SHAKE THE FUTURE

CENTRALE NANTES

Web Programming

Prerequisites

JY Martin - JM Normand

Plan

1 Overview

2 Tools

Objectives

The main purpose of these practical works is to introduce major frameworks in web programming.

Here is the sequence:

- HTML-CSS basic introduction
- Javascript and AJAX with JQuery
- PHP Symfony
- SPRING and JPA
- AngularJS and NodeJS

Practical works

For each practical work, you should have install and check the softwares we will use. These softwares are mentionned at the beginning of each material. The way to install and check them can be find in these slides.

You can do the practical works at your own pace, but your are supposed finishing the set of practical works before the test.

There is no report to write for practical works.

Final Examination

Final examination will take place the last 4 hours of this course.

You are supposed having your computer with the set of tools we use for all practical works. You should have install and test them.

During this test you will have to write a web application using one of the frameworks used in the practical works fully operationnal.

You will be told which framework you will use for the examination at the beginning of the test.

Plan

1 Overview

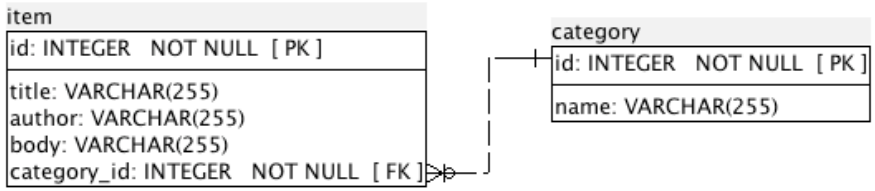
2 Tools

Tools we will use

- A text editor. For example, NotePad++ for windows, BBEdit, Atom or Sublime Text for MacOS, ...
- Web browser, with activated degugging tools: Firefox, Chrome, Safari. You should avoid Edge, because of poor debugging tools.
- Database server : PostgreSQL version 9, 10 or 11
- HTTP server - apache, wamp, xamp,...
- JQuery library
- PHP 7 connected to your web server
- Symfony 4
- Java 8 - JDK version
- Netbeans 11
- Tomcat 8.5
- Angular JS 4
- NodeJS with express, express-generator, pg, jade

Data

For most of our web applications, we will use data. Here is the Physical Schema we will use:

