

Programming Assignment April 8  
Performance  
On AWS

Description:

Frequently, cloud service based systems need to support thousands or even millions of users (or subscribers) often simultaneously. In order to more accurately model these type of systems, one needs to employ traffic modeling systems that can both create events as well as measure responses.

Using assignment 2 or 3 (or any other assignment you wish) as a template, or "driver", you need to create a cloud based system that responds to user queries and that (on the "cloud") performs simple database queries and formats a web interface response to the user. You will test (exercise) that system remotely, from your PC, and gather performance metrics. "Jmeter" is one (free) software tool that will provide the needed features, others will work well, too.

1. Create/implement a cloud based web site similar to assignment 2 or 3, or any that responds to user queries, retrieving information from a relational database. That is, using the earthquake dataset (or any large, multi-attribute data set), create a SQL database on Amazon Web Services. Create a web interface to do queries into that data, and return results.
2. Test your implementation.
3. Obtain Jmeter (or similar), install, test your understanding.  
<https://jmeter.apache.org/>
4. Use Jmeter to drive your cloud application. Try several parameters, such as amount of requests per unit time, intervals between requests, and similar variations on request traffic.  
This means that once you set up Jmeter to "drive" your application, you will not need to also use your web interface at the same time, but you may (it should still work).
5. Get, and interpret, results.

## Part 2

### Programming Assignment Scaling - Performance On AWS

#### Description:

Frequently cloud service based systems need to support thousands or even millions of users (or subscribers) often simultaneously.

To support so many users the cloud services need to automatically scale. Scaling should be done both by scaling up to handle ever increasing demand, and then scaling back down to avoid being charged for unused and unneeded service.

Using the previous assignment (or any other assignment you wish) as a template, or "driver", you need to create a cloud based system that responds to user queries and that (on the "cloud") performs simple database queries and formats a web interface response to the user. You will test (exercise) that system remotely, from your PC, and gather performance metrics.

You will then slowly increase the demand on that cloud based service, ("Jmeter" is one method or through other drivers creating similar demand.)

1. Create/implement a cloud based web site. The same or similar to previous assignment.
2. Obtain Jmeter (or similar), install, test your understanding.
3. Create ever increasing load (demand) on your service.
4. Using AWS facilities configure scaling to handle scaling up and down, by creating additional instances or removing instances, up to 4 instances in total.
5. You may wish to use Jmeter to drive your cloud application. Try several parameters, such as amount of requests per unit time, intervals between requests, and similar variations on request traffic.
6. Try different thresholds on cloud scaling parameters.
7. Get, and interpret, results.