

# Introduction to Web development with the Django framework.

Walid Benghabrit, Florent Marchand de Kerchove, Jonathan Pastor

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## 1 Introduction

The objective of this course is to introduce the basics of a modern web framework, through the study of a java compatible Model-View-Controller <sup>1</sup> (MVC) web framework: Django. <sup>2</sup>.

During this course, students will learn how to develop a small web application. This application will use a database for storing objects, and users will interact with it by using web forms.

Students will be asked to work in pairs: each pair will develop a dynamic website. Specifications are given in the section 4 : it is a set of constraints where each satisfied constraint gives points. The satisfaction of the constraints will be evaluated during an oral defense.

## 2 Objective of the course

Students will learn how to develop modern web applications. The example used in this course will be the development of a web application that will be in charge of managing scores, as during sportive events.

## 3 The Subject of the project

Students will be divided in pairs: each pairs will develop an application that will be responsible of managing scores: : users of this application will be able in a first time to insert/modify results of confrontation between players, and in a second time to provide advanced features such as different kind of sportive events (tournaments, championships, leagues, ...) or analysis of results.

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<sup>1</sup>cf. <http://en.wikipedia.org/wiki/Model-view-controller>

<sup>2</sup><https://www.djangoproject.com>

We, members of the Computer Science (CS) department, we think that a healthy spirit in a healthy body is a good leimotiv. That is why we enjoy doing sportive activities, especially when they require a competitive spirit. Unfortunately, due to our many sportive activities, we have bad memories and we cannot remember the scores. That is why we would like to be able to manage the results of these confrontations with beautiful web application. At the end of each confrontations between members of the CS department, they will insert a new entry in the database of this web application, without requiring a big effort.

Project subject for year 2014-2015.

Scores are created by one of the participants of the event (a user). An event can involve one or several people. A confrontation result can contains comments from any of the participants of the meeting. When a new score is added, its participants may be notified.

Minimal web application for year 2014-2015.

The previous illustrates the minimal requirements for this project. **Students are asked to develop at least one original feature that will complete this web application**, such as providing:

- support for diffent kind of confrontations (tournament, championship, leagues, ...).
- support for advanced analysis of scores.
- implementig a complex data model.

## 4 The Specifications

### 4.1 Fonctional Specification (10pts)

Constraint	Description	Points
Fonctional-1	An user can create, delete, modify and view a meeting.	2 pts
Fonctional-2	Participants of a meeting can view their meetings.	2 pts
Fonctional-3	Participants of a meeting can leave a comment on the meeting.	2 pts
Fonctional-4	New meetings appears automatically without reloading the page (AJAX).	2 pts
Fonctional-5	Implement a feature that improves the application	2 pts
Total		10 pts
Bonus	The application is usable by members of the C.S. department.	3 pts

## 4.2 Technical Specification (20pts)

Constraint	Description	Points
Controller-1	Develop a controller for the frontend	1 pts
Controller-3	At least one controller asks data with a custom SQL query	1 pts
View-1	Display data (a list) with HTML	2 pts
View-2	Display data (an element) with details	1 pts
View-3	Create a transition between 2 views	1 pts
Database-1	Database contains at least one complex entity (that contains a set of other entities, cf appendix ??)	3 pts
CRUD	At least one complex data entity have create, read, update and delete actions. These actions are located in the backend.	3 pts
AJAX-1	At least one controller have a method that produce JSON or XML.	2 pts
AJAX-2	At least one view gets data dynamically with an AJAX request.	2 pts
Design-1	Use a CSS framework (Bootstrap <sup>3</sup> , Zurb Foundation <sup>4</sup> , PureCSS <sup>5</sup> , ...).	1 pts
Design-2	The application is simple and friendly to use	2 pts
Design-3	The application has been developed around prototyping methodology. <sup>6</sup>	1 pts
Total		20 pts
Bonus-1	Integrate the application with members given by LDAP.	2 pts

## 5 Evaluation

Evaluation will be made during an oral defense : a jury will check if the students have a good comprehension of the technologies seen during this course; each constraint will be evaluated. The jury will then decide of a mark for the oral defense (10 pts).

$$\text{finalMark} = \frac{\text{technicalMark} + \text{functionalMark} + \text{oralMark}}{2}$$

## Appendices

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<sup>3</sup>cf. [http://en.wikipedia.org/wiki/Third\\_normal\\_form](http://en.wikipedia.org/wiki/Third_normal_form)

<sup>4</sup>cf. <http://getbootstrap.com/>

<sup>5</sup>cf. <http://foundation.zurb.com/>

<sup>6</sup>cf. <http://purecss.io/>

<sup>7</sup>cf. [http://en.wikipedia.org/wiki/Software\\_prototyping](http://en.wikipedia.org/wiki/Software_prototyping)