PA2 REPORT

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I have read and understood the course's academic integrity policy.

All the tests in ABT, GBN, and SR are passed.

Alternating-Bit-Protocol (ABT)

Sanity test screenshots

```
highgate {/local/Fall_2021/smadhadi/cse489589_assignment2/grader} > ./sanity_tests -p ../smadhadi/abt -r ./run_experiments
Running simulator [10 Runs] ...
  un#1 [seed=1234]
un#2 [seed=1111]
un#3 [seed=2222]
un#4 [seed=3333]
un#5 [seed=4444]
un#6 [seed=5555]
                                     Done!
                                     Done!
                                     Done!
 rass:
"esting with MESSAGES:1000, LOSS:0.2, CORRUPTION:0.0, ARRIVAL:50, WINDOW:0 ...
Running simulator [10 Runs] ...
  un#1 [seed=1234] ...
un#2 [seed=1111] ...
un#3 [seed=2222] ...
                                     Done!
                                    Done!
         [seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
[seed=6666]
[seed=7777]
[seed=8888]
                                     Done!
  esting with MESSAGES:1000, LOSS:0.4, CORRUPTION:0.0, ARRIVAL:50, WINDOW:0 ...
 Running simulator [10 Runs] ...
         [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
[seed=6666]
                                     Done!
                                     Done
                                     Done
   in#10 [seed=9999] ...
                                      Done!
```

```
Testing with MESSAGES:1000, LOSS:0.6, CORRUPTION:0.0, ARRIVAL:50, WINDOW:0 ...
Running simulator [10 Runs] ...
kune1 [seed=1234] ... Done!
Run#2 [seed=1111] ... Done!
Run#3 [seed=2222] ... Done!
Run#4 [seed=3333] ... Done!
Run#5 [seed=4444] ... Done!
Run#6 [seed=5555] ... Done!
Run#7 [seed=6666] ... Done!
Run#8 [seed=7777] ... Done!
Run#8 [seed=7777] ... Done!
Run#9 [seed=888] ... Done!
Run#10 [seed=9999] ... Done!
Run#10 [seed=5999] ... Done!
Run#10 [seed=5999] ... Done!
Run#11 [seed=3333] ... Done!
Run#12 [seed=1111] ... Done!
Run#3 [seed=2222] ... Done!
Run#4 [seed=3233] ... Done!
Run#4 [seed=3333] ... Done!
Run#5 [seed=4444] ... Done!
Run#6 [seed=5555] ... Done!
Run#6 [seed=5555] ... Done!
Run#10 [seed=6666] ... Done!
Run#10 [seed=9999] ... Done!
Run#11 [seed=3333] ... Done!
Run#12 [seed=37777] ... Done!
Run#13 [seed=2222] ... Done!
Run#14 [seed=3333] ... Done!
Run#15 [seed=6666] ... Done!
Run#16 [seed=5555] ... Done!
Run#17 [seed=6666] ... Done!
Run#18 [seed=37777] ... Done!
Run#19 [seed=6666] ... Done!
Run#19 [seed=6666] ... Done!
Run#19 [seed=6666] ... Done!
Run#19 [seed=5355] ... Done!
Run#19 [seed=5355] ... Done!
Run#19 [seed=5355] ... Done!
Run#19 [seed=6666] ... Done!
Run#19 [seed=6666] ... Done!
Run#19 [seed=6666] ... Done!
Run#19 [seed=6888] ... Done!
Run#19 [seed=6888] ... Done!
Run#19 [seed=6888] ... Done!
Run#10 [seed=9999] ... Done!
```

```
LOSS:0.0, CORRUPTION:0.2, ARRIVAL:50, WINDOW:0
Running simulator [10 Runs] ...
                                     Done!
                                      Done!
         [seed=2222]
[seed=3333]
                                      Done!
                                     Done!
                                      Done!
         [seed=5555]
                                     Done!
                                     Done!
 un#7 [seed=0800] ... Done!
un#8 [seed=7777] ... Done!
un#9 [seed=8888] ... Done!
un#10 [seed=9999] ... Done!
 ASS!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.4, ARRIVAL:50, WINDOW:0 ...
Running simulator [10 Runs] ...
 Run#1 [seed=1234] ... Done!
Run#2 [seed=1111] ... Done!
Run#3 [seed=2222] ... Done!
Run#4 [seed=3333] ... Done!
         [seed=4444]
                                     Done!
        [seed=5555]
[seed=6666]
 un#8 [seed=7777]
un#9 [seed=8888]
 esting with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.6, ARRIVAL:50, WINDOW:0 ...
Running simulator [10 Runs] ...
 tun#1 [seed=1234]
tun#2 [seed=1111]
tun#3 [seed=2222]
tun#4 [seed=3333]
                                      Done!
         [seed=4444]
[seed=5555]
[seed=6666]
                                      Done!
                                      Done!
                                      Done!
                                     Done!
 un#10 [seed=9999] ...
```

```
S:0.0, CORRUPTION:0.0, ARRIVAL:1000, WINDOW:0
Running simulator [10 Runs] ...
         [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
                                       Done
                                       Done
                                       Done
                                       Done
                                       Done!
   in#8 [seed=7777]
in#9 [seed=8888]
in#10 [seed=9999]
                                       Done
 ASS!
esting with MESSAGES:20, LOSS:1.0, CORRUPTION:0.0, ARRIVAL:1000, WINDOW:0 ...
 unning simutator

unn#1 [seed=1234]

unn#2 [seed=1111]

unn#3 [seed=2222]

unn#4 [seed=3333]

unn#5 [seed=4444]

unn#6 [seed=5555]

unn#7 [seed=6666]
                                       Done!
                                       Done
                                       Done
                                       Done!
          [seed=0000]
[seed=7777]
[seed=8888]
) [seed=9999]
                                       Done!
 ASS!
esting with MESSAGES:20, LOSS:0.0, CORRUPTION:1.0, ARRIVAL:1000, WINDOW:0 ...
 unning simulator [10 Runs] ...
         [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
                                       Done!
                                       Done
                                       Done
                                       Done!
  un#8 [seed=7777]
un#9 [seed=8888]
un#10 [seed=9999]
                                       Done
SANITY TESTS: PASS
```

