Sahana Eden: Introduction to the Code

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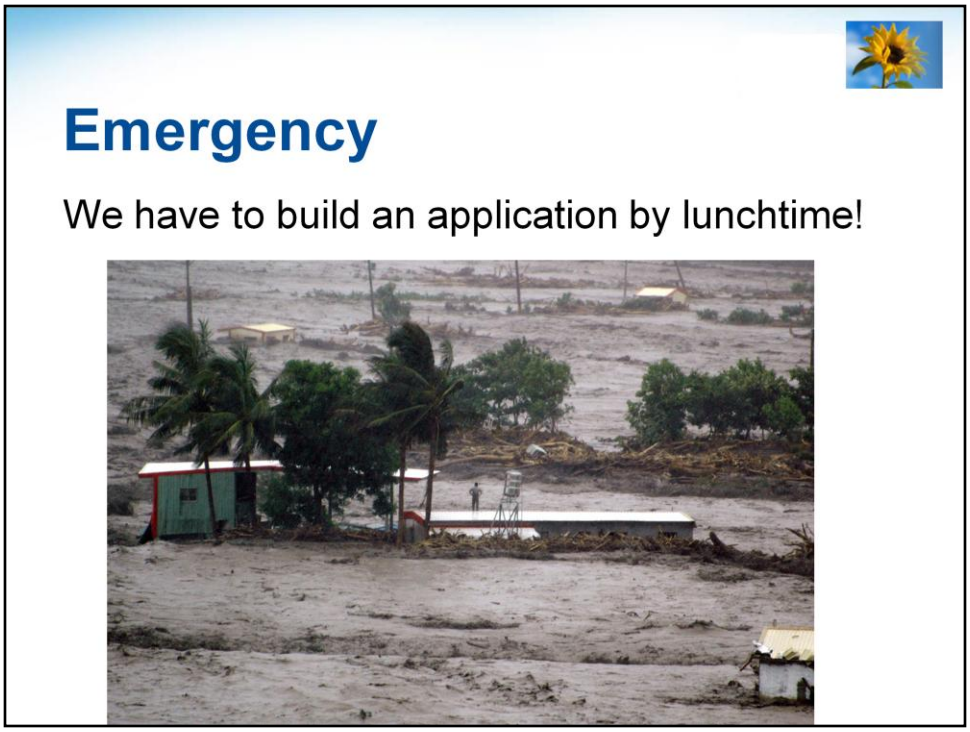
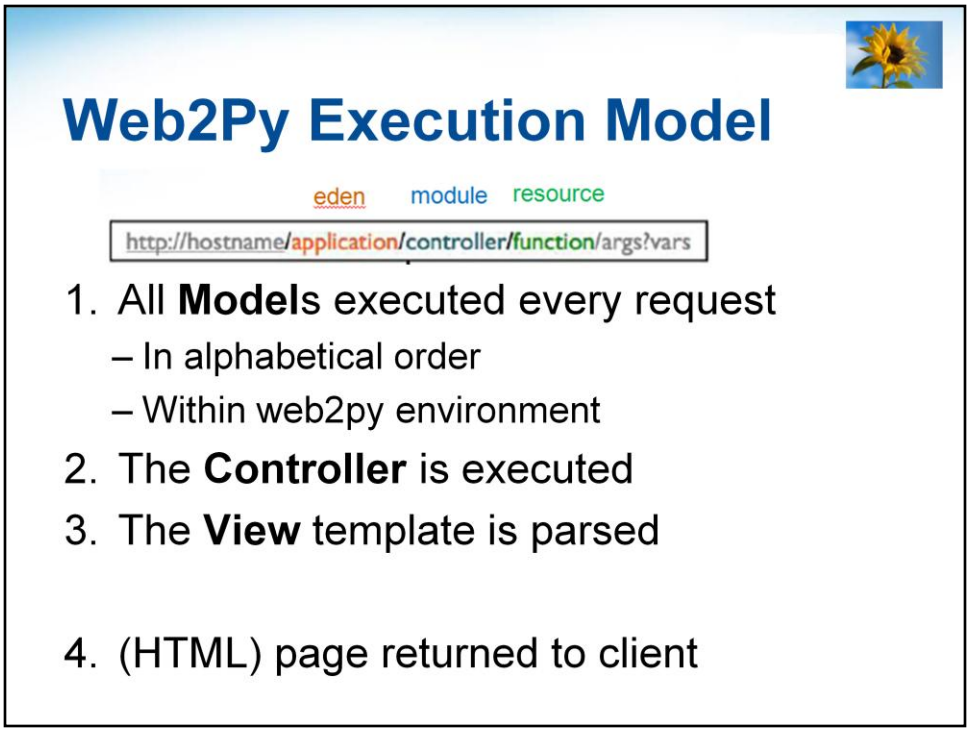


As well as being a suite of pre-built applications, Eden is also an Emergency Development Environment: a framework which can be used to rapidly build new ones to meet custom needs (as every emergency is different).

Agenda

- Web2Py execution model
- S3 REST Controller
  - Model
  - Controller
  - View



Because all models are executed every request, it is important to minimise the amount of time taken to process them.

