



HOMWORK 4 - FALL 2022

HOMWORK 4 – GRADING KEY

1. (17 points) Documentation and Coding Style

- Name, ID number and recitation at the top of ALL java files [2 points]
- Precise and correct specifications. [5 points]
- Indentation. [3 points]
- Variable Names. [2 points]
- Javadoc Style for Documentation. [5 points]

Note: You only need to submit your java files. We will use the javadoc *.java command to create the javadoc files.

2. (13 points) Source Code

- Program implements a queue class for the waiting list or uses Java API. If using Java API, the queue class must be subclass of the Java API class (if not a subclass, 4 points will be deducted). [9 points]
- Coding style: flexible, extensible, good use of methods and avoid duplicate code. [4 points]

3. (70 points) Program Correctness

- Program compiles without any error. [13 points]
- Input/output:
 - Prompts the user for each simulation parameter [3 points]
 - Displays the total service time, packets arrived, average service time, and packets dropped [3 points]
- Packets arrive at the correct probability [4 points]
- Packet size is generated uniformly within the given range [4 points]
- Packet is sent to the correct router after being dispatched [4 points]
- Packets are dropped when the network is congested [4 points]
- Packets are being accepted at the limited bandwidth [4 points]
- Algorithm is implemented in the order described [3 points]
- The following trends are reproduced by the simulation:
 - As router increases, average service time decreases and packet drop rate decreases [5 points]

- As arrival probability increases, average service time increases and packet drop rate increases [5 points]
 - As packet size increases, average service time increases and packet drop rate increases [5 points]
 - As bandwidth increases, average service time decreases and packet drop rate decreases [5 points]
 - As buffer length increases, average service time **increases** and packet drop rate decreases [5 points]
 - Erroneous inputs are handled "gracefully" [3 points]
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