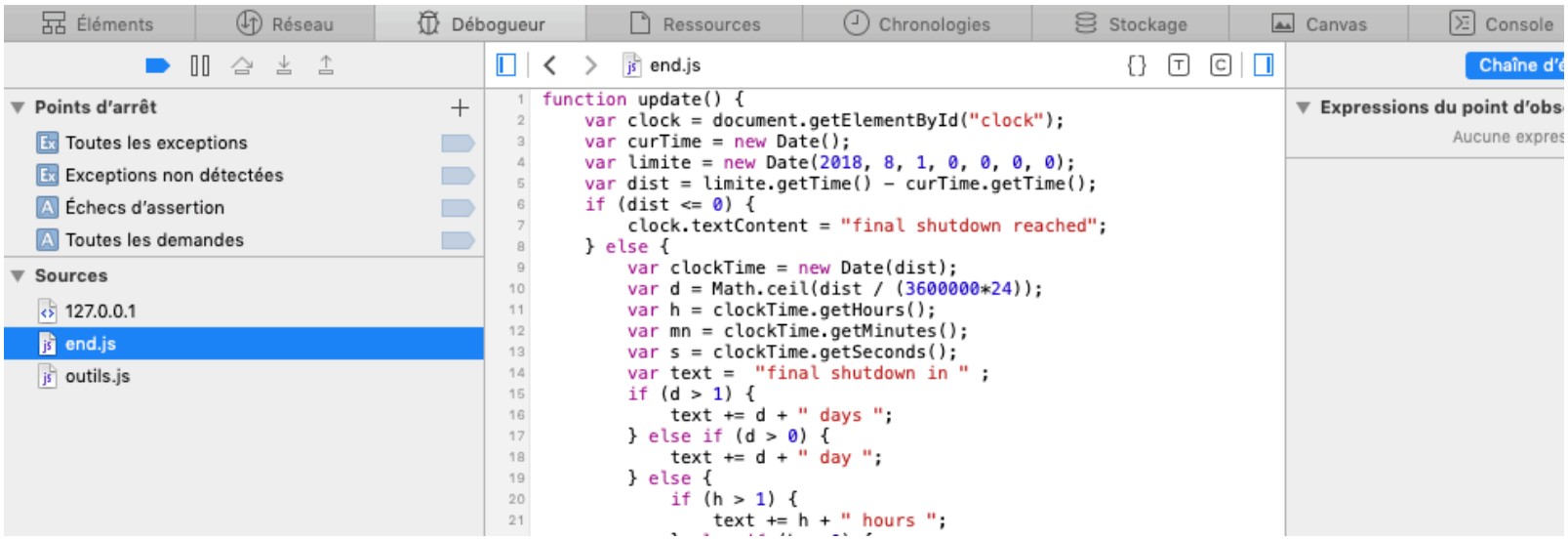


The file “CreateBase.sql” in the materials may help you.

Debugging tools on Safari

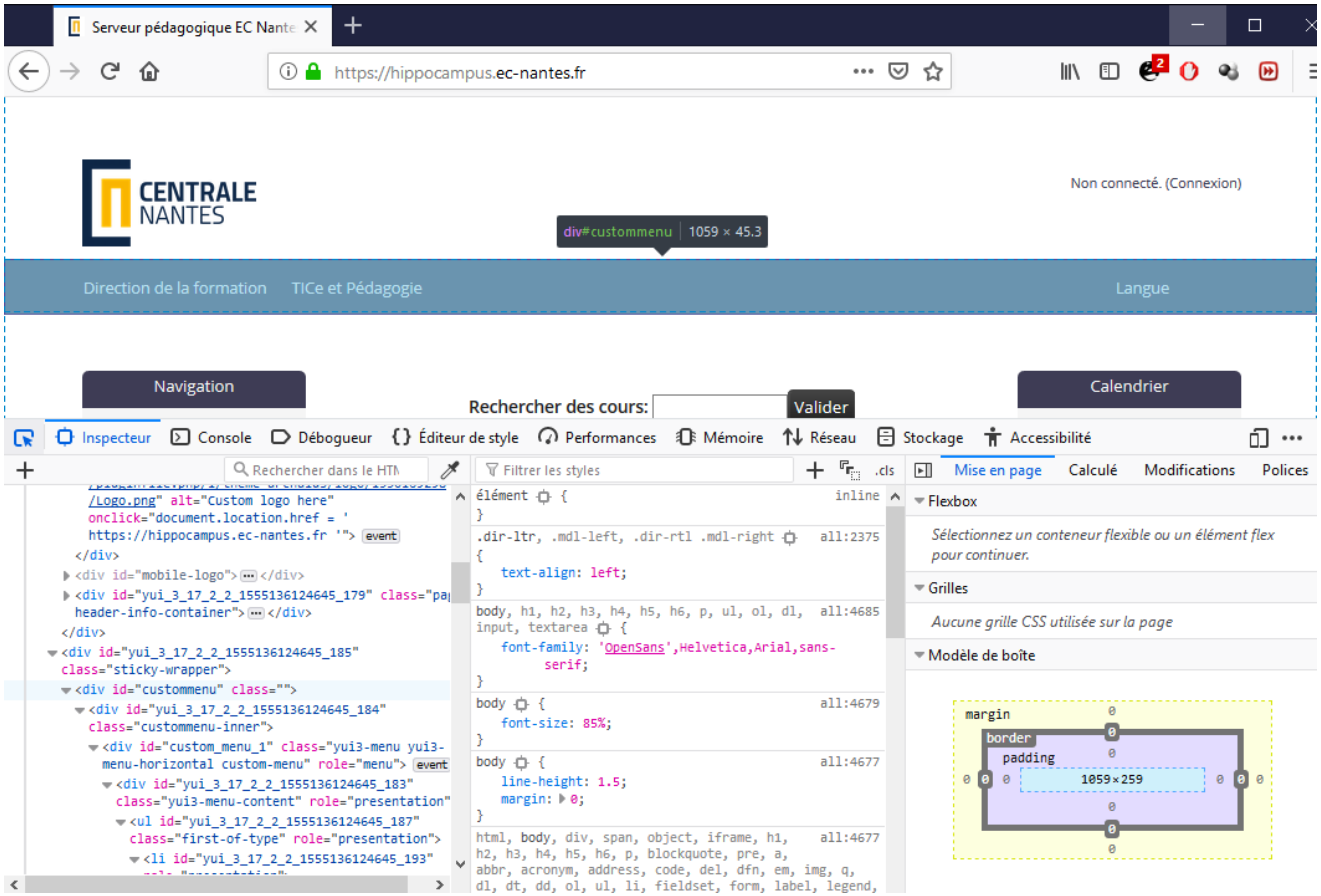
Use “Preferences”. Select tab “advanced”. Click on “activate debugging tools” bottom of the window. Restart Safari.

