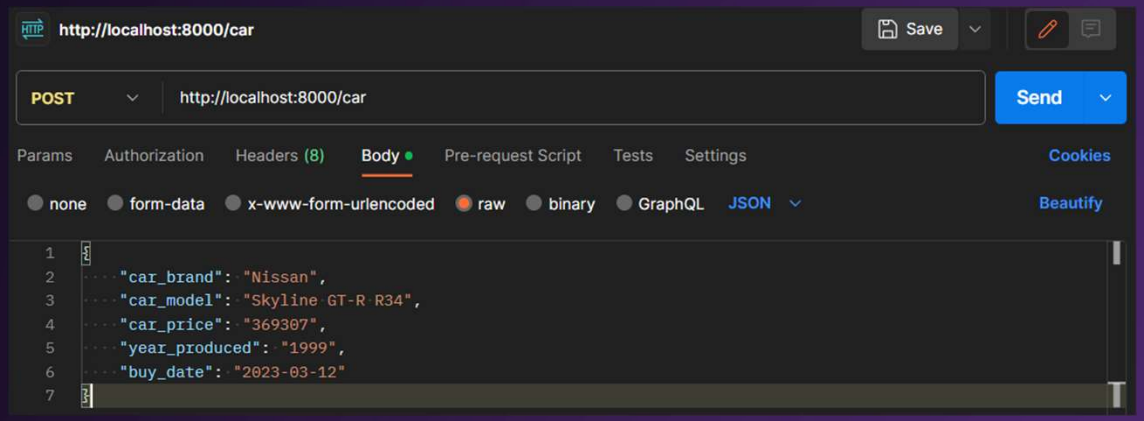
Menambahkan controller create pada car.controller

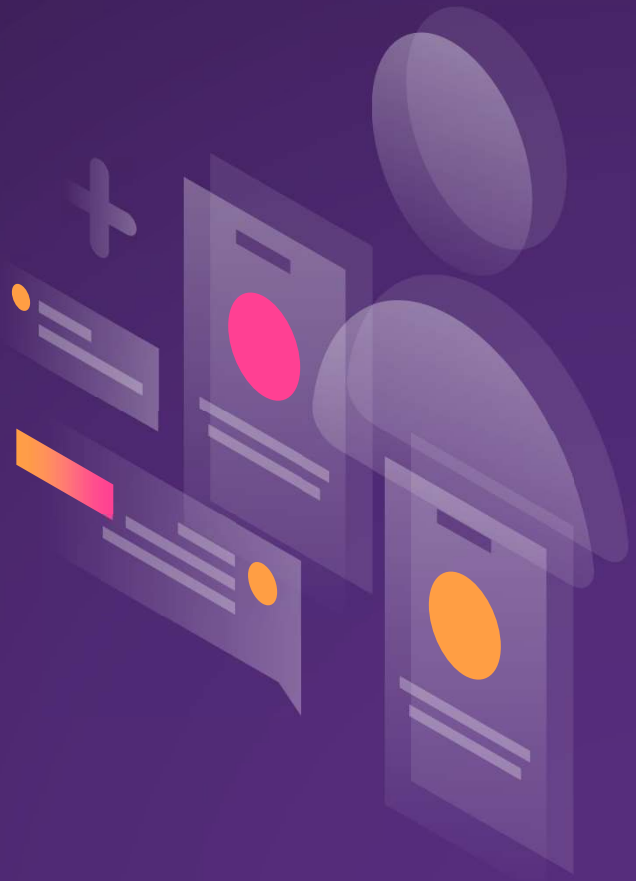
app > controllers > JS car.controller.js > create > create

```
1   const db = require("../models");
2   const Car = db.car;
3
4   exports.create = (req, res) => {
5
6       Car.create(req.body)
7           .then(() => res.send({ message: "Data added successfully" }))
8           .catch(err => res.status(500).send({ message: err.message }));
9   }
```

