UNIVERSIDAD DE SAN CARLOS DE GUATEMALA
FACULTAD DE INGENIERÍA
ESCUELA DE INGENIERÍA EN CIENCIAS Y SISTEMAS
LABORATORIO SISTEMAS DE BASES DE DATOS 2
SECCIÓN P
VACACIONES DE JUNIO 2024

Proyecto 2

Integrantes Grupo 3:

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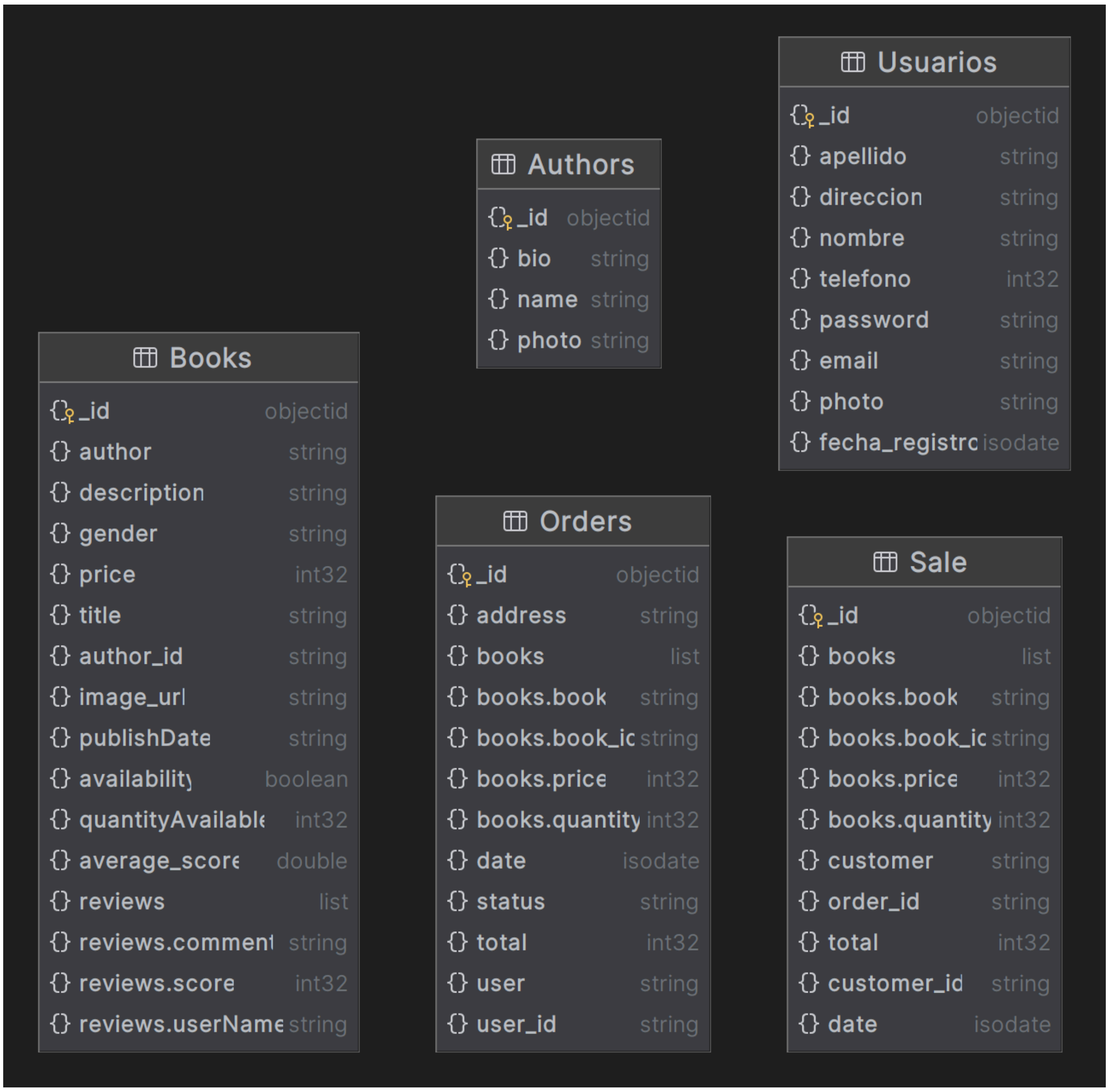
GUATEMALA, 27 DE JUNIO DE 2024

Esquema Base de datos



Usuarios

_id	objectid
apellido	string
direccion	string
nombre	string
telefono	int32
password	string
email	string
photo	string
fecha_registrc	isodate

Authors

_id	objectid
bio	string
name	string
photo	string

Books

_id	objectid
author	string
description	string
gender	string
price	int32
title	string
author_id	string
image_url	string
publishDate	string
availabilit	boolean
quantityAvailabl	int32
average_scor	double
reviews	list
reviews.commen	string
reviews.score	int32
reviews.userNam	string

Orders

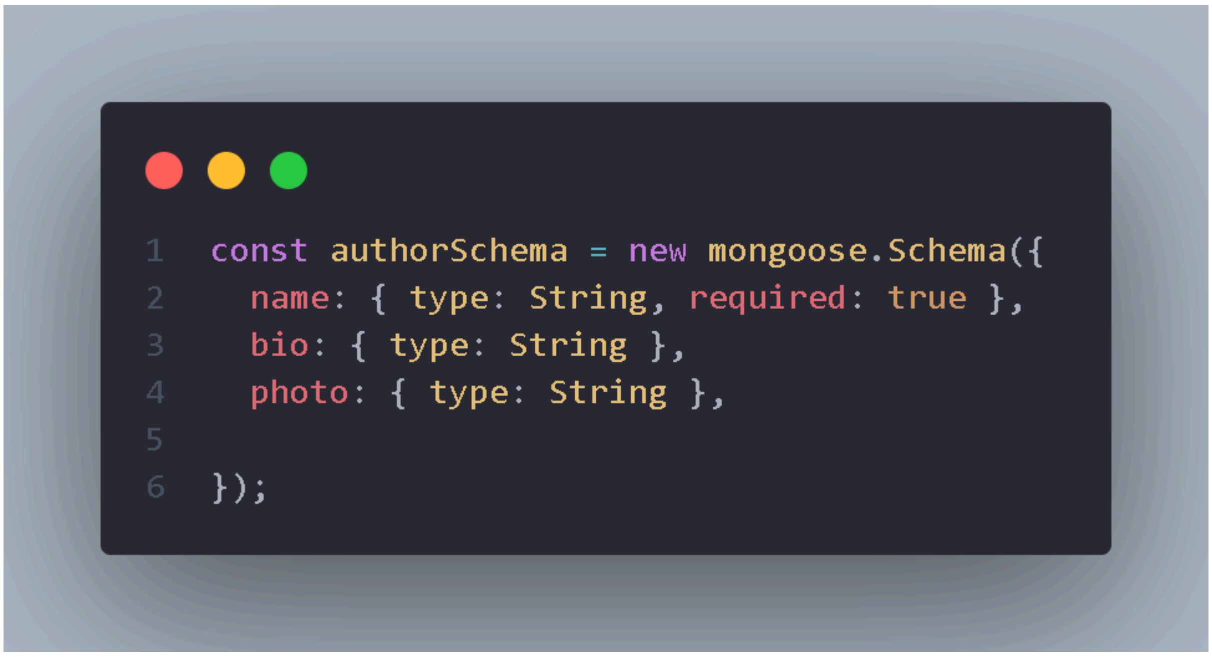
_id	objectid
address	string
books	list
books.book	string
books.book_ic	string
books.price	int32
books.quantity	int32
date	isodate
status	string
total	int32
user	string
user_id	string

Sale

_id	objectid
books	list
books.book	string
books.book_ic	string
books.price	int32
books.quantity	int32
customer	string
order_id	string
total	int32
customer_id	string
date	isodate

