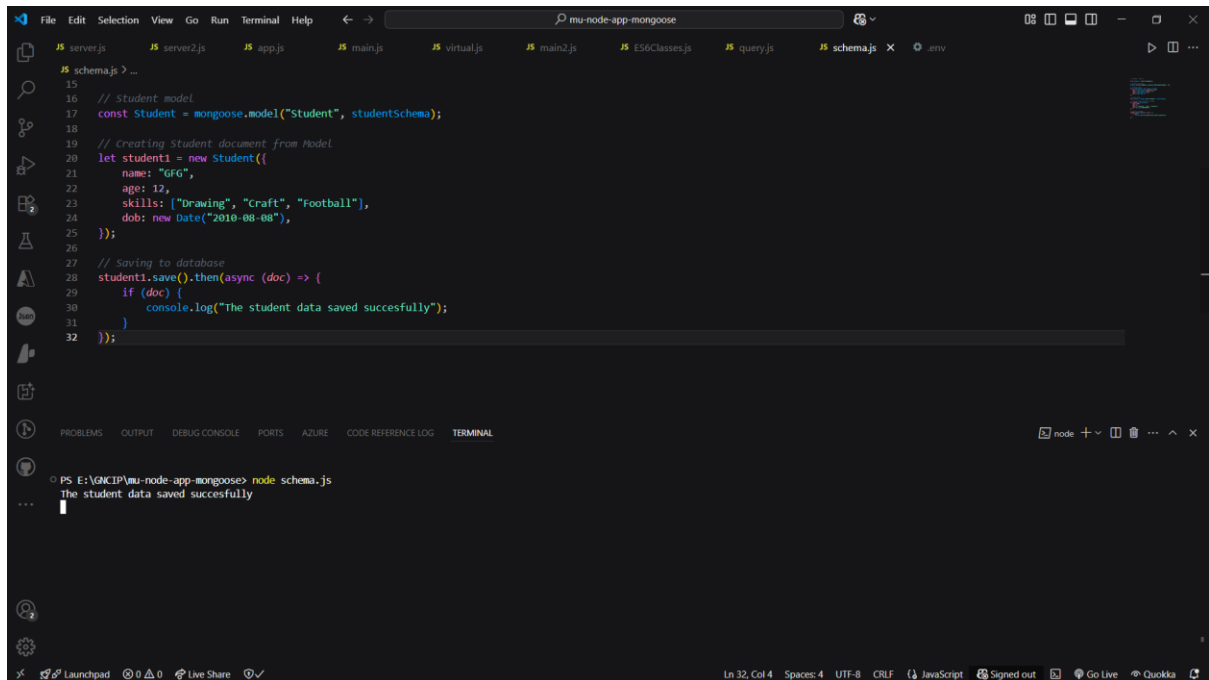


June 18, 2025

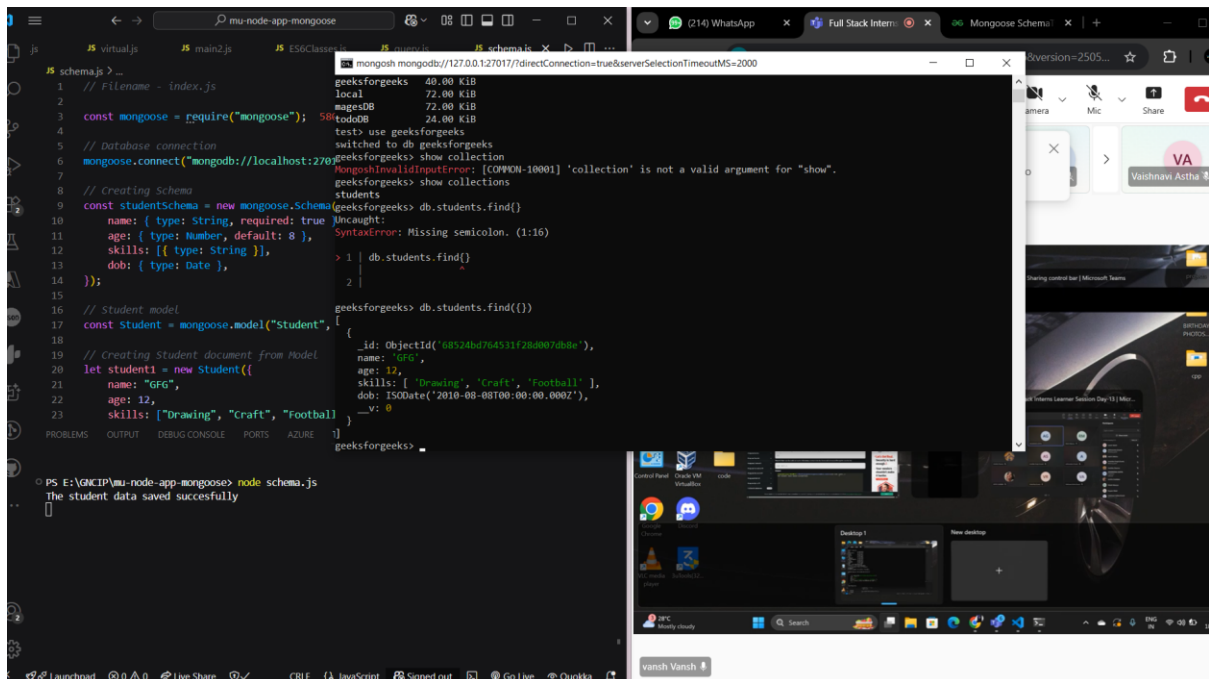
Session 1



```
15 // schema.js > ...
