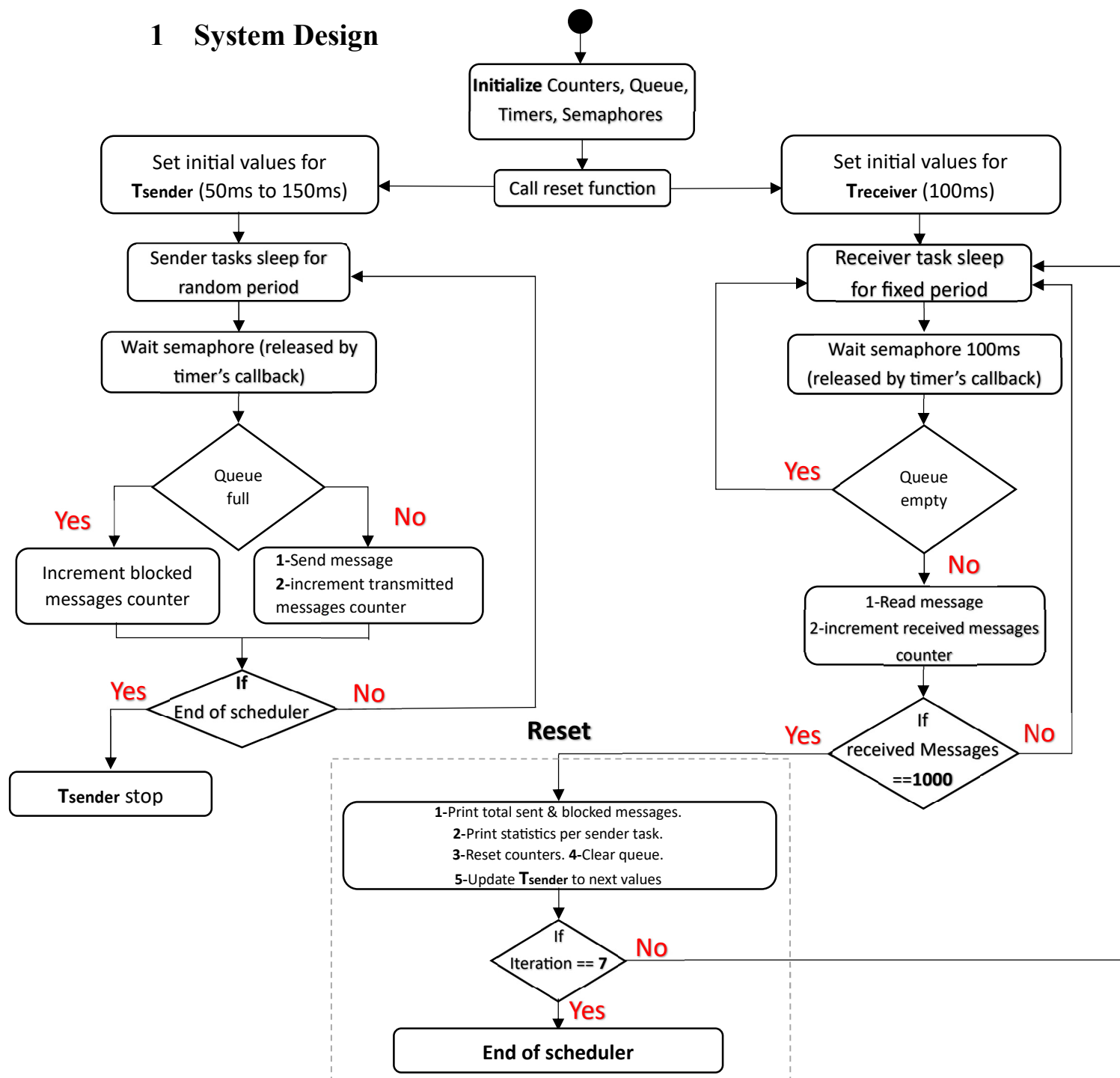
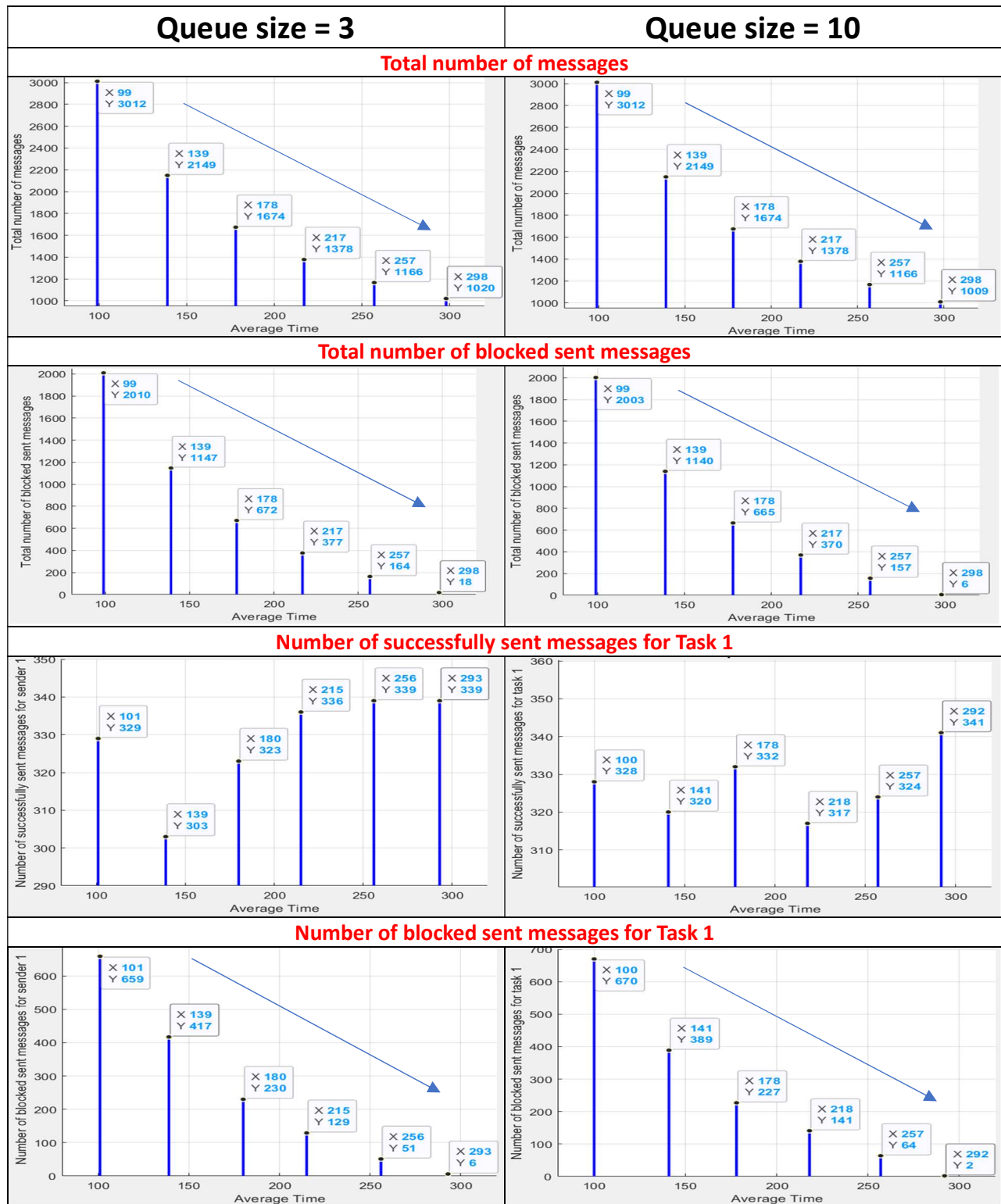


