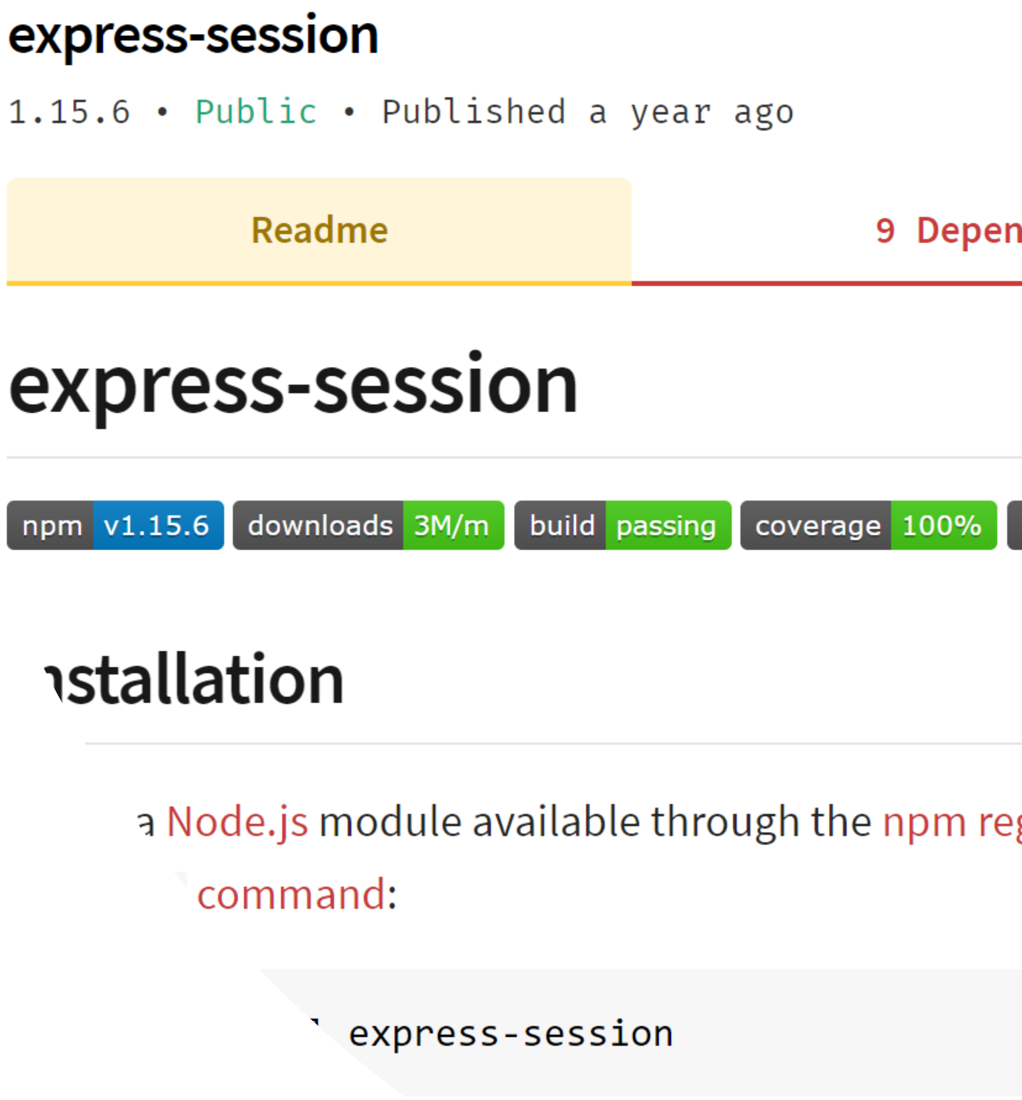
SESSIONS & SCHEMA METHODS

Example: Using Schema Methods for Simple Authentication

- Restrict access to Posts API (require authentication):
  - Create users schema with methods for
    - Finding users
    - Checking password
  - Use **express-session** middleware to create and manage user session (using cookies)
  - Create an authentication route to set up “session”
  - Create your own authentication middleware and place it on /api/movies route

