진짜 기초

node js™

NHN NEXT 김우진

node.js?

"**서버사이드** JavaScript"

Hello World!

```javascript
// helloworld.js
console.log("Hello World!");

// terminal
$ node helloworld.js
```

우리가 만들 거.

이름을 입력하세요.

| 김우진 | 입력 |

안녕하세요. 김우진 님

http://localhost:8888/start

http://localhost:8888/hello

쉽죠?

우리가 필요한 거.

요청

↓

HTTP서버 : 웹페이지 제공

라우터 : 요청과 요청을 처리할 핸들러들을 연결

요청 핸들러 : 요청을 만족시키기위한 핸들러

뷰 로직 : 브라우저로 콘텐트를 만들어 보내기 위한 로직

↓

응답

기본서버 만들기.

```javascript
// server.js
var http = require("http");

http.createServer(function (request, response) {
  response.writeHead(200, {"Content-Type" : "text/plain"});
  response.write("Hello World!");
  response.end();
}).listen(8888);

// terminal
$ node server.js
```

기본서버 만들기. - 함수전달

```javascript
// server.js
var http = require("http");

function onRequest(request, response) {
  console.log("Request Received");
  response.writeHead(200, {"Content-Type" : "text/plain"});
  response.write("Hello World!");
  response.end();
}

http.createServer(onRequest).listen(8888);
console.log("Server has started.");
```

이 함수는 클라이언트의 요청을 받으면
거꾸로 호출(callback)된다.

기본서버 만들기. - 모듈화

```javascript
// server.js
var http = require("http");

function start() {
  function onRequest(request, response) {
    console.log("Request Received");
    response.writeHead(200, {"Content-Type" : "text/plain"});
    response.write("Hello World!");
    response.end();
  }

  http.createServer(onRequest).listen(8888);
  console.log("Server has started.");
}

exports.start = start;
```
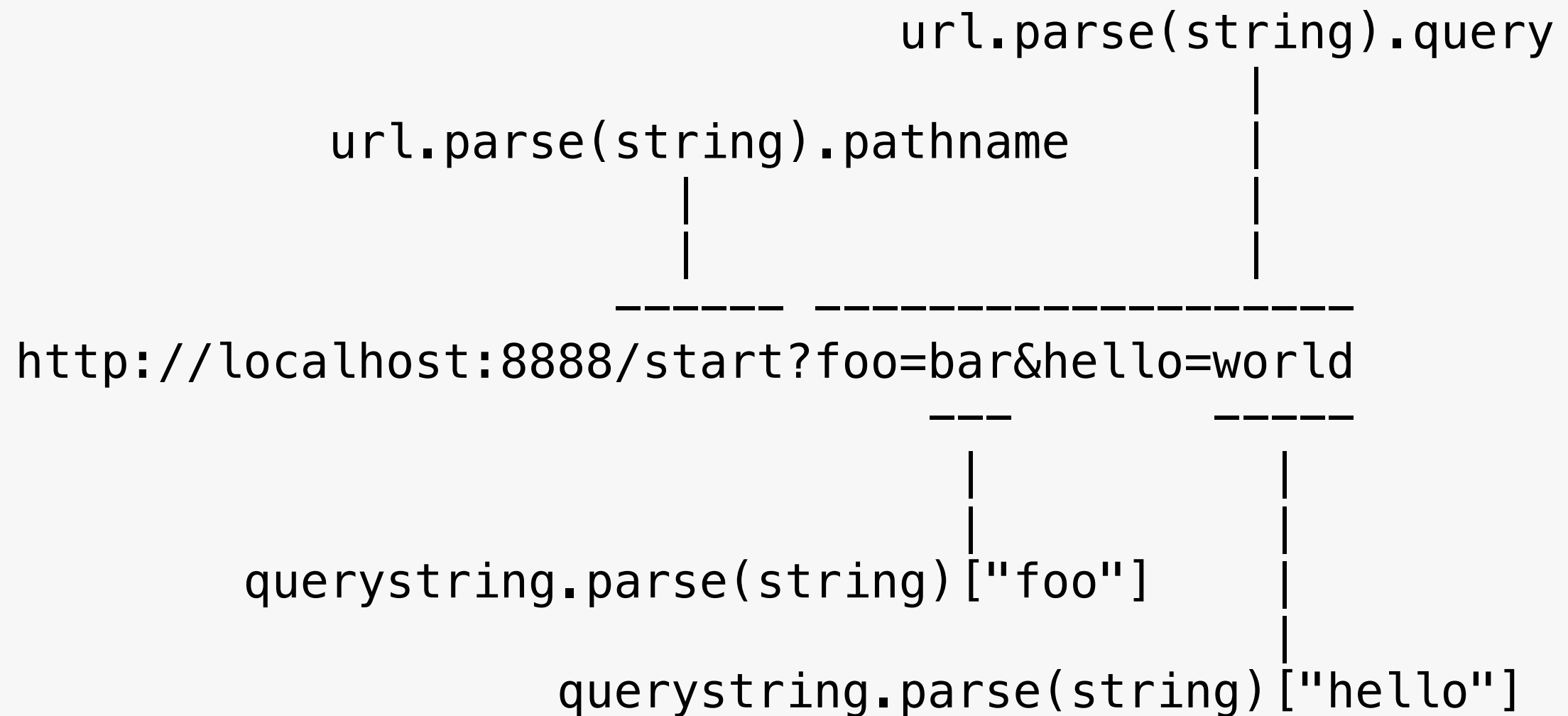
기본서버 만들기. - 모듈화

```javascript
// index.js
var server = require("./server");

server.start();
```

