Webbasierte Anwendungen
Node.js

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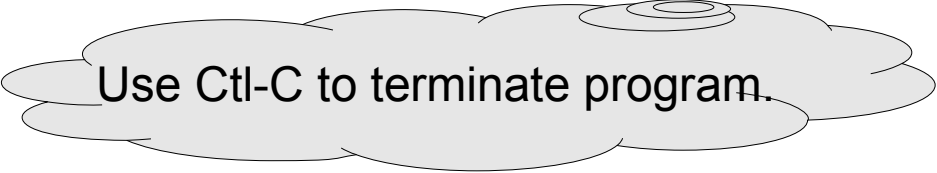# Content

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Introduction

- Node.js is a JavaScript based runtime environment outside of a browser.

- Based on V8 JavaScript execution engine, initially built for Google Chrome

- Also usable as Web server. It does not need Apache.

- Allows access to databases.

- https://nodejs.org

- https://expressjs.com (Module for Web server)

Introduction

◆ Call Node.js program

```
nodejs helloworls.js
```
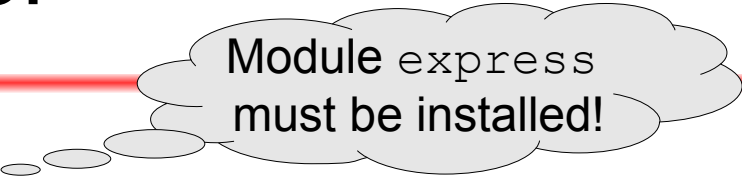
Use Ctl-C to terminate program.

Web Server

Module `express` must be installed!

- Import Module express
```
const express = require('express');
```

- Create express app
```
let app = express();
```

- Bind and listen for connection. Every port on a server can be used only once.
```
app.listen(3000, function () {
    console.log(
        'Listening on port 3000!');
});
```

Callback on success

Web Server

- HTTP GET Requests

Invoke on specified path.

Callback

```
app.get('/', function (req, res) {
    // set header
    res.set('Content-Type', 'text/html');
    // send body
    res.send('<!DOCTYPE html>...</html>');
});
```

Web Server

- ## HTTP POST request

```
//for parsing application/x-www-form-urlencoded
app.use(express.urlencoded({extended: true}));

// Route HTTP POST request
app.post('/', function (req, res, next) {
});
```
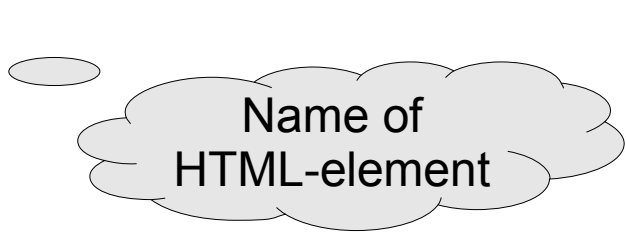
Invoke on specified path.

Callback

- ## Use `req.body.<variable>` to access post variable

Web Server

◆ HTTP POST request

```
// Route HTTP POST request
app.post('/', function (req, res, next) {
  res.set('Content-Type', 'text/html');
  res.send('<!DOCTYPE html>…'+
          '<p>Your input was '+
          req.body.text+
          '</p>...');

});
```

Name of HTML-element

Database Access

Module `mysql` must be installed!

- ◆ **Include module for MariaDB/MySQL.**
  ```
  const mysql = require('mysql');
  ```
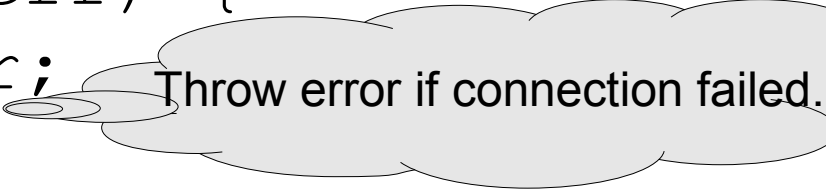
- ◆ **Configure database access**
  ```
  let con = mysql.createConnection({
      host: 'localhost',
      database: 'schema',
      user: 'usename',
      password: 'password'
  });
  ```

Database Access

◆ Connect to database

```
con.connect(function(err) {
    if (err) throw err;

    // functionality after connecting
    //to database
});
```

Throw error if connection failed.

Database Access

◆ **Query database**

```
let title = '%Pirate%';
let sql = 'SELECT * FROM medienartikel
                    WHERE titel LIKE ?';
con.query(sql, [title],
          function (err, rows) {
              if (err) throw err;
              // rows contains all queried data
          }
);
```

References

- Ackermann, P.: JavaScript – Das umfassende Handbuch, Auflage 1, Rheinwerk, 2016

- OpenJS Foundation: Node.js, https://nodejs.org accessed 23.06.2020

- Express Node.js web application framework, https://expressjs.com accessed 23.06.2020

  W3cschools.com: Node.js MySQL, https://www.w3schools.com/nodejs/nodejs_mysql.asp, accessed 17.01.2018