

Lab 3: Building your own RESTful API

50.012 Networks

Hand-out: September 27

Hand-in: October 4

1 Objectives

- Decide on a simple data scenario to represent (*which nouns?*)
- Define a couple of simple RESTful API calls (which verb for which noun?)
- Implement and test the API on your own server running in the lab

2 Notes

- You can collaborate with another student, please hand in code individually with both authors noted in the header
- To interact with the API, we suggest either `curl` or Python with `requests` library
 - For a nice `requests` tutorial, see here: <http://www.python-requests.org/en/latest/user/quickstart/>
- REST flask tutorial: <http://blog.luisrei.com/articles/flaskrest.html>
 - In your API, don't just copy the nouns/verbs from the tutorial, this will lose you points!
 - No need to implement everything in the tutorial. We will point you towards specific content in the following.

3 Basic API

- Your goal is to implement a RESTful HTTP api for a service of your choice
- Decide on a simple data scenario to represent (*which nouns?*)
 - Example: SUTD room information service
 - * Which floor is the room on?
 - * Is this an office, and who is using it?
 - * What is the seating capacity?
 - * Any other resources in this room (projector)?
 - * Maybe even a reservation system for rooms (ours is kindof bad)

- Simple message board with users and messages (or something like twitter?)
- Maybe an API that aggregates information from other student's APIs? Get room number for user on message board!
- Define a couple of simple RESTful API calls (which verb for which noun?)
 - You should have at least 5 different API calls/ways to interact with your API
 - * At least two nouns, and different verbs (GET/PUT/DELETE)
- Send/receive data in JSON datastructures
 - No need to have something super complicated, a dictionary with a couple of keys should be enough for most things
 - JSON tutorial at http://www.tutorialspoint.com/json/json_python_example.htm
 - Implement one of the API calls to support two different mimetypes (as discussed in tutorial and lecture)
 - * For example, provide a natural text or JSON version of the same data

4 User Authentication

- You should also implement some simple HTTP authentication with a username and a password
 - No need to implement any HTTPS/TLS yet
- Choose one or more useraccounts and passwords, then implement the authentication for at least one API resource as suggested in the tutorial.

5 What to Hand in

5.1 eDimension submission:

- You will submit in the complete API code via eDimension. You can collaborate with a friend on the code, in that case please state both your names in the comments at the start of the file. Both students will then submit the file individually.
- Please add a header at the beginning that comments on the implementation details.
- Please also provide a set of example calls for curl, or a Python script to test your API

5.2 Checkoff:

- Demo your Python code to the Prof/TA and explain it. In particular:
 - What is the general API setting?
 - Which resources did you implement?
 - Showcase some of the calls you made