요청을 route

```
                              url.parse(string).query
                                         |
          url.parse(string).pathname     |
                     |                    |
                     |                    |
                  _____ _____
http://localhost:8888/start?foo=bar&hello=world
                            ___        _____
                             |           |
                             |           |
         querystring.parse(string)["foo"]  |
                                         |
                   querystring.parse(string)["hello"]
```

요청을 route

```javascript
// server.js
var http = require("http");
var url = require("url");

function start() {
  function onRequest(request, response) {
    var pathname = url.parse(request.url).pathname;
    console.log("Request for " + pathname + " received.");
    response.writeHead(200, {"Content-Type": "text/plain"});
    response.write("Hello World");
    response.end();
  }

  http.createServer(onRequest).listen(8888);
  console.log("Server has started.");
}

exports.start = start;
```

요청을 route

```javascript
// server.js
var http = require("http");
var url = require("url");

function start(route) {
  function onRequest(request, response) {
    var pathname = url.parse(request.url).pathname;
    console.log("Request for " + pathname + " received.");
    route(pathname);
    response.writeHead(200, {"Content-Type": "text/plain"});
    response.write("Hello World");
    response.end();
  }

  http.createServer(onRequest).listen(8888);
  console.log("Server has started.");
}

exports.start = start;
```

요청을 route

```javascript
// router.js
function route(pathname) {
  console.log("About to route a request for " + pathname);
}

exports.route = route;
```

요청을 route

```javascript
// index.js
var server = require("./server");
var router = require("./router");

server.start(router.route);
```

request handler

요청별로 다른 함수에서 처리하고 싶다!

```javascript
// requestHandlers.js
function start() {
  console.log("Request handler 'start' was called.");
}

function hello() {
  console.log("Request handler 'hello' was called.");
}

exports.start = start;
exports.hello = hello;
```

request handler

요청별로 다른 함수에서 처리하고 싶다!

```javascript
// index.js
var server = require("./server");
var router = require("./router");
var requestHandlers = require("./requestHandlers");

var handle = {}
handle["/"] = requestHandlers.start;
handle["/start"] = requestHandlers.start;
handle["/hello"] = requestHandlers.hello;

server.start(router.route, handle);
```