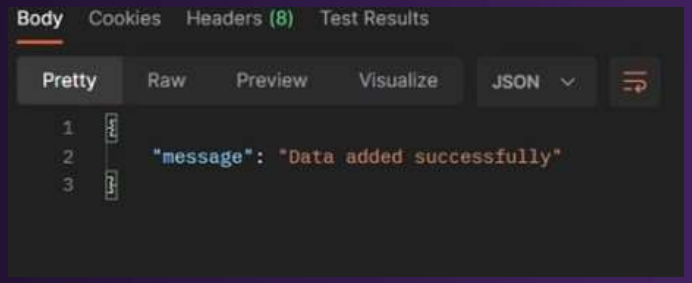


Melakukan percobaan di postman

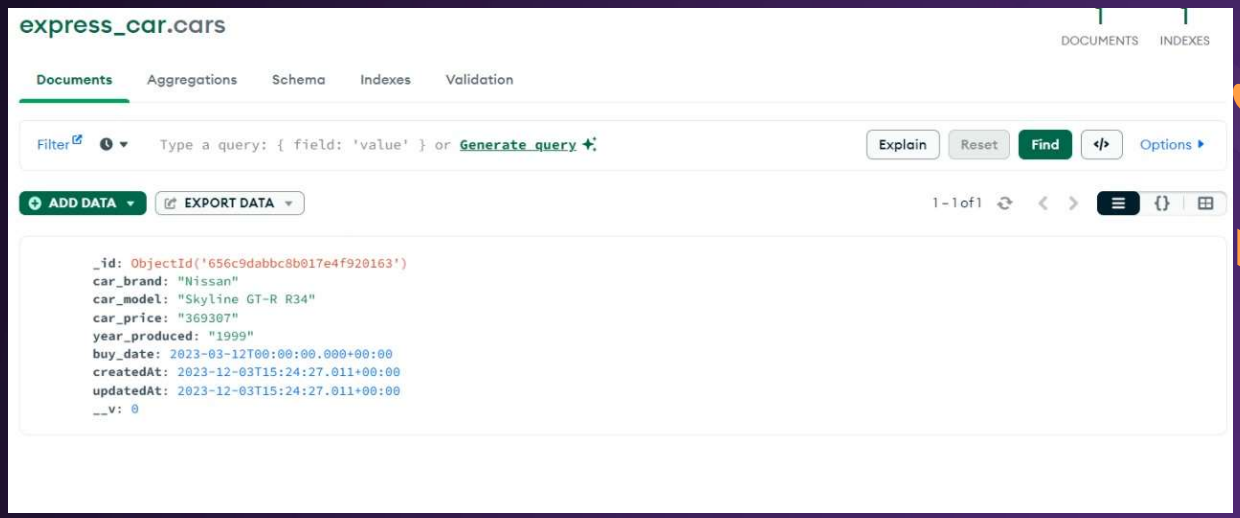




Kemudian klik “send” dan tunggu prosesnya hingga muncul pesan berikut :



Cek di MongoDB Compass untuk update datanya



Mengubah route untuk show data

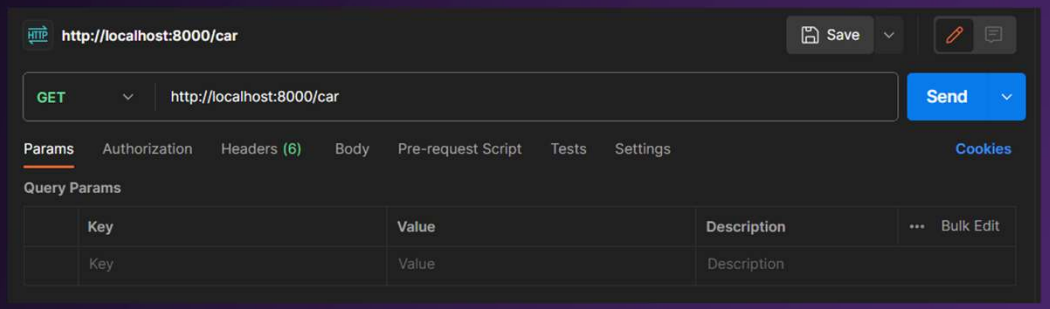
Pada car.controller.js tambahkan beberapa kode untuk menampilkan data

app > controllers > JS car.controller.js > ...

