

# INFO3180 Lab 1

Due Date: **29 January, 2017**

**Note:** Because all Python and all the relevant development tools are already installed at <http://c9.io>, it is recommended that you use c9.io for this lab, you will need to sign up for an account. At a later date you can setup a similar environment on your computer.

## Exercise 1 - Python Koans

Python koans is an interactive tutorial for learning python. You will need to create a fork of the original repository so that you can work with your own copy.

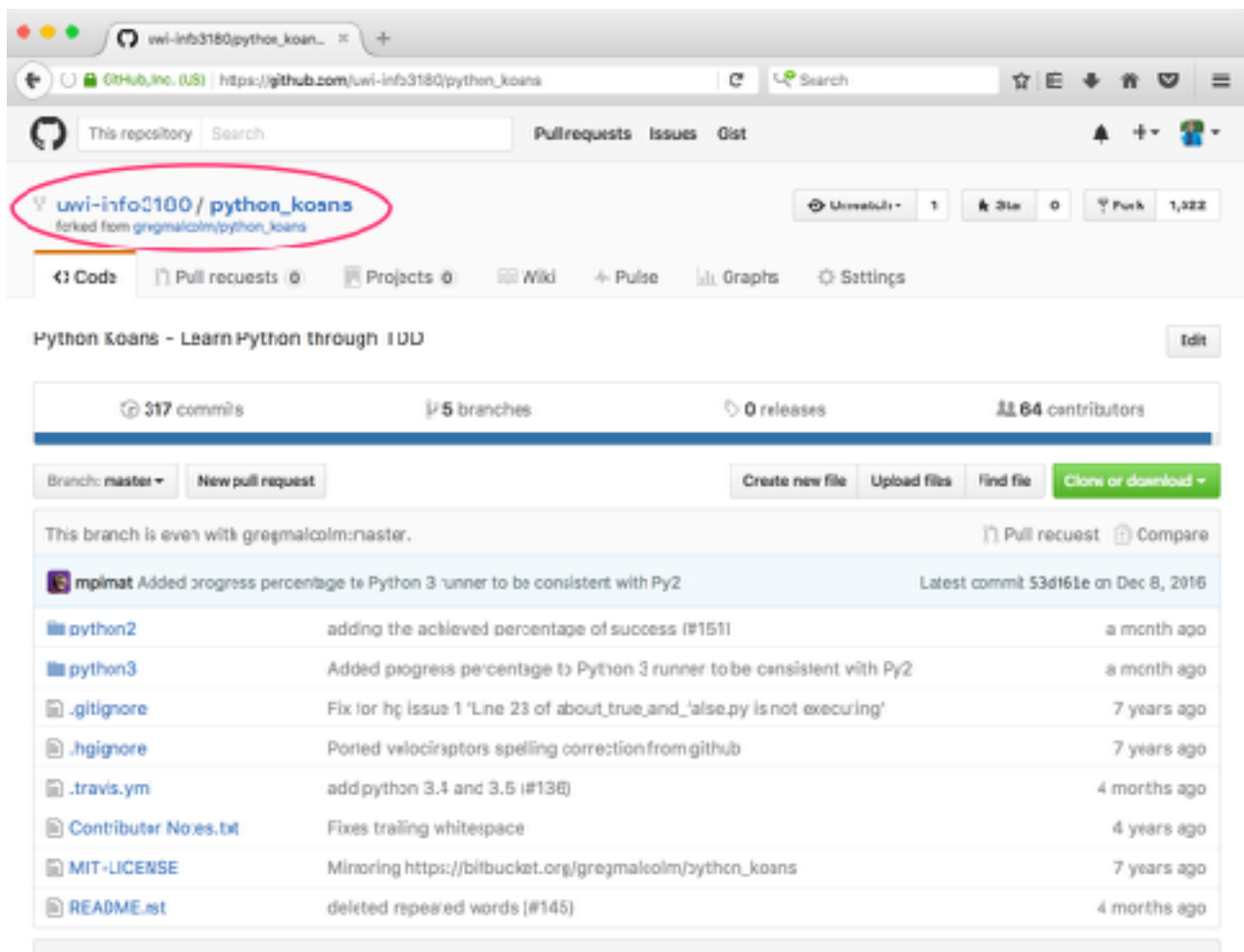
Go to [https://github.com/gregmalcolm/python\\_koans](https://github.com/gregmalcolm/python_koans) and fork it.

The screenshot shows the GitHub repository page for `gregmalcolm/python_koans`. The page includes the repository name, statistics (317 commits, 5 branches, 0 releases, 64 contributors, MIT license), and a list of files. A red arrow points to the 'Fork' button, with a red text overlay saying 'Click to fork the repository to your GitHub account.'