Alphabetical order is to Manage the dependencies

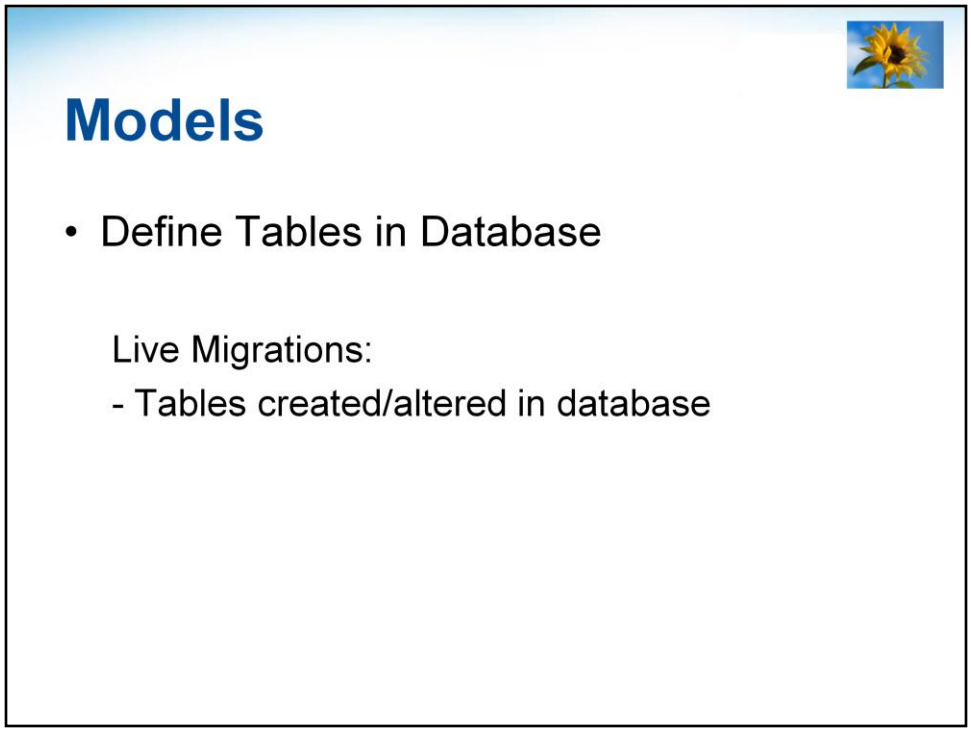
'In the Web2Py environment' means no need to import most of the libraries in 'gluon/' & access to the global variables: request, session & response.

First the parts of the Controller outside Functions are executed & then the relevant Function.

Functions with no arguments are automatically visible via URLs

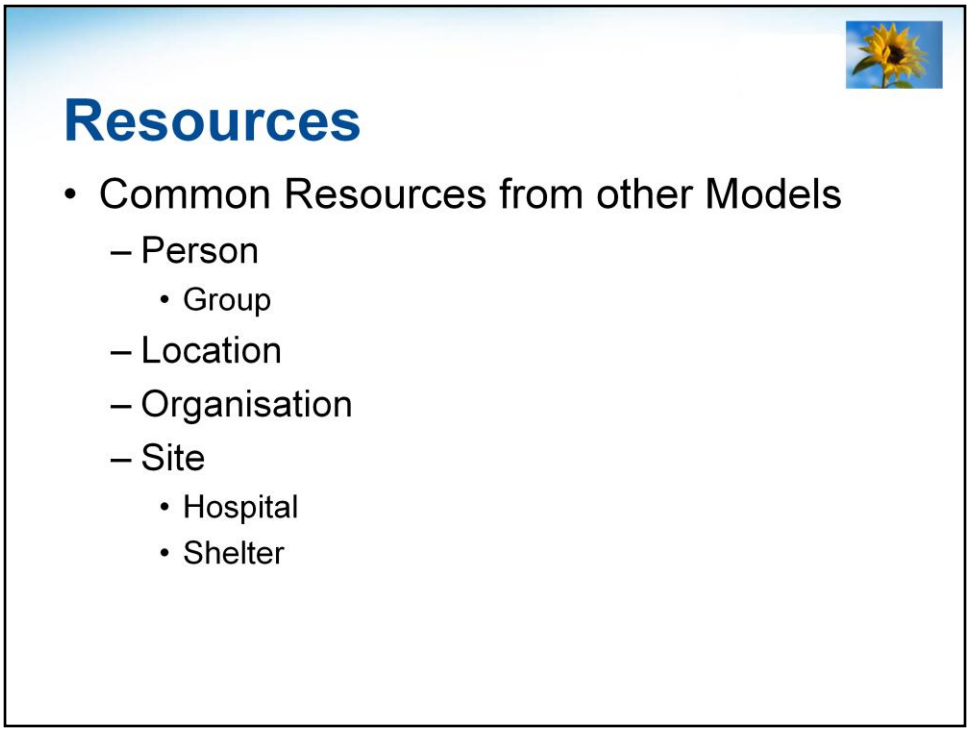
-No need to add a routes entry (unlike other frameworks, like Django)

The Controller or View could also return XML (e.g. RSS or KML), JSON, PDF or XLS.



