Node.js 4주차 스터디

파일 업로드및 데이터베이스의 사용

파일 업로드

사용자가 업로드한 파일을 서버의 디렉토리에 저장하는 방법을 알아봅시다.

그런데 아쉽게도 Express에서는 위의 기능을 지원하지 않습니다.

Multer

Multer는 multipart/form-data를 처리하기 위한 Node.js의 미들웨어.
Multer github 페이지를 참고해봅시다.

Multer

build passing | npm package 1.3.1 | code style standard

Multer is a node.js middleware for handling `multipart/form-data`, which is primarily used for uploading files. It is written on top of busboy for maximum efficiency.

NOTE: Multer will not process any form which is not multipart (`multipart/form-data`).

Translations

This README is also available in other languages:

- 简体中文 (Chinese)
- 한국어 (Korean)

Multer install

```
PS C:\Users\User\NodeJS> npm install multer --save
npm WARN package@1.0.0 No description
npm WARN package@1.0.0 No repository field.

+ multer@1.3.1
added 21 packages in 2.116s
```

Upload form

```
<html>
    <head>
        <meta charset = "utf-8">
    </head>
    <body>
        <form action = 'upload' method = 'post' enctype = "mult
            <p>
                <input type = "file" name = "userfile">
            </p>
            <p>
                <input type = "submit">
            </p>
        </form>

    </body>
</html>
```

form에 **enctype="multipart/form-data**를 추가해야 사용자가 업로드한 파일을 서버에 전송할 수 있습니다.

Upload form

찾아보기... 선택한 파일이 없습니다.

질의 보내기

Upload form에 맞는 라우터 작성

```
app.get('/upload', (req, res) => {
    //upload.html 파일 보여주기
})

app.post('/upload', (req, res) => {
    res.send("Uploaded!");
})
```

Response render 메소드

res.render(view [, locals] [, callback])

Renders a `view` and sends the rendered HTML string to the client. Optional parameters:
The `view` argument is a string that is the file path of the view file to render. This can be an absolute path, or a path relative to the `views` setting. If the path does not contain a file extension, then the `view engine` setting determines the file extension. If the path does contain a file extension, then Express will load the module for the specified template engine (via `require()`) and render it using the loaded module's `__express` function.

For more information, see Using template engines with Express.

- view를 화면에 뿌리고, 뿌려진 HTML string을 client에 전달
- view는 절대경로이거나 views setting값에 대한 상대경로 이어야 함.
- view path가 확장자를 포함하지 않는 경우 view engine setting값으로 파일의 확장자를 결정합니다.

Express app Settings

```
app.set(name, value);
```

```
app.get(name);
```

Special names

views	String or Array	A directory or an array of directories for the application's views. If an array, the views are looked up in the order they occur in the array.	process.cwd() + '/views'
view cache	Boolean	Enables view template compilation caching. **NOTE**: Sub-apps will not inherit the value of this setting in production (when `NODE_ENV` is "production").	true in production, otherwise undefined.
view engine	String	The default engine extension to use when omitted. **NOTE**: Sub-apps will inherit the value of this setting.	N/A (undefined)

```
app.set('views', './views_file');
app.set('view engine', 'html')
app.engine('html', ejs.renderFile);
```

실습해봅시다!

```
const express    = require('express');
const app        = express();
const bodyParser = require('body-parser');
const ejs        = require('ejs');

app.use(bodyParser.urlencoded({extended:false}));
app.set('views', './views_file');
app.set('view engine', 'html')
app.engine('html', ejs.renderFile);

app.get('/upload', (req, res) => {
    res.render('upload');
})

app.post('/upload', (req, res) => {
    res.send("Uploaded!");
})

app.listen(3000, function(){
    console.log('Connected 3000 port!');
});
```

Multer로 업로드 된 파일을 디렉토리에 저장

Multer github의 README 참고

```
var express = require('express')
var multer  = require('multer')
var upload = multer({ dest: 'uploads/' })

var app = express()

app.post('/profile', upload.single('avatar'), function (req, res, next) {
  // req.file is the `avatar` file
  // req.body will hold the text fields, if there were any
})
```