Aside: Sessions

- Requests to Express apps are stand-alone by default
  - no request can be linked to another.
  - By default, no way to know if this request comes from client that already performed a request previously.
- Sessions are a mechanism that makes it possible to “know” who sent the request and to associate requests.
- Using Sessions, every user of you API is assigned a unique session:
  - Allows you to store state.
- The express-session module is middleware that provides sessions for Express apps.


express-session

1.15.6 • Public • Published a year ago

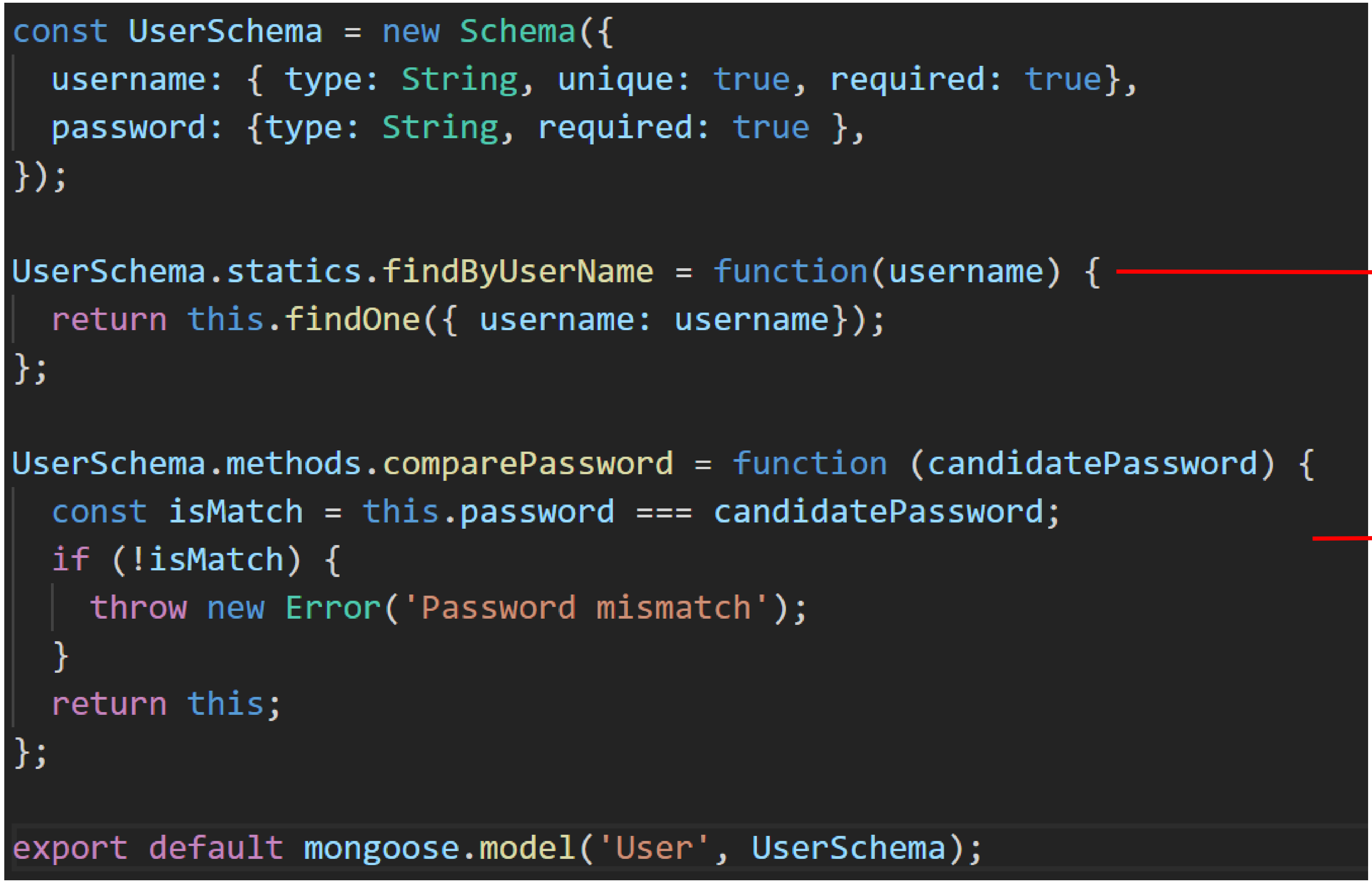
express-session

ıstallation

ı Node.js module available through the npm reg
command:

```
` express-session
```