Deleted Columns / Tables simply Ignored

Sahana Eden is Resource-centric



Sahana Eden is Resource-centric

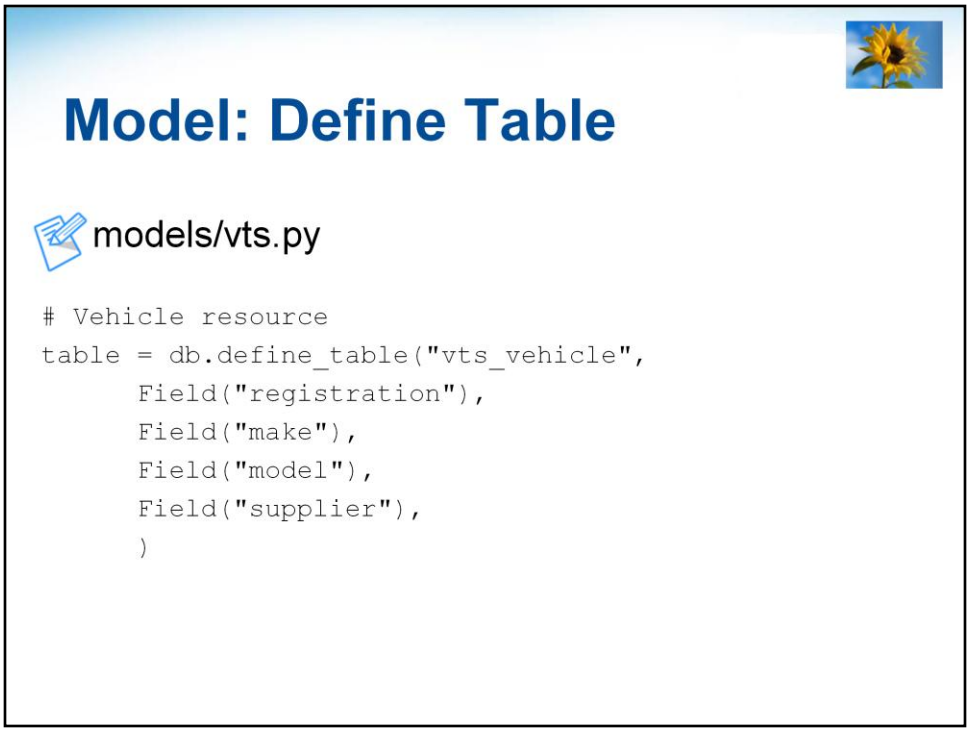
S3 REST Controller

- Args:
  - /update, /create, /delete
- HTTP verbs:
  - GET, PUT (POST), DELETE
- Representations:
  - .html, .json, .xml, .xls, .pdf

Web Services, Mash-ups

Adding a new application

- Vehicle Tracking System
- Name: `vts`
- Resources:
  - vehicle
  - driver
  - location

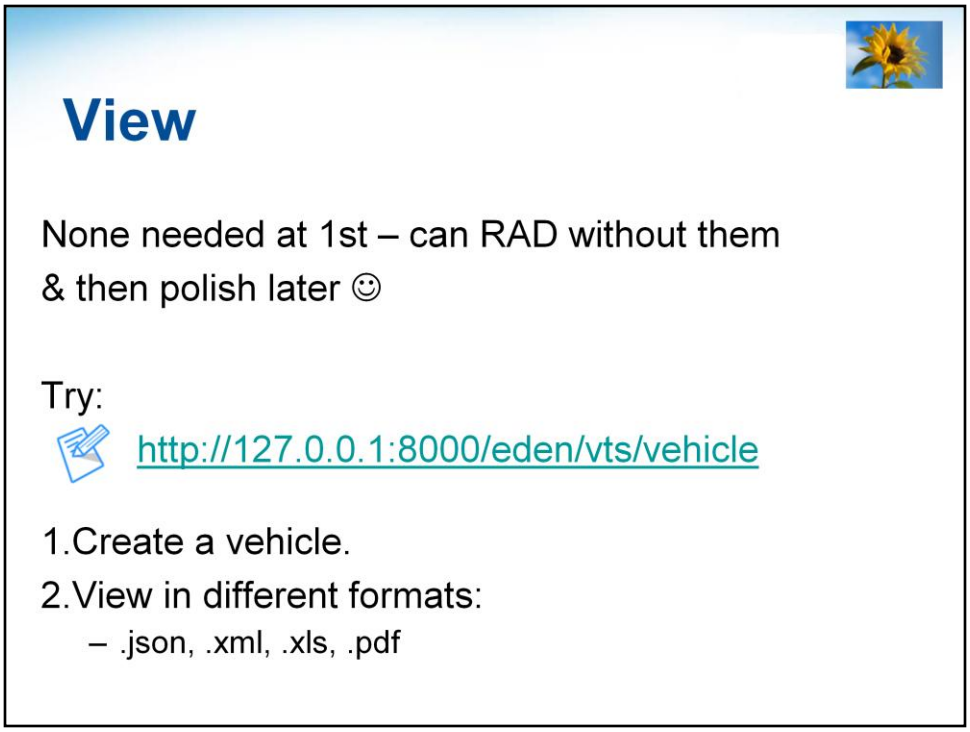


Create a new file in the Models folder called ‘vts.py’ & type in the text above.

Text after this symbol is a comment & is ignored

If you make a mistake, then the Ticketing system should catch the error & let you know what you did wrong.