Basic tests screenshots

```
stones {/local/Fall_2021/rajeshre/cse489589_assignment2/grader} > ./basic_tests -p ../rajeshre/abt -r ./run_experiments
 Running simulator [10 Runs] ...
                          Done!
       [seed=1234]
[seed=1111]
                          Done!
                          Done!
                          Done!
 'ASS:!
Testing with MESSAGES:20, LOSS:0.4, CORRUPTION:0.0, ARRIVAL:1000, WINDOW:0 ...
Running simulator [10 Runs] ...
                    ... Done!
                          Done!
                          Done!
                          Done!
 ASS!
esting with MESSAGES:20, LOSS:0.8, CORRUPTION:0.0, ARRIVAL:1000, WINDOW:0 ...
 Running simulator [10 Runs] ...
                         Done!
                          Done!
                          Done!
                          Done!
```

```
:20, LOSS:0.0, CORRUPTION:0.1, ARRIVAL:1000, WINDOW:0
Running simulator [10 Runs] ...
         [seed=1234]
[seed=1111]
                                Done!
                                 Done!
        [seed=111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
[seed=6666]
                                 Done!
 tun#8 [seed=7777]
tun#9 [seed=8888]
                                 Done!
                                 Done!
  un#10 [seed=9999] ... Done!
  esting with MESSAGES:20, LOSS:0.0, CORRUPTION:0.4, ARRIVAL:1000, WINDOW:0 ...
Running simulator [10 Runs] ...
 Run#1 [seed=1234]
Run#2 [seed=1111]
Run#3 [seed=2222]
Run#4 [seed=3333]
Run#5 [seed=4444]
                                 Done!
                                 Done!
                                 Done!
        [seed=5555]
[seed=6666]
                                 Done!
                                 Done!
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.8, ARRIVAL:1000, WINDOW:0 ... Running simulator [10 Runs] ...
 kun#1 [seed=1234]
kun#2 [seed=1111]
                                 Done!
                                 Done!
                                 Done!
        [seed=8888]
                                 Done!
 un#10 [seed=9999] ...
                                  Done!
```