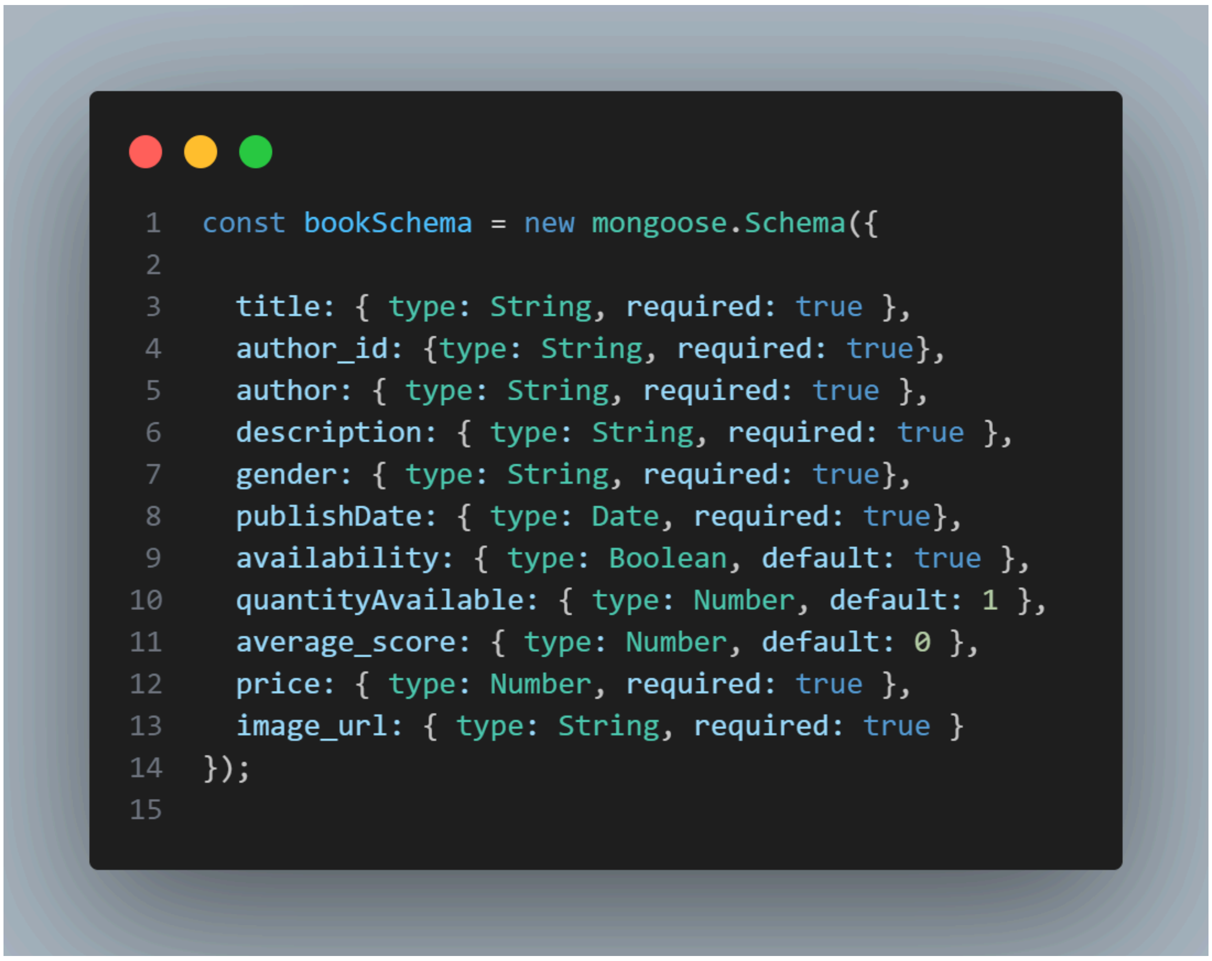
Estructuras

Estructura Autor



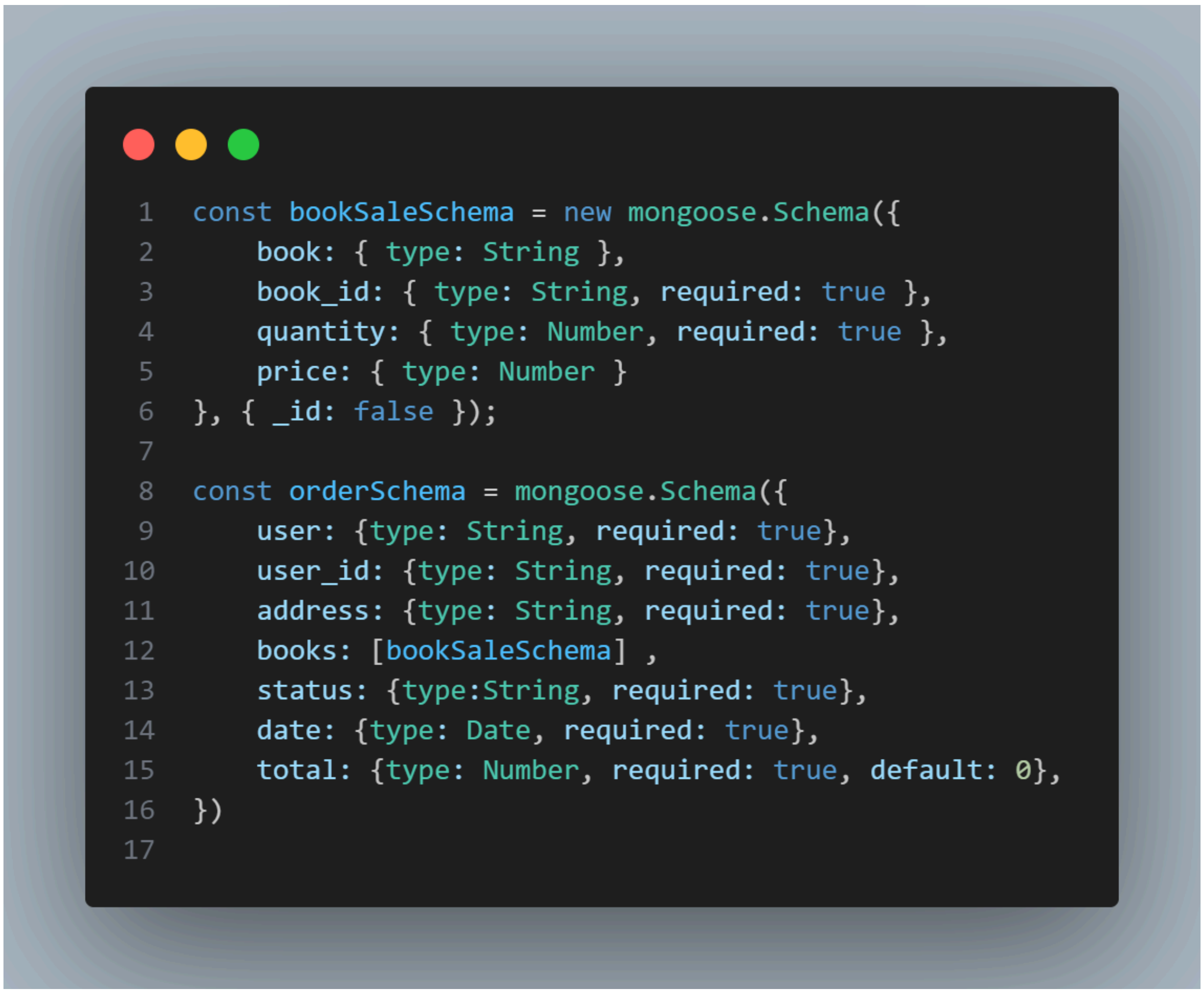
```
const authorSchema = new mongoose.Schema({
  name: { type: String, required: true },
  bio: { type: String },
  photo: { type: String },

});
```

Estructura Book



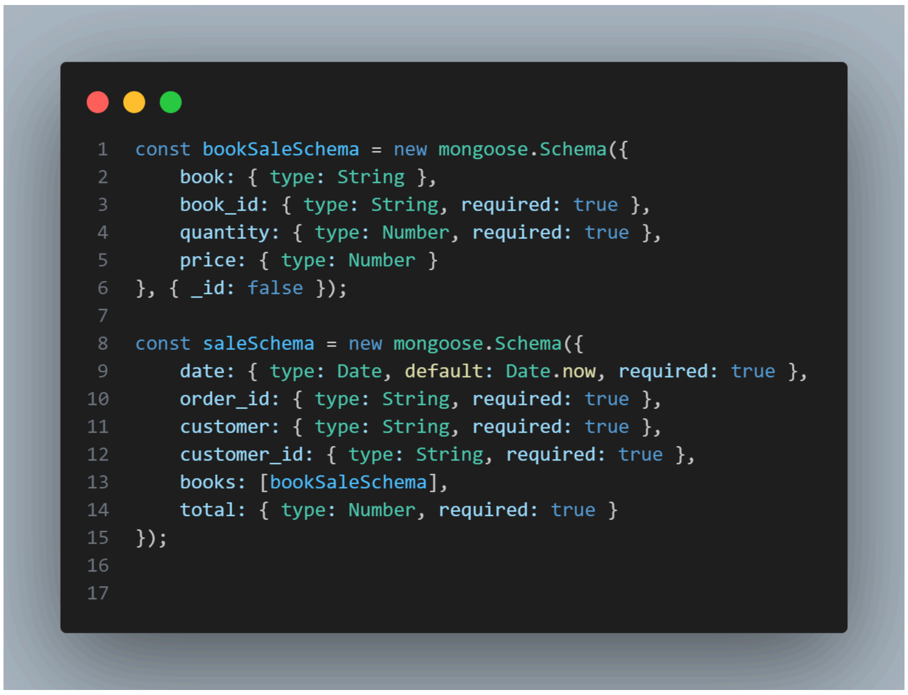
```
const bookSchema = new mongoose.Schema({

  title: { type: String, required: true },
  author_id: {type: String, required: true},
  author: { type: String, required: true },
  description: { type: String, required: true },
  gender: { type: String, required: true},
  publishDate: { type: Date, required: true},
  availability: { type: Boolean, default: true },
  quantityAvailable: { type: Number, default: 1 },
  average_score: { type: Number, default: 0 },
  price: { type: Number, required: true },
  image_url: { type: String, required: true }
});