16 // Student model
17 const Student = mongoose.model("Student", studentSchema);
18
19 // Creating Student document from Model
20 let student1 = new Student({
21   name: "GFG",
22   age: 12,
23   skills: ["Drawing", "Craft", "Football"],
24   dob: new Date("2010-08-08"),
25 });
26
27 // Saving to database
28 student1.save().then(async (doc) => {
29   if (doc) {
30     console.log("The student data saved successfully");
31   }
32 });
```

PS E:\GKIP\mu-node-app-mongoose> node schema.js

The student data saved successfully



```
1 // schema.js > ...
2 // Filename - index.js
3
4 const mongoose = require("mongoose");
5
6 // Database connection
7 mongoose.connect("mongodb://localhost:27017/geeksforgeeks");
8
9 // Creating Schema
10 const studentSchema = new mongoose.Schema({
11   name: { type: String, required: true },
12   age: { type: Number, default: 8 },
13   skills: [{ type: String }],
14   dob: { type: Date },
15 });
16
17 // Student model
18 const Student = mongoose.model("Student", studentSchema);
19
20 // Creating Student document from Model
21 let student1 = new Student({
22   name: "GFG",
23   age: 12,
24   skills: ["Drawing", "Craft", "Football"],
25   dob: new Date("2010-08-08")
26 });
27
28 // Saving to database
29 student1.save().then(async (doc) => {
30   if (doc) {
31     console.log("The student data saved successfully");
32   }
33 });
```

PS E:\GKIP\mu-node-app-mongoose> node schema.js

The student data saved successfully

mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000

```
geeksforgeeks 40.00 KiB
local          72.00 KiB
magesDB        72.00 KiB
todoDB         24.00 KiB
test> use geeksforgeeks
switched to db geeksforgeeks
geeksforgeeks> show collection
geeksforgeeks> show collections
students
geeksforgeeks> db.students.find()
{
  _id: ObjectId('68524bd7b64511f2b0007db8e'),
  name: 'GFG',
  age: 12,
  skills: [ 'Drawing', 'Craft', 'Football' ],
  dob: ISODate('2010-08-08T00:00:00.000Z'),
  __v: 0
}
```

```
File Edit Selection View Go Run Terminal Help mu-node-app-mongoose
server.js server2.js app.js main.js virtual.js main2.js ES6Classes.js query.js schema.js .env

schema.js > ...
6 let schemaClass = new mongoose.Schema({
7   name: {
16     get: (value) => value.toUpperCase(),
17     set: (value) => value.toLowerCase()
18   }
19 });
20 // creating model from the schema
21 let Schema = mongoose.model('Schema', schemaClass);
22
23 let schema1 = new Schema({
24   name: "GeeksForGeeks"
25 });
26 // will have a default value of John Doe
27 let schema2 = new Schema({});
28
29 console.log(schema1);
30 console.log(schema2);

PROBLEMS OUTPUT DEBUG CONSOLE PORTS AZURE CODE REFERENCE LOG TERMINAL powershell + - x
PS E:\GKIP\mu-node-app-mongoose> node schema.js
The student data saved successfully
PS E:\GKIP\mu-node-app-mongoose> node schema.js
{
  name: 'geeksforgeeks',
  _id: new ObjectId('68524f2687423895b9c2e5e3')
}
{ name: 'john doe', _id: new ObjectId('68524f2787423895b9c2e5e4') }
PS E:\GKIP\mu-node-app-mongoose>
```

```
File Edit Selection View Go Run Terminal Help mu-node-app-mongoose
server.js server2.js app.js main.js virtual.js main2.js ES6Classes.js query.js schema.js .env

schema.js > ...
5 let bookSchema = new mongoose.Schema({
14   publishedDate: {
15     type: Date,
16     required: true
17   },
18   pageCount: {
19     type: Number,
20     required: true
21   },
22   publisher: String,
23   coverImageUrl: String
24 });
25 // creating model from the schema
26 let Book = mongoose.model('Book', bookSchema);
27
28 let book = new Book({
29   title: "OSA",
30   author: "GeeksForGeeks",
31   publishedDate: new Date(),
32   pageCount: 512,
33 });
34 console.log("Book:", book);

PROBLEMS OUTPUT DEBUG CONSOLE PORTS AZURE CODE REFERENCE LOG TERMINAL powershell + - x
PS E:\GKIP\mu-node-app-mongoose> node schema.js
{
  name: 'geeksforgeeks',
  _id: new ObjectId('68524f2687423895b9c2e5e3')
}
{ name: 'john doe', _id: new ObjectId('68524f2787423895b9c2e5e4') }
PS E:\GKIP\mu-node-app-mongoose> node schema.js
Book: {
  title: 'OSA',
  author: 'GeeksForGeeks',
  publishedDate: 2025-06-18T05:36:41.946Z,
  pageCount: 512,
  _id: new ObjectId('6852586925337f5fcb96f8a0')
}
PS E:\GKIP\mu-node-app-mongoose>
```

The screenshot shows the VS Code editor with the file `schema.js` open. The code defines a Mongoose schema for a 'Person' model with fields: `firstName` (String), `lastName` (String), `age` (Number), and `gender` (String). It also includes a `console.log` statement to inspect the schema options using `schema.path()`.

