

# A Web App in 1 Hour

Mohammad Ghassemi, Tuka Alhanai goo.gl/8DHRXJ

## Why Pythonanywhere?

- 1. Startups should help startups grow
- 2. Amazon is well... a jungle.
- 3. It is a better product
  - a. Click-to-launch
  - b. Database integration
  - c. Scalable
  - d. UI + Terminal

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## Host, run, and code Python in the cloud!

Get started for free. Our basic plan gives you access to machines with a full Python environment already installed. You can develop and host your website or any other code directly from your browser without having to install software or manage your own server.

Need more power? Upgraded plans start at \$5/month.

Start running Python online in less than a minute! »

Not convinced? Read what our users are saying!

All done! Your web app is now set up.	Details below.
example pythonanywhere.com	Configuration for www.myotherdomain.com 🖍
www.mydomain.com	Reload:
	C Reload www.mvotherdomain.com
O Add a new web app	
	DNS setup:
	How to point your domain at your website.
	CNAME: webapp-4.pythonanywhere.com
	Traffic:
	How busy is your site?
	Hits per month Hits per day
	234

Start hosting quickly Just write your application. No need to configure or maintain a web server - everything is set up and ready to go.

More »

Develop anywhere

Take your development environment with you! If you have a browser and an Internet connection, you've got everything you need.

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#### O Teach and learn

PythonAnywhere is a fully-fledged Python environment, ready to go, for students and teachers - concentrate on teaching, not on installation hassles.

More »

Amazing support

Need help with PythonAnywhere? If you get in touch, you can talk directly with the development team. Help for developers, from developers.

More »

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Watch our one-minute video >

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	CNAME: webapp-4,pythonanywhere.com
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▲ Start hosting quickly Just write your application. No need to configure or maintain a web server - everything is set up and ready to go.

More »

Develop anywhere

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More »

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## Plans and pricing



All of our paid plans come with a no-quibble 30-day money-back guarantee - you're billed monthly and you can cancel at any time. The minimum contract length is just one month. You get unrestricted Internet access from your applications, unlimited in-browser Python, Bash and database consoles, and full SSH access to your account. All accounts (including free ones) have screen-sharing with other PythonAnywhere accounts, and free SSL support (though you'll need to get a certificate for your own domains).

Hacker	\$5/month	Web dev	\$12/month	Startup	\$99/month	Custom	\$5 to \$
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Run your Python code in the cloud from one web app and the console         If you want to host small Python-based websites for you or for your clients         Start a business and don't worry about having to scale to handle traffic spikes         Want a combination Create your own IA           A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your browser with unlimited Python/bash consoles         A Python IDE in your clients           0 re your - username.	\$5 to \$500/n
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## Plans and pricing

#### Beginner: Free! Education accounts A limited account with one web app at your-username.pythonanywhere.com, restricted outbound Internet access from your apps, low CPU/bandwidth, Are you a teacher looking for a place your no IPython/Jupyter notebook support. students can code Python? You're not alone. It works and it's a great way to get started! Click through to find out more about our Education beta.

All of our paid plans come with a no-quibble 30-day money-back guarantee - you're billed monthly and you can cancel at any time. The minimum contract length is just one month. You get unrestricted Internet access from your applications, unlimited in-browser Python, Bash and database consoles, and full SSH access to your account. All accounts (including free ones) have screen-sharing with other PythonAnywhere accounts, and free SSL support (though you'll need to get a certificate for your own domains).

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St pythonanywhere

## Create your account

Username:	ghassemi
Email:	ghassemi@mit.edu
Password:	
Password (again):	
	I agree to the Terms and Conditions and the Privacy and Cookies Policy



We promise not to spam or pass your details on to anyone else.

by thonanywhere

## Create your account

Username:	ghassemi
Email:	ghassemi@mit.edu
Password:	
Password (again):	
	✓ I agree to the Terms and Conditions and the Privacy and Cookies Policy



We promise not to spam or pass your details on to anyone else.