Python Koans - Learn Python through TDD

File	Description	Latest commit
<code>python2</code>	adding the achieved percentage of success (#151)	a month ago
<code>python3</code>	Added progress percentage to Python 3 runner to be consistent with Py2	a month ago
<code>.gitignore</code>	Fix for the issue 1 'Line 23 of about_true_and_false.py is not executing'	7 years ago
<code>.hgignore</code>	Ported velociraptors spelling correction from github	7 years ago
<code>.travis.yml</code>	add python 3.4 and 3.5 (#136)	4 months ago
<code>Contributor Names.txt</code>	Fixes trailing whitespace	4 years ago
<code>MIT-LICENSE</code>	Mirroring <a href="https://bitbucket.org/gregmalcolm/python_koans">https://bitbucket.org/gregmalcolm/python_koans</a>	7 years ago
<code>README.txt</code>	deleted repeated words (#145)	4 months ago

The forked repository will look similar to this (you should see your own github username in the area that I've circled)



On your machine (or most likely your c9.io workspace clone your new repository)  
`git clone git@github.com:yourusername/python_koans.git`

(If this command fails, check to see that you've configured ssh keys properly)

uw-info0100python\_koan... Create a New Workspace

https://replit.com

## Create a new workspace

Workspace name: info0100 labo

Description: Make a short description of your workspace

Team: Don't set a team for this workspace

Hosted workspace Clone workspace Remote Git workspace Salesforce

Private: This is a workspace for private use only

Public: This will create a workspace for everyone to use

Clone from Git or Mercurial URL (optional): e.g. s3x0rp/acc or git@github.com:s3x0rp/acc.git

Choose a template

HTML5 Node.js PHP, Apache ... Python Django Ruby C++ Wordpress Rails Tutorial Blank Harvard's CS50

Create workspace

## Doing the exercises

A koan is something that you have been given to contemplate or think about. In this exercise koans are presented as lines of code in python files.

To get started on your journey go to the `python_koans/python2` directory

```
cd python_koans/python2
```

While in this directory you will need to do the following:

1. Run `contemplate_koans`,
2. Fix lines of code
3. Commit and push changes to git as you go

### ***Step 1 - Run contemplate koans***

You will run the python koans exercises by running the following command:

```
python contemplate_koans.py
```

Each time you run that command it will highlight a koan in the associated files which you will need to contemplate then fix. You will see output similar to this:



```
Thinking About Asserts
test_assert_truth has damaged your karma.

You have not yet reached enlightenment ...
AssertionError: False is not true

Please meditate on the following code:
File "/home/ubuntu/workspace/python2/koans/about_asserts.py", line 18, in test_assert_truth
    self.assertTrue(False) # This should be True
# of koans completed

You have completed 0 (0%) koans and 0 (out of 38) lessons.
You are now 304 koans and 38 lessons away from reaching enlightenment.

Beautiful is better than ugly.
```

The terminal output shows an error message and a code snippet. Red arrows point to specific parts of the output: one points to 'about\_asserts.py' with the label 'file to look in', another points to 'line 18' with the label 'Line to fix', and a third points to '# of koans completed' with the label '# of koans completed'.

### ***Step 2 Edit the appropriate file and fix the errors***

In the example above you would be looking for the `about_asserts.py` file and specifically line 18.

### ***Step 3 Commit and Push your code***

You would do the following in git:

```
git commit -am 'completed 15 koans'
```

```
git push
```

Complete 25 koans and commit your changes for at least every 5 koans you complete, this means there should be a commit message for 5 koans, 10 koans, 15 koans, 20 koans.

Feel free to go WAY BEYOND 25 in your own time.

## **Exercise 2 - Flask**

In this exercise you will install flask and customize a template and then deploy it to Heroku, so ensure you sign up for an account. Fork the following repository (hint, you can following the example from exercise 1):

<https://github.com/uwi-info3180/info3180-lab1/>

Then clone it to your machine or to Cloud9.

### ***Step 1 - Setup and activate a virtualenv***

Navigate to the code you just cloned and setup a virtual environment.

```
cd info3180-lab1  
virtualenv venv
```

Activate the environment

```
source venv/bin/activate
```

### ***Step 3 - Install Flask***

Install Flask by running the following command:

```
pip install Flask
```

You'll see output similar to this:

```
(venv) → lab1 pip install Flask
Collecting Flask
  Using cached Flask-0.12-py2.py3-none-any.whl
Collecting Jinja2>=2.4 (from Flask)
  Using cached Jinja2-2.9.4-py2.py3-none-any.whl
Collecting Werkzeug>=0.7 (from Flask)
  Using cached Werkzeug-0.11.15-py2.py3-none-any.whl
Collecting click>=2.0 (from Flask)
  Using cached click-6.7-py2.py3-none-any.whl
Collecting itsdangerous>=0.21 (from Flask)
Collecting MarkupSafe>=0.23 (from Jinja2>=2.4->Flask)
Installing collected packages: MarkupSafe, Jinja2, Werkzeug, click, itsdangerous, Flask
Successfully installed Flask-0.12 Jinja2-2.9.4 MarkupSafe-0.23 Werkzeug-0.11.15 click-6.7 itsdangerous-0.24
```

### ***Step 3 - Test and customize the application***

The application is located at app.py and it has supporting templates.