request handler

요청별로 다른 함수에서 처리하고 싶다!

```javascript
// server.js
var http = require("http");
var url = require("url");

function start(route, handle) {
  function onRequest(request, response) {
    var pathname = url.parse(request.url).pathname;
    console.log("Request for " + pathname + " received.");
    route(handle, pathname);
    response.writeHead(200, {"Content-Type": "text/plain"});
    response.write("Hello World");
    response.end();
  }

  http.createServer(onRequest).listen(8888);
  console.log("Server has started.");
}
```

request handler
요청별로 다른 함수에서 처리하고 싶다!

```javascript
// router.js
function route(handle, pathname) {
  console.log("About to route a request for " + pathname);
  if (typeof handle[pathname] === 'function') {
    handle[pathname]();
  } else {
    console.log("No request handler found for " + pathname);
  }
}

exports.route = route;
```

request handler가 응답하게

```javascript
// requestHandlers.js
function start() {
  console.log("Request handler 'start' was called.");
  return "Hello Start";
}

function hello() {
  console.log("Request handler 'hello' was called.");
  return "Hello Hello";
}

exports.start = start;
exports.hello = hello;
```

request handler가 응답하게

```javascript
// route.js
function route(handle, pathname) {
  console.log("About to route a request for " + pathname);
  if (typeof handle[pathname] === 'function') {
    return handle[pathname]();
  } else {
    console.log("No request handler found for " + pathname);
    return "404 Not found";
  }
}

exports.route = route;
```

request handler가 응답하게

```javascript
// server.js
var http = require("http");
var url = require("url");

function start(route, handle) {
  function onRequest(request, response) {
    var pathname = url.parse(request.url).pathname;
    console.log("Request for " + pathname + " received.");
    response.writeHead(200, {"Content-Type": "text/plain"});
    var content = route(handle, pathname);
    response.write(content);
    response.end();
  }

  http.createServer(onRequest).listen(8888);
  console.log("Server has started.");
}

exports.start = start;
```

Blocking 과 Non-Blocking

```javascript
// requestHandlers.js
function start() {
  console.log("Request handler 'start' was called.");

  function sleep(milliSeconds) {
    var startTime = new Date().getTime();
    while (new Date().getTime() < startTime + milliSeconds);
  }

  sleep(10000);

  // 이 함수가 리턴 할 때까지 서버가 기다린다.
  return "Hello Start";
}
```