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1 System Design



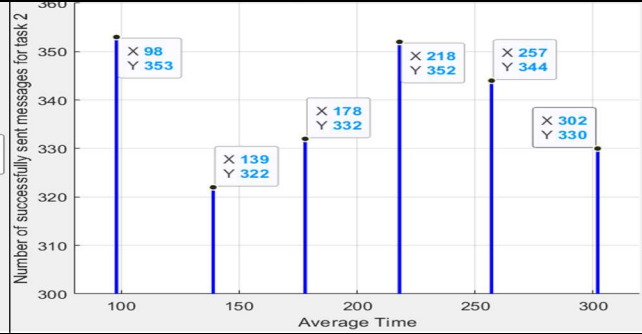
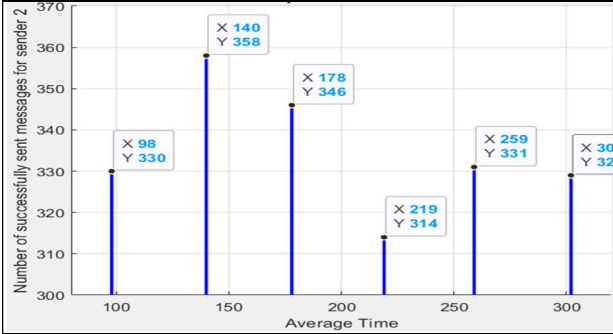
2 Result and Discussion