In “Development”, call “Web Inspector”



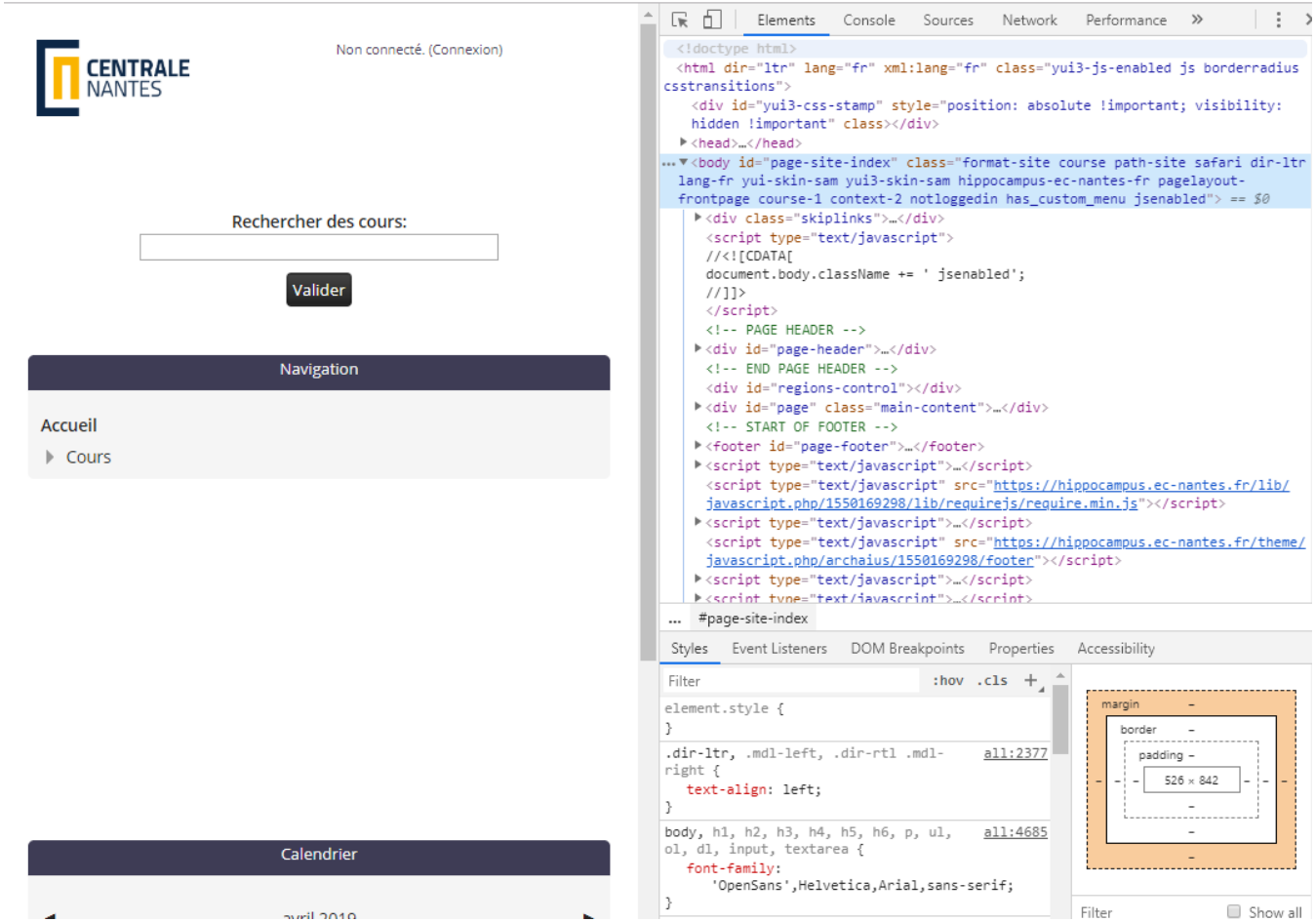
Debugging tools on Firefox

Use icon at the top right. Then “Web Development”, “Inspector”.