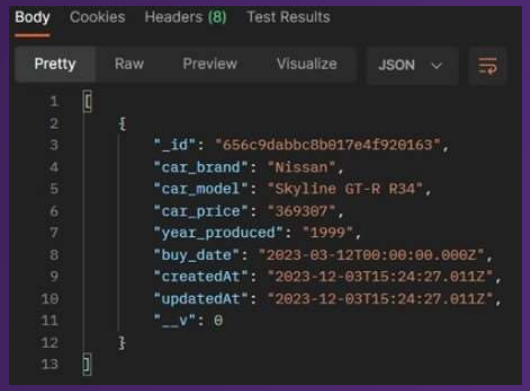
```
1   const db = require("../models");
2   const Car = db.car;
3
4   exports.create = (req, res) => {
5
6       req.body.buy_date = new Date(req.body.buy_date)
7
8       Car.create(req.body)
9           .then(() => res.send({ message: "Data added successfully" }))
10          .catch(err => res.status(500).send({ message: err.message }));
11  }
12
13  exports.findAll = (req, res) => {
14      Car.find()
15          .then(data => res.send(data))
16          .catch(err => res.status(500).send({ message: err.message }))
17  }
```

Mengecek perubahan menggunakan postman

Kirim sebagai get, dan tunggu prosesnya



Jika berhasil, akan muncul tampilan berikut

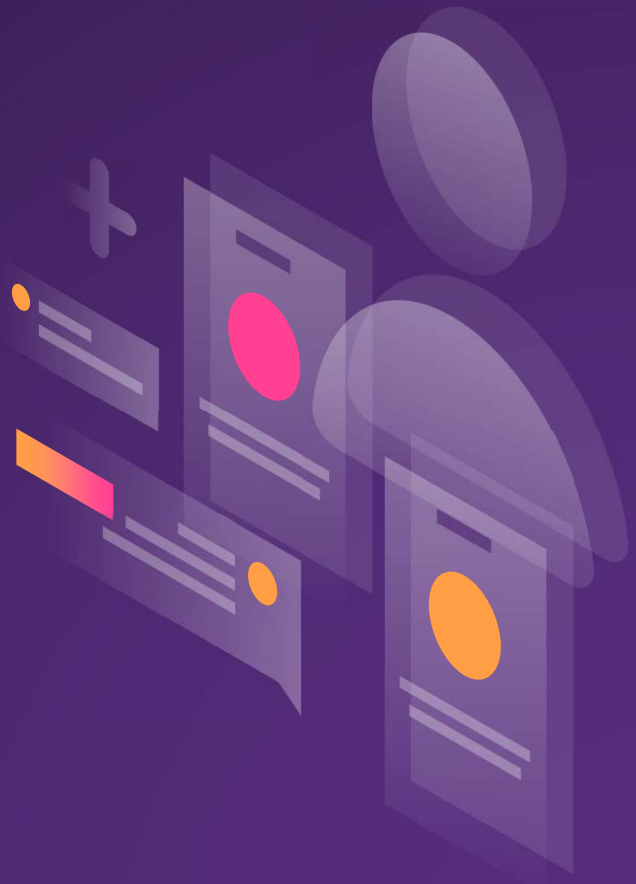


Menghilangkan _id dan __v

Pada car.model tambahkan beberapa kode berikut

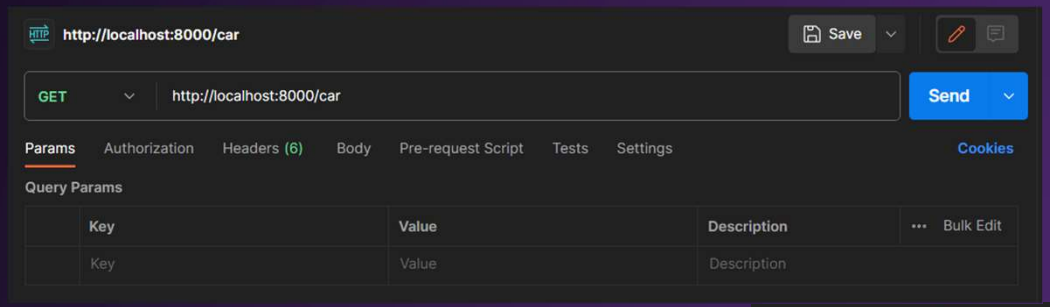