Create a new file in the Controllers folder called ‘vts.py’ & type in the text above.

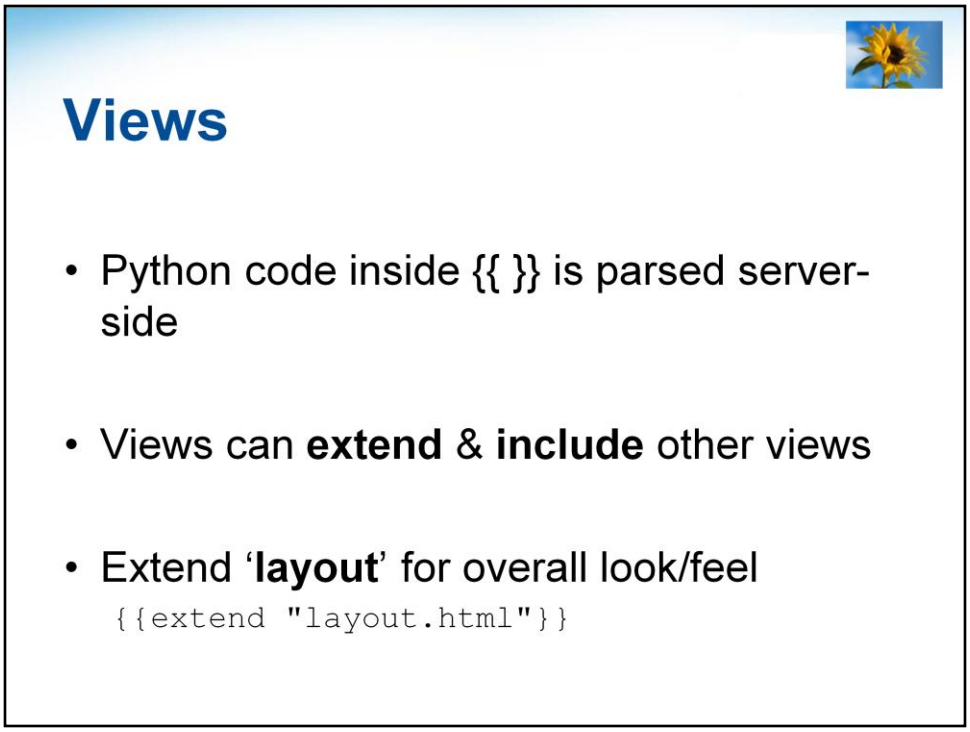


Note that you'll need to Login to the system before you're allowed to create a resource.

Coffee

These defaults are why we didn't need any views for our application.

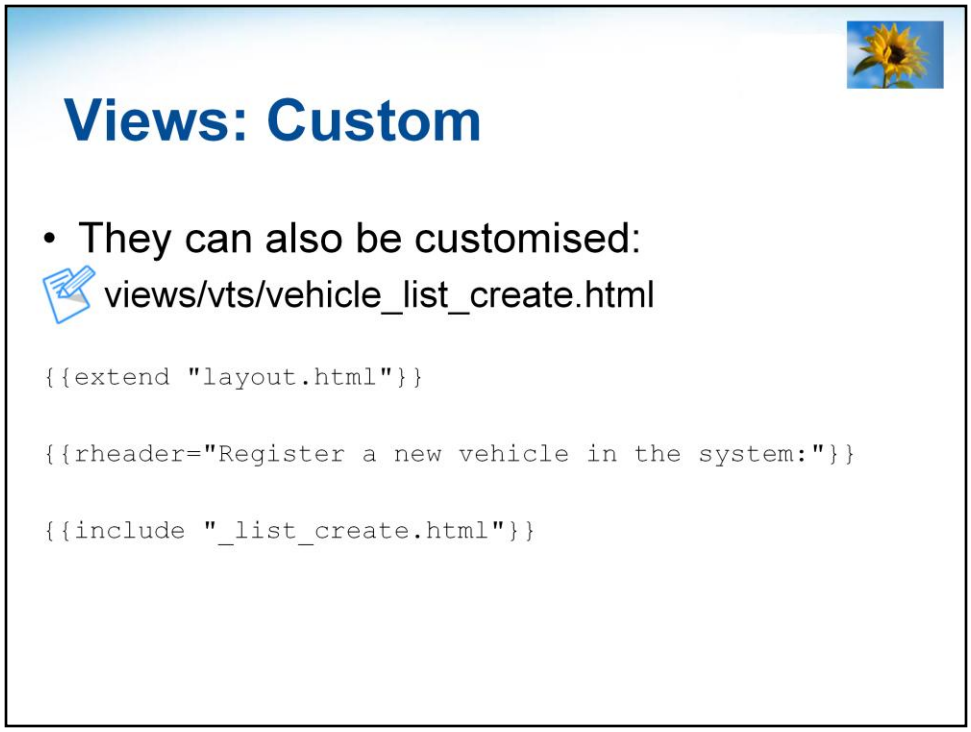
Web2Py defaults to `views/controller/function.html`, but `S3REST` needs a different view per Method