```
14  })
15
16  // Calling Schema class
17  const Schema = mongoose.Schema;
18
19  // Creating Structure of the model
20  const schema = new Schema({
21    firstName: String,
22    lastName: String,
23    age: Number,
24    Gender: String,
25  });
26
27  // Compile our model
28  const Person = mongoose.model('Person', schema);
29
30  // Inspecting the options using schema.path() function
31  console.log('firstName property is :',
32    schema.path('firstName').instance);
33  console.log('lastName property is :',
34    schema.path('lastName').instance);
35  console.log('Age property is :',
36    schema.path('age').instance);
```

The terminal output shows the command `node schema.js` being executed, resulting in the following output:

```
PS E:\GNCIP\mu-node-app-mongoose> node schema.js
Book: {
  title: 'DSA',
  author: 'GeeksforGeeks',
  publishedDate: 2025-06-18T05:36:41.946Z,
  pageCount: 512,
  _id: new ObjectId('6852586925337f5fcb96f680')
}
firstName property is : String
lastName property is : String
Age property is : Number
Gender property is : String
Connected Successful
```

The screenshot shows the VS Code editor with the file `schema.js` open. The code defines a Mongoose schema for a 'Geek' model with fields: `name` (String), `age` (Number), and `gender` (String). It also includes a `console.log` statement to inspect the schema options using `schema.path()`.

```
6  const geekSchema = new mongoose.Schema({
7    name: {
8      // The name field is of type string
9      type: String,
10
11    },
12    // A getter function that returns the
13    // value of the "name" field in uppercase
14    get: (name) => name.toUpperCase()
15  });
16
17  // User model
18  // Create a model for the "Geek" object
19  // using the "geekSchema" schema
20  const Geek = mongoose.model('Geek', geekSchema);
21
22  // Create a new "Geek" object with the "name"
23  // field set to "geeksforgeeks"
24  const geek = new Geek({ name: 'geeksforgeeks' });
25
26  // Log the value of the "name" field on the console
27  console.log(geek.name); // Output: "GEEKSFORGEES"
```

The terminal output shows the command `node schema.js` being executed, resulting in the following output:

```
PS E:\GNCIP\mu-node-app-mongoose> node schema.js
GEEKSFORGEES
```

```
File Edit Selection View Go Run Terminal Help mu-node-app-mongoose
JS server.js JS server2.js JS app.js JS main.js JS virtual.js JS main2.js JS ES6Classes.js JS query.js JS schema.js x .env
JS schema.js > ...
65
66 // Create a user model from the schema
67 const User = mongoose.model('User', userSchema);
68
69 // Create a new user instance with email and password
70 const user = new User({
71   email: 'abc145@gmail.com',
72   password: '1234'
73 });
74
75 // Log the masked email and encrypted
76 // password of the user
77
78 // Output: a*****@gmail.com
79 console.log(user.email);
80
81 // Output: 81dc9bdb52d04dc20036dbd8313ed055
82 console.log(user.password);
...
run 'npm fund' for details
found 0 vulnerabilities
PS E:\GKIP\mu-node-app-mongoose> npm i mds
...
up to date, audited 89 packages in 3s
15 packages are looking for funding
run 'npm fund' for details
found 0 vulnerabilities
PS E:\GKIP\mu-node-app-mongoose> node schema.js
a*****@gmail.com
81dc9bdb52d04dc20036dbd8313ed055
PS E:\GKIP\mu-node-app-mongoose>
Launchpad 0 0 0 Live Share Quokka
```

```
File Edit Selection View Go Run Terminal Help mu-node-app-mongoose
JS server.js JS server2.js JS app.js JS main.js JS virtual.js JS main2.js JS ES6Classes.js JS query.js JS schema.js x .env
JS schema.js > fetchPost
23 async function seedData() {
33   const post = new Post({
36   });
37   await post.save();
38
39   console.log('Sample data seeded.');
```

```
40 }
41
42 // Fetch a post and populate its author
43 async function fetchPost() {
44   try {
45     const post = await Post.findOne({ title: 'Mongoose Guide' }).populate('author');
46     if (post && post.author) {
47       console.log('Populated Post:');
48       console.log('Title:', post.title);
49       console.log('Author Name:', post.author.name);
50       console.log('Author Email:', post.author.email);
51     } else {
52       console.log('Post or author not found.');
```

```
53   }
54 } catch (err) {
55   console.error('Error fetching post:', err);
56 }
...
PS E:\GKIP\mu-node-app-mongoose> node schema.js
(node:12696) [MONGODB DRIVER] Warning: useUnifiedTopology is a deprecated option: useUnifiedTopology has no effect since Node.js Driver version 4.0.0 and will be removed in the next major version
(Use 'node --trace-warnings ...' to show where the warning was created)
(node:12696) [MONGODB DRIVER] Warning: useUnifiedTopology is a deprecated option: useUnifiedTopology has no effect since Node.js Driver version 4.0.0 and will be removed in the next major version
MongoDB connected
Post or author not found.