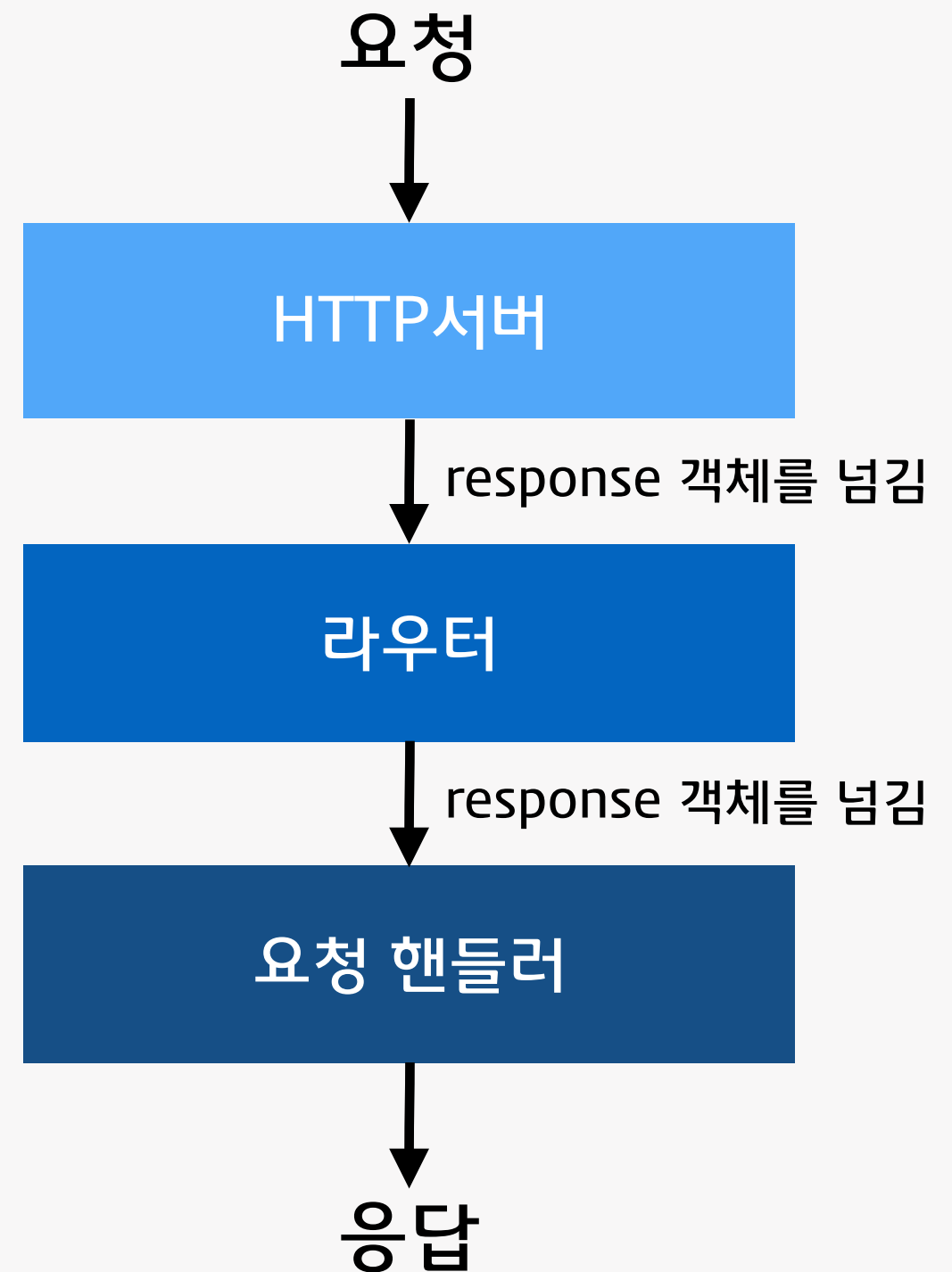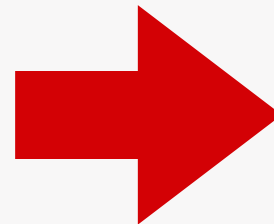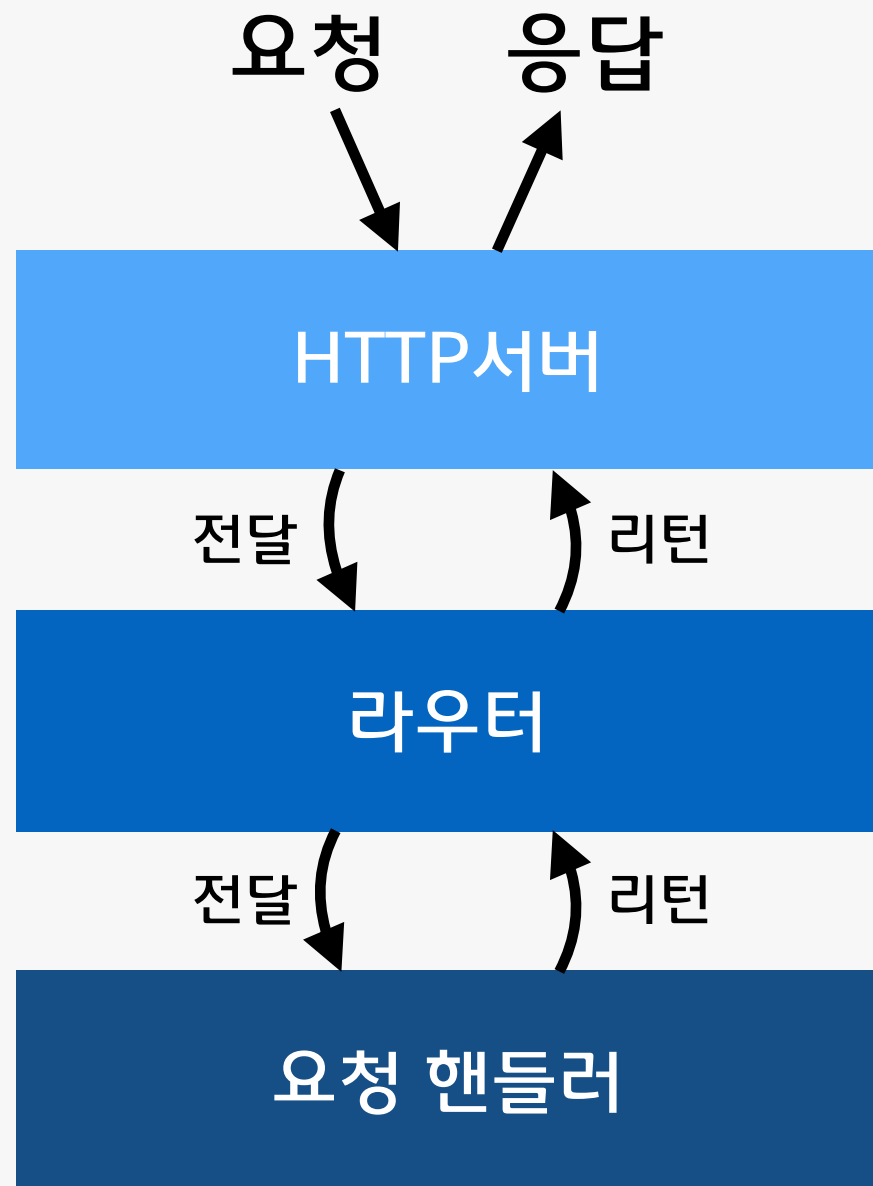**동시에 여러명이 접속할 때 문제가 발생!**

