

Project 2: RESTful Web Service Design

Due: February 14, 2019

In this project, you will be working in teams of three students. Each team will have a unique number.

IMPORTANT: I require all students on each team to equally participate in the project. I will ask for a statement of each teammate contributions to the project.

Create a RESTful Web Service, called MoviePick, which should provide operations to view information about movies being currently played in Athens and rate them. At the very least, MoviePick should offer the movie listings, including the title, the theater name and its address, as well as the show times. However, I expect that the service will also offer operations to list movies by genres (e.g., drama, comedy, action, etc.) and viewer ratings (e.g., list only the best movies). Searching should be provided, as well. The service should also list movies by theater. The movie rating should be on the scale of 1 (lowest) to 5 (highest). If you wish, you may also add some other interesting or useful information of your choice (perhaps, a review from a known movie critic?). Furthermore, you should also provide operations to add, update, and delete short movie descriptions (however, you may simply pre-load the service with movie data).

The service must be implemented as a RESTful Web Service. You should design the service's URIs and decide what each HTTP method does on each defined URI. Carefully consider the URI patterns and what resources they represent – this is a critical part of this project! It is up to you to decide how to obtain the data for your service (e.g., using websites, such as flagpole.com, imdb.com, onlineathens.com, etc.), however, the data should be reasonably realistic. You may use either XML or JSON (or both) as the formats of resource representations.

Your service should be deployed on our JBoss Wildfly installation on `uml.cs.uga.edu`. As a data store, should you need one, you may use the `mysql` server, available on `uml`, as well (please, let me know and I will create a database for your team).

Provide a file called `UserGuide.txt` (a PDF file is acceptable, as well) describing the API for your service. The guide should include the description of all resources and all operations (HTTP methods) available on your service, how to invoke them, and what they do. **Provide a table including the URI templates for all resources, what HTTP methods are legal on the resources, and what they accomplish. Include all allowed/required representations, as well.**

Create a client program, using JAX-RS client API or Retrofit 2, which should illustrate the capabilities of your service by retrieving and printing some resources, updating and printing them, and then deleting them. The client should also provide voting on select movies and retrieving movies by rating.

If you do not preload the data for movies, theaters, etc., you must create one more client to initially create resources for movies, theaters, genres, etc. This client should be called `Loader.java`.

Provide an ant build file or maven configuration (pom.xml). Include an INSTALL.txt file detailing how to compile and install your service and the client(s).

You should use your team number (*N*) and the following conventions for your web apps on `uml`:

- `edu.uga.cs.cs8350_`*N* should be the package name of your application code
- `cs8350_`*N*`_movies.war` should be the name of your war file deployed to JBoss.

Submit your project to cs8350 on nuke. Submit the whole project directory, including (well commented) source code for your service and a suitable client program providing access to the operation of your web service. The client may be based on a tty-interface. Include the database schema, if used in the project.

Additional notes

Part of this project is to learn how to effectively work as a team member. You should elect a team leader and report to me who it is.

You must subdivide the work among team members *reasonably equally*, perhaps “vertically” or by experience. Some initial ideas (it is not a complete list of tasks to do):

1. Split all of the resource-handling classes among all team members. That is, one student implements the movie resource class and another one implements the theater class, etc.
2. Somebody needs to implement the backing store (perhaps a simple relational database).
3. Somebody needs to create an application class (to initialize the singletons).
4. Somebody needs to develop a build process (Apache Ant or Maven).
5. Two students need to implement the clients (one each, if both clients are needed). If just one client is needed, somebody needs to write a script to populate the backing store.
6. Someone must obtain the realistic data for movies and theaters.
7. Furthermore, somebody will have to take the lead in creating `UserGuide.txt`.

NOTE: A good introductory book on developing RESTful services is available online at:

<https://the-eye.eu/public/Books/IT%20Various/OREilly%20RESTful%20Java%20with%20JAX-RS%202.0%202nd%20%282014%29.pdf>

or

<http://www.gitbook.com/book/dennis-xlc/restful-java-with-jax-rs-2-0-en/details>

It can be downloaded in a PDF form, as well.