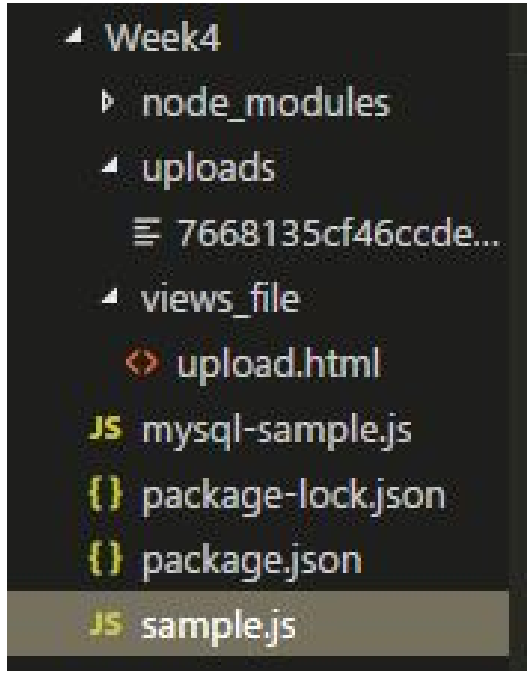
```
...
<input type = "file" name = "userfile">
...
```

```
const multer      = require('multer')
const upload      = multer({ dest: 'uploads/' })

...

app.post('/upload', upload.single('userfile'), (req, res) => {
    console.log(req.file);
    res.send("Uploaded! : " + req.file.filename);
})
```

결과




```
{ fieldname: 'userfile',
  originalname: 'bricks2_normal.jpg',
  encoding: '7bit',
  mimetype: 'image/jpeg',
  destination: 'uploads/',
  filename: '7668135cf46ccde4a390d438873e0c07',
  path: 'uploads\\7668135cf46ccde4a390d438873e0c07',
  size: 59286 }
```

multer의 옵션으로 dest 대신 storage

storage

DiskStorage

The disk storage engine gives you full control on storing files to disk.

```
var storage = multer.diskStorage({
  destination: function (req, file, cb) {
    cb(null, '/tmp/my-uploads')
  },
  filename: function (req, file, cb) {
    cb(null, file.fieldname + '-' + Date.now())
  }
})

var upload = multer({ storage: storage })
```

```
const multer      = require('multer')
const storage     = multer.diskStorage({
    destination: function (req, file, cb) {
      cb(null, 'uploads/');
    },
    filename: function (req, file, cb) {
      cb(null, file.originalname);
    }
  });
const upload      = multer({ storage: storage })

...

app.post('/upload', upload.single('userfile'), (req, res) => {
    console.log(req.file);
    res.send("Uploaded! : " + req.file.filename);
})
```

데이터베이스의 사용

Node.js에서 mySQL을 제어하는 방법을 알아봅시다.