Debugging tools on Chrome

Use icon at the top right. Then “More tools”, “Development tools”.



Web browser check

Open your browser with this URL: https://www.ec-nantes.fr

Select debugging tools. Navigate using tabs.

Check you can add breakpoints.

PostgreSQL

PostgreSQL is a relational database server. We will use versions, 9, 10 or 11. You can choose the one you want.

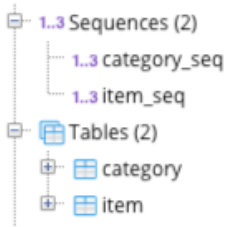
You may use another kind of server if you want, but our slides are written for it. If you use something like mysql or mongoDB, you will have to use the right modules.

Downloading, Installing and Configuring PostgreSQL is described in the slides “Install Party”.

PostgreSQL importing data

- Create a user “prweb”. He might be able to connect.
- Create a new database. Call it “prweb”. Set user “prweb” as owner.
- Open Query tool. Import “CreateBase.sql”. Launch it.

You should have a database with data.



HTTP server Installation

This section is only for Windows users. MacOS and Linux users already have one installed.
Also, if you already installed WAMP, MAMP or XAMP, you do not have to install another one.

Use your web browser and download WAMP at the following URL:
http://www.wampserver.com/

Install it.

HTTP server config location

Server configuration is in the file httpd.conf.

- Windows
  - WAMP : in your application folder, in Apache2\conf folder
  - MAMP, XAMP: in your application folder, in htdocs
- MacOS - linux

  /etc/apache2

HTTP server root location

- Windows
  - WAMP : in your application folder, in Apache2\htdocs folder
  - MAMP, XAMP: in your application folder, in htdocs
- MacOS

  /Library/WebServer/Documents
- Linux

  Depend on your distribution, but should be in /var/www

HTTP server check

- Run your server
  - Windows : Launch the admin tool of your web dev environment (WAMP, MAP, ...) and click to start server.
    Sometimes there is a problem with directory rights. Fix it.
  - MacOS, Linux : should be launched
- Check it works fine by using following URL:
  http://127.0.0.1

PHP Installation

- Windows
  PHP should have been installed with WAMP / XAMP/ MAMP
- MacOS
  Should already been installed by Apple.
- Linux
  If not installed may be you should use something like “apt-get install php7”

PHP configuration 1/4

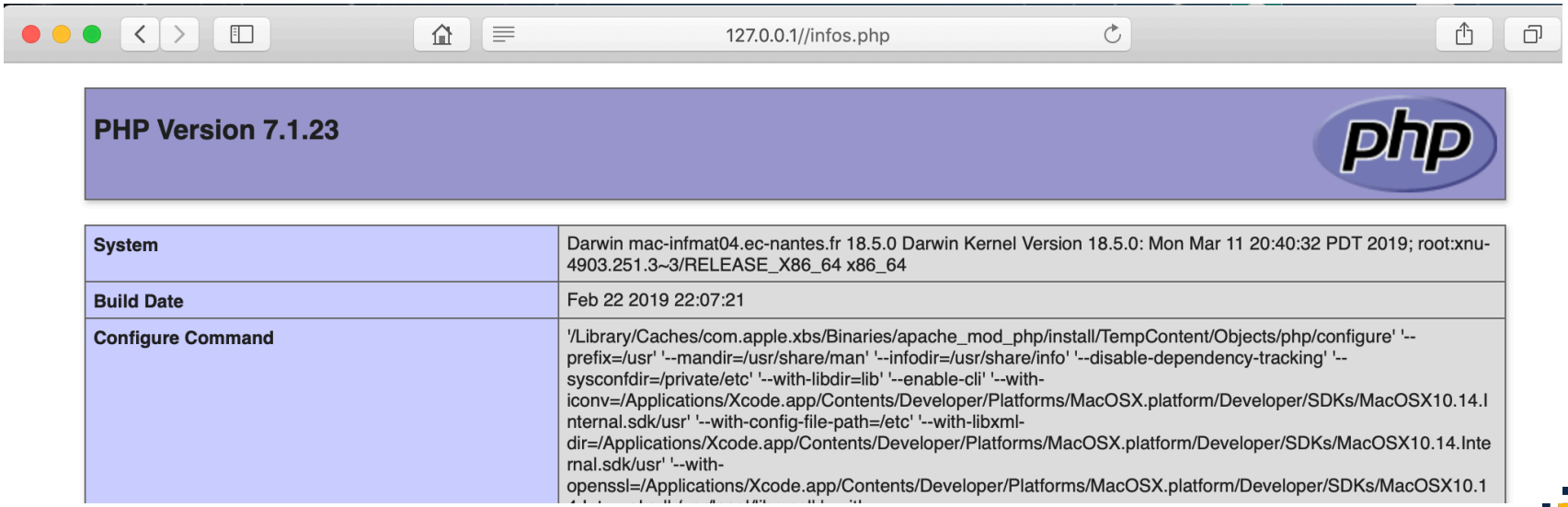
PHP should be linked to your web browser.

