CouchDB Lab – Relax

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General Notes

The lab submission will be made in the form of a Microsoft Word Document (.doc or .docx) containing your answers for all questions. **Question 2 requires that you submit both the *map AND reduce* functions used.**

CouchDB is a open-source document store database. You will be creating, modifying, and deleting JSON documents via a REST-like API (thorugh **cURL**), **Futon** (a web-based UI), and Java (through the **LightCouch** API). CouchDB is unique in that you can talk to it via HTTP requests (eg. GET, POST).

Installation and Setup

Installation is very quick. First, download **CouchDB** for local use at http://apache.mirror.vexxhost.com/couchdb/packages/win32/1.2.1/setup-couchdb-1.2.1_otp_R14B04.exe

Simply run the .exe, go through the *yes* buttons and you're good to go! Your CouchDB installation can now be accessed through `localhost:5984`. Type that in your web browser to see the response from CouchDB.

Next, you'll need our custom **curl** folder, which can be retrieved from https://docs.google.com/file/d/0B0EcDUg4DLjVYjRqSU8xN1hHS2s/edit?usp=sharing

Download the file by clicking *File* and clicking *Download* at the bottom of the menu.

Extract that to a folder that is easy to access; you'll need to navigate there.

Open up the *Command Line* (hit Start->Run, then type **cmd**) and navigate to the folder you installed **curl** in (use `cd` to navigate)

Once you're there, simply type `curl`. If you get a message prompting you to try `curl--help` or `curl--manual`, it is installed and working.

Now that **curl** is working, type in the following line to see if your DB is accessible:

```
curl -X localhost:5984
```

You should get a response indicating everything is OK and ready to go.

Finally, we need to load up some default data that we have prepared for you. Simply type `loadGamesJSON` in the command line. It should display six lines indicating everything went alright.

1. Simple operations via HTTP and Futon [8 marks]

As a simple warm-up, you'll set up some new documents from your new CouchDB.

a) [1 mark] Using **cURL**, create a new database using your student ID for the name.

b) [1 mark] With **curl**, do the following: (*be sure to submit all commands and outputs*)
   - Insert your info for the following inside your new database: First Name (as _id), and a *list* of programming languages you know (must be an array!)
   - Use a GET command to verify that your document is there.

c) [1 mark] Modify your document to store a last name as well.

d) [1 mark] Delete the document you have created. Use the GET command from (b) to ensure the document was deleted.

e) [4 marks] Use the **Futon** UI to do the exact same tasks as above. Explain in your submission how

you went about *each* task, and comment on your preference between **Futon** and **cURL**.

2. Views/Queries with Futon [10 marks]

Note: Make sure you save *all* views, and copy both *map* and *reduce* functions into your submission!
For the following questions, write the Map and Reduce components needed for the following views. We recommend using Futon. **Use the *games* DB you created earlier with the batch scripts**. You can test views by navigating to your database and selecting *Temporary View* from the upper-right corner.

a) [2 marks] Show all RPG-type (role-playing-game) games.
b) [2 marks] Show all players (name and score) for Action games.
c) [3 marks] Count how many players currently play RTS-type (real-time-strategy) games.
d) [3 marks] Find *each* player's score across *all games*.

3. API Usage – LightCouch (Java) [7 marks]

In this question, you will make a *selective cloning program* that generate a batch (.bat) similar to the one you used in the setup.
Ask a user for their source database (to copy from), the destination database (to create and copy to), and the list of document names to copy over.
Note: It is easiest to generate a batch file that has a collection of `curl` commands. Keep in mind that curl uses URLs, and if you documents contain special characters (eg. ':', spaces), you'll have to encode them for use in a URL (eg. Spaces become %20).
You will want to take a look at this page on URLs if you use Java:
http://docs.oracle.com/javase/tutorial/networking/urls/creatingUrls.html
You may check out `generateJSON.bat` in your curl folder for inspiration. Note the `>` character dumps the output to a file, and the `@` character uses a proceeding file for the JSON.