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Distribute Django Web Apps as Native Desktop

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Before we start

- Make sure Xcode 7.x including command-line tools is installed
- Download Python 3.4.4 and the project files

Do everything in Python

“If your only tool is a hammer, then every problem looks like a nail”
unknown author (see http://quoteinvestigator.com/2014/05/08/hammer-nail/)

True to me if Python is the hammer

Cat Control

What is it ?

Cat Control is a new bluetooth enabled Mac OS X System Prefence Pane, which enables you to control your cat's basic behaviour.

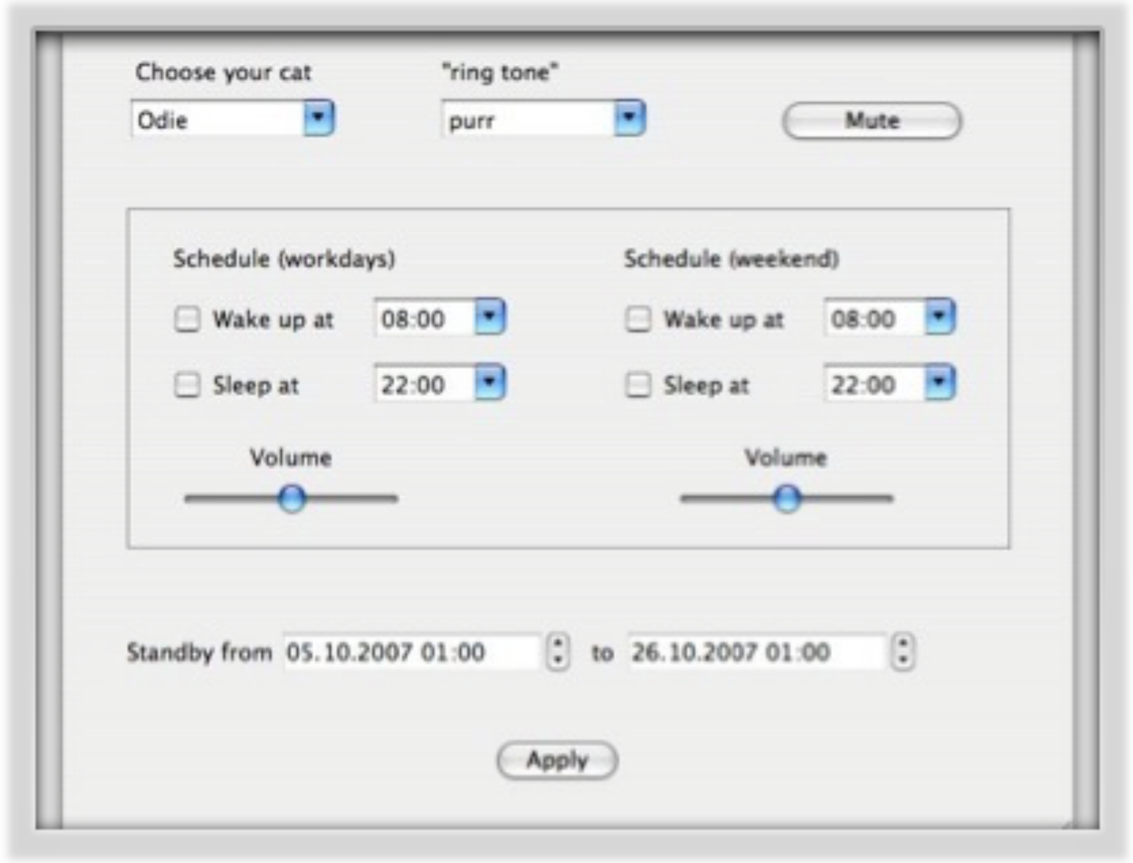
The creation of this application has been inspired by our cat Odie, which gets up at 6am every morning – no matter if it's a workday or the weekend – sits in front of our bed and starts making noise or walks on our bodies until someone gets up to feed it.

With Cat Control you can now define when your cat is supposed to be awake, you can choose the volume and the sound of the cat and put it on standby whenever you go on vacation.

There's also a "Mute" button if you just want to watch TV or get some sleep without scheduling downtimes of your cat.

How to use it

This is the Cat Control interface:



Choose your cat: Odie
"ring tone": purr
Mute

Schedule (workdays)
- [ ] Wake up at 08:00
- [ ] Sleep at 22:00
Volume

Schedule (weekend)
- [ ] Wake up at 08:00
- [ ] Sleep at 22:00
Volume

Standby from 05.10.2007 01:00 to 26.10.2007 01:00

Apply

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Original challenge

- Deploying Django (or other Python) web apps can be a complex task
- Tools like Docker can be helpful, but still a bit complex
- Sometimes I need to build Desktop apps with similar functionality like an existing web app

Ideas

- Package Python app as double-clickable Desktop application to make distribution, setup and operation easier (and gain wider acceptance for your product)
- Should not matter if it’s a Desktop only or network tool
- Use OS features like native file open and save dialogs
- Cross platform support would be great
- Support for tools like PostgreSQL and nginx

Tools

- Python, CherryPy and Django as the core web app
- Pywebview web browser to load interface
- py2app, py2exe and Pyinstaller to bundle the app

Why not use Cocoa, Swift, C, Qt …?