Advanced tests screenshots

```
Stones (/local/Fall 2021/rajeshre/csc489589 assignment2/grader) > ./advanced_tests -p ../rajeshre/abt -r ./run_experiments
Testing with MESSAGES:1000, LOSS:0.1, CORRUPTION:0.0, ARRIVAL:50, WINDOW:0 ...
Runwal [seed-1234] ... Done!
Runwal [seed-1234] ... Done!
Runwal [seed-2222] ... Done!
Runwal [seed-2222] ... Done!
Runwal [seed-2222] ... Done!
Runwal [seed-23333] ... Done!
Runwal [seed-4444] ... Done!
Runwal [seed-6666] ... Done!
Runwal [seed-6666] ... Done!
Runwal [seed-6666] ... Done!
Runwal [seed-6666] ... Done!
Runwal [seed-6999] ... Done!
Runwal [seed-6999] ... Done!
Runwal [seed-1234] ... Done!
Runwal [seed-1344] ... Done!
Runwal [seed-4444] ... Done!
Runwal [seed-6666] ... Done!
Runwal [seed-6666] ... Done!
Runwal [seed-6666] ... Done!
Runwal [seed-1344] ... Done!
Runwal [seed-2222] ... Done!
Runwal [seed-2222] ... Done!
Runwal [seed-2224] ... Done!
Runwal [seed-222
```

```
LOSS:0.6, CORRUPTION:0.0, ARRIVAL:50, WINDOW:0
Running simulator [10 Runs] ...
           | Sed=1234|
| [seed=1111]
| [seed=2222]
| [seed=3333]
| [seed=4545]
| [seed=5555]
| [seed=6666]
| [seed=8888]
                                              Done
                                              Done!
                                              Done!
                                              Done!
                                              Done!
   in#10 [seed=9999]
PASS:
Testing with MESSAGES:1000, LOSS:0.8, CORRUPTION:0.0, ARRIVAL:50, WINDOW:0 ...
Running simulator [10 Runs] ...
          [seed=1234]
[seed=1111]
[seed=2222]
[seed=33333]
[seed=4443]
[seed=5555]
[seed=6666]
[seed=7777]
[seed=8888]
                                              Done!
                                              Done!
                                              Done!
                                              Done!
                                              Done!
                                              Done!
rass:
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.1, ARRIVAL:50, WINDOW:0 ...
Running simulator [10 Runs] ...
           [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4343]
[seed=5555]
[seed=6666]
[seed=7777]
[seed=8888]
                                              Done!
                                              Done!
                                              Done!
```

```
Running simulator [10 Runs]
 Run#1 [seed=1234]
Run#2 [seed=1234]
Run#3 [seed=1111]
Run#3 [seed=2222]
Run#4 [seed=3333]
Run#5 [seed=4444]
Run#6 [seed=5555]
Run#7 [seed=6666]
                                                   Done!
                                                   Done
                                                   Done!
                                                   Done!
                                                   Done!
                                                   Done!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.4, ARRIVAL:50, WINDOW:0 ...
Running simulator [10 Runs] ...
 Run#1 [seed=1234]
Run#2 [seed=1111]
Run#3 [seed=2222]
Run#4 [seed=3333]
Run#5 [seed=4444]
                                                   Done!
                                                   Done!
                                                   Done!
                                                   Done!
  un#5 [sed=4444] ...
un#6 [seed=5555] ...
un#7 [seed=6666] ...
un#8 [seed=7777] ...
un#9 [seed=8888] ...
un#10 [seed=9999] ...
                                                   Done!
                                                   Done!
                                                   Done!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.6, ARRIVAL:50, WINDOW:0 ...
Running simulator [10 Runs] ...
           [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
 tun#2
tun#3
tun#4
tun#5
                                                   Done!
                                                   Done
                                                   Done!
                                                   Done!
                                                   Done!
                                                   Done!
```

```
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.8, ARRIVAL:50, WINDOW:0 ...

Running simulator [10 Runs] ...

Run#1 [seed=1234] ... Done!

Run#2 [seed=1111] ... Done!

Run#3 [seed=2222] ... Done!

Run#4 [seed=3333] ... Done!

Run#5 [seed=4444] ... Done!

Run#6 [seed=5555] ... Done!

Run#7 [seed=6666] ... Done!

Run#8 [seed=7777] ... Done!

Run#9 [seed=8888] ... Done!

Run#10 [seed=9999] ... Done!

Run#10 [seed=9999] ... Done!
```

Go-Back-N Protocol (GBN)

We used a array of structures to buffer the incoming messages received from layers5 to A. The messages in this buffer are later sent to B according to the windows size.