PS E:\GKIP\mu-node-app-mongoose> node schema.js
MongoDB connected
Sample data seeded.
Populated Post:
Title: Mongoose Guide
Author Name: Vaishnavi
Author Email: vaishnavi@example.com
PS E:\GKIP\mu-node-app-mongoose>
Launchpad 0 0 0 Live Share Quokka
```

```
File Edit Selection View Go Run Terminal Help mu-node-app-mongoose
server.js server2.js app.js main.js virtual.js main2.js ES6Classes.js query.js schema.js .env
schema.js > ...
12
13 const User = mongoose.model('User', userSchema);
14
15 async function run() {
16   try {
17     // Clear previous data
18     await User.deleteMany({});
19
20     // Create and save a new user
21     const user = new User({ name: 'Vaishnavi' });
22     await user.save();
23
24     // Show the _id and its type
25     console.log('\n Document created:');
26     console.log('ID:', user._id);
27     console.log('Type of _id:', typeof user._id); // will show 'object'
28     console.log('Instance of ObjectId:', user._id instanceof mongoose.Types.ObjectId); // true
29
30     // Optional: convert to string
31     console.log('Hex String ID:', user._id.toHexString());
32
33   } catch (err) {
34     console.error('Error:', err);
35   }
36 }
37
38 run();
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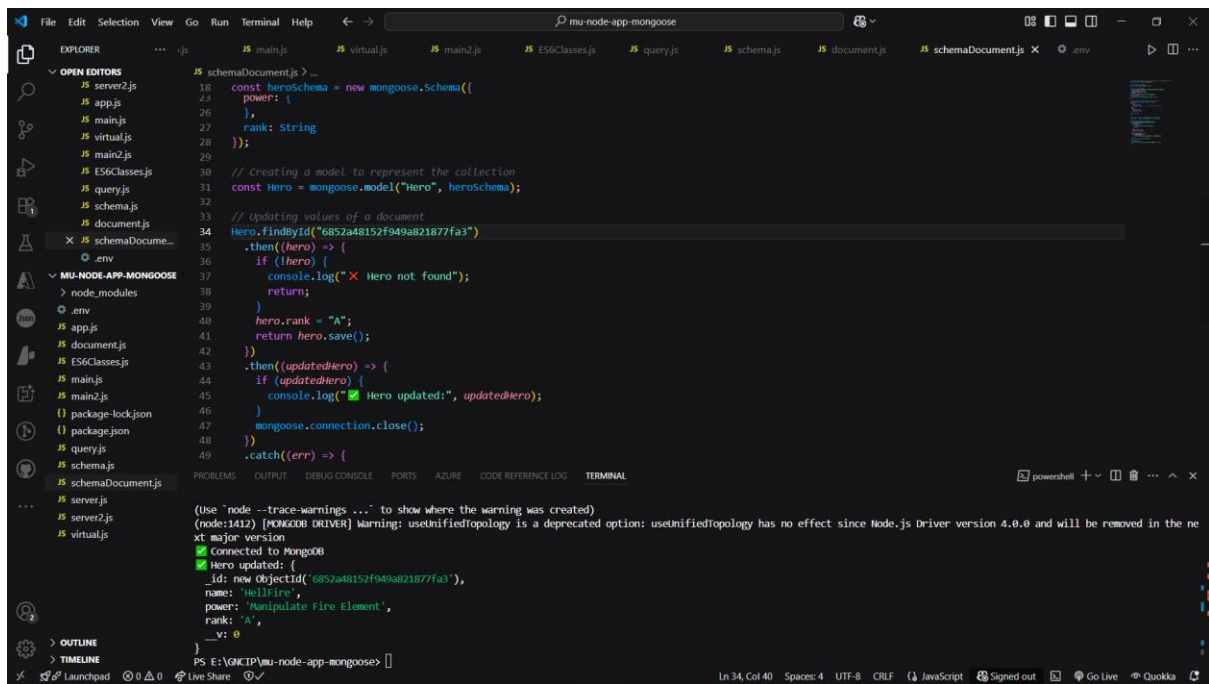
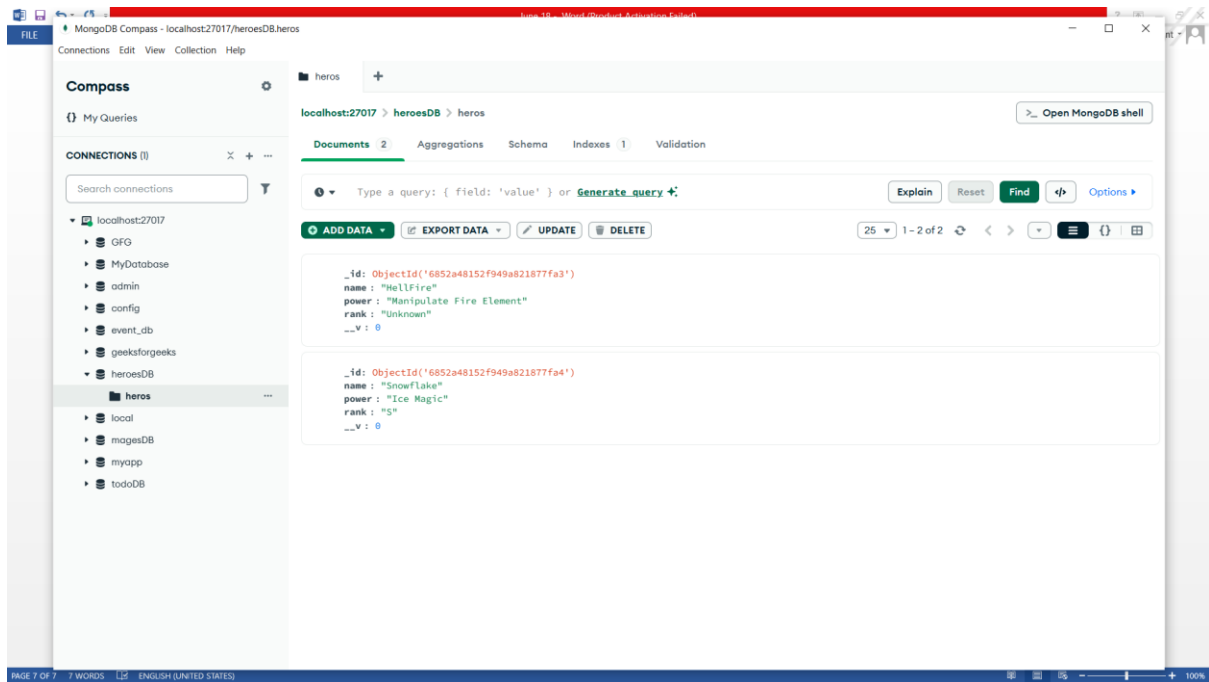
```
File Edit Selection View Go Run Terminal Help mu-node-app-mongoose
server.js server2.js app.js main.js virtual.js main2.js ES6Classes.js query.js schema.js .env
schema.js > ...
17 // calling Schema class
18 const Schema = mongoose.Schema;
19
20 // Creating Structure of the model
21 const schema = new Schema({
22   name: {
23     type: String,
24     firstName: {
25       type: String,
26       require: true,
27     },
28     lastName: {
29       type: String,
30       require: true,
31     }
32   }
33 });
34
35 // Compile our model
36 const Person = mongoose.model('Person', schema);
37
38 // Inspecting the options using schema.path() function