```

Estructura Order



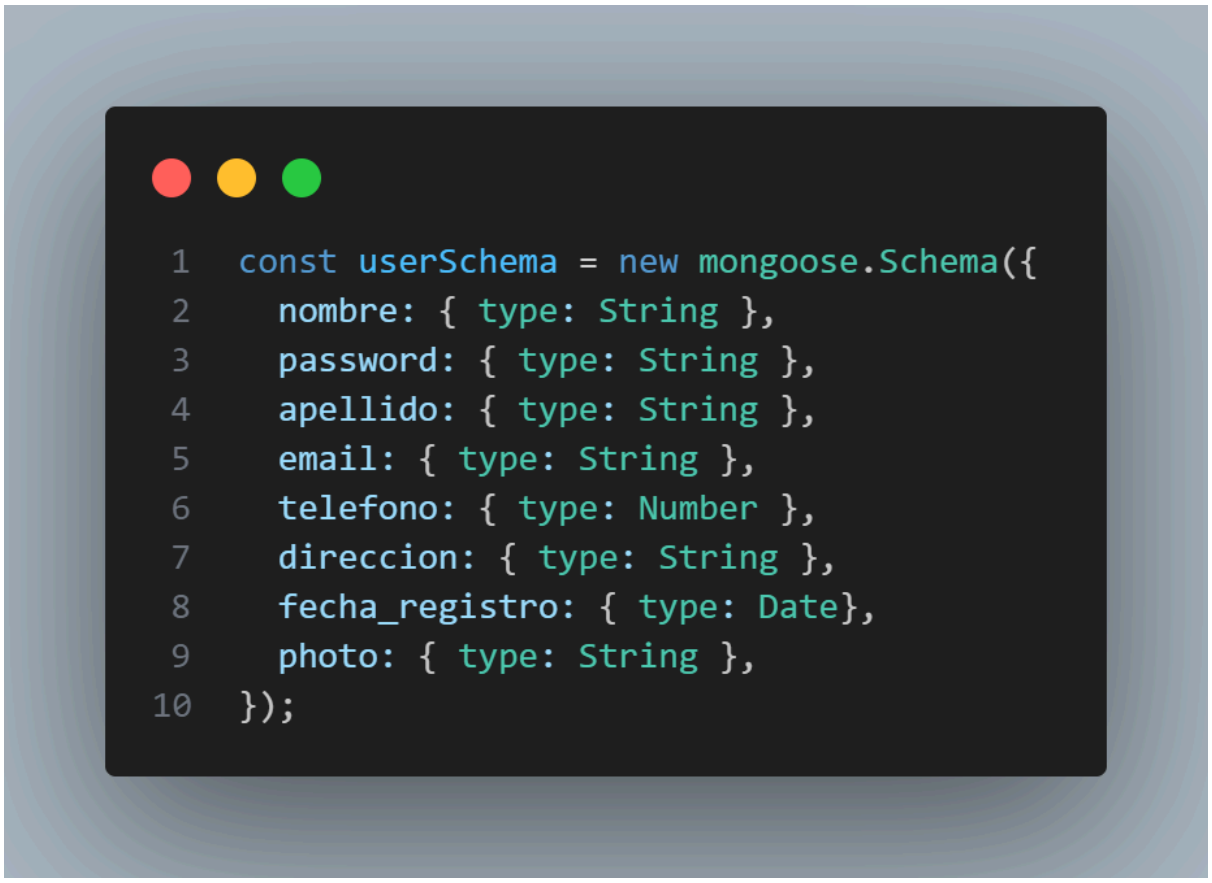
```
const bookSaleSchema = new mongoose.Schema({
    book: { type: String },
    book_id: { type: String, required: true },
    quantity: { type: Number, required: true },
    price: { type: Number }
}, { _id: false });

const orderSchema = mongoose.Schema({
    user: {type: String, required: true},
    user_id: {type: String, required: true},
    address: {type: String, required: true},
    books: [bookSaleSchema] ,
    status: {type:String, required: true},
    date: {type: Date, required: true},
    total: {type: Number, required: true, default: 0},
})

```

Estructura Sale



```
const bookSaleSchema = new mongoose.Schema({
    book: { type: String },
    book_id: { type: String, required: true },
    quantity: { type: Number, required: true },
    price: { type: Number }
}, { _id: false });

const saleSchema = new mongoose.Schema({
    date: { type: Date, default: Date.now, required: true },
    order_id: { type: String, required: true },
    customer: { type: String, required: true },
    customer_id: { type: String, required: true },
    books: [bookSaleSchema],
    total: { type: Number, required: true }
});


```

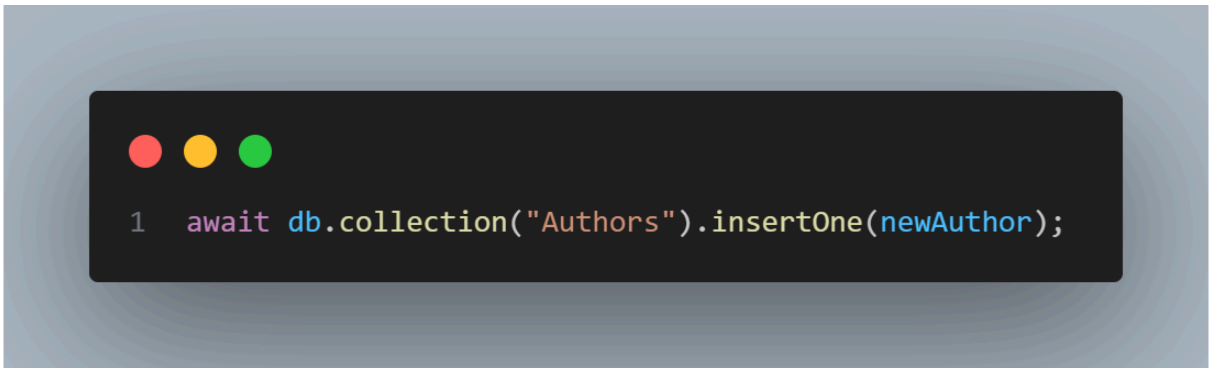
Estructura Users



```javascript
const userSchema = new mongoose.Schema({
  nombre: { type: String },
  password: { type: String },
  apellido: { type: String },
  email: { type: String },
  telefono: { type: Number },
  direccion: { type: String },
  fecha_registro: { type: Date},
  photo: { type: String },
});
```

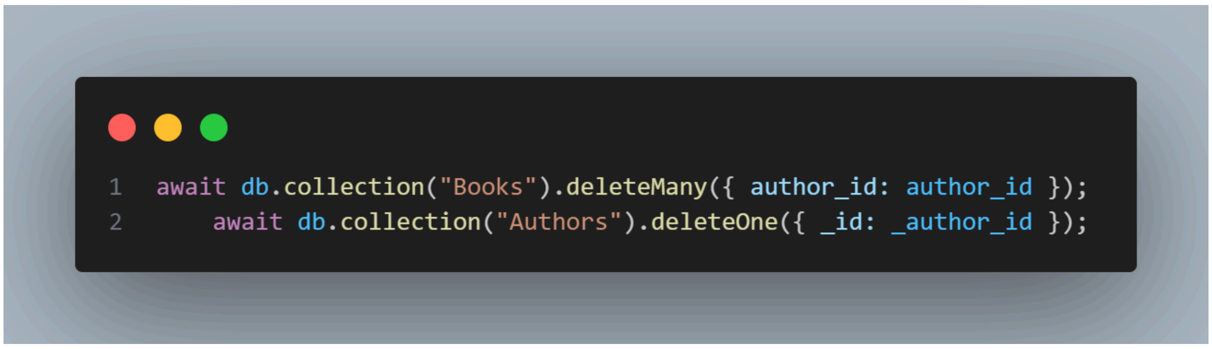
Operaciones de Autor

Creación de un nuevo autor



```javascript
await db.collection("Authors").insertOne(newAuthor);
```

