**1. Build a RESTful API using MongoDB.**

**Index.js -**

```
// Import express
let express = require("express");
// Import Body parser
let bodyParser = require("body-parser");
// Import Mongoose
let mongoose = require("mongoose");
// Initialise the app
let app = express();

// Import routes
let apiRoutes = require("./api-routes");
// Configure bodyparser to handle post requests
app.use(
  bodyParser.urlencoded({
    extended: true,
  })
);
app.use(bodyParser.json());
// Connect to Mongoose and set connection variable
mongoose.connect("mongodb://localhost/student", { useNewUrlParser: true,
family: 4, });
var db = mongoose.connection;

// Added check for DB connection
if (!db) console.log("Error connecting db");
else console.log("Db connected successfully");

// Setup server port
var port = process.env.PORT || 8080;

// Send message for default URL
app.get("/", (req, res) => res.send("Hello World with Express"));

// Use Api routes in the App
```

```
app.use("/api", apiRoutes);
// Launch app to listen to specific port
app.listen(port, function () {
  console.log("Running RestHub on port " + port);
});
```

**contactModel.js -**

```
var mongoose = require("mongoose"); // Setup schema
var contactSchema = mongoose.Schema({
  name: {
    type: String,
    required: true,
  },
  email: {
    type: String,
    required: true,
  },
  gender: String,
  phone: String,
  create_date: {
    type: Date,
    default: Date.now,
  },
}); // Export Contact model
var Contact = (module.exports = mongoose.model("contact", contactSchema));
module.exports.get = function (callback, limit) {
  Contact.find(callback).limit(limit);
};
```

**contactController.js -**

```
// contactController.js
// Import contact model
Contact = require("./contactModel"); // Handle index actions
exports.index = function (req, res) {
  Contact.get(function (err, contacts) {
    if (err) {
      res.json({
```

```
        status: "error",
        message: err,
      });
    }
    res.json({
      status: "success",
      message: "Contacts retrieved successfully",
      data: contacts,
    });
  });
}; // Handle create contact actions
exports.new = function (req, res) {
  var contact = new Contact();
  contact.name = req.body.name ? req.body.name : contact.name;
  contact.gender = req.body.gender;
  contact.email = req.body.email;
  contact.phone = req.body.phone; // save the contact and check for errors
  contact.save(function (err) {
    if (err) res.json(err);
    res.json({
      message: "New contact created!",
      data: contact,
    });
  });
}; // Handle view contact info
exports.view = function (req, res) {
  Contact.findById(req.params.contact_id, function (err, contact) {
    if (err) res.send(err);
    res.json({
      message: "Contact details loading..",
      data: contact,
    });
  });
}; // Handle update contact info
exports.update = function (req, res) {
  Contact.findById(req.params.contact_id, function (err, contact) {
    if (err) res.send(err);
```

