

Crash Course



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Intro

Node.js is an open source server environment

Node.js is free

Node.js runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)

Node.js uses JavaScript on the server

Get Started

Official website nodejs.org

myfirst.js

```
var http = require('http');

http.createServer(function(req,res){
  res.writeHead(200,{'Content-Type': 'text/html'});
  res.end('Hello World!');
}).listen(8080);
```

To run the code from the terminal type:

```
node myfirst.js
```

Modules

Official website nodejs.org

Include modules

```
var http = require('http');
```

mymodule.js

```
exports.myDateTime = function () {  
  return Date();  
};
```

Use the `exports` keyword to make properties and methods available outside the module file.

myfirst.js

```
var http = require('http');  
var dt = require('./mymodule.js');  
  
http.createServer(function(req,res){  
  res.writeHead(200,{ 'Content-Type': 'text/html' });  
  res.end('Hello World!');  
}).listen(8080);
```

HTTP

demo_http.js

```
var http = require('http');
http.createServer(function(req,res){
  res.writeHead(200,{'Content-Type':'text/html'});
  res.write('Hello World!');
  res.end();
}).listen(8080);
```

demo_url.js

```
var http = require('http');
http.createServer(function(req,res){
  res.writeHead(200,{'Content-Type':'text/html'});
  res.write(req.url);
  res.end()
;}).listen(8080);
```

The function passed into the `http.createServer()` has a `req` argument that represents the request from the client, as an object (`http.IncomingMessage` object). This object has a property called "url" which holds the part of the url that comes after the domain name

File System

index.js

```
var http = require('http');var fs = require('fs');
http.createServer(function(req,res){
  fs.readFile('demofile1.html',function(err,data) {
    res.writeHead(200,{ 'Content-Type':'text/html'});
    res.write(data);
    res.end(); });
}).listen(8080);
```

The Node.js file system module allows you to work with the file system on your computer. To include the File System module, use the `require()` method

URL

index.js

```
var url = require('url');
var adr = 'http://localhost:8080/default.htm?year=2017&month=february';
var q = url.parse(adr, true);
console.log(q.host);
console.log(q.pathname);
console.log(q.search);
var qdata = q.query; console.log(qdata.month); //returns 'february'
```

The Node.js file system module allows you to work with the file system on your computer. To include the File System module, use the `require()` method

File Server

Create a Node.js file that opens the requested file and returns the content to the client. If anything goes wrong, throw a 404 error:

index.js

```
var http = require('http');
var url = require('url');
var fs = require('fs'); http.createServer(function (req, res) {
  var q = url.parse(req.url, true);
  var filename = "." + q.pathname;
  fs.readFile(filename, function(err, data) {if(err){
    res.writeHead(404, {'Content-Type': 'text/html'});
    return res.end("404 Not Found");}
  res.writeHead(200, {'Content-Type': 'text/html'});
  res.write(data); return res.end(); });
}).listen(8080);
```


NPM

NPM is a package manager for Node.js packages, or modules if you like. www.npmjs.com hosts thousands of free packages to download and use. The NPM program is installed on your computer when you install Node.js

>npm install *package*

File Upload

Every action on a computer is an event. Like when a connection is made or a file is opened. Objects in Node.js can fire events, like the `readStream` object fires events when opening and closing a file.

index.js

```
var http = require('http');
var formidable = require('formidable');
var fs = require('fs');
http.createServer(function(req,res){if(req.url == '/fileupload') {
var form = new formidable.IncomingForm();
form.parse(req, function (err, fields, files) {
var oldpath = files.fileupload.path;
var newpath = 'C:/Users/Your Name/' + files.fileupload.name;
fs.rename(oldpath, newpath, function (err) {
if (err) throw err;
res.write('File uploaded and moved!');
res.end();});
});else{
res.writeHead(200, {'Content-Type': 'text/html'});
res.write('<form action="fileupload" method="post" enctype="multipart/form-data">');
res.write('<input type="file" name="fileupload"><br>');
res.write('<input type="submit">');
res.write('</form>');
return res.end(); }}).listen(8080);
```

NODE & MySql

db_connection.js

```
var mysql = require('mysql');
var con = mysql.createConnection({
  host: "localhost",
  user: "yourusername",
  password: "yourpassword"
});

con.connect(function(err) {
  if (err) throw err; console.log("Connected!");
});
```

NODE & MySql

db_connection_query.js

```
var mysql = require('mysql');
var con = mysql.createConnection({
  host: "localhost",
  user: "yourusername",
  password: "yourpassword"
});

con.connect(function(err) {
  if (err) throw err; console.log("Connected!");
  con.query(sql, function (err, result) {
    if (err) throw err;
    console.log("Result: " + result);
  });
});
```

Example

db_connection_query.js

```
var mysql = require('mysql');
var con = mysql.createConnection({
  host: "localhost",
  user: "yourusername",
  password: "yourpassword"
});

con.connect(function(err) {
  if (err) throw err; console.log("Connected!");
  con.query("SELECT ...", function (err, result) {
    if (err) throw err;
    console.log("Result: " + result);
  });
});
```

MongoDB

insert.js

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";
MongoClient.connect(url,function(err,db) {
  if (err) throw err;
  var dbo = db.db("mydb");
    var myobj = {name:"Company Inc",address:"Highway37"};
  dbo.collection("customers").insertOne(myobj,function(err,res) {
    if (err) throw err; console.log("1 document inserted");
    db.close();
  });
});
```

find.js

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";
MongoClient.connect(url, function(err, db) {
  if (err) throw err;
  var dbo = db.db("mydb");
  dbo.collection("customers").findOne({},function(err,result) {
    if (err) throw err;
    console.log(result.name);
    db.close();
  });
});
```