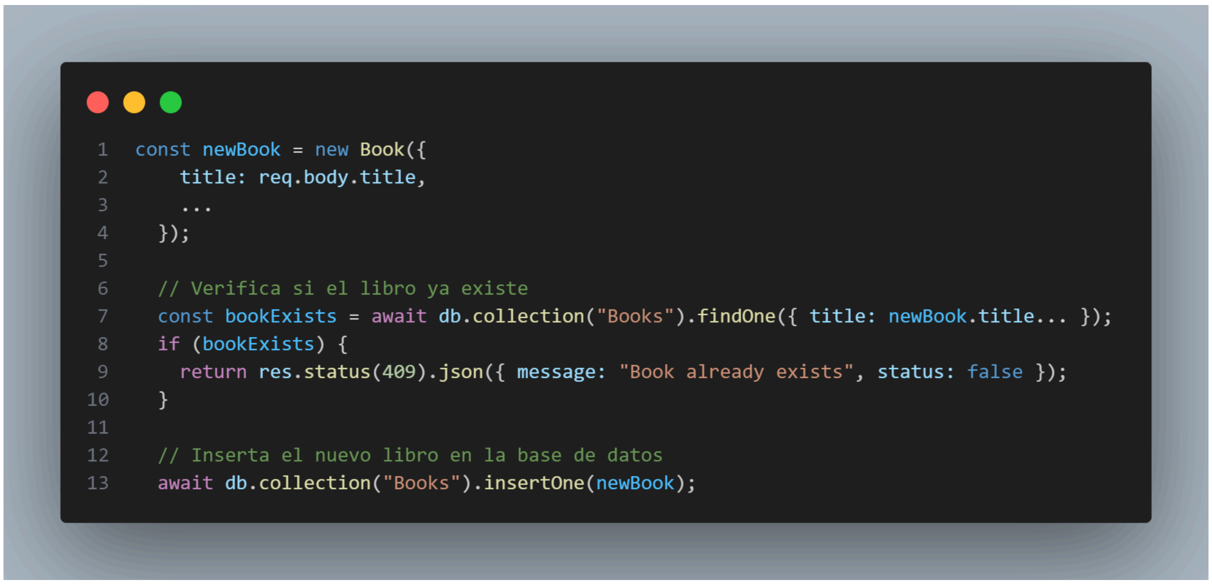
Eliminación de un Autor



```
await db.collection("Books").deleteMany({ author_id: author_id });
    await db.collection("Authors").deleteOne({ _id: _author_id });
```

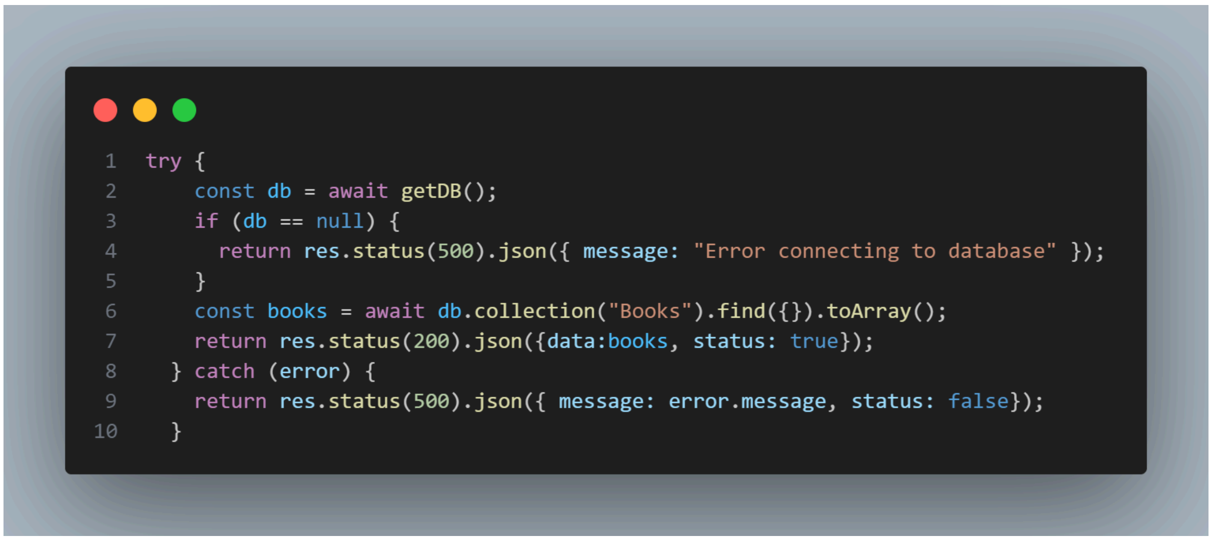
Operaciones de Libro

Creación de un nuevo Libro



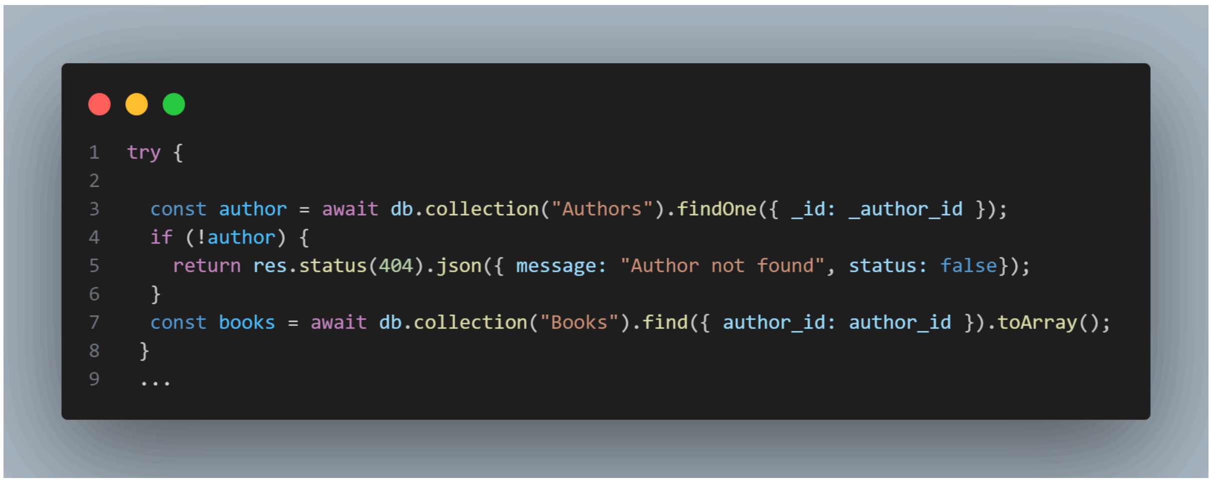
```
const newBook = new Book({
    title: req.body.title,
    ...
  });

  // Verifica si el libro ya existe
  const bookExists = await db.collection("Books").findOne({ title: newBook.title... });
  if (bookExists) {
    return res.status(409).json({ message: "Book already exists", status: false });
  }

  // Inserta el nuevo libro en la base de datos
  await db.collection("Books").insertOne(newBook);
```

Obtener Libros



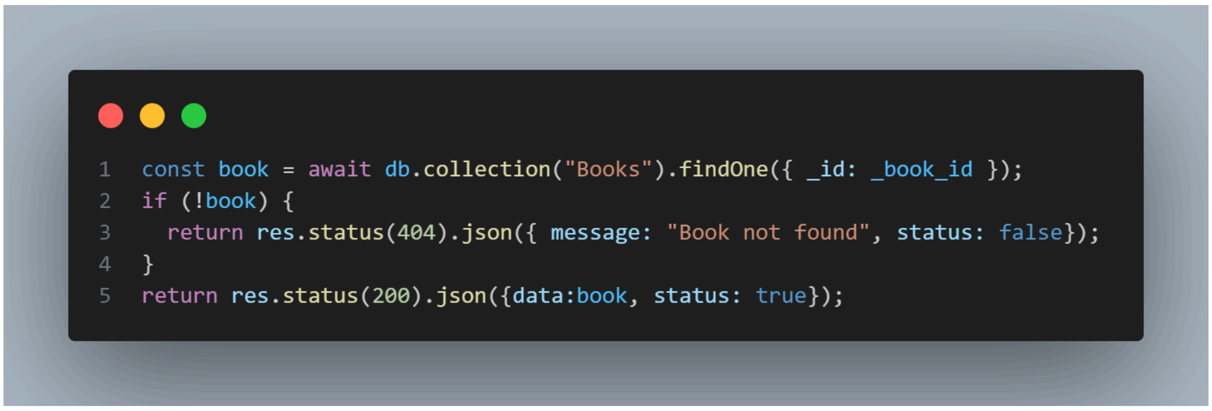
```
try {
    const db = await getDB();
    if (db == null) {
      return res.status(500).json({ message: "Error connecting to database" });
    }
    const books = await db.collection("Books").find({}).toArray();
    return res.status(200).json({data:books, status: true});
  } catch (error) {
    return res.status(500).json({ message: error.message, status: false});
  }
```