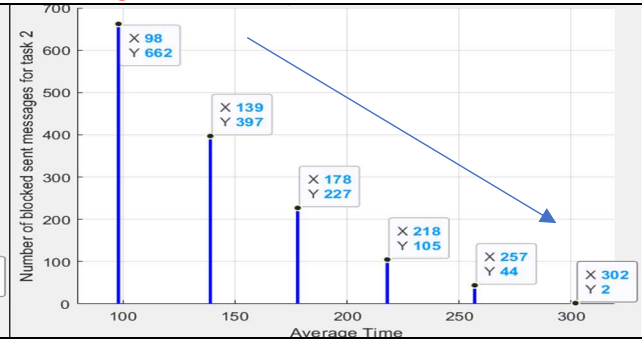
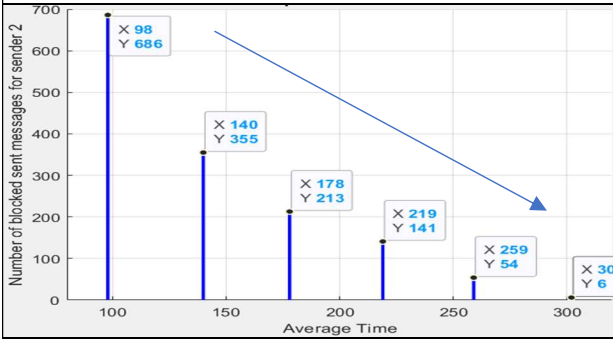
Queue size = 3

Queue size = 10

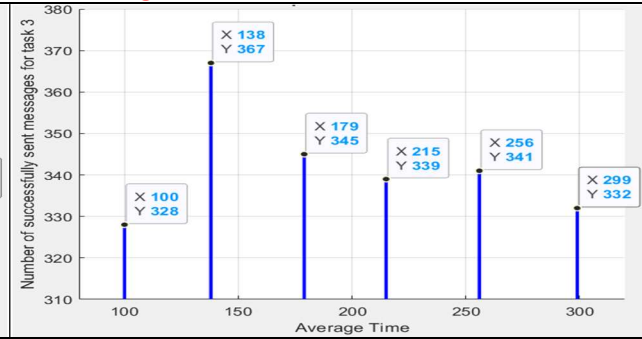
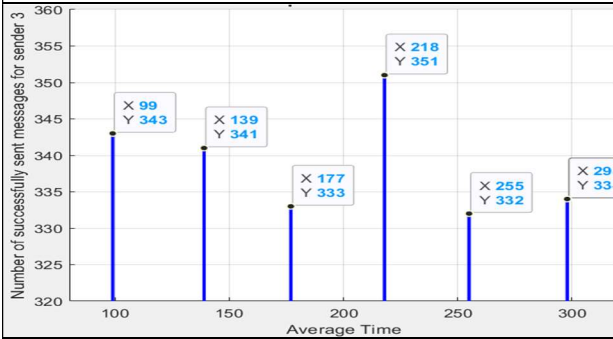
Number of successfully sent messages for Task 2



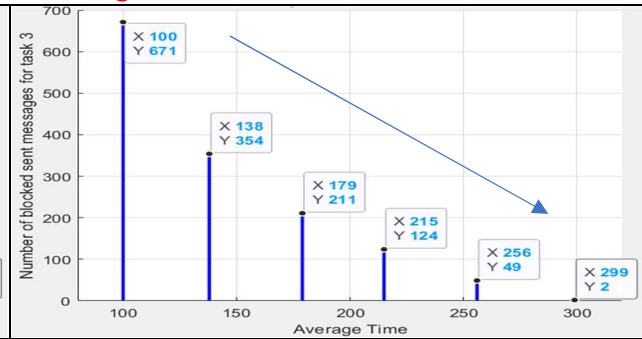
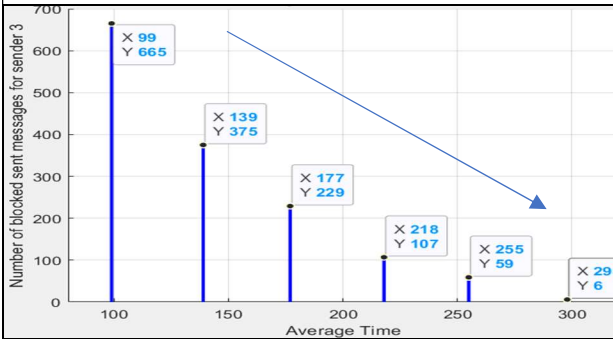
Number of blocked sent messages for Task 2