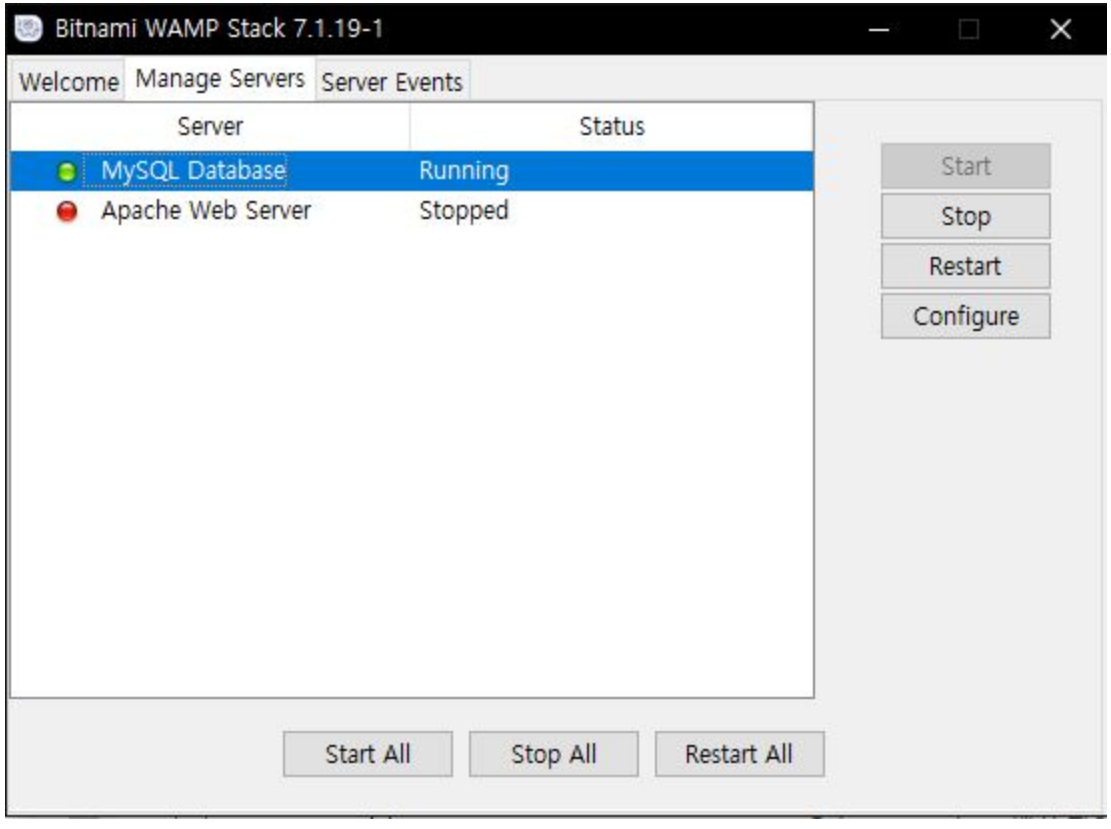
MySQL Install

- **Windows/Mac** : https://bitnami.com/stack/wamp
- **Linux** : sudo apt-get install mysql 치고 tab 두번 눌러서 나오는 목록 중 mysql-server와 mysql-client의 가장 최신버전 설치.

Windows/Mac

```
PS C:\Bitnami\wampstack-7.1.19-1>
```

manager-windows.exe 실행.



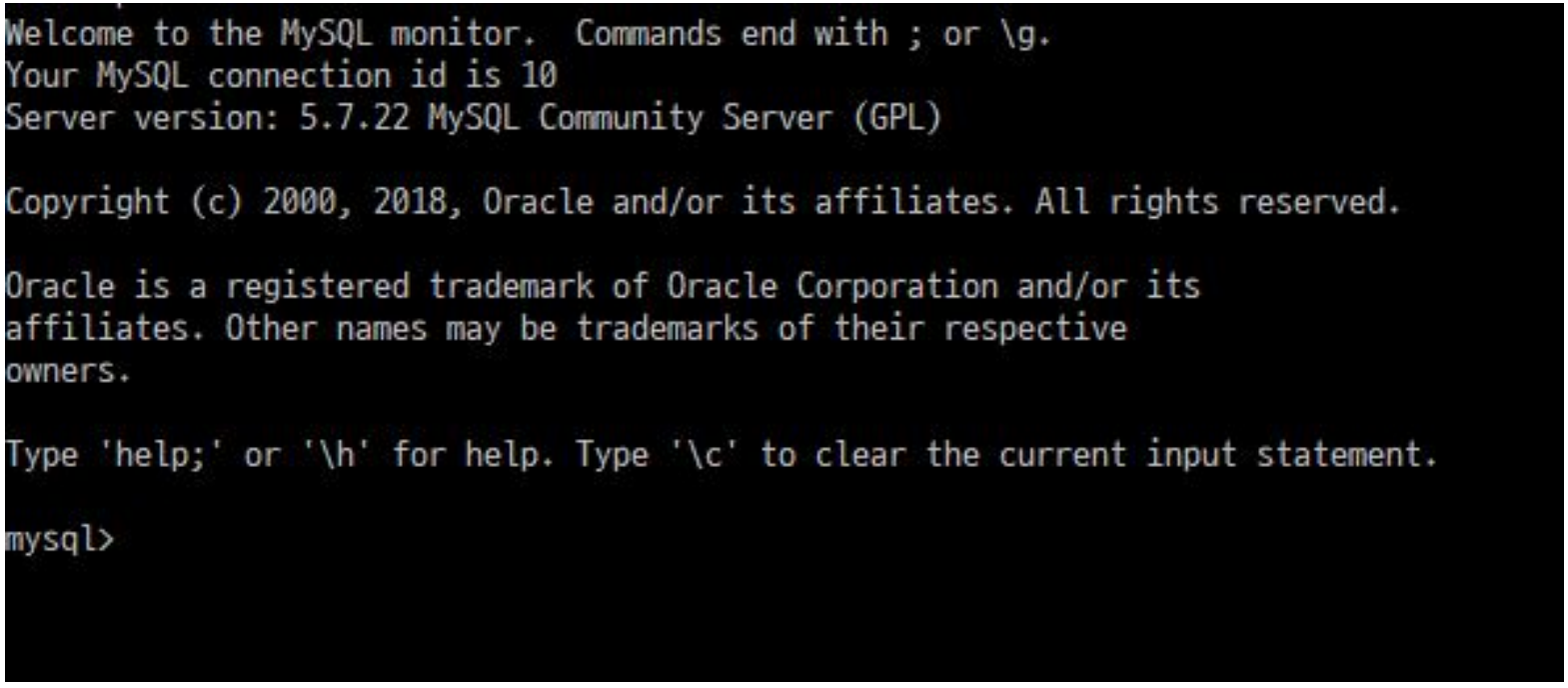
Command prompt를 키고 아래 디렉토리에 갑니다.

```
C:\Bitnami\wampstack-7.1.19-1\mysql\bin>
```