## Validate your account over email





Send feedback Forums Help Blog Account Log out

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### St pythonanywhere

#### Dashboard Consoles Files Web Tasks Databases

#### Add a new web app

You have no web apps

To create a PythonAnywhere-hosted web app, click the "Add a new web app" button to the left.

Send feedback Forums Help Blog Account Log out

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## St pythonanywhere





• Add a new web app











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#### Configuration for ghassemi.pythonanywhere.com

Add a new web app

ghassemi.pythonanywhere.com

#### Reload:

C Reload ghassemi.pythonanywhere.co

#### Best before date:

We're happy to host your free website – and keep it free – for as long as you want to keep it running, but you'll need to log in at least once every three months and click the "Run until 3 months from today" button below. We'll send you an email a week before the site is disabled so that you don't forget to do that. See here for more details.

#### This site will be disabled on Saturday 06 October 2018

#### Run until 3 months from today

Paying users' sites stay up forever without any need to log in to keep them running.

#### Traffic:

How busy is your site?

This month (previous month)	1	(0)
Today (yesterday)	1	(0)
Hour (previous hour)	1	(0)

Want some more data? Paying accounts get pretty charts ;-)

#### Code:

What your site is running.

Source code:	/home/ghassemi/mysite	✦Go to directory
Working directory:	/home/ghassemi/	→Go to directory
WSGI configuration file:	/var/www /ghassemi_pythonanywhere_com_wsgi.py	
Python version:	3.6 💉	

#### Virtualenv:

Use a virtualenv to get different versions of flask, django etc from our default system ones. More info here. You need to Reload your web app to activate it; NB - will do nothing if the virtualenv does not exist. 目 … ♥ ☆

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## Your website is up. Yes, it was that simple.

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Hello from Flask!

#### Configuration for ghassemi.pythonanywhere.com

Add a new web app

#### Reload:

C Reload ghassemi.pythonanywhere.co

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Want some more data? Paying accounts get prett	y charts ;-)		

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Source code:	/home/ghassemi/mysite	→Go to directory
Working directory:	/home/ghassemi/	✦Go to directory
WSGI configuration file:	/var/www	
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Traffic:		
How busy is your site?		
This month (previous month)	6	(0)
Today (yesterday)	6	(0)
Hour (previous hour)	2	(4)
Want some more data? Paying accounts get pretty charts ;-)		

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## Scroll Down

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Enter path to a virtualenv, if desired

#### Log files:

The first place to look if something goes wrong.

Access log:	ghassemi.pythonanywhere.com.access.log
Error log:	ghassemi.pythonanywhere.com.error.log
Server log:	ghassemi.pythonanywhere.com.server.log
Log files are periodically	rotated. You can find old logs here: /var/log

#### Static files:

Files that aren't dynamically generated by your code, like CSS, JavaScript or uploaded files, can be served much faster straight off the disk if you specify them here. You need to **Reload your web app** to activate any changes you make to the mappings below.

URL	Directory	Delete
Enter URL	Enter path	

#### Password protection:

Ideal for sites that are under development when you don't want anyone to see them yet. You need to **Reload your web app** to activate any changes made here.

Password protection:	Disabled	
Username:	Enter a username	
Password:	Enter a password	

#### Delete:

Deleting this web app will remove your web app from the Internet, but will not remove your code. The WSGI configuration file will be backed up.



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Password:	Enter a password

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Deleting this web app will remove your web app from the Internet, but will not remove your code. The WSGI configuration file will be backed up.



## Will be key as you debug the system.

# Scroll Up

### Image: system Image: system

Dashboard Consoles Files Web Tasks Databases

ghassemi.pythonanywhere.com

O Add a new web app

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Run until 3 months from today

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#### Traffic:

How busy is your site?