User Schema with Static & Instance Methods



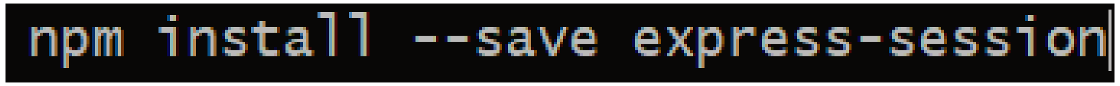
```
const UserSchema = new Schema({
  username: { type: String, unique: true, required: true},
  password: {type: String, required: true },
});

UserSchema.statics.findByUserName = function(username) {
  return this.findOne({ username: username});
};

UserSchema.methods.comparePassword = function (candidatePassword) {
  const isMatch = this.password === candidatePassword;
  if (!isMatch) {
    throw new Error('Password mismatch');
  }
  return this;
};

export default mongoose.model('User', UserSchema);
```

Static Method: belongs to schema. Independent of any document instance

Instance Method: belongs to a specific document instance.

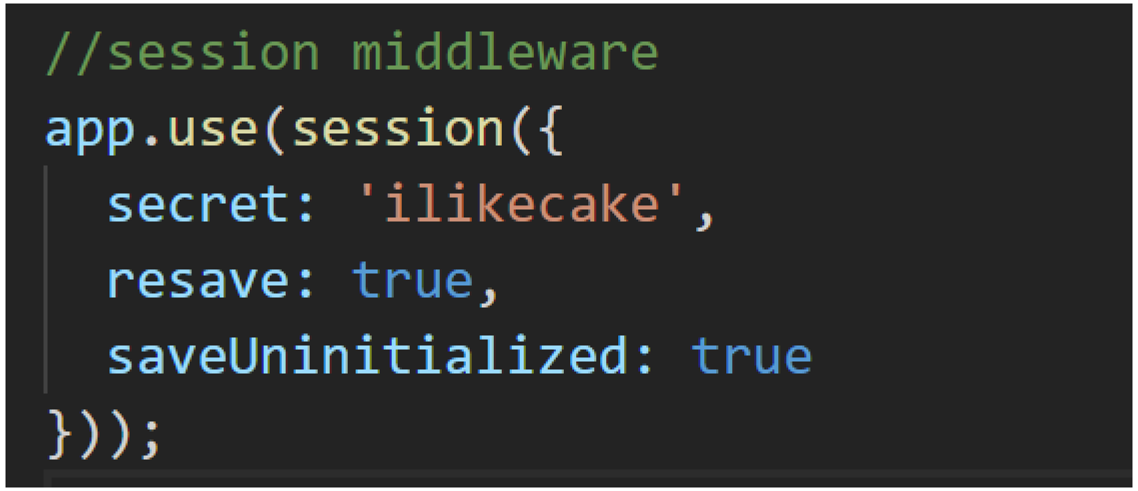
express-session middleware

- Session middleware that stores session data on server-side
  - Puts a unique ID on client



```
npm install --save express-session
```

- Add to Express App middleware stack:

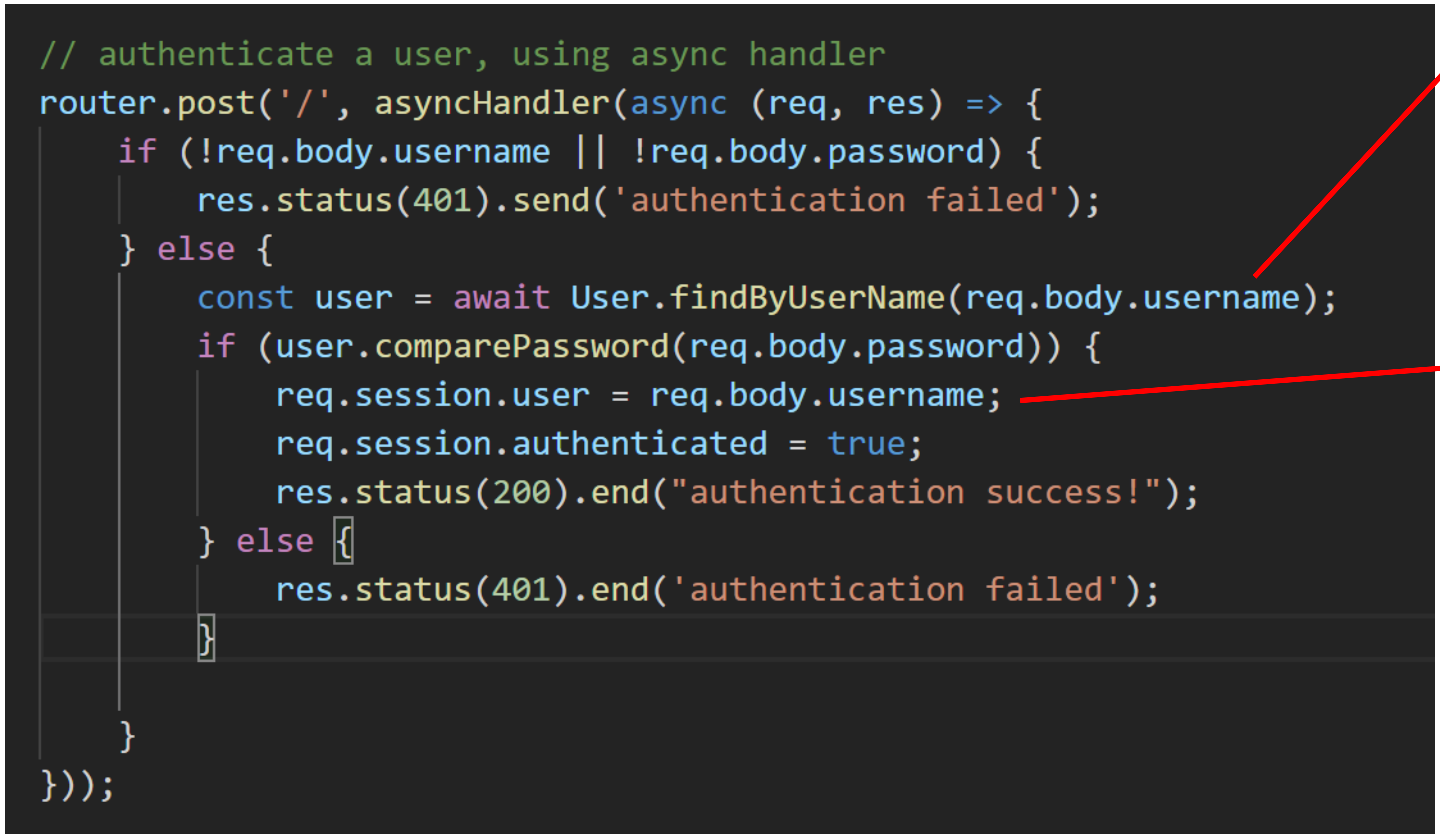


```
//session middleware
app.use(session({
  secret: 'ilikecake',
  resave: true,
  saveUninitialized: true
}));
```

Create User Route to authenticate

- Use **/api/user** to authenticate, passing username and password in HTTP body

/api/users/index.js

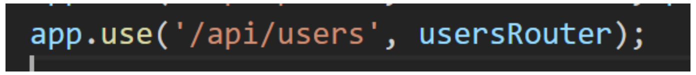


```
// authenticate a user, using async handler
router.post('/', asyncHandler(async (req, res) => {
    if (!req.body.username || !req.body.password) {
        res.status(401).send('authentication failed');
    } else {
        const user = await User.findByUserName(req.body.username);
        if (user.comparePassword(req.body.password)) {
            req.session.user = req.body.username;
            req.session.authenticated = true;
            res.status(200).end("authentication success!");
        } else {
            res.status(401).end('authentication failed');
        }

    }
}));
```