No need to learn another macro language

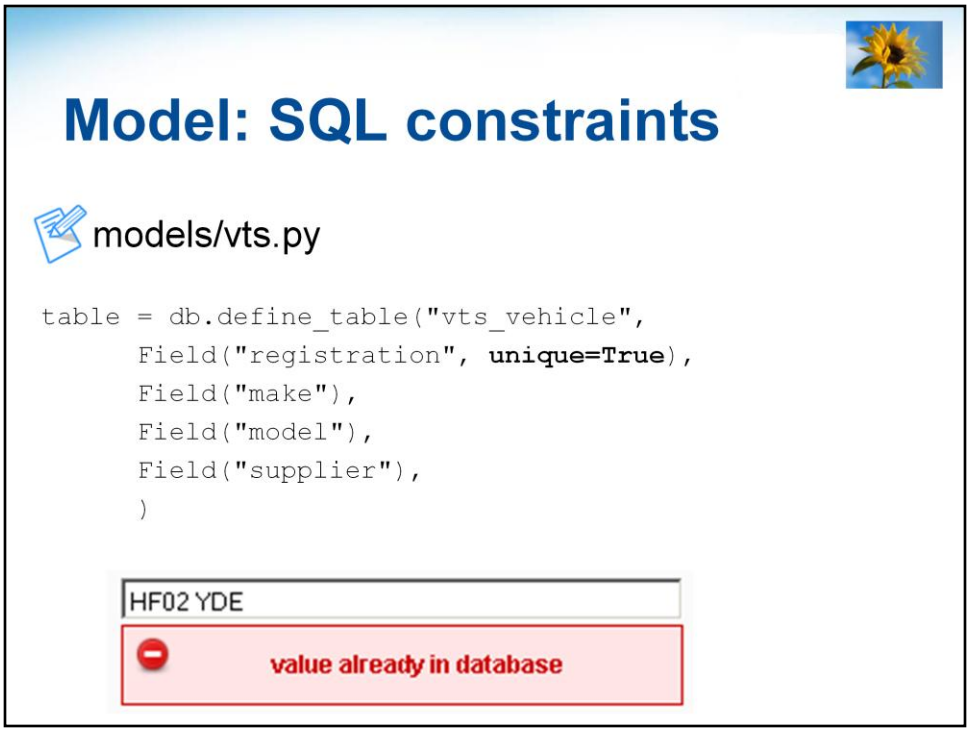
Can **Extend** just a single other file

Can **Include** many others



Create a new folder in the views folder called ‘vts’ & inside that put a new file ‘vehicle_list_create.html’. Type in the text above.

Refresh the vehicle page to see the new text: http://127.0.0.1:8000/eden/vts/vehicle



Unique=True is a SQL-level constraint.

Open your vts.py from the models directory & add the extra code above.

Try adding multiple vehicles with the same registration.

Validators are DAL-level constraints which provide server-side validation & some also provide client-side rendering & validation.

These are automatically added with SQL constraints to produce nice error messages instead of tickets.

Validators can also be added manually as:

db.vts_vehicle.registration.requires = IS_NOT_IN_DB(…)

Model: Field Types

models/vts.py

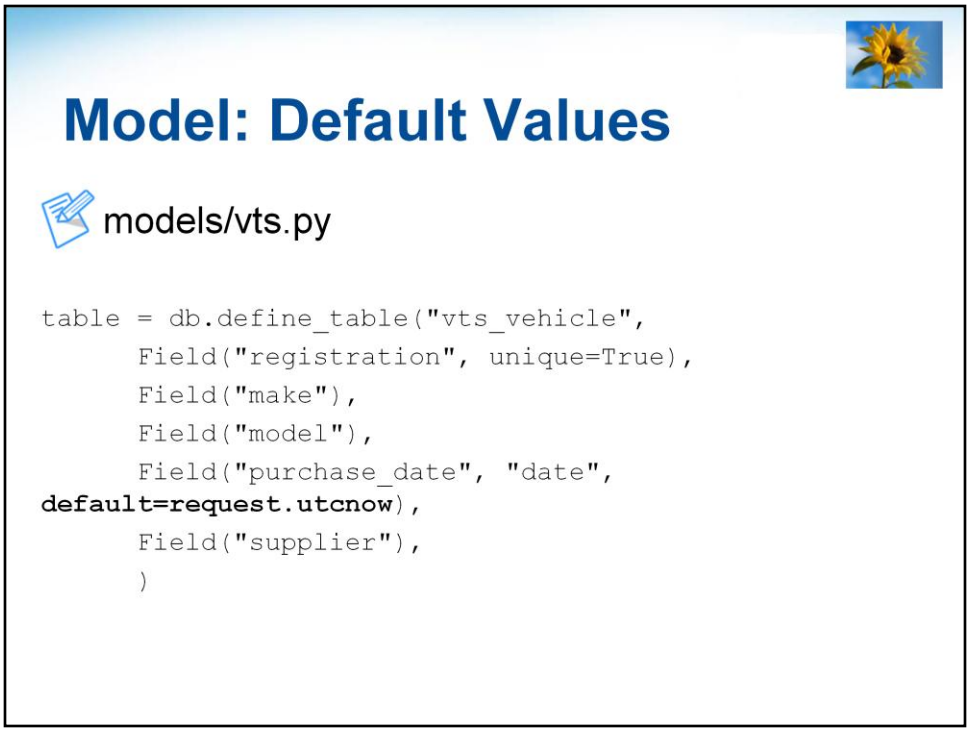
```
table = db.define_table("vts_vehicle",
      Field("registration", unique=True),
      Field("make"),
      Field("model"),
      Field("purchase_date", "date"),
      Field("supplier"),
      )
```

Fields default to type ‘string’.