app > models > JS car.model.js > <unknown> > exports > schema.method("toJSON") callback

```
1   module.exports = mongoose => {
2
3       const schema = mongoose.Schema(
4           {
5               car_brand: String,
6               car_model: String,
7               car_price: String,
8               year_produced: String,
9               buy_date: Date
10          }, {
11          timestamps: true
12      });
13
14      schema.method("toJSON", function () {
15          const { __v, _id, ...object } = this.toObject
16          object.id = _id;
17
18          return object;
19      });
20
21      return mongoose.model("car", schema);
22  }
23
```



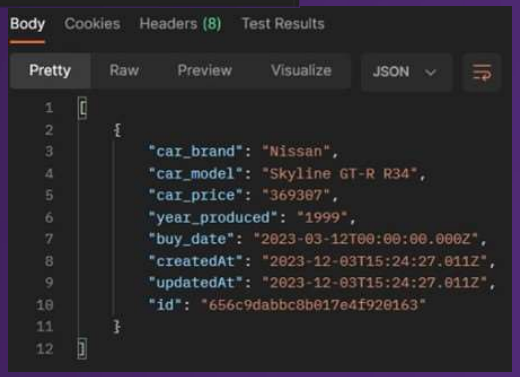
Mengecek data yang ada menggunakan postman

Kirim sebagai get, dan tunggu prosesnya



Jika berhasil, akan muncul tampilan berikut :

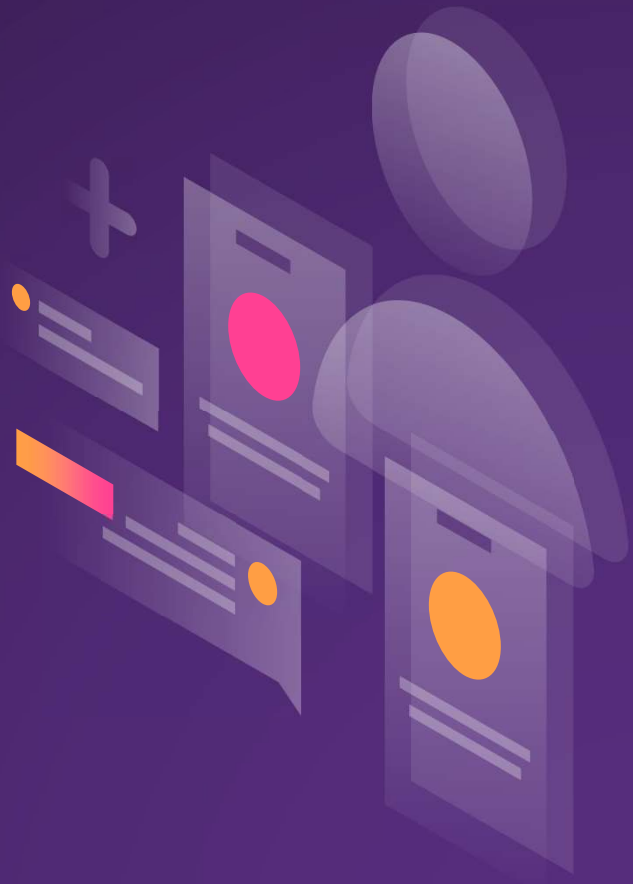
Dan _id berubah menjadi id , dan __v tidak muncul lagi