You will need to edit the last line change it to say:

```
app.run(debug=True,host="0.0.0.0",port=8080)
```

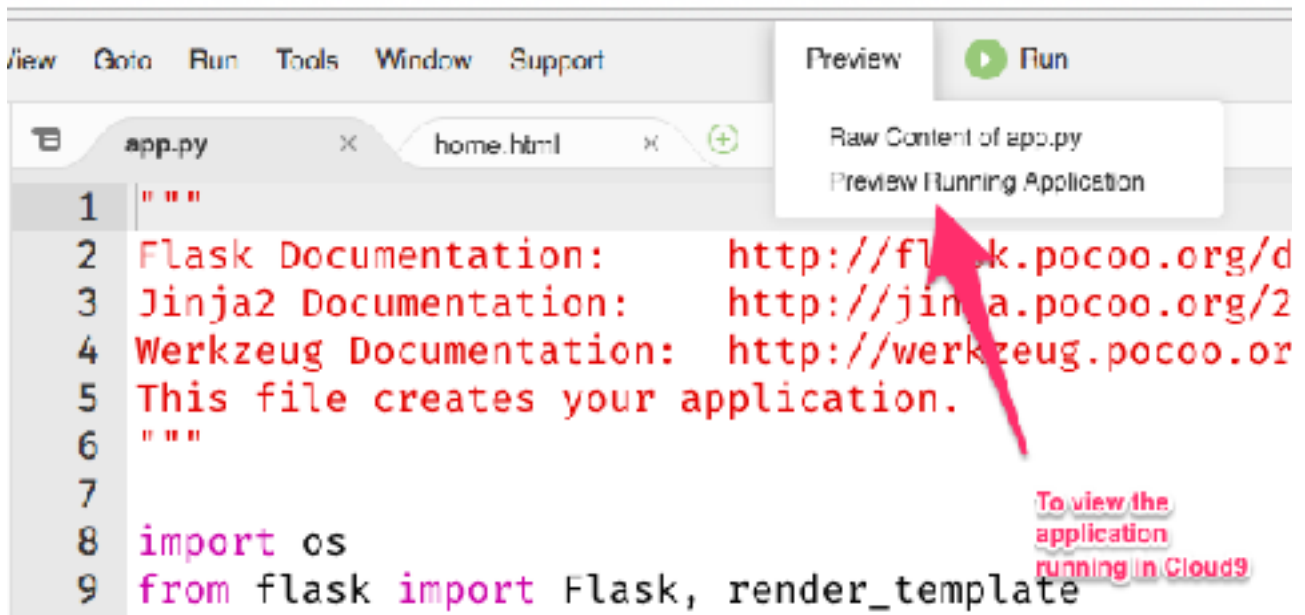
Then launch the app using the following command

```
python app.py
```

You will see output similar to this:

```
(venv) → lab1 python app.py
* Running on http://0.0.0.0:8080/ (Press CTRL+C to quit)
* Restarting with stat
* Debugger is active!
* Debugger pin code: 264-267-530
```

Visit your application by using the Preview > "Preview Running Application"



#### ***Step 4 - Push your code to your Github repository***

Make some changes to the **home.html** file located in the **templates** directory, so that the heading and paragraph are different from the default text on the front page.

```
git commit -am 'customized my app'
git push origin master
```

#### ***Step 5 - Deploy the application to Heroku***

Now deploy your application to Heroku. If you haven't already done so, ensure that you sign up for an account on the Heroku website (<https://heroku.com>) and then do the following. **Note:** You will also need the Heroku CLI. This should already be installed on Cloud9. If you are instead working on your local machine, then you must install the CLI tool. See instructions at <https://devcenter.heroku.com/articles/heroku-cli> .

```
heroku login
heroku apps:create
git push heroku master
```

When you run the **heroku apps:create** command it will give you a unique app name. Then once you push your code to Heroku, you should now be able to view your web application on Heroku at <https://{yourappname}.herokuapp.com/>

## Submission

Submit your code via the "Lab 1 Submission" link on OurVLE. You should submit the following links:

1. Github repository URL for your Python Koans exercise e.g. [https://github.com/{yourusername}/python\\_koans](https://github.com/{yourusername}/python_koans)
2. Github repository URL for your Flask Exercise e.g. <https://github.com/{yourusername}/info3180-lab1>
3. URL for your Heroku app e.g. <https://{yourappname}.herokuapp.com>