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Program systems development practice
Practice 04
Summary

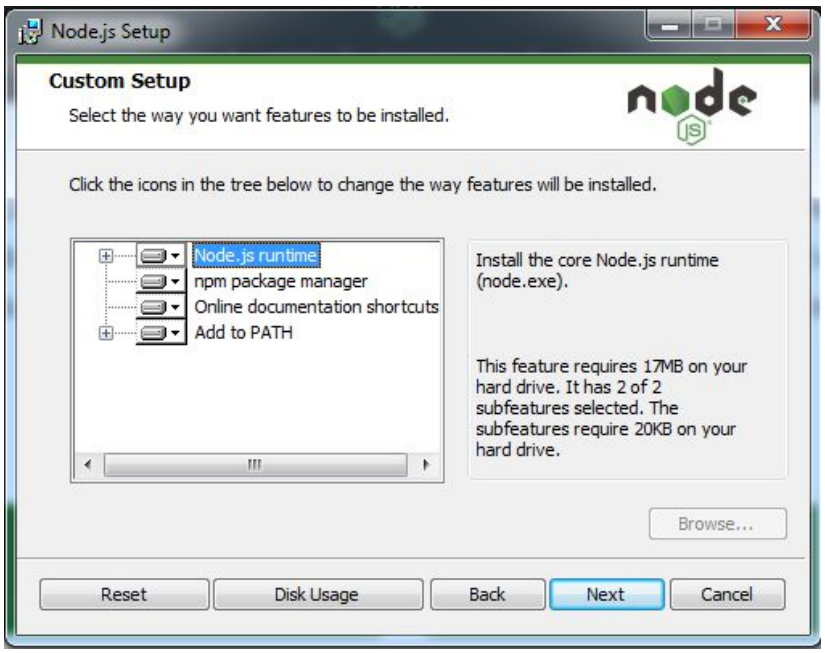
TypeScript

How to run the example that I've showed you last Tuesday? It can be tested on Windows as well!

1. Before running the project, you have to install the Node.js (if it hasn't been installed yet).

The recommended latest stable version of it is now ***v8.9.4 LTS*** for Windows.
`https://nodejs.org/dist/v8.9.4/node-v8.9.4-x64.msi`

Through the installation make sure that all of the features will be installed!



- Node.js runtime is necessary.
- npm package manager is necessary to install all of the dependencies that in our package.json are mentioned.
- Online documentation shortcuts aren't necessary but they could be useful.
- Add to PATH is important because this is the only case when the installed packages will be added to the environment variables.

After the installation of Node.js, you have to restart the terminal because the commands (like: npm, etc...) can be only used if they are added in the environment variables. After the addition you always have to restart the terminal!
You can check whether the installation was correct or not.
In terminal:
- use the **`node -v`** command
  the output should be: **`v8.9.4`**
- use the **`npm`** command
  the output should be a help to the usage of the npm command

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2. Next, what we need is a TypeScript compiler because we're working on a TypeScript project.

You can install the TypeScript compiler with the npm.
Use the following command in terminal:

```
npm install -g typescript
```

With the npm we can install the TypeScript Compiler as a Node.js package. The **`-g`** means that this installation is globally, so it will be added to the PATH (environment variable) and after that we can use the **`tsc`** command.

After the installation you can test it with the command **`tsc`**.
The output should be a help again about how to use the **`tsc`** command.

3. There's only one thing that we need to install, it's the gulp. The gulp can be installed with npm again.

Use: **`npm install -g gulp-cli`**

If the installation was correct you can test whether the installation was correct with the following command:
`gulp -v`

If the output should be: **`CLI version 1.2.2`**

4. Download the project from CooSpace or from my website!

5. Now, you have to install all the dependencies that our project needs.

Let's navigate to the downloaded project's folder. Inside of it, there's a source folder. The source folder contains all the necessary files of the project (such like: index.html, the folder of JavaScript files, etc...).

Go into the ***`source`*** folder and use the **`npm install`** command!
Now comes the installation part of the project. The npm checks the *`package.json`* file and downloads all the dependencies that are specified in the mentioned *`.json`* file.

After the installation you're able to run the project. You can do it with the **`gulp`** command. Just simple use it inside of the source folder.

The gulp tries to find the *`gulpfile.js`* file which contains all the instructions for the compilation. It uses the earlier installed TypeScript compiler (tsc) and it creates a new ***`dist`*** folder inside of the ***`source`*** folder. The TypeScript compiler (tsc) always looks for the *`tsconfig.json`* file. It means that this is the root of the project. It contains all the transpiled *`.js`* files of your project. The *`index.html`* in this example uses the only *`.js`* file in the ***`dist`*** folder. You have to open only the *`index.html`* after the compilation with a browser to see how the project works!

6. How can we edit or just watch the content of the files?

You'll need a source-code editor which can handle script languages well. What we're using in practices, it's the Visual Studio Code. It's a free software that is available for Windows, for Linux and for OS X as well.

`https://code.visualstudio.com/`

Good luck! If you have any questions, write me an e-mail!
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