Using static method to find User document

Using instance method to check password

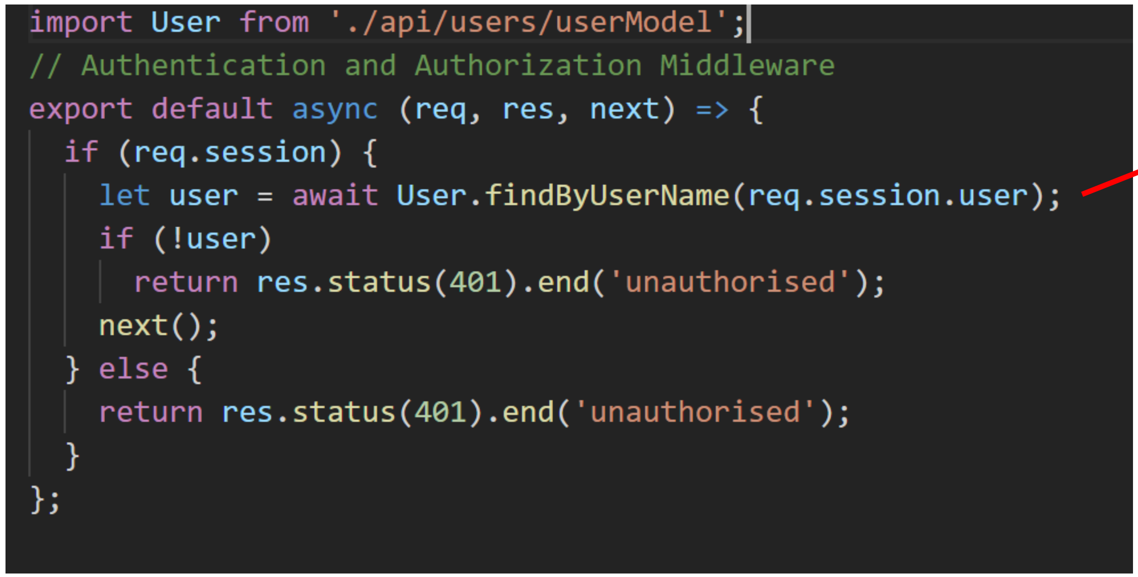
/index.js



```
app.use('/api/users', usersRouter);
```

Authentication Middleware

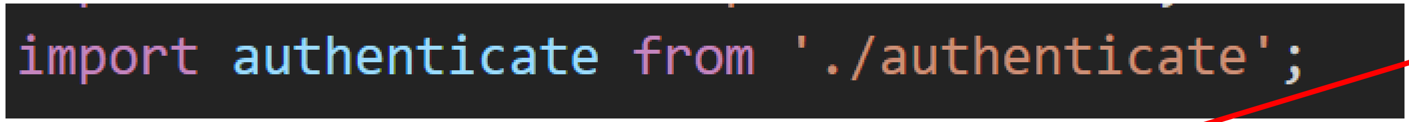
authenticate.js



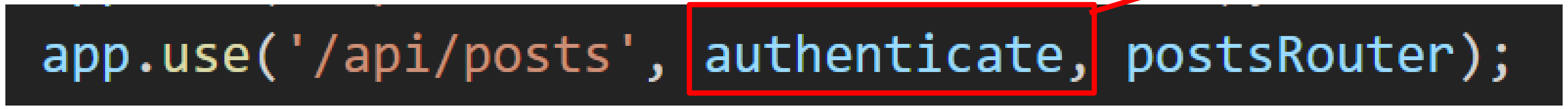
```
import User from './api/users/userModel';
// Authentication and Authorization Middleware
export default async (req, res, next) => {
  if (req.session) {
    let user = await User.findByUserName(req.session.user);
    if (!user)
      return res.status(401).end('unauthorised');
    next();
  } else {
    return res.status(401).end('unauthorised');
  }
};
```

Checks for user ID in session object.
If exists, called next middleware function, otherwise end req/res cycle with 401

