INFO 6205

Homework 3 --- Question 2

Deadline: 02/15/2016 11.59 PM

The objective of this assignment is to teach how to manipulate a queue using a linked list data structure. In addition, you will learn how to write randomized algorithms to simulate web application traffic.

Let's simulate the arrival of user requests to a servlet (a java class that accepts and processes requests from the browser referred to as httprequests)/

Assume there will be one servlet that processes each request sequentially.

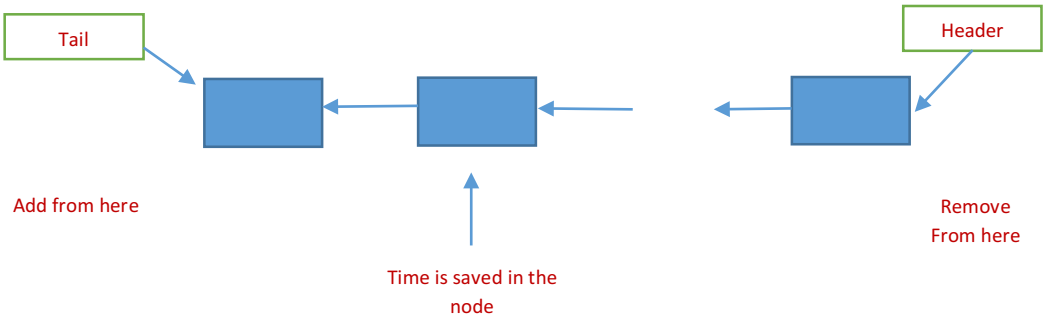
Consider a servlet that receives 1, 2 or 3 work requests (httprequest) every second.

We can simulate the flow of requests through the servlet over a period of n seconds as follows:

[1] An instance of ServletQueue is created and set to empty;
[2] For each second between 0 and n-1 repeat the following steps [3] through [6]
[3] if the servletqueue is not empty, then remove the workrequest at the front of the queue at regular or random intervals and pass it to the servlet for processing
[4] Randomly generate an integer random number between 1 and 3 inclusive
[5] If the number is 1, then add one workrequest to the servletqueue
[6] If the number is 2, then add two workrequests to the servletqueue.
[7] If the number is 3, then add three workrequests to the servletqueue.

Your job is to measure the following

- The total number of workrequests processed
- The maximum length of time any of these requests spent waiting in the servletqueue.
- Average time spent by a workrequest in the servletqueue.



You are to build this in java swing and show the results in a jpanel form. Please allow for a button to start/restart your app. The user can configure n as an input field in the form. You must use a linked list to represent the queue.