Obtener libros por autor



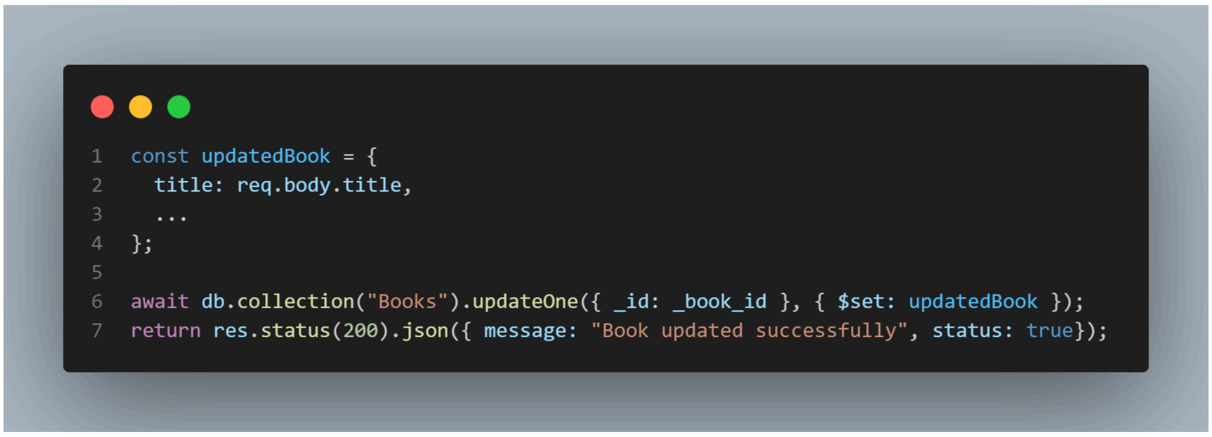
```
try {

  const author = await db.collection("Authors").findOne({ _id: _author_id });
  if (!author) {
    return res.status(404).json({ message: "Author not found", status: false});
  }
  const books = await db.collection("Books").find({ author_id: author_id }).toArray();
 }
 ...
```

Obtener libro por ID



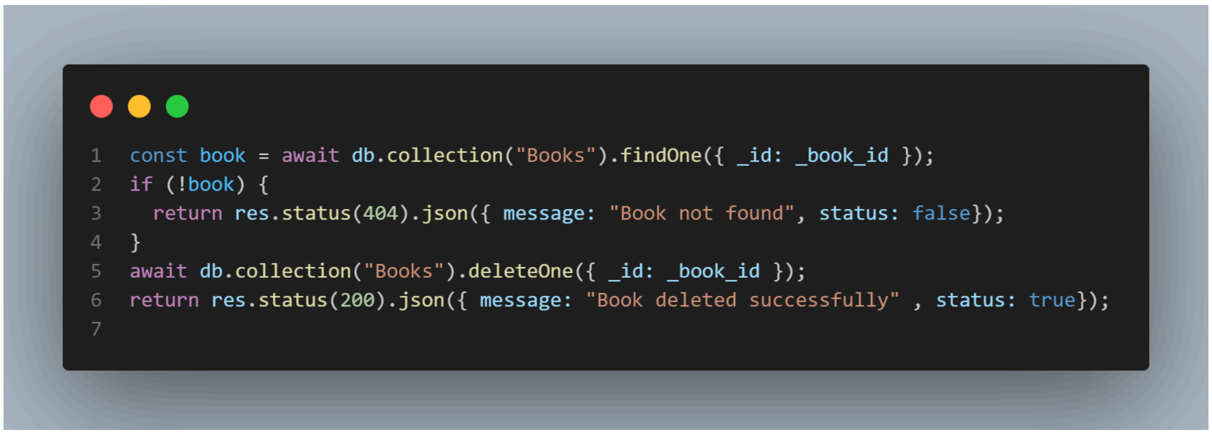
```
const book = await db.collection("Books").findOne({ _id: _book_id });
if (!book) {
  return res.status(404).json({ message: "Book not found", status: false});
}
return res.status(200).json({data:book, status: true});
```

Actualizar libro



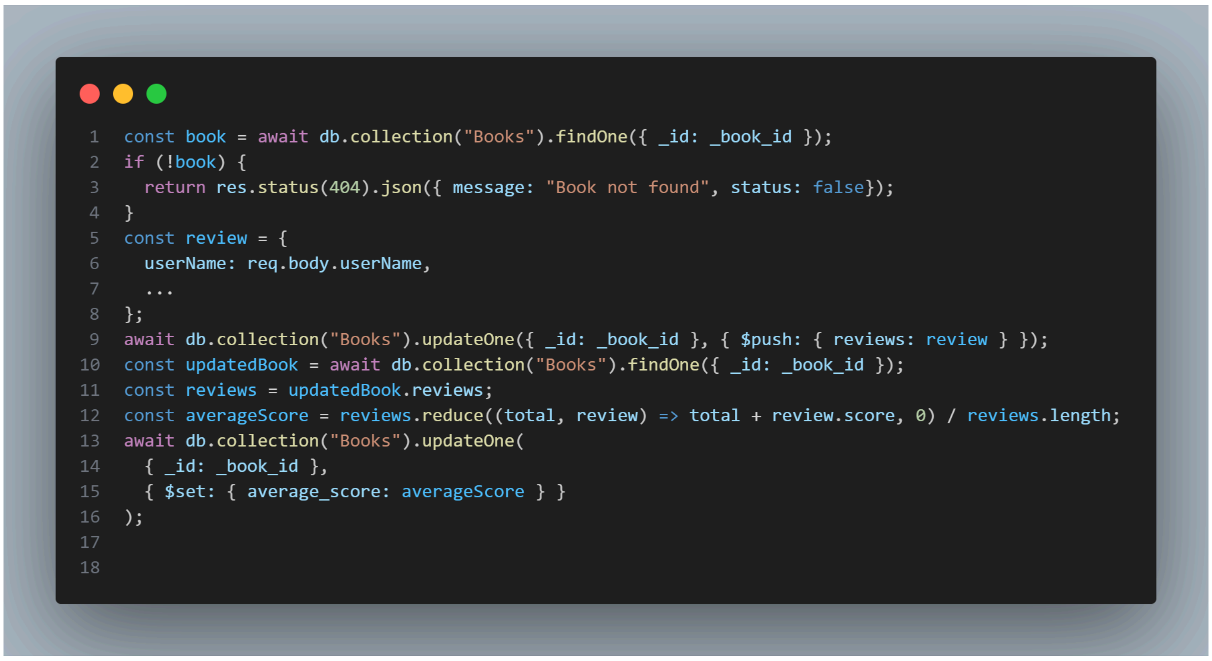
```
const updatedBook = {
  title: req.body.title,
  ...
};

await db.collection("Books").updateOne({ _id: _book_id }, { $set: updatedBook });
return res.status(200).json({ message: "Book updated successfully", status: true});
```

Eliminar libro



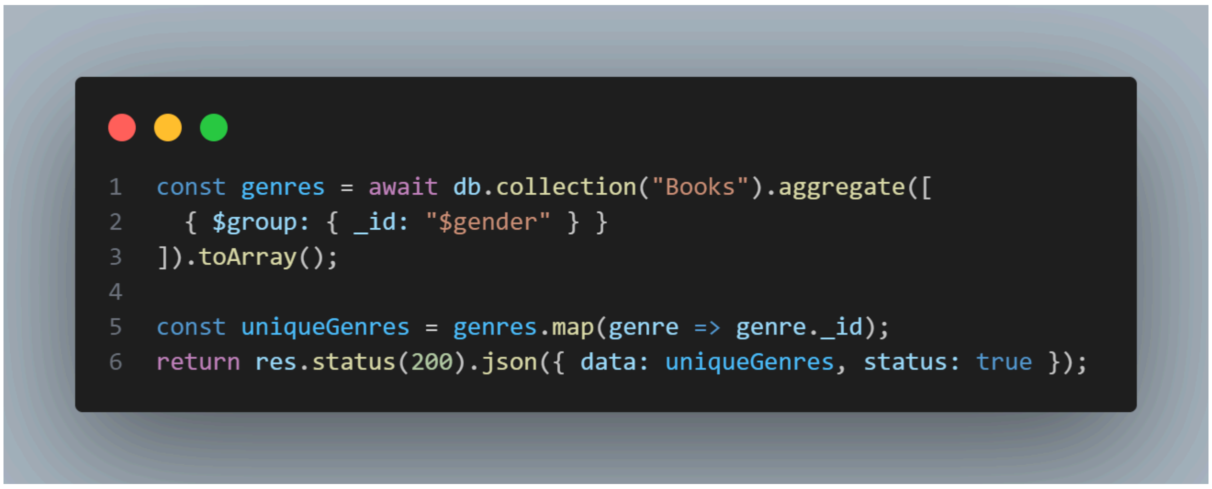
```
const book = await db.collection("Books").findOne({ _id: _book_id });
if (!book) {
  return res.status(404).json({ message: "Book not found", status: false});
}
await db.collection("Books").deleteOne({ _id: _book_id });
return res.status(200).json({ message: "Book deleted successfully" , status: true});
```