Membuat route untuk show data berdasarkan id

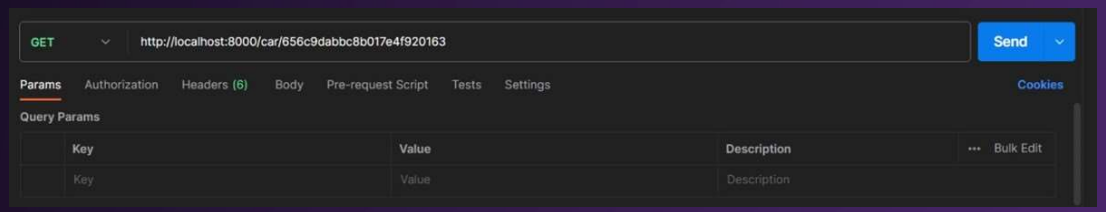
Pada car.controller.js tambahkan kode berikut

```
exports.show = (req, res) => {
    const id = req.params.id;

    Car.findById(id)
        .then(data => res.send(data))
        .catch(err => res.status(500).send({ message: err.message }));
}
```



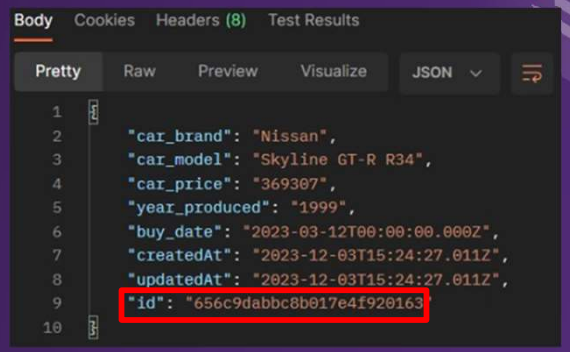
Cek perubahan menggunakan postman

Sertakan id dari data yang sudah ada sebelumnya



Jika berhasil, akan muncul tampilan berikut :

Sesuai dengan id yang dicari

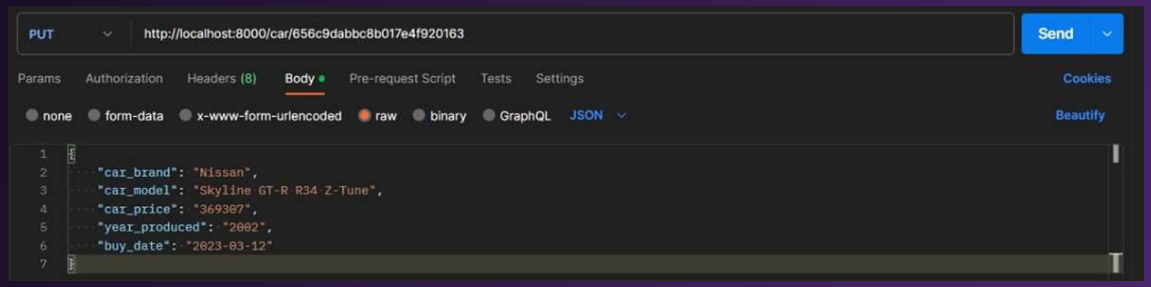


Membuat route untuk update data yang sudah ada

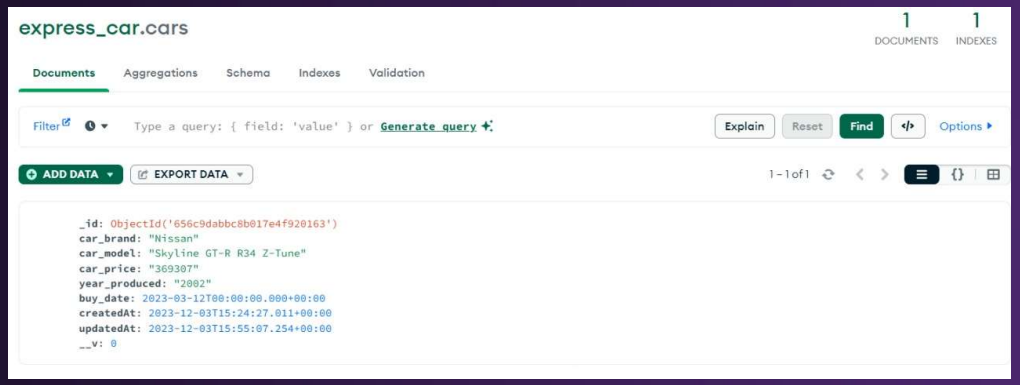
Pada car.controller.js tambahkan kode berikut

```
exports.update = (req, res) => {
    const id = req.params.id;

    req.body.buy_date = new Date(req.body.buy_date);

    Car.findByIdAndUpdate(id, req.body, { useFindAndModify: false })
        .then(data => {
            if (!data) {
                res.status(404).send({ message: "Cannot update data" })
            }
            res.send({ message: "Data updated successfully" })
        })
        .catch(err.status(500).send({ message: err.message }))
}
```