0	(0)
6	(0)
2	(4)
	6 2

Want some more data? Paying accounts get pretty charts ;-)

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Python version:	3.6 💉		

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home/ghassemi/mysite/flask\_app.py

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1	
2	# A very simple Flask Hello World app for you to get started with
3	
4	from flask import Flask
5	
6	app = Flask(name)

#### 7

8 @app.route('/')

### 9 - def hello\_world():

10 return 'Hello from Flask!' 11

12



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11 12 @app.route('fish')	
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1 2 3 4 4 4 5 6 6 6 7 7 8 8 5 5 16 11 12 13 14	<pre># A very simple Flask He from flask import Flask app = Flask(name) @app.route('/') def hello_world(): return 'Hello from f @app.route('fish') def fish(): return 'fish say blue return 'fish say blue ret</pre>	<pre>sllo World app for you to get started with Flask!' ib'</pre>						
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## **Sof pythonanywhere**

# Something went wrong :-(

This website is hosted by PythonAnywhere, an online hosting environment. Something went wrong while trying to load it; please try again later.

There was an error loading your PythonAnywhere-hosted site. There may be a bug in your code.

Error code: Unhandled Exception

### Debugging tips

- The first place to look is at your web app page to ensure that there are no errors indicated there.
- Next, check your site's server and error logs for any messages you can view them here:
  - ghassemi.pythonanywhere.com.error.log
  - ghassemi.pythonanywhere.com.server.log
- You can find helpful tips on the PythonAnywhere help site:
  - There's an ImportError in the logs
  - "403 Forbidden" error or "Connection Refused" error in logs
  - Database connection errors
  - · There are many more helpful guides on our Help pages

If you get completely stuck, then drop us a line at support@pythonanywhere.com, in the forums, or using the "Send feedback" link on the site, with the relevant lines from your logs.

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2018-07-06	14:32:02,432:	self.add_url_rule(rule, endpoint, t, **options)
2018-07-06	14:32:02,432:	
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2018-07-06	14:32:02,432:	return f(self, *args, **kwargs)
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6	app = Flask(name	)				
8 9 10	<pre>@app.route('/') * def hello_world():         return 'Hello fr</pre>	om Flask!'				
11 12	<pre>@app.route('fish')</pre>					
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This is a variable passed in via the url, through the function, and into an html template (that we haven't made yet!).

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- A simple HTML template.
- {{fox\_says}} is the variable we passed in from flask\_app.py

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Tell me... What does the fox say?

woof

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Keyboard shortcuts: Normal -