Agregar Review al libro



```
const book = await db.collection("Books").findOne({ _id: _book_id });
if (!book) {
  return res.status(404).json({ message: "Book not found", status: false});
}
const review = {
  userName: req.body.userName,
  ...
};
await db.collection("Books").updateOne({ _id: _book_id }, { $push: { reviews: review } });
const updatedBook = await db.collection("Books").findOne({ _id: _book_id });
const reviews = updatedBook.reviews;
const averageScore = reviews.reduce((total, review) => total + review.score, 0) / reviews.length;
await db.collection("Books").updateOne(
  { _id: _book_id },
  { $set: { average_score: averageScore } }
);
```

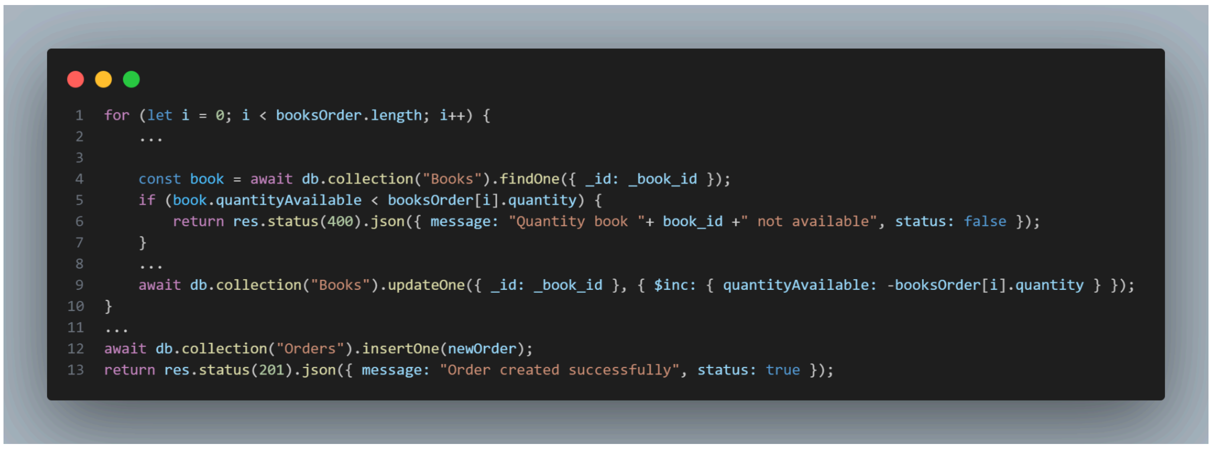
Obtener géneros de los libros



```
const genres = await db.collection("Books").aggregate([
  { $group: { _id: "$gender" } }
]).toArray();

const uniqueGenres = genres.map(genre => genre._id);
return res.status(200).json({ data: uniqueGenres, status: true });
```

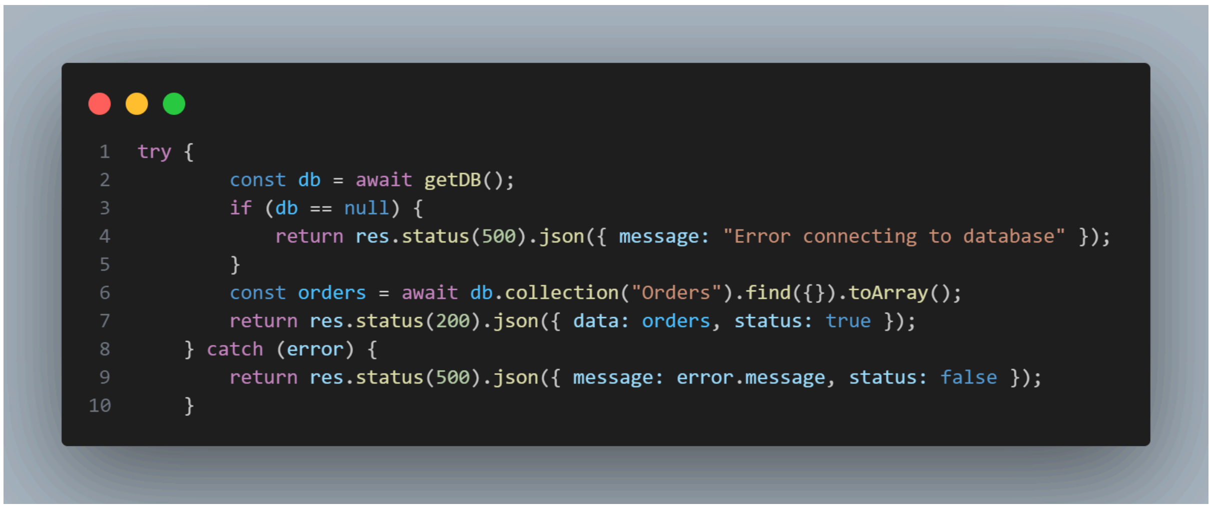
Operaciones de Órdenes

Crear Orden



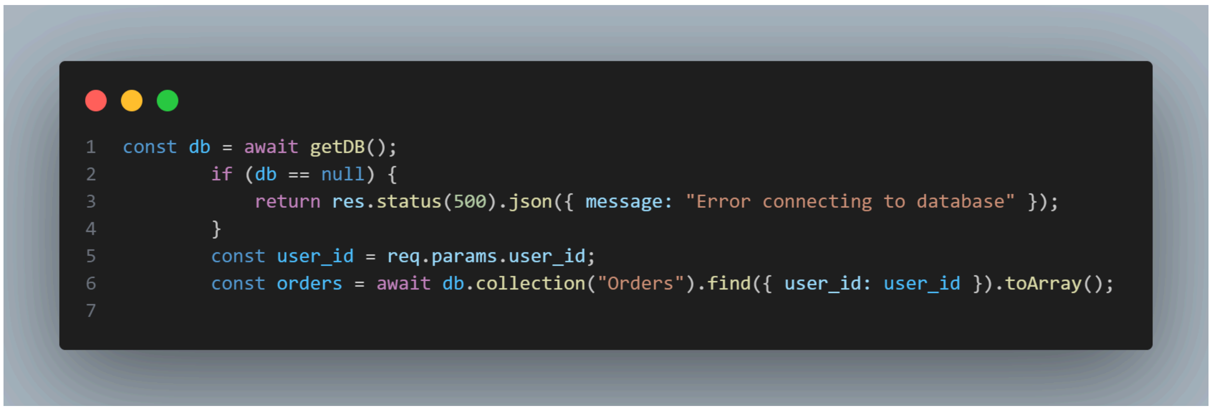
```
for (let i = 0; i < booksOrder.length; i++) {
    ...

    const book = await db.collection("Books").findOne({ _id: _book_id });
    if (book.quantityAvailable < booksOrder[i].quantity) {
        return res.status(400).json({ message: "Quantity book "+ book_id +" not available", status: false });
    }
    ...
    await db.collection("Books").updateOne({ _id: _book_id }, { $inc: { quantityAvailable: -booksOrder[i].quantity } });
}
...
await db.collection("Orders").insertOne(newOrder);
return res.status(201).json({ message: "Order created successfully", status: true });
```