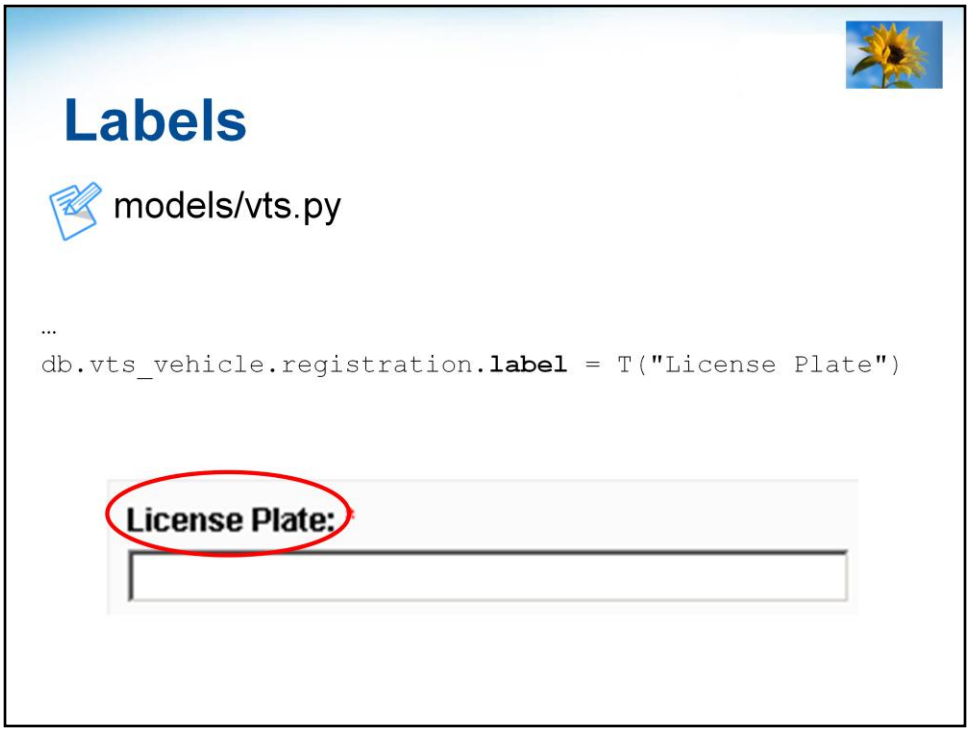
‘date’ is the SQL-level field type & also provides the class in the HTML which means we get a date widget

(This comes from the default IS_DATE() Validator)

Add the extra code above to your file & refresh the page, now enter a date.

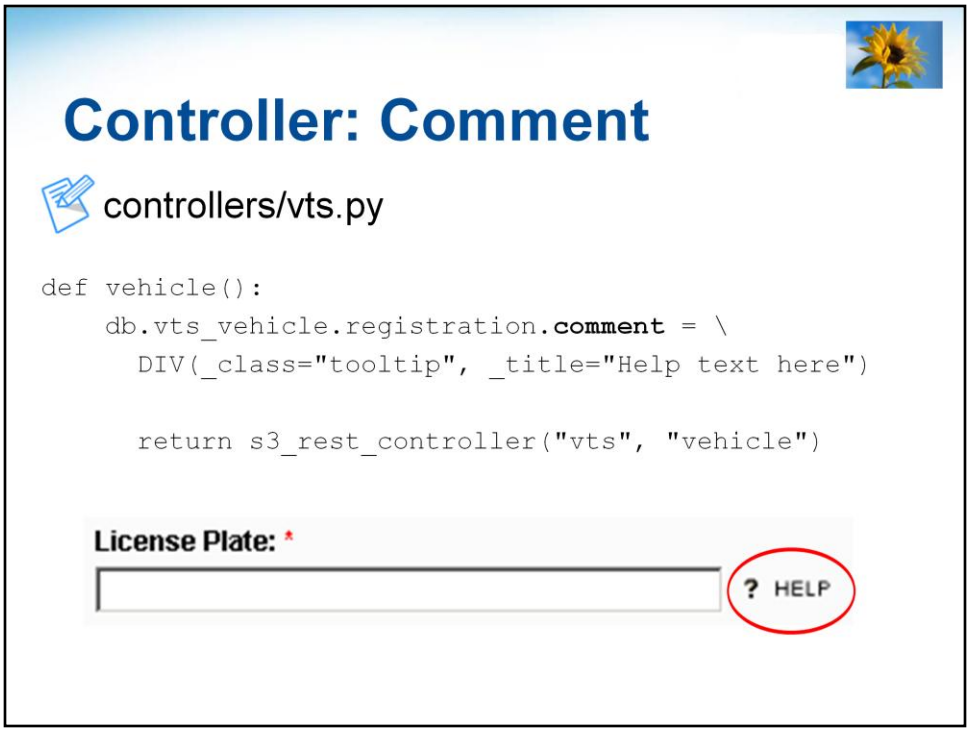


Add the extra code above to your file & refresh the page to see the default value



Add this to your model (under the table definition) & try it out.

