How Node JS middleware Works?

Middleware functions are functions that have access to the request object (req), the response object (res), and the next middleware…

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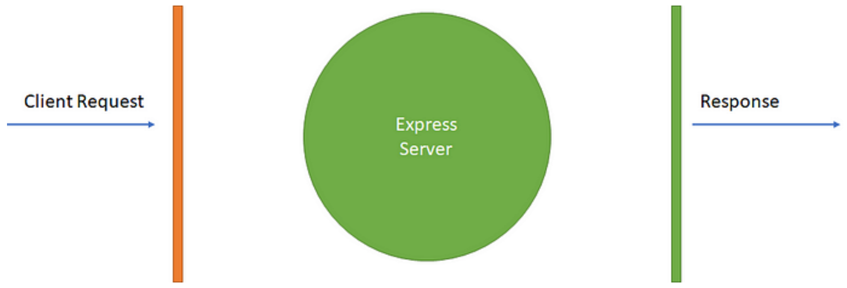
Middleware functions are functions that have access to the request object (req), the response object (res), and the next middleware function in the application's request-response cycle. The next middleware function is commonly denoted by a variable named next.

1. As name suggests it comes in middle of something and that is request and response cycle
2. Middleware has access to **request** and **response** object
3. Middleware has access to **next** function of request-response life cycle

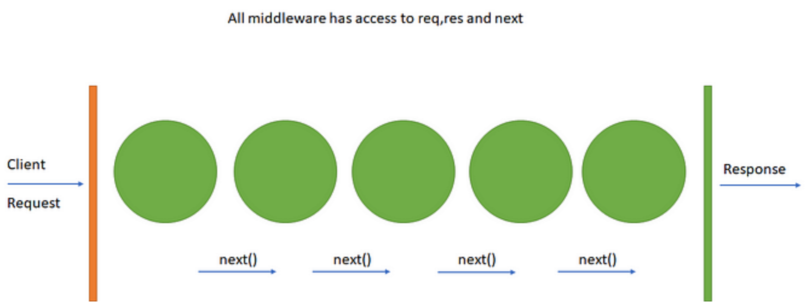


Middleware functions can perform the following tasks:

If the current middleware function does not end the request-response cycle, it must call `next()` to pass control to the next middleware function. Otherwise, the request will be left hanging.

What is this next()?

A middleware is basically a function that will the receive the Request and Response objects, just like your route Handlers do. As a third argument you have another function which you should call once your middleware code completed. This means you can wait for asynchronous database or network operations to finish before proceeding to the next step. This might look like the following:



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Types of express middleware

Application Level Middleware

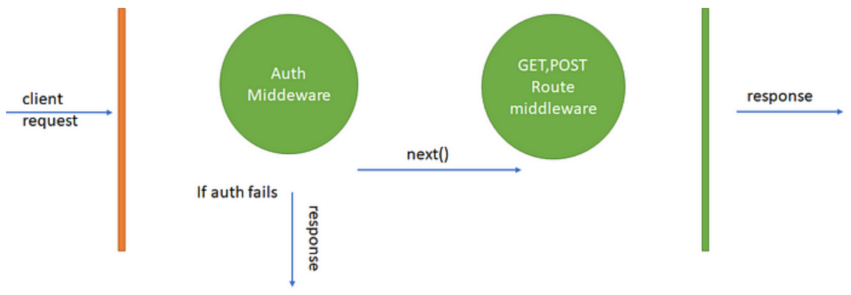
Example 1 : Auth middleware

Suppose we are having five routes **getUsers,getDetails,updateDetails,isLoggedIn,isLoggedOut**

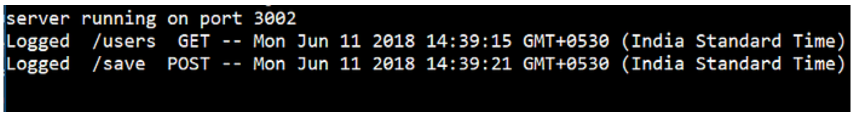
every route must be authenticated if the user is not authenticated then he is not able to call the above mentioned routes,so every GET,POST calls required authentication.In this case we build a authtication middleware.

Now once the request comes the auth middleware will do some authentication logic that we have written inside it.Once authentication successful then remaining routed must be called using next()

if auth fails then it wont perform next route exit the middleware with error response logic



Example 2: Logging Middleware



```
server running on port 3002
Logged  /users  GET -- Mon Jun 11 2018 14:39:15 GMT+0530 (India Standard Time)
Logged  /save  POST -- Mon Jun 11 2018 14:39:21 GMT+0530 (India Standard Time)
```

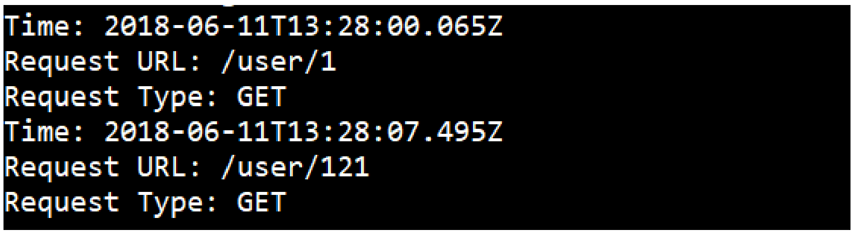
Custom logged created using middleware

Router Level Middleware

Router-level middleware works in the same way as application-level middleware, except it is bound to an instance of `express.Router()`.

```
const router = express.Router()
```

Load router-level middleware by using the `router.use()` and `router.METHOD()` functions.



```
Time: 2018-06-11T13:28:00.065Z
Request URL: /user/1
Request Type: GET
Time: 2018-06-11T13:28:07.495Z
Request URL: /user/121
Request Type: GET
```

Error Handing Middleware

Express JS comes with default error handling params, define error-handling middleware functions in the same way as other middleware functions, except error-handling functions have four arguments instead of three:

```
app.use(function (err, req, res, next) {
  console.error(err.stack)
  res.status(500).send('Something broke!')
})
```

Third-party Middlewares

In some cases we will be adding some extra features to our backend

Install the Node.js module for the required functionality, then load it in your app at the application level or at the router level.

Example: **body-parser**

All middlewares will populate the `req.body` property with the parsed body when the `Content-Type` request header.

app.use({urlencoded:false})

For a partial list of third-party middleware functions that are commonly used with Express, see: [Third-party middleware]().