Caravel - sweet time based visualisation and dashboard reporting - written in python!

April 6, 2016 / Gavin Jackson

airbnb databases open source python reporting software

The fine folks at airbnb recently opensourced an amazing software product called caravel. It is a web-based data visualisation and dashboarding application. It looks amazing and I hope to share some of my experiences getting it up and working.

https://github.com/airbnb/caravel

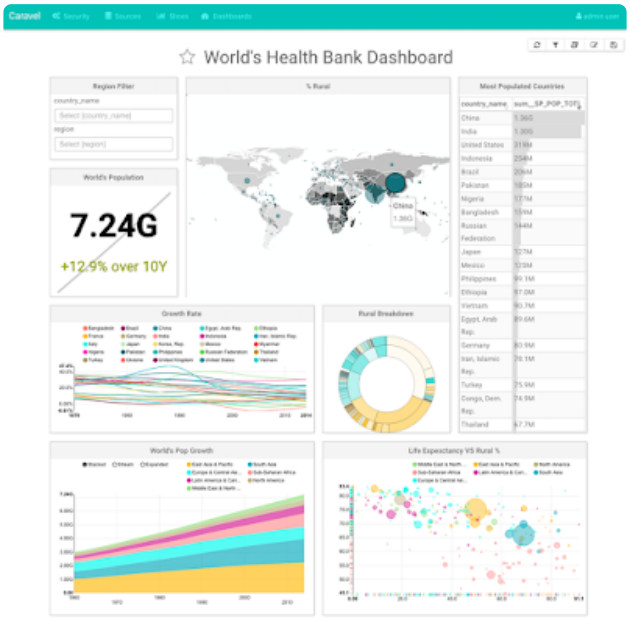
Things I love about this tool:

1. It's 100% open source - no "paid" or "locked" features - what you see is what you get.
2. It's a big, beautiful python application, I think it is amazing to see a product of such scale that uses libraries that I use on a day to day basis - I'm looking forward to reading the source code of this app!
3. Although the documentation is light on (presently), it does work as described - it's not just a marketing gimmick - and they have a very cool looking road map for future improvements (including python 3 support!).
4. It fills a niche that other open source reporting tools (such as Jasper and Pentaho) don't do well - time-based tactical views on data.
5. The sqlalchemy support means that most databases are supported out of the box.
6. The druid integration provides future expansion for large/aggregated datasets (you can see why airbnb would be interested in this).

Things that could be improved:

1. It does not support table joins out of the box - which means that I'm going to have to set up some views in my database to produce meaningful reports.
2. All of the graphs seem to require time based data - not everything i want to report on has a temporal element.
3. The spatial support is pretty rudimentary, it's really based on ISO country code - I would imagine that it is beyond the scope of the project to hook in to postgis and supply an openlayers widget (but what a possibility!).

What an amazing open source tool - bravo to the developers and to airbnb for releasing this for us to use and expand!



Installing caravel on Mac OSX 10.11.4 *El Capitan*

Below are my OSX installation notes (hopefully some folks out there may find them useful).

Firstly it is currently python 2.7 only which means you have to re-learn how to use virtualenv. On Linux this is pretty straight forward, on OSX it required a bit of mucking around.

Step 1 - Install xcode (via app store)

then run xcode-select --install

Step 2 - install home-brew

Old versions can be problematic (so you can uninstall and reinstall if necessary)

`ruby -` e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/uninstall)"

`ruby` -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"

Step 3 - install python 2.7 (caravel does not support python 3 ... yet)

I then had to fix the python path (as it kept pointing to /usr/bin)

brew link —overwrite python

Step 4 - install virtualenv

pip install virtualenv

Step 5 - create virtualenv

(note: this is the old python 2.7 way of doing things, python 3 introduced pyvenv)

virtualenv venv_caravel

Step 6 - activate virtualenv

../venv_caravel/bin/activate

Step 7 - follow the caravel installation instructions

I had to run the following to successfully install the cryptography library:

env LDFLAGS="-L$(brew --prefix openssl)/lib" CFLAGS="-I$(brew --prefix openssl)/include" pip install cryptography

Install caravel

pip install caravel

Create an admin user

fabmanager create-admin --app caravel

Initialize the database

caravel db upgrade

Create default roles and permissions

caravel init

Load some data to play with

caravel load_examples

Start the development web server

caravel runserver -d

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