Blocking 과 Non-Blocking

"node.js는 Single Thread,

동시작업을 Event Loop를 실행하여 처리"

Blocking 과 Non-Blocking

"헤이, probablyExpensiveFunction(), 니 일을 해줘. 하지만 나 Single Node.js 쓰레드는 네가 끝낼 때까지 여기서 기다리지 않을거야. 네 아래에 있는 코드 라인을 계속 실행할거야. 그러니 여기 이 callbackFunction()을 가져가서 네가 너의 비싼 일을 모두 끝냈을 때 호출(callback)해 주겠니? 고마워!"

Blocking 과 Non-Blocking

요청 핸들러에서 응답을 처리하게 -> Non-Blocking으로 통제가능

요청　응답

요청

HTTP서버

전달　리턴

라우터

전달　리턴

요청 핸들러

HTTP서버

response 객체를 넘김

라우터

response 객체를 넘김

요청 핸들러

응답

Blocking 과 Non-Blocking

```javascript
// server.js
var http = require("http");
var url = require("url");

function start(route, handle) {
  function onRequest(request, response) {
    var pathname = url.parse(request.url).pathname;
    console.log("Request for " + pathname + " received.");

    route(handle, pathname, response);
  }

  http.createServer(onRequest).listen(8888);
  console.log("Server has started.");
}

exports.start = start;
```

Blocking 과 Non-Blocking

```javascript
// router.js
function route(handle, pathname, response) {
  console.log("About to route a request for " + pathname);
  if (typeof handle[pathname] === 'function') {
    handle[pathname](response);
  } else {
    console.log("No request handler found for " + pathname);
    response.writeHead(404, {"Content-Type": "text/plain"});
    response.write("404 Not found");
    response.end();
  }
}

exports.route = route;
```

Blocking 과 Non-Blocking

```javascript
// requestHandlers.js
function start() {
  console.log("Request handler 'start' was called.");

  setTimeout(function(){
    response.writeHead(200, {"Content-Type": "text/plain"});
    response.write("Hello Start");
    response.end();
  }, 10000);
}

function hello(response) {
  console.log("Request handler 'hello' was called.");
  response.writeHead(200, {"Content-Type": "text/plain"});
  response.write("Hello Hello");
  response.end();
}

exports.start = start;
exports.hello = hello;
```

해결! 하지만 큰 의미는 없으니 지웁시다.