Number of successfully sent messages for Task 3



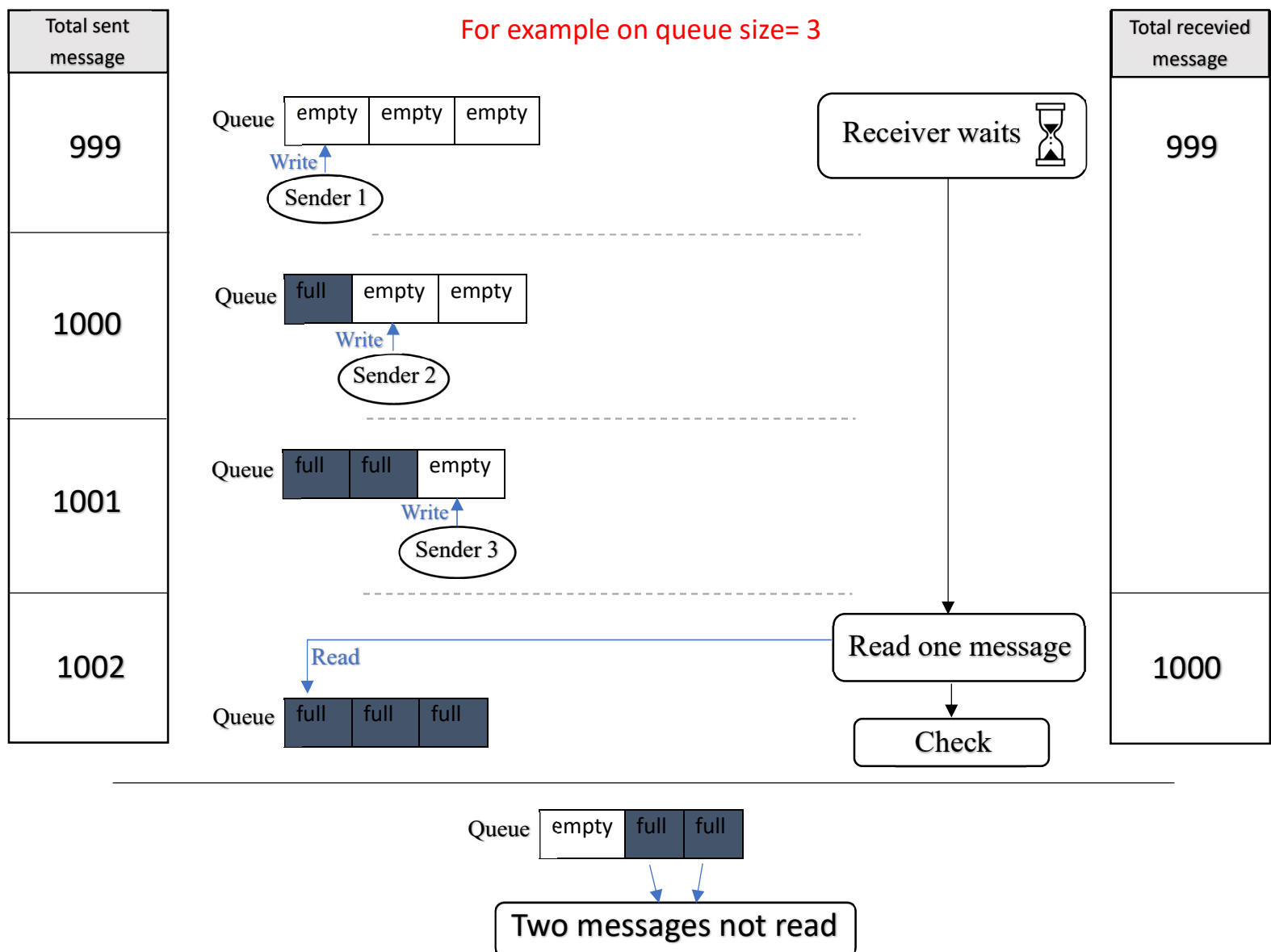
Number of blocked sent messages for Task 3



1) From first graph We noticed that the messages sent were more than 1,000 messages

The reason for this is:

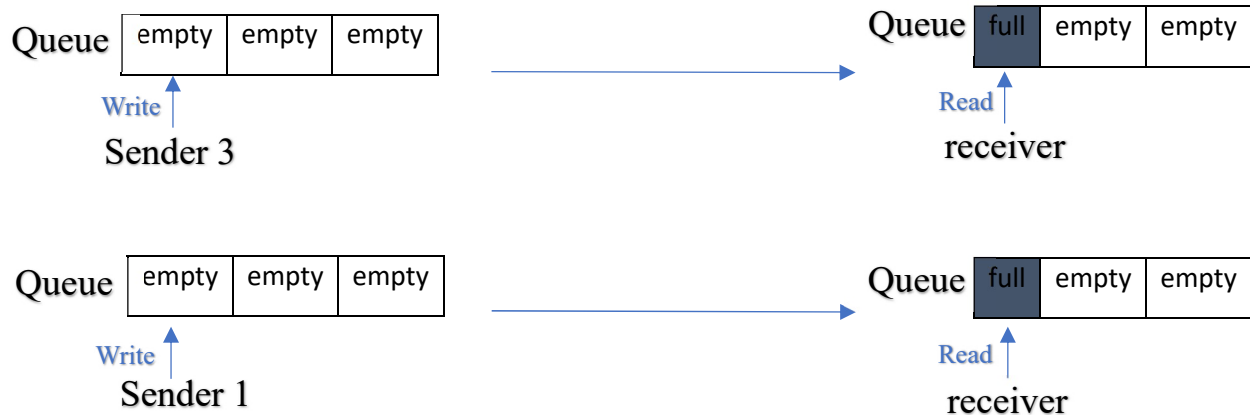
- 1-there are blocked messages due to the queue being full when the sender send message
- 2-When receiver task read the last message and verifying that received messages = 100; It is still possible for sending tasks to write into the queue until the checking complete (assuming that the queue is not full).



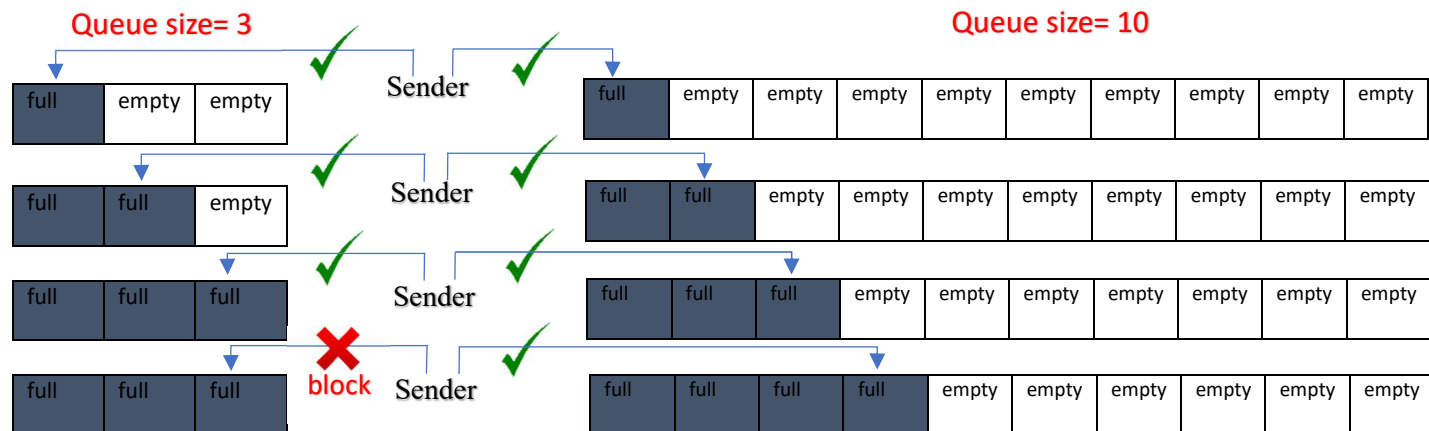
2) We deduce from the previous graphs the higher the average time, the lower the number of blocked messages and vice versa.

The reason for this is:

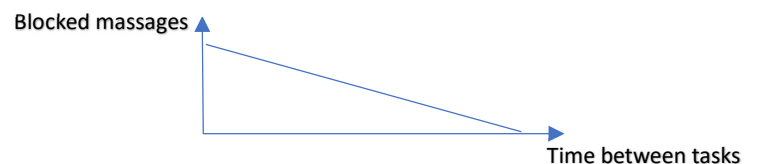
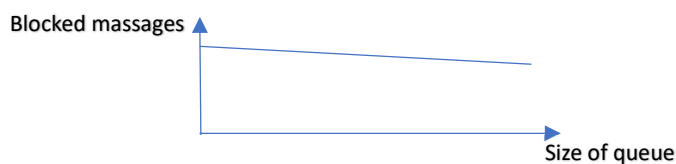
When the time between each message sent increases, this makes the receiving rate more than the sending rate, which reduces the possibility of the queue being full.



3) We deduce from the previous graphs the higher the size of queue, the lower the number of blocked messages and vice versa.



Finally we deduce from previous notes



References

[FreeRTOS API categories](#)