Obtener Órdenes



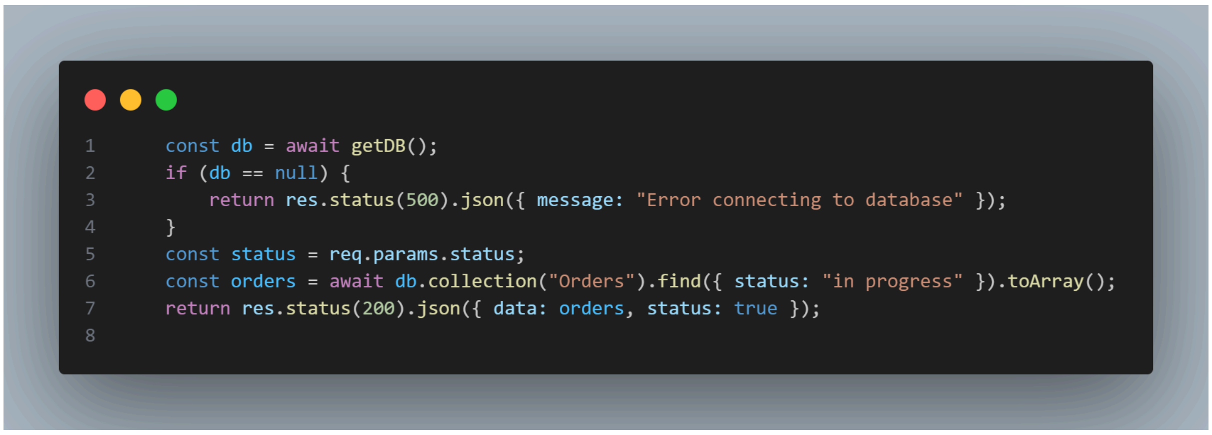
```
try {
        const db = await getDB();
        if (db == null) {
            return res.status(500).json({ message: "Error connecting to database" });
        }
        const orders = await db.collection("Orders").find({}).toArray();
        return res.status(200).json({ data: orders, status: true });
    } catch (error) {
        return res.status(500).json({ message: error.message, status: false });
    }
```

Obtener orden por id de usuario



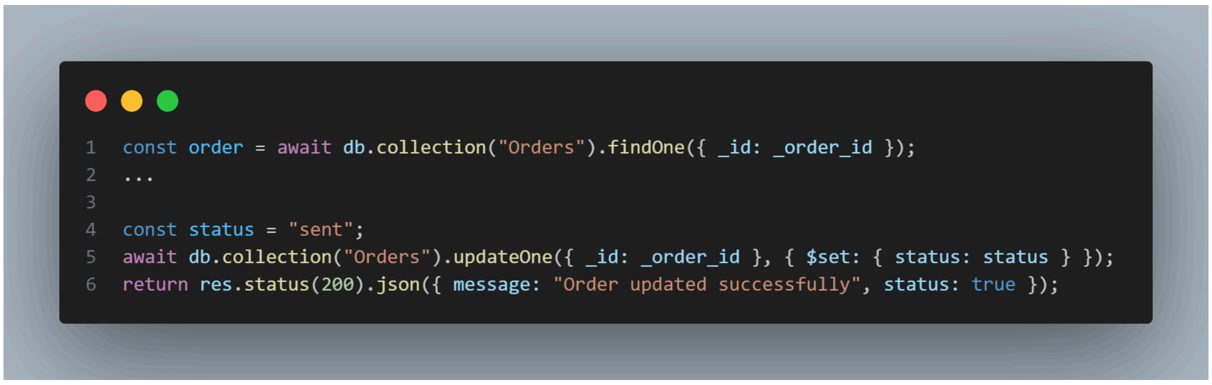
```
const db = await getDB();
        if (db == null) {
            return res.status(500).json({ message: "Error connecting to database" });
        }
        const user_id = req.params.user_id;
        const orders = await db.collection("Orders").find({ user_id: user_id }).toArray();

```

Obtener órdenes en progreso



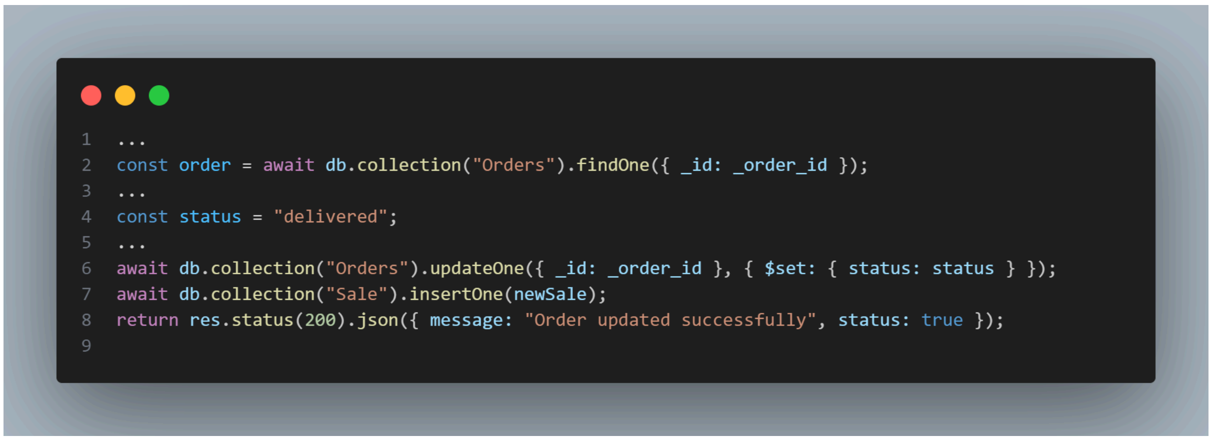
```
    const db = await getDB();
    if (db == null) {
        return res.status(500).json({ message: "Error connecting to database" });
    }
    const status = req.params.status;
    const orders = await db.collection("Orders").find({ status: "in progress" }).toArray();
    return res.status(200).json({ data: orders, status: true });

```

Actualizar estados de orden para enviar



```
const order = await db.collection("Orders").findOne({ _id: _order_id });
...

const status = "sent";
await db.collection("Orders").updateOne({ _id: _order_id }, { $set: { status: status } });
return res.status(200).json({ message: "Order updated successfully", status: true });
```

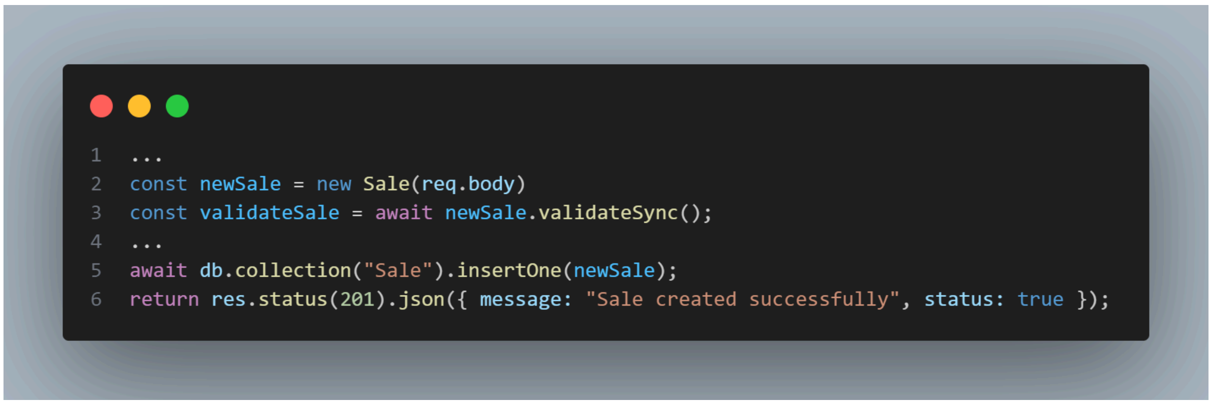
Actualizar estado de órdenes a entregado



```
...
const order = await db.collection("Orders").findOne({ _id: _order_id });
...
const status = "delivered";
...
await db.collection("Orders").updateOne({ _id: _order_id }, { $set: { status: status } });
await db.collection("Sale").insertOne(newSale);
return res.status(200).json({ message: "Order updated successfully", status: true });

```

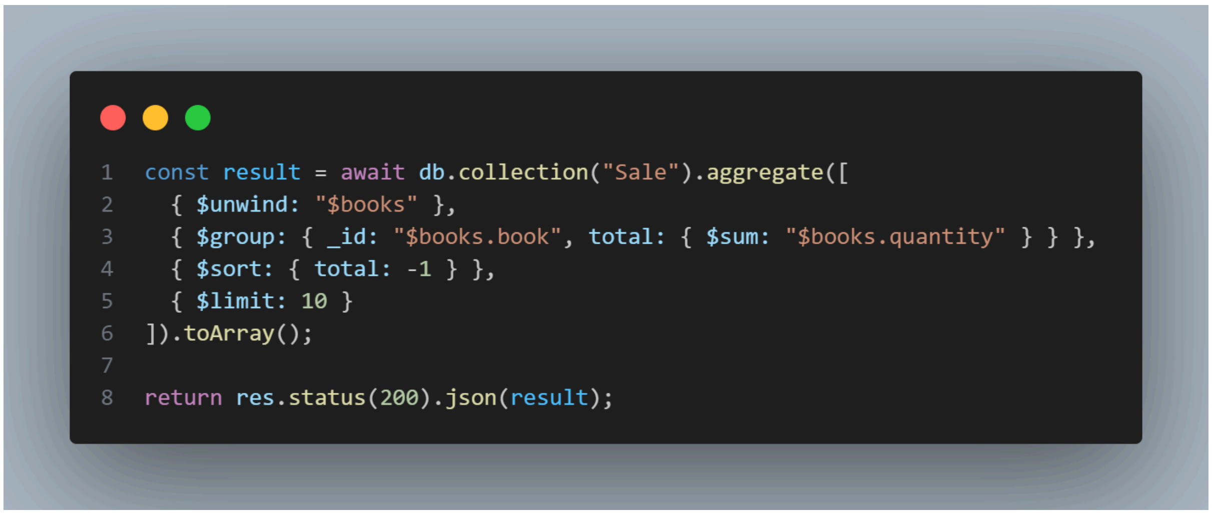
Operaciones de Ventas

Crear nueva Venta



```
...
const newSale = new Sale(req.body)
const validateSale = await newSale.validateSync();
...
await db.collection("Sale").insertOne(newSale);
return res.status(201).json({ message: "Sale created successfully", status: true });
```