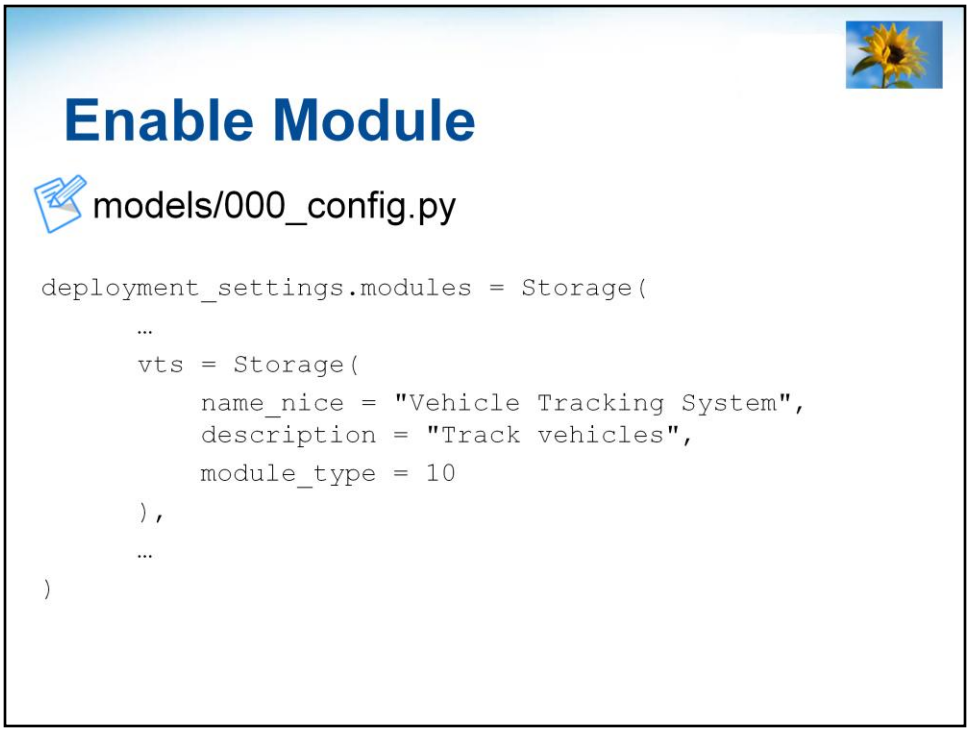
T() is to Internationalise the string



Add the comment to your controller & try it out

How do we Navigate?

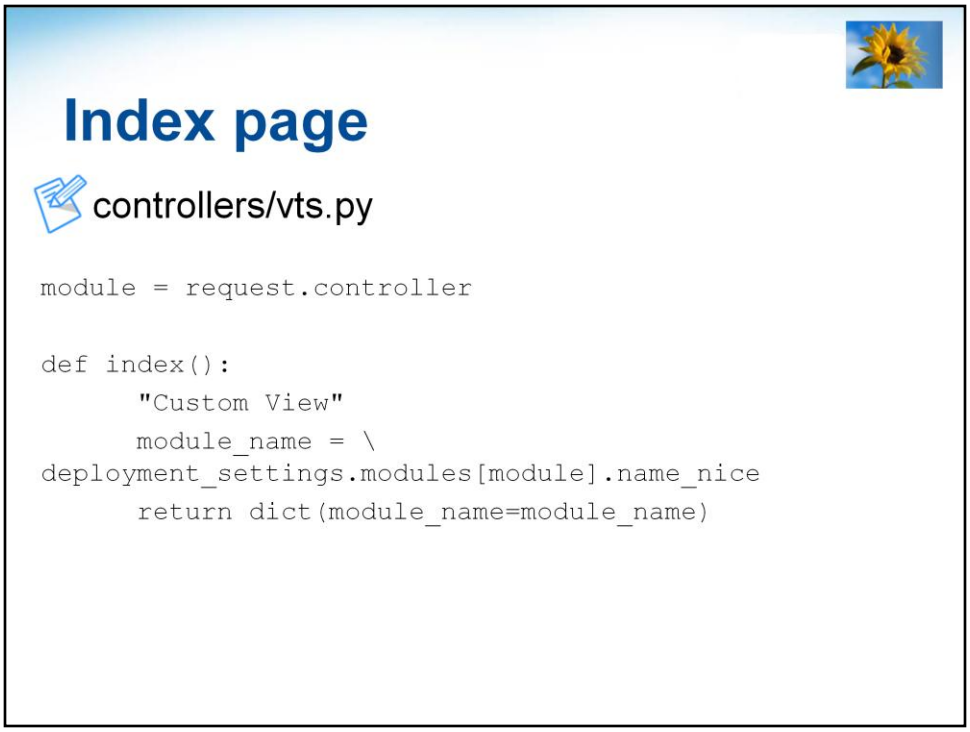
- Modules menu
- Modules list on frontpage
- Menu within Module



Add this text to the file 000_config.py in the models folder. Navigate to the home page to see the module appear both there & on the menu. Try navigating to the module.

Module Type 10 means appears in the ‘more’ section of the default modules menu.