Cek perubahan menggunakan postman



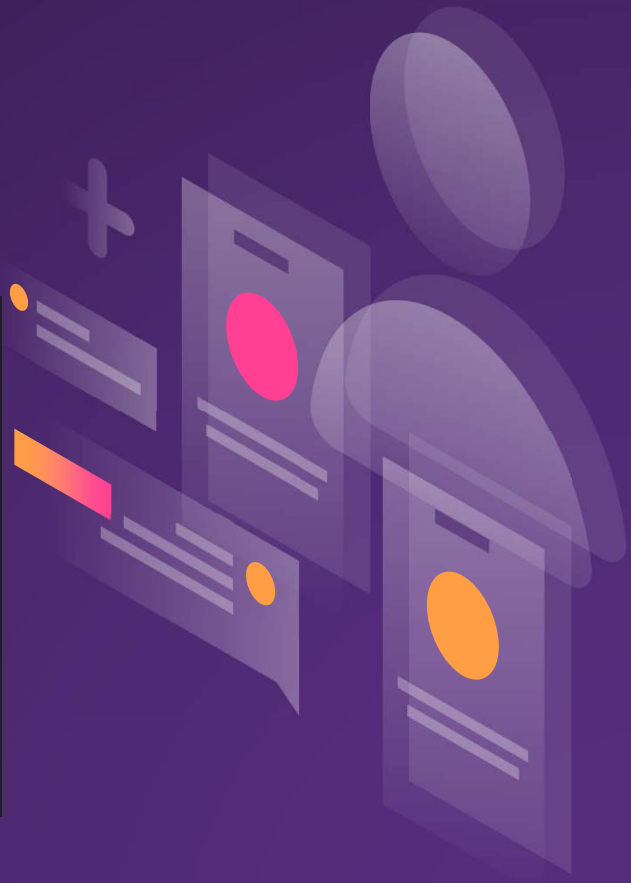
Jika berhasil, akan di update di database



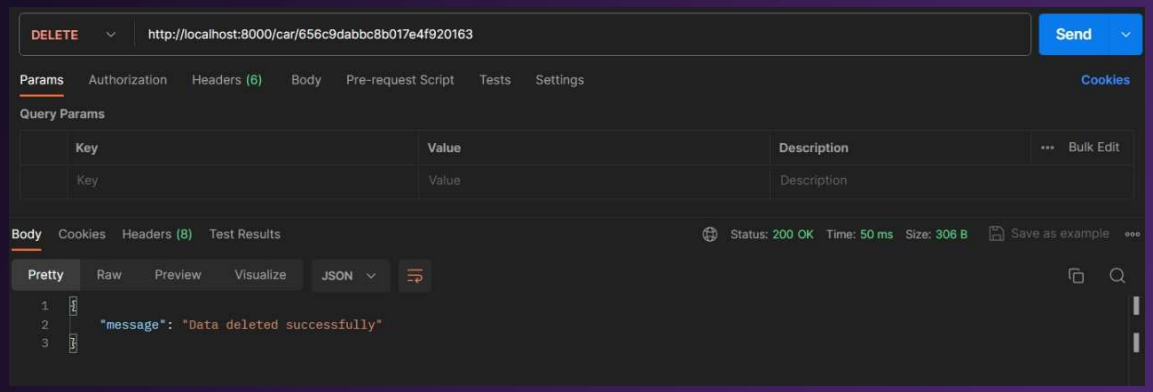
Menambahkan route untuk delete data yang sudah ada