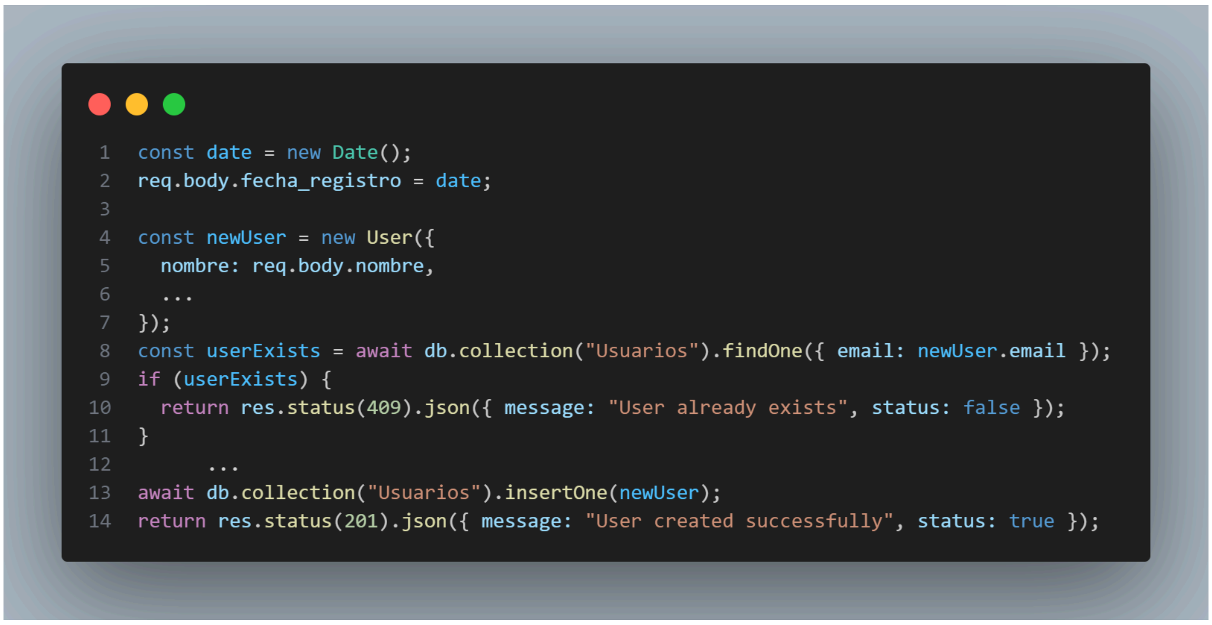
Obtener top de libros más vendidos



```
const result = await db.collection("Sale").aggregate([
  { $unwind: "$books" },
  { $group: { _id: "$books.book", total: { $sum: "$books.quantity" } } },
  { $sort: { total: -1 } },
  { $limit: 10 }
]).toArray();

return res.status(200).json(result);
```

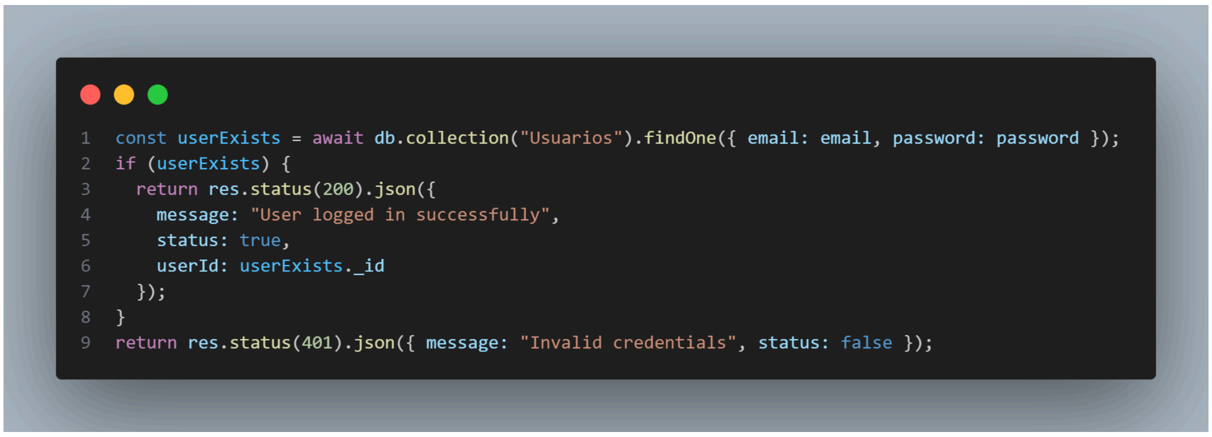
Operaciones de Usuario

Registrar un usuario



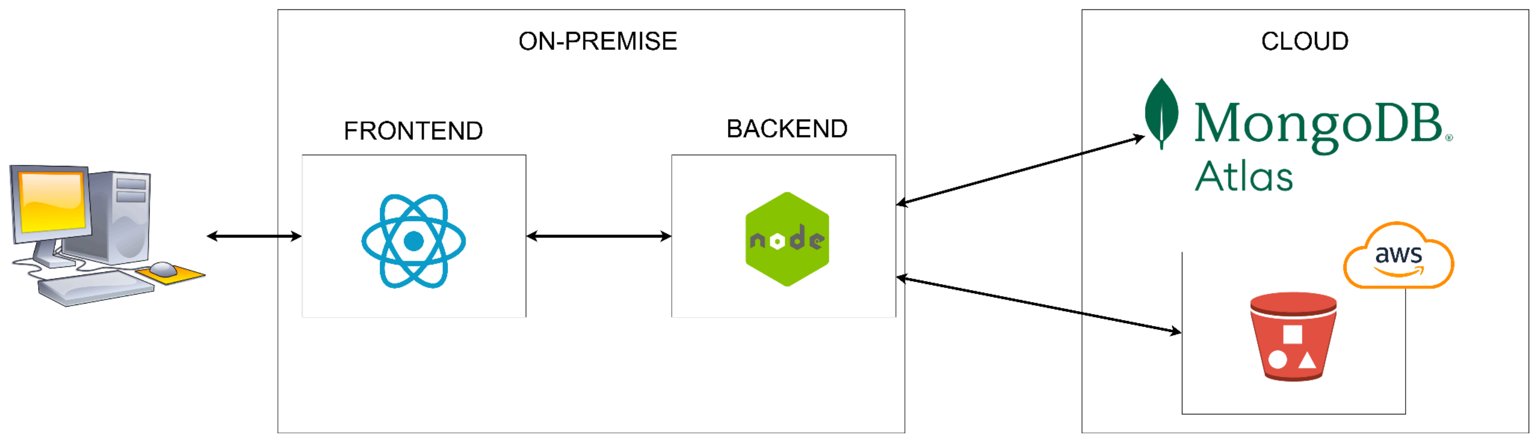
```javascript
const date = new Date();
req.body.fecha_registro = date;

const newUser = new User({
  nombre: req.body.nombre,
  ...
});
const userExists = await db.collection("Usuarios").findOne({ email: newUser.email });
if (userExists) {
  return res.status(409).json({ message: "User already exists", status: false });
}
        ...
await db.collection("Usuarios").insertOne(newUser);
return res.status(201).json({ message: "User created successfully", status: true });
```

Login de Usuario



```javascript
const userExists = await db.collection("Usuarios").findOne({ email: email, password: password });
if (userExists) {
  return res.status(200).json({
    message: "User logged in successfully",
    status: true,
    userId: userExists._id
  });
}
return res.status(401).json({ message: "Invalid credentials", status: false });
```

Arquitectura del Proyecto


ON-PREMISE
FRONTEND
BACKEND
node
CLOUD
MongoDB
Atlas
aws