Sanity tests screenshots

```
highgate {/local/Fall_2021/smadhadi/cse489589_assignment2/grader} > ./sanity_tests -p ../smadhadi/gbn -r ./run_experiments
Testing with MESSAGES:1000, LOSS:0.1, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
                                Done!
                                Done!
                                 Done!
 rass:
Testing with MESSAGES:1000, LOSS:0.2, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
                                Done!
                                Done!
                                Done!
                                 Done!
 ASS!
  esting with MESSAGES:1000, LOSS:0.4, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
 unning simulator [10 Runs] ...
 un#1 [seed=1234] ...
un#2 [seed=1111] ...
un#3 [seed=2222] ...
un#4 [seed=3333] ...
                                 Done!
                                 Done!
                                 Done!
                                 Done!
```

```
LOSS:0.6, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10
Running simulator [10 Runs] ...
           [seed=1234]
[seed=1111]
                                         Done
                                         Done!
          [seed=2222]
[seed=3333]
                                         Done
          [seed=5555]
                                         Done!
  tun#8 [seed=7777]
tun#9 [seed=8888]
                                         Done!
  un#10 [seed=9999] ...
Running simulator [10 Runs] ...
          [seed=3555]
[seed=4444]
[seed=5555]
                                         Done!
 Run#O [seed=5555] .
Run#7 [seed=6666] .
Run#8 [seed=7777] .
Run#9 [seed=8888] .
Run#10 [seed=9999]
                                         Done!
                                         Done!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.1, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
 Run#1 [seed=1234] ...
Run#2 [seed=12111] ...
Run#3 [seed=2222] ...
Run#4 [seed=3333] ...
Run#5 [seed=4444] ...
Run#6 [seed=5555] ...
                                         Done!
                                         Done!
                                         Done!
                                         Done!
                                         Done!
 Run#7 [seed=5555]
Run#7 [seed=6666]
Run#8 [seed=7777]
Run#9 [seed=8888]
                                         Done!
                                         Done!
                                         Done!
  tun#10 [seed=9999] ... Done!
PASS!
```

```
Running simulator [10 Runs] ...
 Run#1 [seed=1234]
Run#2 [seed=1111]
                                           Done!
 kun#2 [seed=1111]
kun#3 [seed=2222]
kun#4 [seed=3333]
kun#5 [seed=4444]
kun#6 [seed=5555]
kun#7 [seed=6666]
                                            Done!
                                            Done!
  un#7 [seed=0000]
un#8 [seed=7777]
un#9 [seed=8888]
un#10 [seed=9999]
                                            Done!
  ASS:
esting with MESSAGES:20, LOSS:1.0, CORRUPTION:0.0, ARRIVAL:50, WINDOW:50 ...
Running simulator [10 Runs] ...
 tun#1 [seed=1234]
tun#2 [seed=1111]
                                           Done!
 kun#2 [seed=1111]
kun#3 [seed=2222]
kun#4 [seed=3333]
kun#5 [seed=4444]
kun#6 [seed=5555]
                                            Done!
  un#7 [seed=3333]
un#7 [seed=6666]
un#8 [seed=7777]
un#9 [seed=8888]
                                            Done!
                                            Done!
 esting with MESSAGES:20, LOSS:0.0, CORRUPTION:1.0, ARRIVAL:50, WINDOW:50 ...
Running simulator [10 Runs] ...
 Run#1 [seed=1234]
Run#2 [seed=1211]
Run#3 [seed=2222]
Run#4 [seed=3333]
Run#5 [seed=4444]
Run#6 [seed=5555]
Run#7 [seed=6666]
                                           Done!
                                            Done!
                                            Done!
                                            Done!
                                            Done!
SANITY TESTS: PASS
```