Open the file httpd.conf in the http config folder.
Find php. if the line starts with “#”, remove the # character to activate php.
Restart http server.

PHP configuration 2/4

Copy the file infos.php to your http server root location. Use your browser and call this URL: http://127.0.0.1/infos.php

You should have something like this:



PHP configuration 3/4

In this page, find “PDO” You should have something like this:

PDO

PDO support	enabled
PDO drivers	mysql, pgsql, sqlite

pdo_mysql

PDO Driver for MySQL	enabled
Client API version	mysqlnd 5.0.12-dev - 20150407 - $Id: 38fea24f2847fa7519001be390c98ae0acafe387 $

Directive	Local Value	Master Value
pdo_mysql.default_socket	/var/mysql/mysql.sock	/var/mysql/mysql.sock

pdo_pgsql

PDO Driver for PostgreSQL	enabled
PostgreSQL(libpq) Version	9.3.7
Module version	7.1.23
Revision	$Id: 9c5f356c77143981d2e905e276e439501fe0f419 $

if “PDO PGSQL” is not active, we have to activate it manually.

PHP configuration 4/4

Only if PDO PGSQL is not active:

Still in this page, try to find “php.ini”

Configuration File (php.ini) Path	/etc
Loaded Configuration File	/etc/php.ini

Now, open the ini file (probably php.ini).
Find “php_pdo_pgsql”
Remove “;” at the beginning of the line.
Restart http server.

PHP Check

If you proceed tests for the configuration, then PHP is ok.

Java Installation

You should already have instal Java 8, JDK version.

If not, have a look to the Install Party.

Tomcat Installation

Tomcat is a servlet server. That means it can handle java for web applications.

Java 8 - JDK version - **must** be installed.

Download software through your web browser with the following URL: https://tomcat.apache.org/download-80.cgi

Download the last 8.5 version and place it with your other applications. Do not download it as a service.

Tomcat configuration

Go to your tomcat folder. Open the conf folder.

Edit the tomcar-users.xml file. Add following lines just before the last line of the file:
<user password="admin" roles="tomcat,manager-gui,admin,manager-script" username="admin"/>

Fell free to change login and password values.

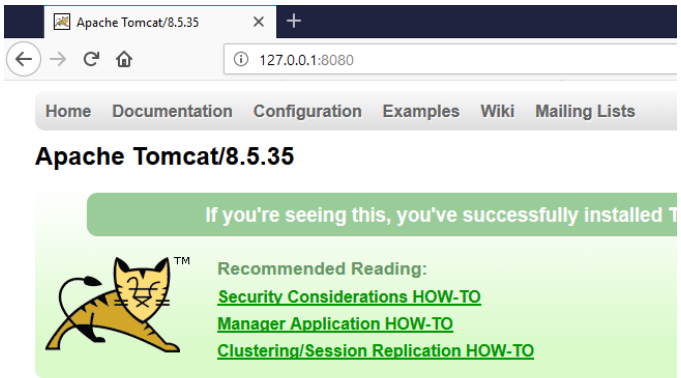
You should have something like this:

```
-->
    <user password="admin" roles="tomcat,manager-gui,admin,manager-script" username="admin"/>
</tomcat-users>
```

Tomcat check 1/2

Use your terminal / Command tool.
Go to your tomcat folder. Open the bin folder.
launch the “startup” script (.bat for windows, .sh for MacOS and Linux). If there is an error, fix it. Maybe of problem of rights on the Tomcat folder.