Blocking 과 Non-Blocking

```javascript
// requestHandlers.js
function start() {
  console.log("Request handler 'start' was called.");
  response.writeHead(200, {"Content-Type": "text/plain"});
  response.write("Hello Start");
  response.end();
}

function hello(response) {
  console.log("Request handler 'hello' was called.");
  response.writeHead(200, {"Content-Type": "text/plain"});
  response.write("Hello Hello");
  response.end();
}

exports.start = start;
exports.hello = hello;
```

뷰 로직을 만들고 연동하기.

```javascript
// requestHandlers.js
function start(response) {
  console.log("Request handler 'start' was called.");

  var body = '<html>'+'<head>'+
    '<meta http-equiv="Content-Type" content="text/html; '+
    'charset=UTF-8" />'+
    '</head>'+ '<body>'+
    '이름을 입력하세요.'+ '<br>'+
    '<form action="/hello" method="post">'+
    '<input type="text" name="text"></input>'+
    '<input type="submit" value="입력" />'+
    '</form>'+'</body>'+'</html>';

  response.writeHead(200, {"Content-Type": "text/html"});
  response.write(body);
  response.end();
}
```

뷰 로직을 만들고 연동하기.

POST Data를 Non-Blocking으로 받기.

```javascript
request.addListener("data", function(chunk) {
  // called when a new chunk of data was received
});

request.addListener("end", function() {
  // called when all chunks of data have been received
});
```

뷰 로직을 만들고 연동하기.

POST Data를 Non-Blocking으로 받기.

```javascript
// server.js
function onRequest(request, response) {
  var postData = "";
  var pathname = url.parse(request.url).pathname;
  console.log("Request for " + pathname + " received.");

  request.setEncoding("utf8");

  request.addListener("data", function(postDataChunk) {
    postData += postDataChunk;
    console.log("Received POST data chunk '"+
    postDataChunk + "'.");
  });

  request.addListener("end", function() {
    route(handle, pathname, response, postData);
  });
}
```

뷰 로직을 만들고 연동하기.

POST Data를 Non-Blocking으로 받기.

```javascript
// router.js
function route(handle, pathname, response, postData) {
  console.log("About to route a request for " + pathname);
  if (typeof handle[pathname] === 'function') {
    handle[pathname](response, postData);
  } else {
    console.log("No request handler found for " + pathname);
    response.writeHead(404, {"Content-Type": "text/plain"});
    response.write("404 Not found");
    response.end();
  }
}
```

뷰 로직을 만들고 연동하기.

POST Data를 받아서 사용하기.

```javascript
// requestHandlers.js
function hello(response, postData) {
  console.log("Request handler 'hello' was called.");
  response.writeHead(200, {"Content-Type": "text/plain"});
  response.write("안녕하세요. "+ postData + "님");

  response.end();
}
```

뷰 로직을 만들고 연동하기.
POST Data를 받아서 사용하기. -> text만 가져오기.

```javascript
// requestHandlers.js
var querystring = require("querystring");

// ...

function hello(response, postData) {
  console.log("Request handler 'upload' was called.");
  response.writeHead(200, {"Content-Type": "text/plain"});
  response.write("안녕하세요. "+
  querystring.parse(postData).text + "님");

  response.end();
}
```

reference

http://www.nodebeginner.org/index-kr.html

KEEP
CALM
AND
YNCA!