39 ...
PROBLEMS OUTPUT DEBUG CONSOLE PORTS AZURE CODE REFERENCE LOG TERMINAL
node +v ... ^ x
Instance of ObjectId: true
Hex String ID: 68525f586b92b0ae423d054b
PS E:\GNCIP\mu-node-app-mongoose> node schema.js
Name property accepts: String
Roll Number property accepts: Number
Class property accepts: Number
Connected Successful
PS E:\GNCIP\mu-node-app-mongoose> node schema.js
SchemaStringOptions {
  type: [Function: String],
  firstName: { type: [Function: String], require: true },
  lastName: { type: [Function: String], require: true }
}
Connected Successful
Ln 40, Col 42 Spaces: 4 UTF-8 CRLF JavaScript Signed out Go Live Quokka
```

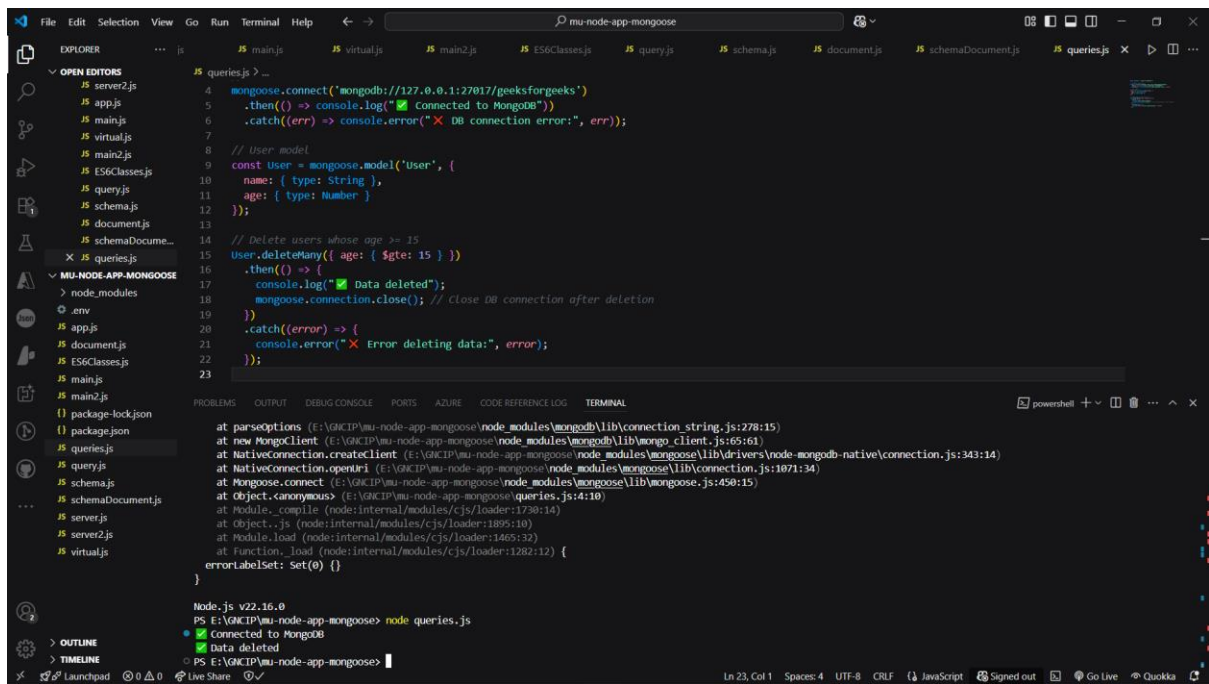
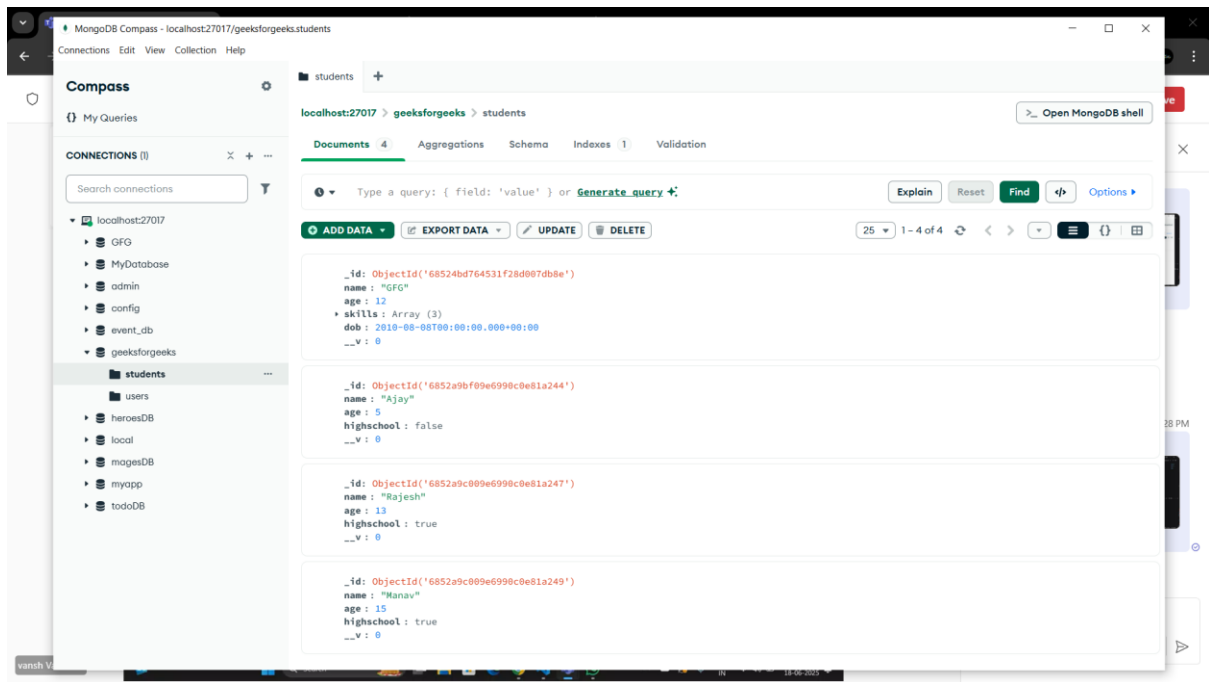
```
File Edit Selection View Go Run Terminal Help Please select account to sign in
GitHub Sign in using GitHub account
Microsoft Sign in using Microsoft account
EXPLORER ... server.js server2.js query.js schema.js document.js x ...