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的, home/ghassemi/mysite/templates/what_does_the_fox_say.html
   1 <!DOCTYPE html>
   2 - <html>
        <head>
   3 -
   4
          <title>A Flask Template</title>
        </head>
        <body>
   6 -
            Tell me... What does the fox say?
            {{fox_says}}
   9
            <br>
  10
            Leave a comment for the fox:
  11
             <form method="post" action="/process fox comments">
  12 -
  13
                Your Name:
  14
                <br>>
                <input type="text" name="name">
  15
  16
                <br>
  17
                Your Comment:
  18
                <br>>
  19
                <input type="text" name="comment">
  20
                <br>>
                <input type="submit" value="SUBMIT">
  21
  22
  23
              </form>
```

24

25 </body>

26 </html>

Let's add an HTML form to caputure user input: name, and comment

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Keyboard shortcuts: Normal - @ Share

### 的 /home/ghassemi/mysite/templates/what\_does\_the\_fox\_say.html

1		html
2	+	<html></html>
3	٠	<head></head>
4		<title>A Flask Template</title>
5		
6	+	<body></body>
7		Tell me What does the fox say?
8		{{fox_says}}
9		
10		
11		Leave a comment for the fox:
12	٣	<form action="/process_fox_comments" method="post"></form>
13		Your Name:
14		
15		<input name="name" type="text"/>
16		
17		Your Comment:
18		
19		<input name="comment" type="text"/>
20		
21		<input type="submit" value="SUBMIT"/>
22		
23		
24		
25		

26 </html>

Action specifies which function in flask\_app.py will be called once the submit button is clicked.  $(\leftarrow) \rightarrow \bigcirc \bigcirc$ 

Tell me... What does the fox say?

woof

Leave a comment for the fox:

Your Name:

Your Comment:

SUBMIT

If we refresh the page, we can see our HTML form, exactly as we designed it. But we haven't build the 'process\_fox\_commenets' app in flask\_app.py yet, so this won't work yet.

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1 2 # A very simple Fla 3 4 from flask import m 5 from flask import m 6 from flask import m 7 8 app = Flask(	<pre>sk Hello World app for you to get started with  ilask ender_template redtrect</pre>		
	vve ii nandle what is sent		

through the form here, but before we start playing with data let's set up a database!

For now, this app will just redirect the user back to the fox page, with the argument as 'whimper'

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Tell me... What does the fox say?

woof

Leave a comment for the fox:

Your Name: sdv Your Comment: sdv SUBMIT

If we submit something to the form...  $(\leftarrow) 
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whimper

Leave a comment for the fox:

### Your Name:

Your Comment:

SUBMIT

We can see that the key word 'whimper' that we specified in flask\_app.py appears, so we know things are working!

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Bo pythonanywhere Dashboard Consoles Files Web Tasks Databases Initialize MySQL Postgres Let's get started! The first thing to do is to initialize a MySQL server: Enter a new password in the form below, and note it down: you'll need it to access the databases once you've created them. You will only need to do this once. New password: Confirm password: This should be different to your main PythonAnywhere password, because it is likely to appear in plain text in any web applications you write.

Now we will create a database backend for our flask app.

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#### Dashboard Consoles Files Web Tasks Databases

by pythonanywhere

MySQL		
Postgres	Initialize MySQL	
	Let's get started! The first thing to do is to initialize a MySQL server:	
	Enter a new password in the form below, and note it down: you'll need it to access the databases once you've created them. You will only need to do this once.	
	New password:	Provide a password the
	Confirm password:	you will use for accessing the databas
	Initialize MySQL	
	This should be different to your main PythonAnywhere password, because it is likely to appear in plain text in any web applications you write.	

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### Dashboard Consoles Files Web Tasks Databases

Stop pythonanywhere

MySQL	
Postgres	Initialize MySQL
	Let's get started! The first thing to do is to initialize a MySQL server:
	Enter a new password in the form below, and note it down: you'll need it to access the databases once you've created them. You will only need to do this once.
	New password:
	Confirm password:
	This password is too common.
	Initialize MySQL
	se Initializing your MySQL database — this will take a minute or so.
	This should be different to your main PythonAnywhere password, because it is likely to appear in plain text in any web applications you write.

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िंट pythonanywhere	Dashboard Conso	les Files Web Tasks Databases
Your MySQL service is now ready. Detail	s below.	×
MySQL Postgres	MySQL settings Connecting: Use these settings in your web applications. Database host address: ghassemi.mysql.pythonanywhere-services.co Username: ghassemi Your databases: Click a database's name to start a MySQL console logged in to it. Start a console on: ghassemi\$default	Your database is pre-configured with a default table, but we'll want to create a new one.
	Create a Gatabase MySQL password: MySQL password: New password: New password:	

Confirm password:

Set MySQL password

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Confirm password:

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		Send feedback Forums Help Blog Account Log out	
	Bo pythonanywhere	Dashboard Consoles Files Web Tasks Databases	
		CPU Usage: 0% used - 0.00s of 100s. Resets in 22 hours, 5 minutes More Info	
	Start a new console:		
	Python: 3.6/3.5/3.4/3.3/2.7 IPython: 3.6/3.5/3.4/3.3/2.7 PyPy: 2.7 Other: Bash MySQL Custon:		
	Your consoles:		
	You have no consoles. Click a link above to start one.	To set up the database,	

we'll need to do a little

with the bash console.

Consoles shared with you

No-one has shared any consoles with you :-(

Running processes

C Fetch process list

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# Bash console 9501549

15:34 ~ \$ cd mysite/ 15:34 ~/mysite \$ ipython3.6 Python 3.6.0 (default, Jan 13 2017, 00:00:00) Type "copyright", "credits" or "license" for more information.

IPython 4.1.2 -- An enhanced Interactive Python. ? -> Introduction and overview of IPython's features. %quickref -> Quick reference. help -> Python's own help system. object? -> Details about 'object', use 'object??' for extra details.

In [1]: from flask\_app import db

In [2]: db.create\_all()

In [3]:

4 lines of code, and we're all setup!

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	Send feedback Forums Help Blog Account Log out	
By pythonanywhere	Dashboard Consoles Files Web Tasks Databases	
	CPU Usage: 5% used - 5.20s of 100s. Resets in 21 hours, 57 minutes More Info	
Start a new console:		
Python: 3.6/3.5/3.4/3.3/2.7 IPython: 3.6/3.5/3.4/3.3/2.7 PyPy: 2.7 Other: Bash   MySQL Custom: ♥		
Your consoles:		
Bash console 9501549 🗙	Let's check the database in the MySQL	
Consoles shared with you	console	
No-one has shared any consoles with you :-(		
Running processes		

C Fetch process list

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+1 Share with others

## MySQL: ghassemi\$fox\_comments

Reading table information for completion of table and column names You can turn off this feature to get a quicker startup with -A

Welcome to the MySQL monitor. Commands end with ; or \g. Your MySQL connection id is 160874470 Server version: 5.6.27-log MySQL Community Server (GPL)

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

#### mysql> show tables;

Tables\_in\_ghassemi\$fox\_comments | comments | fox\_comments | 2 rows in set (0.00 sec)

### mysql> describe fox\_comments;

Field	Туре	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
name	varchar(4096)	YES		NULL	
comment	varchar(4096)	YES		NULL	

mysql>

Run "show tables;" to validate that your table was all created.

(if nothing shows up, you might need to run "use database ghassemi\$fox\_comment s;"  $(\leftarrow) \rightarrow$  C'  $(\triangle)$ 

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home/ghassemi/mysite/flask\_app.py

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Save as.