Now, use your browser and call http://127.0.0.1:8080



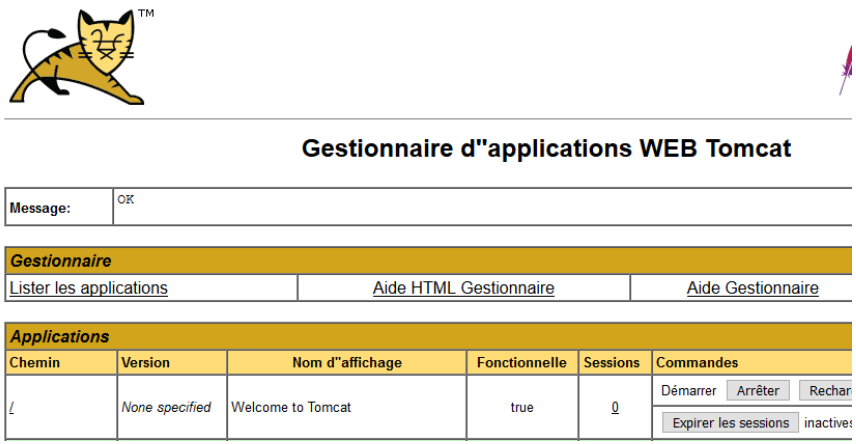
This means tomcat can launch.

You can shutdown it with the “shutdown” script.

Tomcat check 2/2

From the tomcat page, click on the “Manager App” button.
You should be asked for a login/password. These values are the ones you gave in the tomcat-users.xml file.

Then you should have the following page:



Gestionnaire d"applications WEB Tomcat

Message:	OK

Gestionnaire		
Lister les applications	Aide HTML Gestionnaire	Aide Gestionnaire

Applications					
Chemin	Version	Nom d"affichage	Fonctionnelle	Sessions	Commandes
/	*None specified*	Welcome to Tomcat	true	0	Démarrer Arrêter Rechar Expirer les sessions inactive

Tomcat tools

In the Tomcat admin page, you can find:

- The list of deployed applications. You can stop them, launch/relaunch them, or remove them.
- A Deploy zone, deploy alternative folders with web apps
- A Deply WAR zone. WAR files are Web ARchive files, that means compressed web applications.
  You can deploy war files from this zone, or by copying the waar file in the webapps folder of the tomcat folder.
- Disgnostics zone.
- Information zone.

Netbeans 11 Installation

You should already have instal Netbeans.

If not, have a look to the Install Party.

Symfony Installation 1/2

Symfony is a PHP framework.

With your web browser, use this URL: https://symfony.com/download

Download symfony
Follow instructions (adding PATH)

Symfony Installation 2/2

We will also need “composer”, a PHP symfony module.

With your web browser, have a look to https://getcomposer.org/download/

To install composer, you have to run commands in your Terminal / Command tool.
Use the commands listed in the site, one by one.

Symfony Check

In your Terminal / Command tool:

- symfony -v
  Should display symfony options
- composer -v
  Should display composer commands

JQuery download

JQuery is a Javascript library.

Download it from http://jquery.com/download/
Get compressed 3.4.0 file

In your http root location, create a “prweb” folder and a “js” folder inside prweb.
Decompress the jquery file in your “js” folder.

Angular JS download

Angular JS is a javascript framework.

With your web browser, use this URL: https://angularjs.org

Download Angular.
Move it to your “prweb” folder In your http root location.

Node JS Installation

Node JS is a javascript application server.

With your web browser, use this URL: https://nodejs.org/

Download the installer of the current version for your system. Launch installer.

For linux, you can also use an “apt-get” or any package installer. Just remember installing nodeJS and npm.

Node JS check

- Check nodeJS:
  node -v
- Check npm:
  npm -v

npm modules installation

npm is a package installer. It can install modules for a single application, or for a global use with the -g option.

We will install some modules as global ones:

- npm install express -g
  Express will manage routes, static files delivery, ...
- npm install ejs -g
  EJS manages templates for views
- npm install pg -g
  PG is the PostgreSQL module
- npm install express-generator –g
  Express-Generator is an application generator


Success
NEXT EXIT