OPEN EDITORS
server2.js 15 async function start() {
app.js 17 // Create and save the document
main.js 18 const user1 = new User({ name: "Geeks", age: 20 });
virtual.js 19 const savedUser = await user1.save();
main2.js 20 console.log("Document saved successfully");
ES6Classes.js 21 console.log("ID:", savedUser._id);
query.js 22
schema.js 23 // Find and update the document
document.js 24 const user2 = await User.findOne({ name: "Geeks" });
25 if (!user2) {
26   console.log("User not found");
27   return;
28 }
29
30 user2.name = "GeeksforGeeks";
31 const updatedUser = await user2.save();
32 console.log("Document updated successfully");
33 console.log("Updated ID:", updatedUser._id);
34
35 } catch (err) {
36   console.error("Error:", err);
37 } finally {
38   await mongoose.disconnect(); // Clean shutdown
39 }
or version
(node:5636) [MONGODB DRIVER] Warning: useUnifiedTopology is a deprecated option: useUnifiedTopology has no effect since Node.js Driver version 4.0.0 and will be removed in the next major version
Document saved successfully
ID: new ObjectId('6852696c6bd42bd5cc9b9e3')
Document updated successfully
Updated ID: new ObjectId('6852680e4d6393dc7bf1b1c1')
PS E:\GNCIP\mu-node-app-mongoose> node document.js
MongoDB connected
Document saved successfully
ID: new ObjectId('6852696c6bd42bd5cc9b9e3')
Document updated successfully
Updated ID: new ObjectId('6852696c6bd42bd5cc9b9e3')
PS E:\GNCIP\mu-node-app-mongoose>
PROBLEMS OUTPUT DEBUG CONSOLE PORTS AZURE CODE REFERENCE LOG TERMINAL
powershell +v ... ^ x
Ln 43, Col 1 Spaces: 4 UTF-8 CRLF JavaScript Signed out Go Live Quokka
```

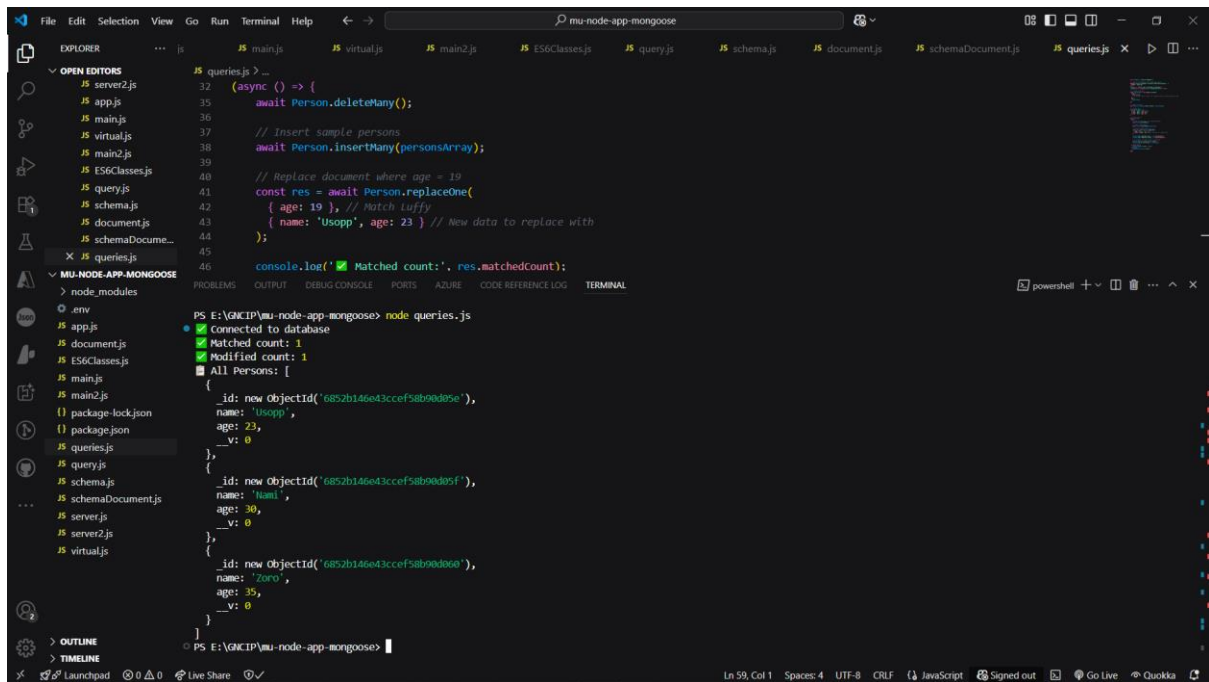
The screenshot shows a VS Code editor with a project named 'MU-NODE-APP-MONGOOSE'. The file explorer on the left lists various files including 'server2.js', 'app.js', 'main.js', 'virtual.js', 'main2.js', 'ES6Classes.js', 'query.js', 'schema.js', 'document.js', 'package-lock.json', 'package.json', 'env', and 'schemaDocument.js'. The 'document.js' file is open in the editor, showing a Mongoose schema for a 'Person' and a document creation attempt. The code defines a schema with 'name' (String, required) and 'age' (Number, min: 18). It then creates a document with 'name: 'john'', 'age: 19' and attempts to save it. The terminal output shows a validation error: 'Person validation failed: age: Cast to Number failed for value "nineteen" (type string) at path "age"'. The error message is: 'at Function.load (node:internal/modules/cjs/loader:1282:12) at TracingChannel.traceSync (node:diagnostics_channel:322:14) at wrapModuleLoad (node:internal/modules/cjs/loader:235:24) at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:171:5) at node:internal/main/run_main_module:36:49'.

