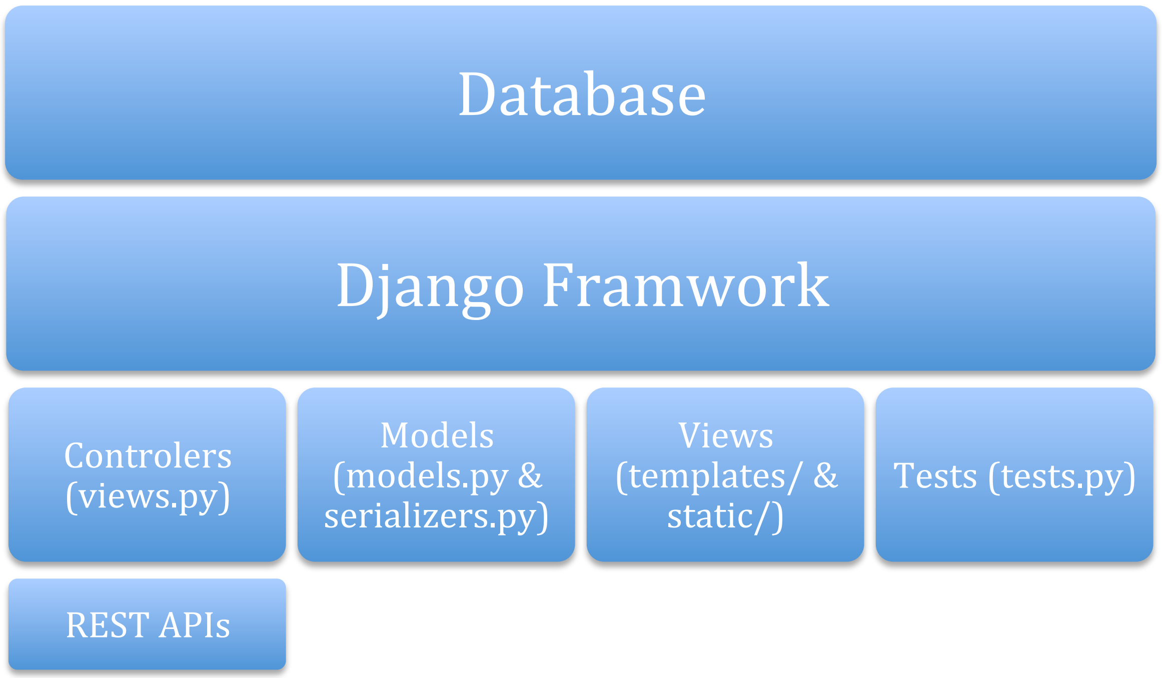
Foodtrucks Documentation

Foodtrucks is a location based web application designed for the backend track position application of Uber.
Foodtrucks is developed on the top of Django REST Framework, which is a RESTful version of Django. Foodtrucks enables REST API for easy access to server data via http.

1. Architecture



2. Models
   Only one table is created in the database, FoodTruck, keeping a foodtruck's information like ID, applicant, food items, location, etc. For the purpose of RESTful interface, a serializer is also created on top of it. Refer to foodtruck/models.py and foodtruck/serializers.py for detailed implementations.

3. APIs
   a. Retrieve all / Create requests:

URL	HTTP method	Returns	Parameters	Normal Response
/foodtrucks/	GET	list of all records		200
/foodtrucks/	POST		foodtruck object (objected is required)	201

Example:

```
curl –X POST http://hostport/foodtrucks -d {'objectid':1, 'applicant':'John', 'latitude': 37.77, 'longitude': -122.2}
```

b. Retrieve / Update / Delete by ID:

URL	HTTP method	Returns	Parameters	Normal Response
/foodtrucks/<id>	GET	specified record		200
/foodtrucks/<id>	PUT		foodtruck object (objected is required)	200
/foodtrucks/<id>	DELETE			204

Examples:

```
curl  http://hostport/foodtrucks/1
curl  –X PUT http://hostport/foodtrucks/1 -d {‘objectid’:1, ’applicant’:’John’,
‘latitude’: 37.77, ‘longitude’: -122.2}
curl  –X DELETE http://hostport/foodtrucks/1
```

c. Retrieve by keyword:

Search for the food trucks that contain the keyword (case insensitive) in either applicant names or food items.

URL	HTTP method	Returns	Parameters	Normal Response
/foodtrucks/bykeyword	GET	list of records	<keyword>	200

Example:

```
 http://hostport/foodtrucks/ bykeyword?keyword=pizza
```

d. Retrieve by location:

Given a target latitude, longitude, radius of search, and limit of number of results, find the food trucks nearby the target location

URL	HTTP method	Returns	Parameters	Normal Response
/foodtrucks/bylocation	GET	list of records	<latitude>,<longitude>, <radius> (default=1.0mi), <limit> (default = 15)	200

Examples:

```
 http://hostport/foodtrucks/ bylocation?latitude=37.777&longitude=-122.222
http://hostport/foodtrucks/ bylocation?latitude=37.777&longitude=-
122.222&radius=0.5
http://hostport/foodtrucks/ bylocation?latitude=37.777&longitude=-
122.222&rasius=0.5&limit=10
```

4. Tests

There are two test sets: functional tests and load tests.

a. Functional tests

Functional tests are conducted within the Django framework locally to test the basic functionalities of the web server.

Required packages: numpy, mysql. If you don't have mysql installed, open code_challenge/local_settings.py, modify

```
DATABASES = {
  'default': {
    'ENGINE': 'django.db.backends.mysql',
    ...
  }
}
```

to

```
DATABASES = {
  'default': {
    'ENGINE': 'django.db.backends.sqlite3',
    ...
  }
}
```

b. Load tests

Load tests utilizes funkload to test the throughput of the website. Three cycles are conducted, each with 10, 20 and 100 virtual clients sending requests to server. At each cycle, the clients keep sending requests concurrently every 0.01s, for 60s. The request is searchByLocation task, which involves heavy database query and computation.

Detailed reports can be found under tests/loadtests

The results of the latest test

	10 clients	20 clients	100clients
Success	457	463	1254
Failure	0	1	48

To test, start MySQL server if installed, then run script tests/test.sh.
*script is tested under OSX.