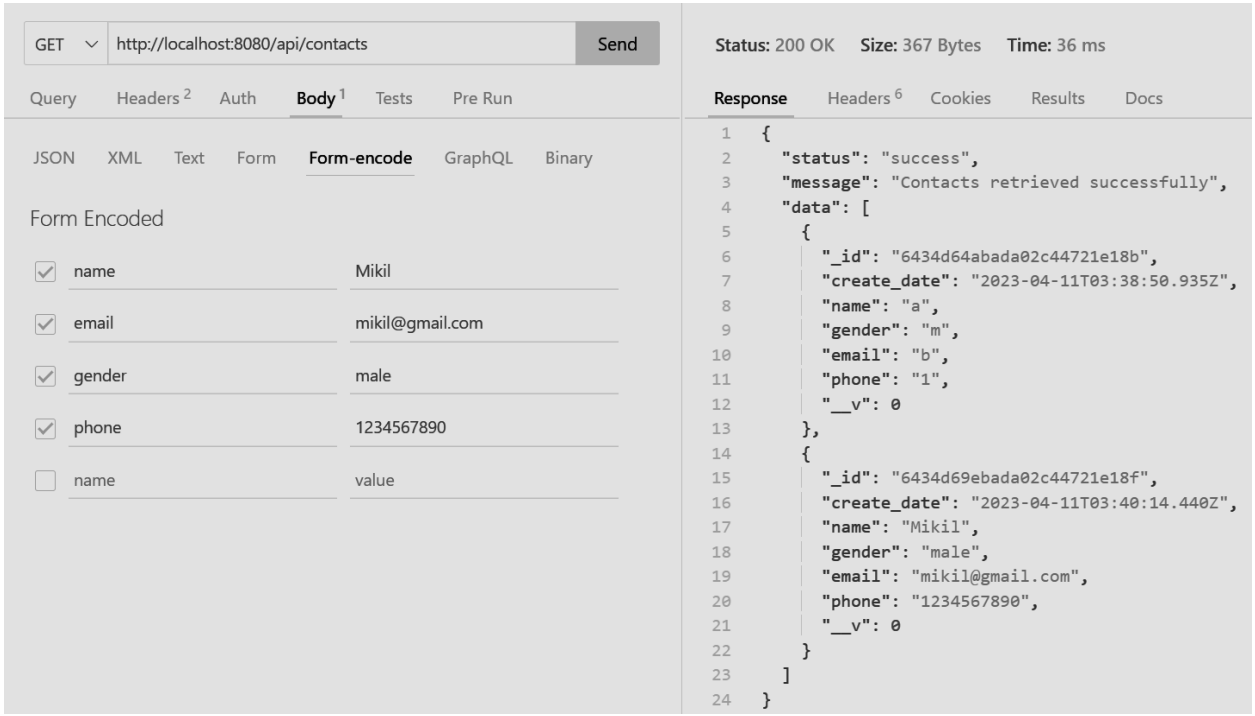
```
    contact.name = req.body.name ? req.body.name : contact.name;
    contact.gender = req.body.gender;
    contact.email = req.body.email;
    contact.phone = req.body.phone; // save the contact and check for errors
    contact.save(function (err) {
      if (err) res.json(err);
      res.json({
        message: "Contact Info updated",
        data: contact,
      });
    });
  });
}; // Handle delete contact
exports.delete = function (req, res) {
  Contact.remove(
    {
      _id: req.params.contact_id,
    },
    function (err, contact) {
      if (err) res.send(err);
      res.json({
        status: "success",
        message: "Contact deleted",
      });
    }
  );
};
```

**api-routes.js-**

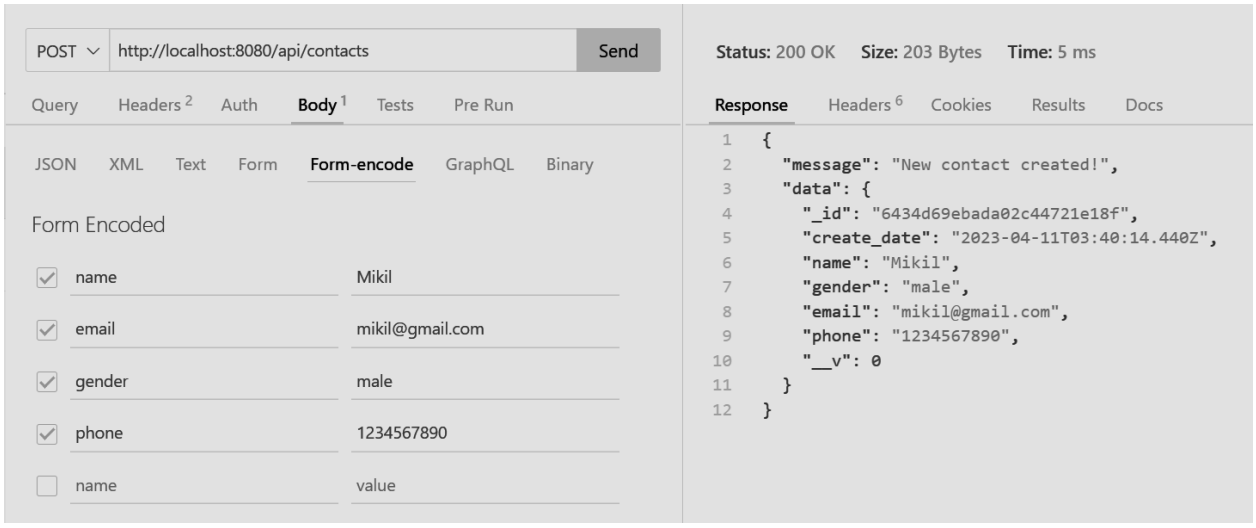
```
// api-routes.js// Initialize express router
let router = require("express").Router(); // Set default API response
router.get("/", function (req, res) {
  res.json({
    status: "API Its Working",
    message: "Welcome to RESTHub crafted with love!",
  });
}); // Import contact controller
```

```
var contactController = require("./contactController"); // Contact routes
router
  .route("/contacts")
  .get(contactController.index)
  .post(contactController.new);
router
  .route("/contacts/:contact_id")
  .get(contactController.view)
  .patch(contactController.update)
  .put(contactController.update)
  .delete(contactController.delete); // Export API routes
module.exports = router;
```