그리고 아래 명령을 실행해줍시다. 이는 모든 플랫폼 공통입니다.

```
mysql -uroot -p
```

MySQL 실행화면


Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 5.7.22 MySQL Community Server (GPL)
Copyright (c) 2000, 2018, Oracle and/or its affiliates. All rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql>

MySQL Table 구성

title	description	author
JavaScript	Javascript is..	egoing
NPM	Package manager	egoing
Nodejs	Server side js	leezche
pm2	process manager	duru

table (topic)

(출처 : 생활코딩)

생성된 'topic' 테이블을 Node.js에서 제어해봅시다.

node-mysql github 참고 (url : https://github.com/mysqljs/mysql)

Install

```
npm install --save node-mysql
```

Create Database

```
const mysql      = require('mysql');
const connection = mysql.createConnection({
    host : 'localhost',
    user : 'root',
    password : 'tlswlgmd12',
});

connection.connect();

var sql = 'CREATE DATABASE ?? CHARACTER SET utf8 COLLATE \
                utf8_general_ci'
var dbName = 'o2';
connection.query(sql, [dbName], (err, rows, fields) => {
    if (err) {
        console.log(err);
    }
    else {
        console.log('Database ' + dbName + ' Created!');
    }
});

connection.end();
```

Create Database table

```
        ...
    database : 'o2'
});

connection.connect();

var sql = 'CREATE TABLE ?? (\
                `id` int(11) NOT NULL AUTO_INCREMENT,\
                `title` varchar(100) NOT NULL,\
                `description` text NOT NULL,\
                `author` varchar(30) NOT NULL,\
                PRIMARY KEY (id)\
        ) ENGINE=InnoDB DEFAULT CHARSET=utf8;';
var tableName = 'topic';
connection.query(sql, [tableName], (err, rows, fields) => {
    if (err) {
        console.log(err);
    }
    else {
        console.log('Table ' + tableName + ' Created!');
    }
});

connection.end();
```

INSERT, SELECT 실습해보기

```
var sql = 'INSERT INTO topic (title, description, author) \
        VALUES(?, ?, ?);';
var params = ['DirectX', '3D Rendering API', 'Microsoft'];
connection.query(sql, params, (err, rows, fields) => {
    if (err) {
        console.log(err);
    }
    else {
        console.log(rows);
    }
});
```

```
var sql = 'SELECT * FROM topic;';
connection.query(sql, (err, rows, fields) => {
    if (err) {
        console.log(err)
    } else {
        for (i = 0; i < rows.length; ++i)
                console.log(rows[i].description);
    }
});
```

Assignment

- 자신이 원하는 형태의 웹 어플리케이션을 NodeJS 와 MySQL 또는 MongoDB를 사용해서 만들기