(Most deployments will create a fully-customised menu anyway)



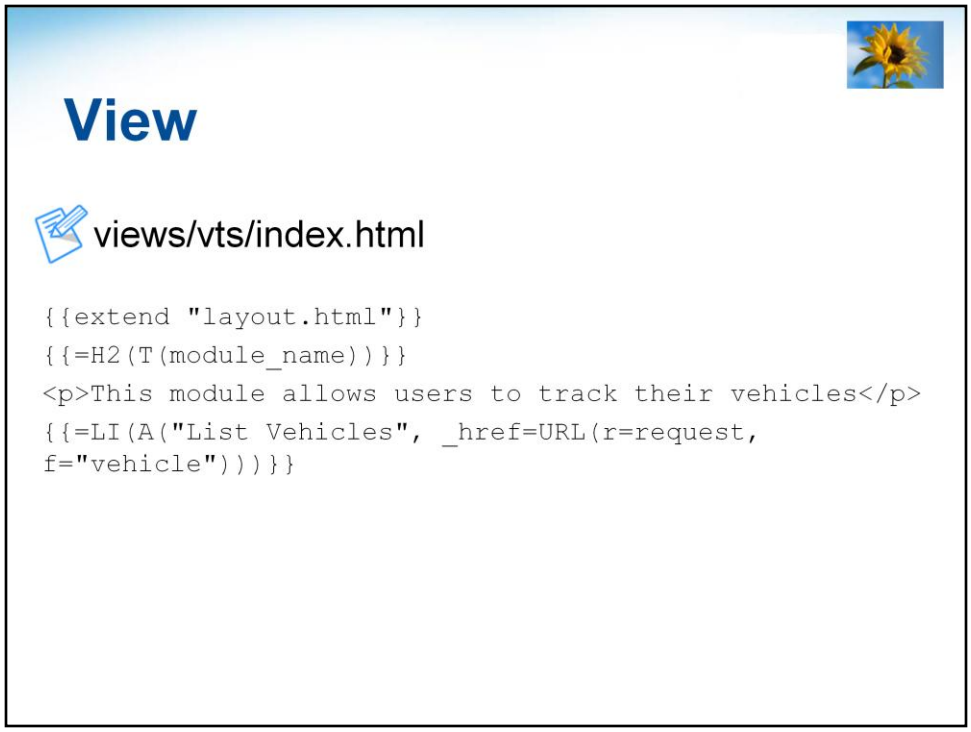
Add this text to your controller file & now open the module.

“Custom View” is a Doc String

One should be added to all functions for automatic documentation generators & interactive browsing of docs

You can try this out in the Interactive Shell: w2p

```
execfile("applications/eden/controllers/vts.py",
globals())
help(index)
```

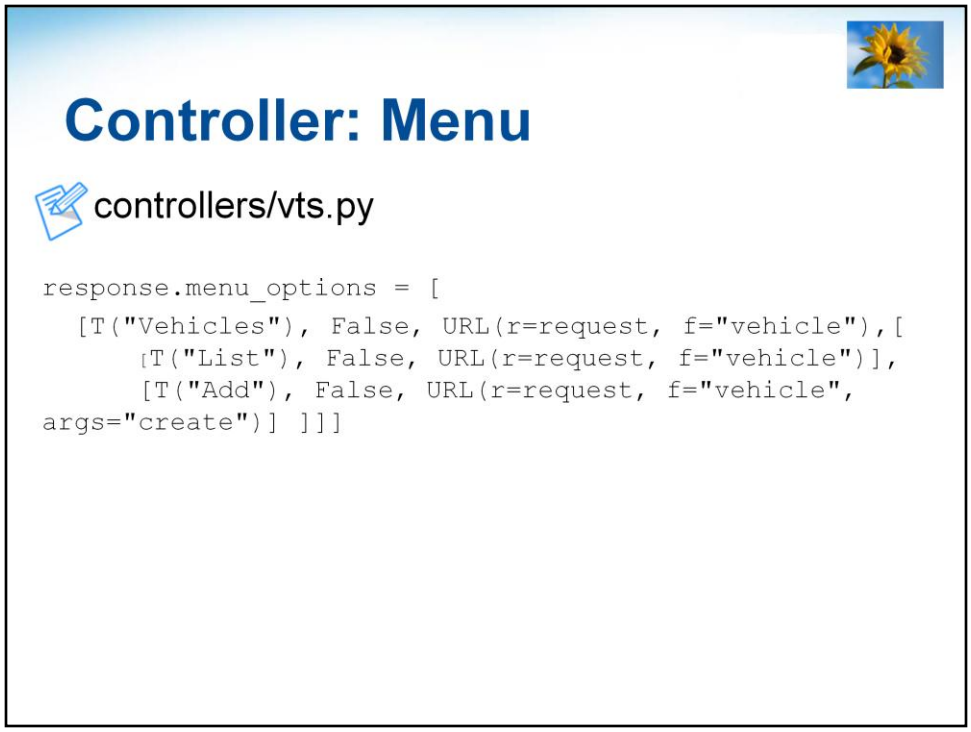


Create a file called ‘index.html’ inside the views/vts folder

See plain HTML being interspersed with the server-side parsed Python

Look at another module’s index.html

What’s bad about this index?



Add this text to your controller (outside the functions – e.g. at the top) & see what effect this has on your module.

Lunch