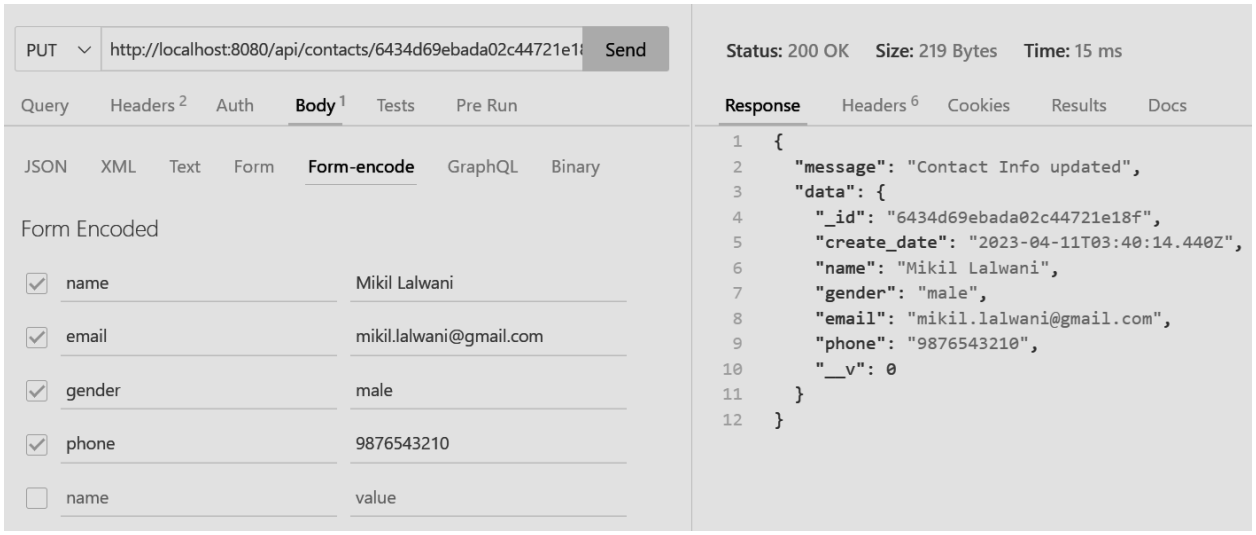
a. GET -



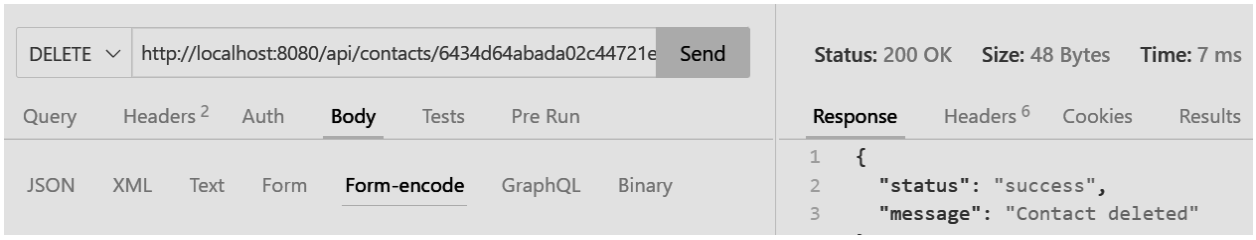
b. PUT -




c. PUSH -




d. DELETE -



**2. Create a new database to store student details and perform the following on the database.**

1. **Create a database.**
2. **Create a collection.**
3. **Create a document and insert one document and insert many documents at once.**
4. **Search with conditions.**
5. **Change the roll no of a student**
6. **Delete one or many documents**

1. Create a database.

```
test> show dbs
admin   40.00 KiB
config  12.00 KiB
local   40.00 KiB
test> use student
switched to db student
```