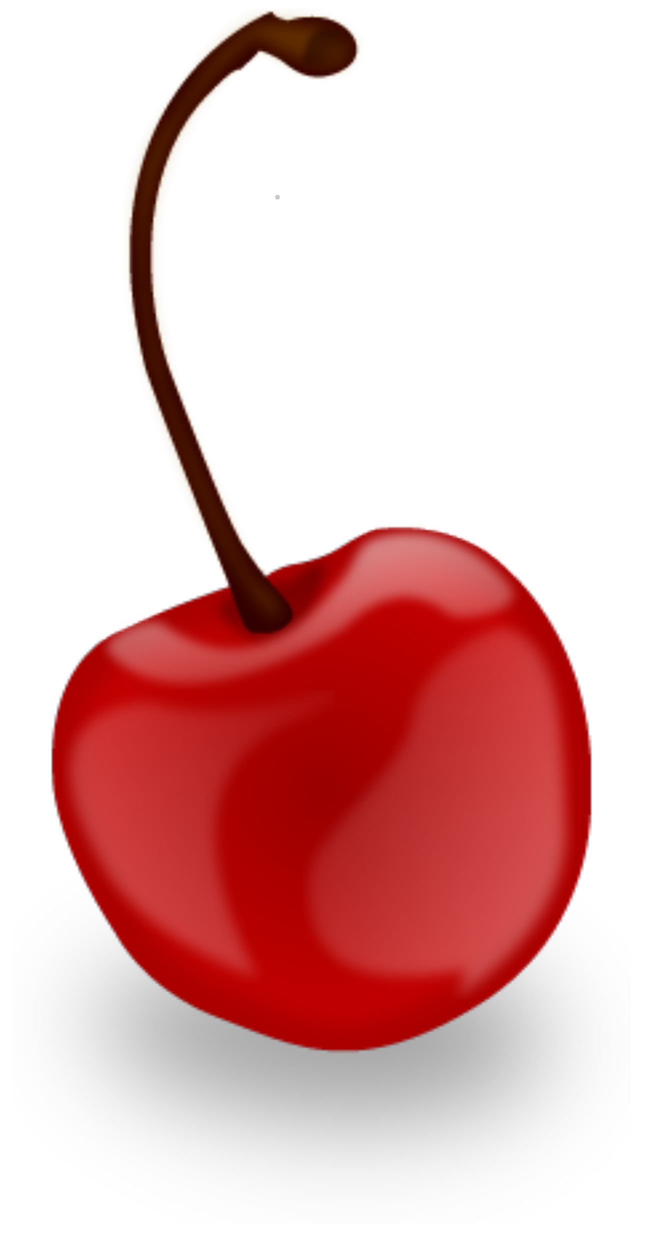
- Yes, why not?
- There's plenty of tools to translate web apps into native apps, like
  - MacGap (http://macgapproject.github.io)
  - Electron (http://electron.atom.io)
  - NW.js (http://nwjs.io)
- Most of them use JavaScript for the business logic, while for many of us Python is the tool of choice

pywebview

- https://github.com/r0x0r/pywebview
- Comes as Python module
- Works with Python 2 and Python 3
- Browser component: Win32 on Windows, Cocoa on OS X and Qt4/5 or GTK3 on Linux
- BSD licensed
- Can easily be extended using Python and PyObjC

CherryPy

- Web aplication framework which includes a production-ready http server
- Can serve Django applications, too
- Supports Python 2 and 3
- BSD licensed



Django

- Django supports Python 2 and 3
- Many open source tools run Django
- Batteries included

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Jam session

Licensing

- If you want to deploy packaged software, you need to make sure licensing of third party code allows this
- Non-commercial software: rarely a problem, as most tools are LGPL licensed or more open
- Commercial software:
  - You can dynamically link to LGPL licensed tools and distribute them with your app as long as you mention their license, this e.g. applies to FFmpeg and Qt
  - You can’t distribute GPL licensed code with your app. For FFmpeg this means you need to compile it without non-free code for example

Summary

- You can package and distribute even very complex Python web applications as double-clickable apps
- UI can be HTML, Tk, Qt, Cocoa or whatever makes sense to you and works with Python
- Packaging can be a bit of work, but takes less time than maintaining multiple app versions in multiple programming languages
- Find this workshop and code samples at https://moosystems.com/articles/14-distribute-django-app-as-native-desktop-app-01.html

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Q&A