```
Keyboard shortcuts: Normal - Ø Share Save
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2 # A very simple Flask Hello World app for you to get started with... 4 from flask import Flask from flask import render\_template 6 from flask import redirect 7 from flask import request 8 from flask\_sqlalchemy import SQLAlchemy 9 10 app = Flask(\_\_name\_\_) 11 12 SQLALCHEMY\_DATABASE\_URI = "mysql+mysqlconnector://{username}:{password}@{hostname}/{databasename}".format( 13 username="ghassemi", 14 password="mundoworld", 15 hostname="ghassemi.mysql.pythonanywhere-services.com", 16 databasename="ghassemi\$fox\_comments", 17 ) 18 app.config["SQLALCHEMY DATABASE URI"] = SQLALCHEMY DATABASE URI 19 app.config["SQLALCHEMY POOL RECYCLE"] = 299 20 app.config["SQLALCHEMY TRACK MODIFICATIONS"] = False 21 22 db = SQLAlchemy(app) 23 24 - class Comment(db.Model): 25 26 \_\_tablename\_\_ = "fox\_comments" 27 28 id = db.Column(db.Integer, primary\_key=True) 29 name = db.Column(db.String(4096)) 30 comment = db.Column(db.String(4096)) 31 32 @app.route('/') 33 - def hello world(): return 'Hello from Flask!' 34 35 36 @app.route('/fish') 37 \* def fish(): 38 return 'fish sav blub...' 39 40 @app.route('/fox/<fox\_says>') 41 \* def fox(fox says): return render\_template('what\_does\_the\_fox\_say.html',fox\_says=fox\_says) 42 @app.route('/process\_fox\_comments', methods=['POST']) def process\_fox\_comments(): name = request.form["name"] comment = request.form["comment"] fox\_comment = Comment(name=name, comment=comment) db.session.add(fox\_comment) db.session.commit() return redirect('/fox/' + str(comment))

Now we'll modify the process to store everything that comes from the database in the table we created!

# Console limit reached :-/

With your current PythonAnywhere account you can have up to 2

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## MySQL: ghassemi\$fox\_comments





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Tell me What does the fe	fox say?		

Hi there

Leave a comment for the fox:

Your Name:

Your Comment:

SUBMIT

We're all done! Enjoy building your falsk applications!