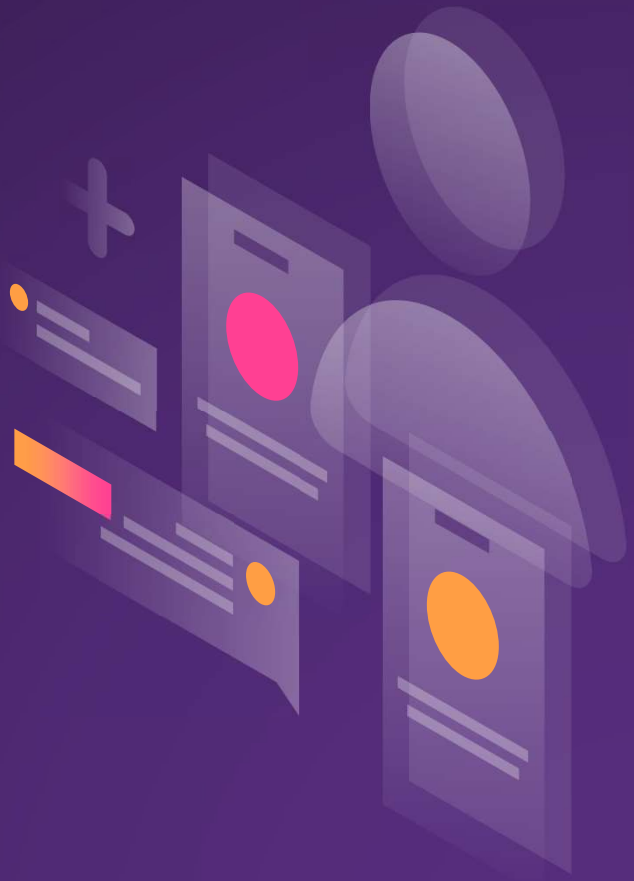
Pada car.controller.js tambahkan kode berikut

```
exports.delete = (req, res) => {
    const id = req.params.id;

    Car.findByIdAndDelete(id)
        .then(data => {
            if (!data) {
                res.status(404).send({ message: "Cannot delete data" })
            }
            res.send({ message: "Data deleted successfully" })
        })
        .catch(err => res.status(500).send({ message: err.message }))
}
```



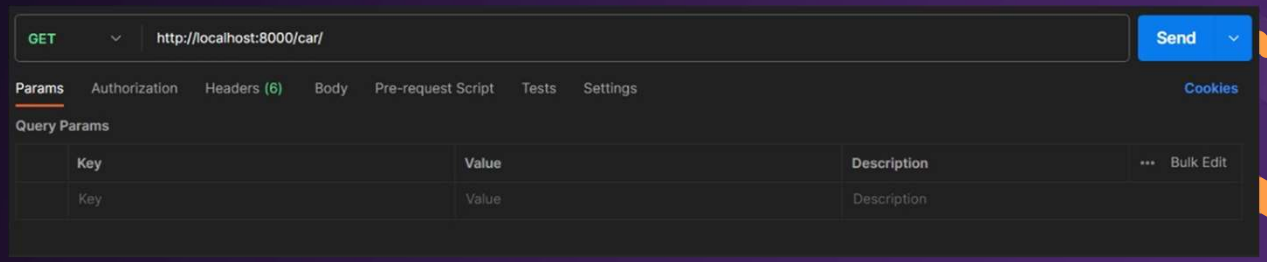
Melakukan percobaan delete menggunakan postman



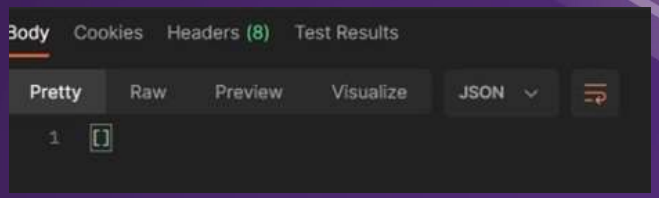


Jika berhasil, akan muncul pesan “Data deleted successfully”

Mengecek data tadi menggunakan postman



Dan data yang tadi sudah terhapus, sehingga tidak muncul jika di panggil



Terima Kasih!!

Sekian presentasi dari saya