Configurations, I18n y Debug - Tutorial #3.

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settings.py.

Your settings can be found in settings.py. Here are explanations of a few oTree-specific settings. Full info on all Django's settings can be found:

https://docs.djangoproject.com/en/1.8/ref/settings/

settings.py.

SESSION_CONFIGS

- In settings.py, add an entry to **SESSION_CONFIGS** like this (assuming you have created apps named **my_app_1** and **my_app_2**):

```
{
    'name': 'my_session_config',
    'display_name': 'My Session Config',
    'num_demo_participants': 2,
    'app_sequence': ['my_app_1', 'my_app_2'],
},
```

- Once you have defined a session config, you can run **otree resetdb**, then **otree runserver**, open your browser to the admin interface, and create a new session. You would select "My Session Config" as the configuration to use.

settings.py.

SESSION_CONFIG_DEFAULTS

- If you set a property in **SESSION_CONFIG_DEFAULTS**, it will be inherited by all configs in **SESSION_CONFIGS**, except those that explicitly override it.
- The session config can be accessed from methods in your apps as:

```
self.session.config['participation_fee']
```

settings.py.

DEBUG

- You can turn off debug mode by setting the **environment variable** `OTREE_PRODUCTION` to 1, or by directly modifying `DEBUG` in `settings.py`
- If you turn off `DEBUG` mode, you need to manually run `otree collectstatic` before starting your server-
- Also, you should set up Sentry to receive email notifications of errors.

settings.py.

REAL_WORLD_CURRENCY_CODE

- If you have a value that represents an amount of currency (either points or dollars, etc), you should mark it with `c()`, e.g.

```
c(1) + c(0.2) == c(1.2)
```

- The advantage is that when it's displayed to users, it will automatically formatted as **$1.20** or **1,20 €**, etc., depending on your `REAL_WORLD_CURRENCY_CODE` and `LANGUAGE_CODE` settings.
- Money amounts are displayed with 2 decimal places by default; you can change this with the setting `REAL_WORLD_CURRENCY_DECIMAL_PLACES`. (If you change the number of decimal places, you must resetdb.)

settings.py.

USE_POINTS

- Sometimes it is preferable for players to play games for points or "experimental currency units", which are converted to real money at the end of the session.
- You can set `USE_POINTS = True` in `settings.py`, and then in-game currency amounts will be expressed in points rather than dollars or euros, etc.

  c(10) is displayed as 10 points.

- To change the exchange rate to real money, go to `settings.py` and set `real_world_currency_per_point` in the session config.
- For example, if you pay the user 2 cents per point, you would set

settings.py.

USE_POINTS

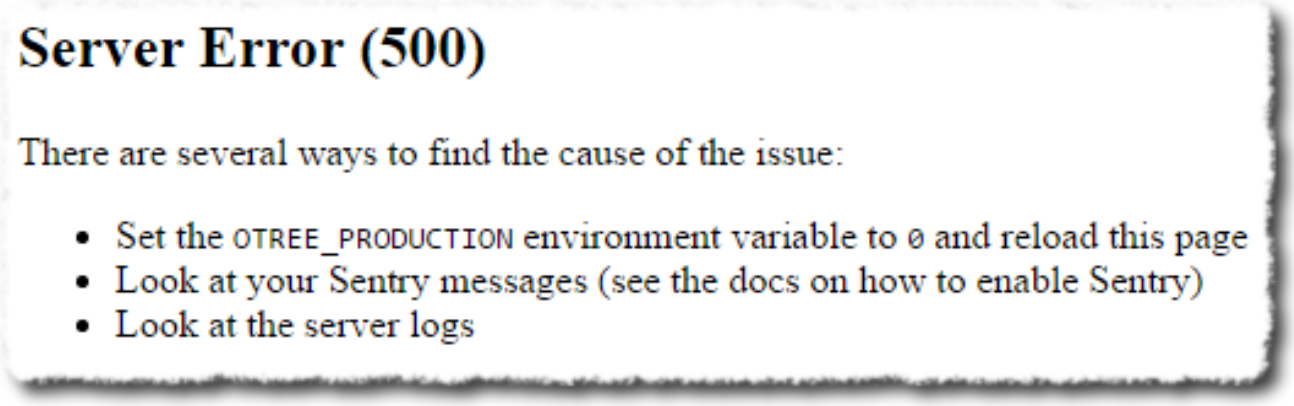
- Points are integers by default.
- You can change this by setting `POINTS_DECIMAL_PLACES = 2`, or whatever number of decimal places you desire.
- If you change the number of decimal places, you must resetdb.
- If you switch your language setting to one of oTree's supported languages, the name "points" is automatically translated, e.g. "puntos" in Spanish.
- To further customize the name "points" to something else like "tokens" or "credits", set `POINTS_CUSTOM_NAME`, e.g.

```
POINTS_CUSTOM_NAME = 'tokens
```

settings.py.

SENTRY_DSN

- Sentry service which can log all errors on your server and send you email notifications.
- Sentry is necessary because many errors are not visible in the UI after you turn off debug mode.
- You will no longer see Django's yellow error pages; you or your users will just see generic:



- You need to check the sentry documentation to understand this setting.

settings.py.

AUTH_LEVEL

- It's somewhat preferable to set the environment variable OTREE_AUTH_LEVEL on your server, rather than setting AUTH_LEVEL directly in settings.py.
- When you first install oTree, The entire admin interface is accessible without a password.
- However, when you are ready to deploy to your audience, you should password protect the admin.
- If you are launching an experiment and want visitors to only be able to play your app if you provided them with a start link, set the environment variable `OTREE_AUTH_LEVEL` to `STUDY`.
- To put your site online in public demo mode where anybody can play a demo version of your game (but not access the full admin interface), set `OTREE_AUTH_LEVEL` to `DEMO`.
- If you don't want any password protection at all, leave this variable unset/blank.

settings.py.