2. Create a collection.

```
student> db.createCollection("details")
{ ok: 1 }
```

3. Insert one document.

```
student> db.details.insertOne({first_name:"Mikil", last_name:"Lalwani", roll_no:37, divsion:"D15B"})
{
  acknowledged: true,
  insertedId: ObjectId("6433f33b40a86808b180202f")
}
```

4. Insert many documents at once.

```
student> db.details.insertMany([{first_name:"A", last_name:"a", roll_no:1, divsion:"D15B"},{first_name:"B", last_name:"b
", roll_no:2, divsion:"D15B"},{first_name:"C", last_name:"c", roll_no:1, divsion:"D15A"},{first_name:"D", last_name:"d",
 roll_no:3, divsion:"D15A"}])
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("6433f41040a86808b1802030"),
    '1': ObjectId("6433f41040a86808b1802031"),
    '2': ObjectId("6433f41040a86808b1802032"),
    '3': ObjectId("6433f41040a86808b1802033")
  }
}
```

5. Find all documents.

```
student> db.details.find()
[
  { _id: ObjectId("6433f2f440a86808b180202e") },
  {
    _id: ObjectId("6433f33b40a86808b180202f"),
    first_name: 'Mikil',
    last_name: 'Lalwani',
    roll_no: 37,
    divsion: 'D15B'
  },
  {
    _id: ObjectId("6433f41040a86808b1802030"),
    first_name: 'A',
    last_name: 'a',
    roll_no: 1,
    divsion: 'D15B'
  },
  {
    _id: ObjectId("6433f41040a86808b1802031"),
    first_name: 'B',
    last_name: 'b',
    roll_no: 2,
    divsion: 'D15B'
  },
  {
    _id: ObjectId("6433f41040a86808b1802032"),
    first_name: 'C',
    last_name: 'c',
    roll_no: 1,
    divsion: 'D15A'
  },
  {
    _id: ObjectId("6433f41040a86808b1802033"),
    first_name: 'D',
    last_name: 'd',
    roll_no: 3,
    divsion: 'D15A'
  }
]
```

6. Find documents using conditions.

```
student> db.details.find({roll_no:1})
[
  {
    _id: ObjectId("6433f41040a86808b1802030"),
    first_name: 'A',
    last_name: 'a',
    roll_no: 1,
    divsion: 'D15B'
  },
  {
    _id: ObjectId("6433f41040a86808b1802032"),
    first_name: 'C',
    last_name: 'c',
    roll_no: 1,
    divsion: 'D15A'
  }
]
```

```
student> db.details.find({roll_no:1, divsion:"D15B"})
[
  {
    _id: ObjectId("6433f41040a86808b1802030"),
    first_name: 'A',
    last_name: 'a',
    roll_no: 1,
    divsion: 'D15B'
  }
]
```

7. Delete one document.

```
student> db.details.deleteOne({roll_no:3})
{ acknowledged: true, deletedCount: 1 }
```

```
student> db.details.find()
[
  { _id: ObjectId("6433f2f440a86808b180202e") },
  {
    _id: ObjectId("6433f33b40a86808b180202f"),
    first_name: 'Mikil',
    last_name: 'Lalwani',
    roll_no: 37,
    divsion: 'D15B'
  },
  {
    _id: ObjectId("6433f41040a86808b1802030"),
    first_name: 'A',
    last_name: 'a',
    roll_no: 1,
    divsion: 'D15B'
  },
  {
    _id: ObjectId("6433f41040a86808b1802031"),
    first_name: 'B',
    last_name: 'b',
    roll_no: 2,
    divsion: 'D15B'
  },
  {
    _id: ObjectId("6433f41040a86808b1802032"),
    first_name: 'C',
    last_name: 'c',
    roll_no: 1,
    divsion: 'D15A'
  }
]
```

8. Delete many documents at once.

```
student> db.details.deleteMany({divsion:'D15B'})
{ acknowledged: true, deletedCount: 2 }
student> db.details.find()
[
  { _id: ObjectId("6433f2f440a86808b180202e") },
  {
    _id: ObjectId("6433f41040a86808b1802032"),
    first_name: 'C',
    last_name: 'c',
    roll_no: 1,
    divsion: 'D15A'
  }
]
```