Session 2

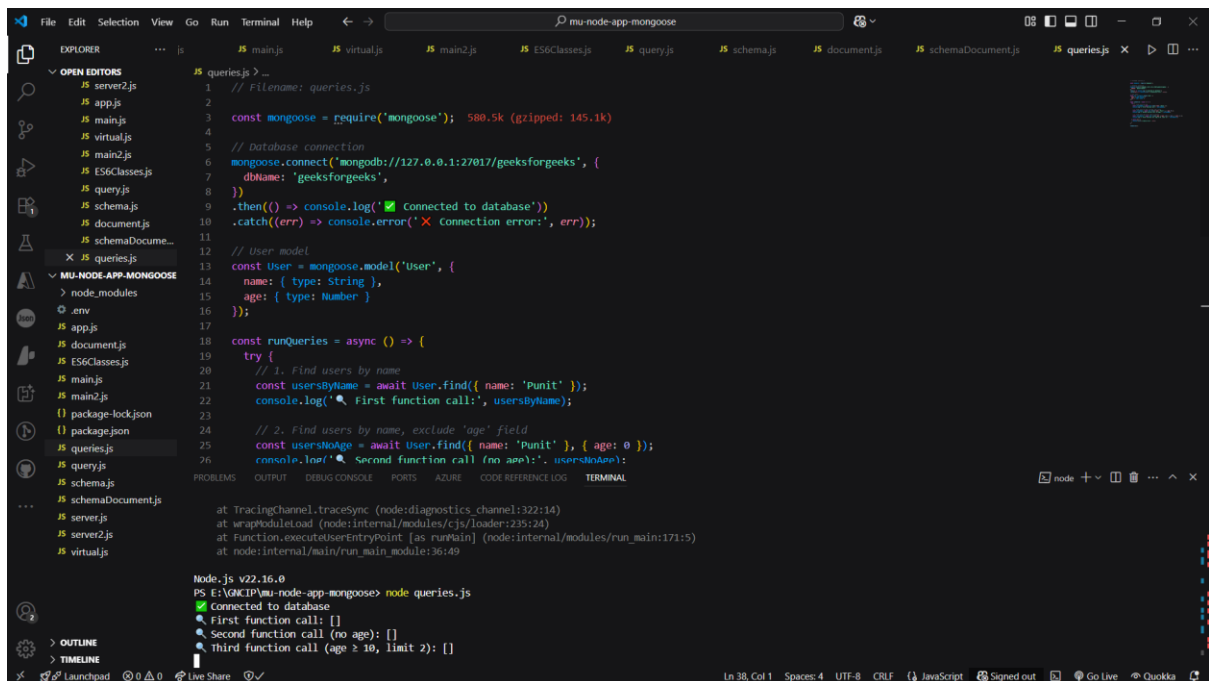
The screenshot shows a VS Code editor with a project named 'mu-node-app-mongoose'. The file explorer on the left lists various files including 'server2.js', 'app.js', 'main.js', 'virtual.js', 'main2.js', 'ES6Classes.js', 'query.js', 'schema.js', 'document.js', 'schemaDocument.js', 'env', 'package-lock.json', 'package.json', 'env', and 'schemaDocument.js'. The 'schemaDocument.js' file is open in the editor, showing a function 'createHeroes()' that saves a 'Hellfire' and a 'Snowflake' document. The code defines a schema for 'Hero' with 'name' (String, required), 'power' (String, required), and 'rank' (String, required). It then creates a document with 'name: 'Snowflake'', 'power: 'Ice Magic'', 'rank: 'S'' and attempts to save it. The terminal output shows a successful save operation: 'Connected to MongoDB', 'Hellfire saved', 'Snowflake saved'. The error message is: 'at wrapModuleLoad (node:internal/modules/cjs/loader:235:24) at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:171:5) at node:internal/main/run_main_module:36:49'.







```
PS E:\GMCIP\mu-node-app-mongoose> node queries.js
[✓] Connected to database
[✓] Matched count: 1
[✓] Modified count: 1
[✓] All Persons: [
  {
    _id: new ObjectId('6852b146e43cccf58b9d0d05e'),
    name: 'Usopp',
    age: 23,
    __v: 0
  },
  {
    _id: new ObjectId('6852b146e43cccf58b9d0d05f'),
    name: 'Nami',
    age: 30,
    __v: 0
  },
  {
    _id: new ObjectId('6852b146e43cccf58b9d0d060'),
    name: 'Zoro',
    age: 35,
    __v: 0
  }
]
```



```
1 // Filename: queries.js
2
3 const mongoose = require('mongoose'); // 580.5k (gzipped: 145.1k)
4
5 // Database connection
6 mongoose.connect('mongodb://127.0.0.1:27017/geeksforgeeks', {
7   dbName: 'geeksforgeeks',
8 });
9 .then(() => console.log('✓ Connected to database'))
10 .catch((err) => console.error('✗ Connection error:', err));
11
12 // User model
13 const User = mongoose.model('User', {
14   name: { type: String },
15   age: { type: Number }
16 });
17
18 const runQueries = async () => {
19   try {
20     // 1. Find users by name
21     const usersByName = await User.find({ name: 'Punit' });
22     console.log('🔍 First function call:', usersByName);
23
24     // 2. Find users by name, exclude 'age' field
25     const usersNoAge = await User.find({ name: 'Punit' }, { age: 0 });
26     console.log('🔍 Second function call (no age):', usersNoAge);
27
28     // 3. Find users by age, limit 2
29     const usersByAge = await User.find({ age: { $gte: 30 } }, { limit: 2 });
30     console.log('🔍 Third function call (age >= 30, limit 2):', usersByAge);
31   } catch (err) {
32     console.error('Error in queries:', err);
33   }
34 }
35
36 runQueries();
```

```
Node.js v22.16.0
PS E:\GMCIP\mu-node-app-mongoose> node queries.js
[✓] Connected to database
🔍 First function call: []
🔍 Second function call (no age): []
🔍 Third function call (age >= 30, limit 2): []
```