index.js



```
import authenticate from './authenticate';
```

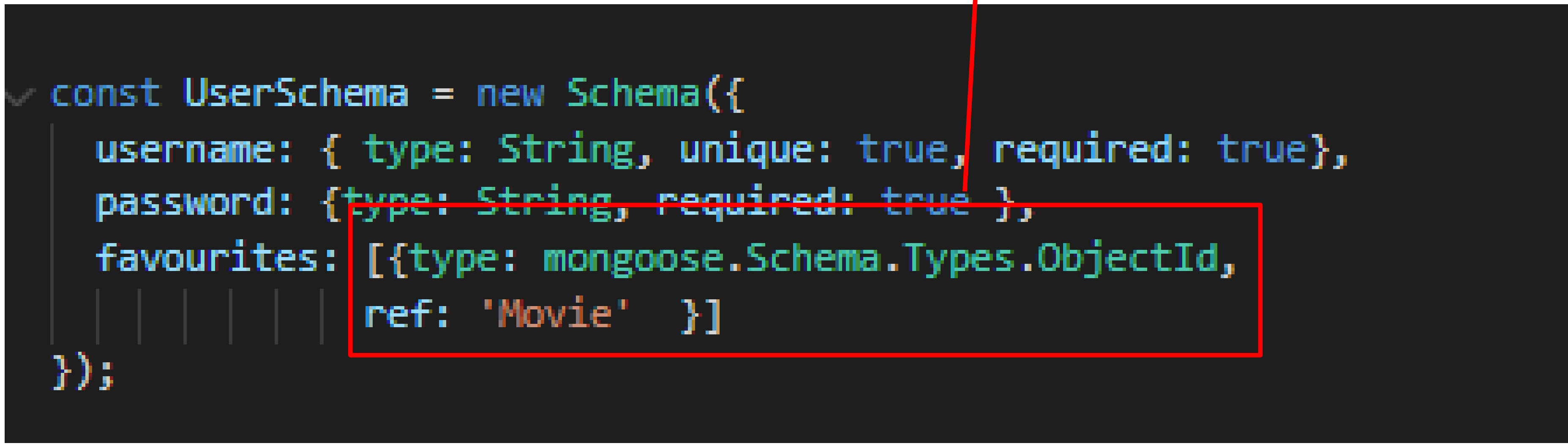


```
 app.use('/api/posts', authenticate, postsRouter);
```

Authentication middleware applied on /api/posts route.

Object Referencing

Using Object ID to reference Movie document

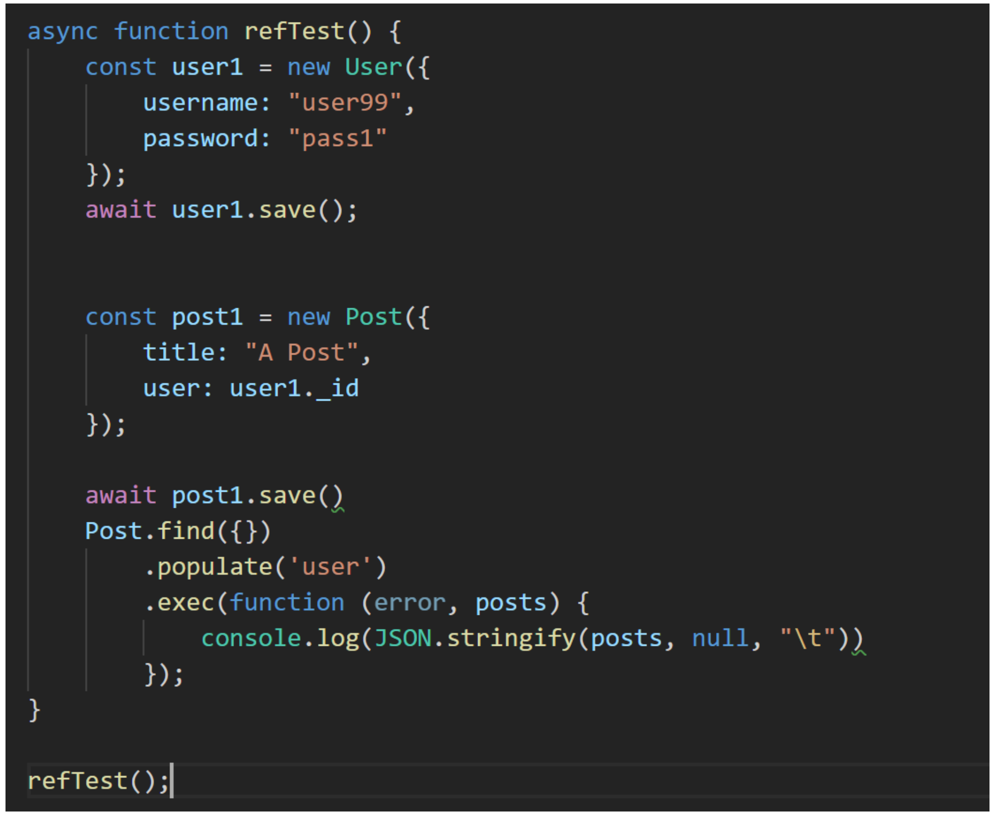


```
const UserSchema = new Schema({
  username: { type: String, unique: true, required: true},
  password: {type: String, required: true },
  favourites: [{type: mongoose.Schema.Types.ObjectId,
              ref: 'Movie'  }]
});
```

