# Set up a local web server and run the LIONESS experiment

Here we describe how to (1) install a web server on your local computer; (2) create a database; and (3) upload the files of the interactive Public Goods experiment (reported in Aréchar, et al 2017 *Experimental Economics*) to your server. Note that the steps described here are specific to Windows. In case you require assistance with this process, please contact Antonio Alonso Aréchar (antonio.alonso@yale.edu) or Lucas Molleman (lucasmolleman@gmail.com).

1. Install and activate a web server

Download and install the XAMPP web server on your computer. This program enables your local computer to function as a server. Make sure that you install the version with PHP 5 (in which the example public goods experiment was written) and stick to the default options to install on C:\\. Once you have completed the installation, find the XAMPP Control Panel under your Start menu and open it. Switch on the server by starting the Apache and MySQL [see pic below].
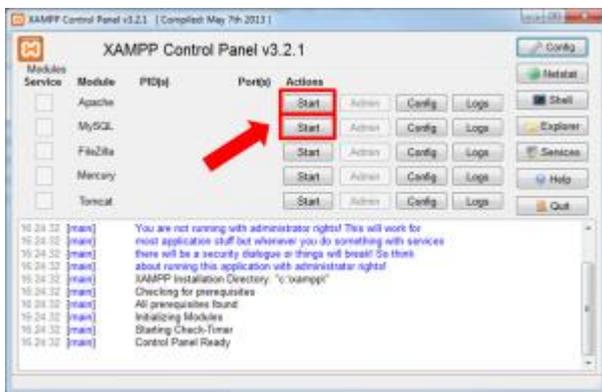
2. Create a database

Now that the server is running, we need to create a database to store data in. Download the most recent adminer file, save it in C:\\xampp\\htdocs, and rename it to adminer.php. This program enables you to edit the contents of your server. Open a new tab in your web browser and type in the address bar: localhost/adminer.php. Once the login page appears, type **root** as the user name, leave the other fields empty and click **Log in**. This should take you to a page showing the contents of your server. Create a new database by clicking **Create new database** on the top of the page [see pic below]. Name it **PGG** and save.
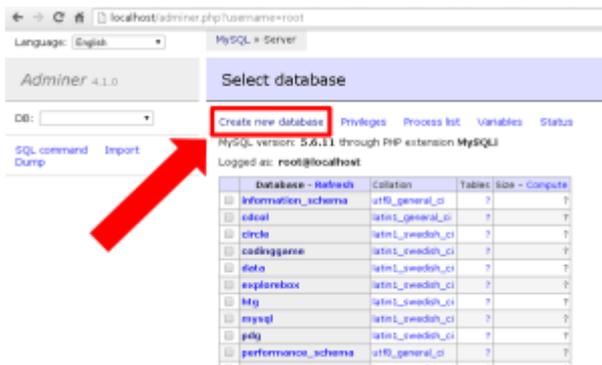
3. Upload experiment's program files

The only thing the server still needs now is the experimental program itself. Get the program of the Public Goods Game with and without punishment here and unzip its contents to C:\\xampp\\htdocs. The folder mainly contains files for the participants' screens, programmed in PHP. During the experiment, participants navigate these pages in a controlled way. The PHP files also contain basic HTML and Javascript code to display information to participants. Other files are supporting 'source' files, most of which are in the 'basis' folder.

Go back to adminer.php in your browser, and click on your newly created **PGG**. Now, click on **Import** [see pic below] and select the file **setup_tables.sql** in the folder C:\\xampp\\htdocs\\PGG\\basis. After selecting this file, click the **Execute** button to define the structure of the database. This structure ensures that the data produced by the participants in the experiment will be saved in the appropriate place. If all went well, you should now see the five tables just produced in your database: expParameters, groupComposition, decisions, logEvents and subjects.
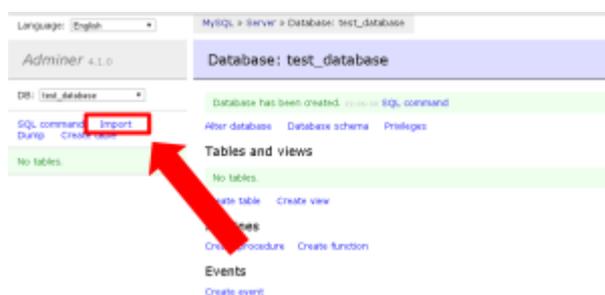
LIONESS in action!

The server has now been prepared for running an interactive experiment. In your browser, type localhost/PGG/basis/control.php. This is the main control panel through which the experimenter can oversee and manage an experimental session. Open a new tab in your browser and go to localhost/PGG/begin.php to stand in the shoes of a participant in this simple experiment. After you entered the experiment as a participant, keep an eye on the control page to see if you can indeed track your own doings. You may soon find out that three additional participants are needed to start the experiment itself. To enter as a second participant, open a *different* web browser (*not* simply a new tab within the same browser) and type localhost/PGG/begin.php in its address bar. Alternatively, you can change the value of the parameter groupSize in the control panel to 2 (or even 1), to play with a smaller group.

Note that, if you have password-protected your database or chose a different server configuration than described above, you can adjust the server credentials in the file 'credentials.php' in the 'basis' folder of the experiment.

LIONESS Lab

In collaboration with Marcus Giamattei (University of Passau, Germany), creator of the classroom experimental software *classEx*, we currently develop LIONESS Lab. This tool allows researchers to readily program their own interactive experimental designs in a point-and-click fashion, and is currently available in beta version. The website in the link provides updates on the official launch date.