ROOMS

- **DONE in Day 4**

settings.py.

ADMIN_USERNAME, ADMIN_PASSWORD

- For security reasons, it's recommended to put your admin password in an environment variable, then read it in settings.py like this:

```
ADMIN_PASSWORD = environ.get('OTREE_ADMIN_PASSWORD')
```

- If you change **ADMIN_USERNAME** or **ADMIN_PASSWORD**, you need to reset the database.

`settings.py`.

DEMO_PAGE_TITLE

- The title of the demo page

DEMO_PAGE_INTRO_HTML

- The HTML in the sidebar of the demo page

Localization

- oTree's participant interface has been translated to the following languages:
  - Chinese (simplified)
  - Dutch
  - French
  - German
  - Hungarian
  - Italian
  - Japanese
  - Korean
  - Norwegian
  - Russian
  - Spanish
- This means that all built-in text that gets displayed to participants is available in these languages.

Localization

- This localization includes things like:
  - Form validation messages
  - Wait page messages
  - Dates, times and numbers (e.g. “1.5” vs “1,5”)
- So, as long as you write your app’s text in one of these languages, all text that participants will see will be in that language.
- For more information, see the Django documentation on translation and format localization.
- However, oTree’s admin/experimenter interface is currently only available in English, and the existing sample games have not been translated to any other languages.

Localization

Changing the language setting

- Go to **`settings.py`**, change **`LANGUAGE_CODE`**, and restart the server. For example:

```
LANGUAGE_CODE = 'fr' # French
LANGUAGE_CODE = 'zh-hans' # Chinese (simplified)
```

Localization

Writing your app in multiple languages

- You may want your own app to work in multiple languages.
- For example, let's say you want to run the same experiment with English, French, and Chinese participants.
- For this, you can use Django's translation system.

Localization

A quick summary:

- Go to settings.py, change LANGUAGE_CODE, and restart the server.
- Create a folder locale in each app you are translating, e.g. public_goods/locale.
- If you forget to create this folder, the translations will go into your root directory's locale folder. At the top of your templates, add

```
{% load i18n %}
```

- Then use . There are some things you can't use inside a blocktrans, such as variables containing dots

```
{% blocktrans trimmed %}...{% endblocktrans %}
```

Localization

A quick summary:

- If you have localizable strings in your **Python code**, use **`ugettext`**.
- Use **`makemessages`** to create the **`.po`** files in your app's locale directory:

```
$ django-admin makemessages -l fr
$ django-admin makemessages -l zh_Hans
```

- Edit the .po file in Poedit

Localization

A quick summary:

- Run **`compilemessages`** to create **.mo**.mo files next to your .po files.

```
$ django-admin compilemessages
```

- If you localize the files under **`_templates/global`**, you need to create a directory locale in the root of the project.

Debug

- The module **pdb** defines an interactive source code debugger.
- It supports setting (conditional) breakpoints and single stepping at the source line level, inspection of stack frames, source code listing, and evaluation of arbitrary Python code in the context of any stack frame.
- It also supports post-mortem debugging and can be called under program control.

```
>>> import pdb
>>> import mymodule
>>> pdb.run('mymodule.test()')
> <string>(0)?()
(Pdb) continue
> <string>(1)?()
(Pdb) continue
NameError: 'spam'
> <string>(1)?()
(Pdb)
```

Debug

PostMortem

The typical usage to inspect a crashed program is:

```
>>> import pdb
>>> import mymodule
>>> mymodule.test()
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
  File "./mymodule.py", line 4, in test
    test2()
  File "./mymodule.py", line 3, in test2
    print(spam)
NameError: spam
>>> pdb.pm()
> ./mymodule.py(3)test2()
-> print(spam)
(Pdb)
```

Debug

Break-Points

- The typical usage to break into the debugger from a running program is to insert

```
import pdb; pdb.set_trace()
```

Debug

Commands

```
(Pdb) help

Documented commands (type help <topic>):
========================================
EOF    bt         cont      enable  jump  pp       run      unt
a      c          continue  exit    l     q        s        until
alias  cl         d         h       list  quit     step     up
args   clear      debug     help    n     r        tbreak   w
b      commands   disable   ignore  next  restart  u        whatis
break  condition  down      j       p     return   unalias  where

Miscellaneous help topics:
==========================
exec  pdb

Undocumented commands:
======================
retval  rv
```

Debug

Commands

- **`h(elp) [command]`** Without argument, print the list of available commands. With a command as argument, print help about that command.
- **`w(here)`** Print a stack trace, with the most recent frame at the bottom.
- **`u(p) [count]`** Move the current frame count (default one) levels up in the stack trace (to an older frame).
- **`s(tep)`** Execute the current line, stop at the first possible occasion (either in a function that is called or on the next line in the current function).

Debug

Commands

- **`n(ext)`** Continue execution until the next line in the current function is reached or it returns. (The difference between next and step is that step stops inside a called function, while next at the next line in the current function.)
- **`unt(il) [lineno]`** With a line number, continue execution until a line with a number greater or equal to that is reached. In both cases, also stop when the current frame returns.
- **`c(ont(inue))`** Continue execution, only stop when a breakpoint is encountered.

References

- http://otree.readthedocs.io/en/latest/