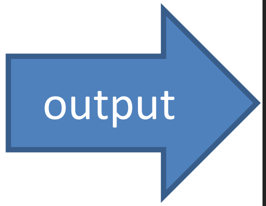
Query Population using Refs

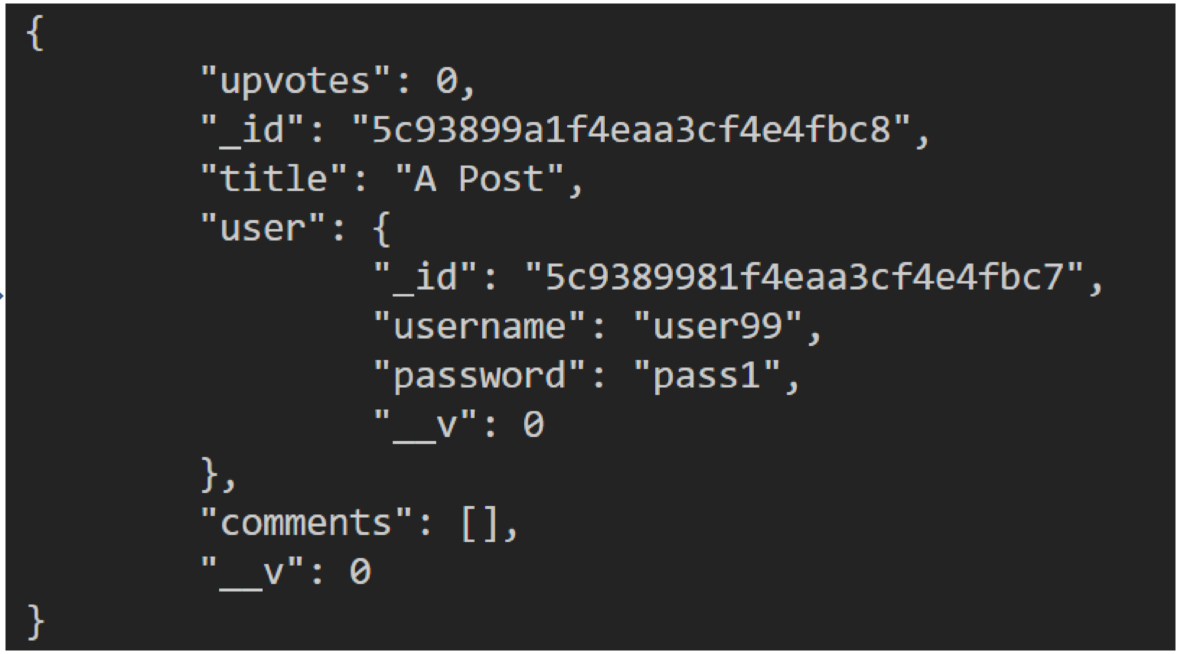
https://github.com/fxwalsh/ewd-examples-2020.git

- Allows you to automatically replace the specified paths in the document with document(s) from other collection(s).



```
async function refTest() {
    const user1 = new User({
        username: "user99",
        password: "pass1"
    });
    await user1.save();


    const post1 = new Post({
        title: "A Post",
        user: user1._id
    });

    await post1.save()
    Post.find({})
        .populate('user')
        .exec(function (error, posts) {
            console.log(JSON.stringify(posts, null, "\t"))
        });
}

refTest();
```





```
{
        "upvotes": 0,
        "_id": "5c93899a1f4eaa3cf4e4fbc8",
        "title": "A Post",
        "user": {
                "_id": "5c9389981f4eaa3cf4e4fbc7",
                "username": "user99",
                "password": "pass1",
                "__v": 0
        },
        "comments": [],
        "__v": 0
}
```