Basic test screenshots

```
Highpate (/local/Fall_2021/smadhadi/cse409589 assignment2/grader) > /basic_tests -p ../smadhadi/gbn -r ./run_experiments
Tesling with MESSAGES:20, LOSS:0.1, CORRUPTION:0.0, ARRIVAL:50, WINDOW:50 ...
Runal [seed=1234] ... Done!
Runal [seed=1234] ... Done!
Runal [seed=1234] ... Done!
Runal [seed=222] ... Done!
Runal [seed=3333] ... Done!
Runal [seed=3333] ... Done!
Runal [seed=6666] ... Done!
Runal [seed=69999] ... Done!
Runal [seed=9999] ... Done!
Runal [seed=234] ... Done!
Runal [seed=234] ... Done!
Runal [seed=3333] ... Done!
Runal [seed=3333] ... Done!
Runal [seed=3333] ... Done!
Runal [seed=3333] ... Done!
Runal [seed=6366] ... Done!
Runal [seed=6388] ... Done!
Runal [seed=6388] ... Done!
Runal [seed=9999] ... Done!
Runal [seed=9999] ... Done!
Runal [seed=234] ... Done!
Runal [seed=9999] ... Done!
Runal [seed=3333] ... Done!
Runal [seed=3333] ... Done!
Runal [seed=3333] ... Done!
Runal [seed=333] ... Done!
```

```
LOSS:0.0, CORRUPTION:0.1, ARRIVAL:50, WINDOW:50 .
Running simulator [10 Runs] ...
           [seed=1234]
[seed=1111]
                                          Done!
           [seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
[seed=6666]
                                           Done!
                                           Done!
          [seed=7777]
[seed=8888]
                                           Done!
                                           Done!
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.4, ARRIVAL:50, WINDOW:50 ...
Running simulator [10 Runs] ...
 Run#1 [seed=1234]
Run#2 [seed=1111]
Run#3 [seed=2222]
                                          Done!
                                          Done!
                                          Done!
 Lun#4 [seed=3333] . . Done!
Lun#5 [seed=4444] . . Done!
Lun#6 [seed=5555] . . Done!
Lun#7 [seed=6666] . Done!
Lun#8 [seed=7777] . Done!
Lun#9 [seed=8888] . Done!
Lun#10 [seed=9999] . . Done!
  esting with MESSAGES:20, LOSS:0.0, CORRUPTION:0.8, ARRIVAL:50, WINDOW:50 ...
Running simulator [10 Runs] ...
          [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
                                          Done!
  lun#3
lun#4
                                          Done!
                                          Done!
  un#8 [seed=7777] ...
un#9 [seed=8888] ...
un#10 [seed=9999] ...
                                          Done!
                                           Done
BASIC TESTS: PASS
```

Advanced test screenshots

```
highgate {/local/Fall_2021/smadhadi/cse489589_assignment2/grader} > ./advanced_tests -p ../smadhadi/gbn -r ./run_experiments
Testing with MESSAGES:1000, LOSS:0.1, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
Running simulator
```

```
LOSS:0.4, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10
Running simulator [10 Runs] ...
          [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
[seed=6666]
         [seed=0000]
[seed=7777]
[seed=8888]
 ASS!
Running simulator [10 Runs] ...
          [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
                                          Done!
         [seed=3333]
[seed=4444]
[seed=5555]
[seed=6666]
[seed=7777]
[seed=8888]
 un#9 [seed=8888] ... Done!
un#10 [seed=9999] ... Done!
Running simulator [10 Runs] ...
          [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
[seed=6666]
         [seed=7777]
[seed=8888]
                                                    LOSS:0.0, CORRUPTION:0.1, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
          [seed=1234]
[seed=1111]
[seed=2222]
[seed=33333]
[seed=4444]
           [seed=5555]
[seed=6666]
 kunning simulator [10 Runs] ...
          [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
                                          Done!
           [seed=4444]
[seed=5555]
[seed=6666]
  esting with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.4, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
          [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
```

```
Running simulator [10 Runs] ...
        [seed=1234]
[seed=1111]
[seed=2222]
                                Done!
        [seed=33331]
                                Done
                                Done!
                                Done!
                                Done!
                                Done!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.6, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
        [seed=1234]
[seed=1111]
        [seed=2222]
[seed=3333]
                                Done!
                                Done!
                               Done!
                                Done!
                                Done!
                                Done!
Running simulator [10 Runs]
        [seed=1234]
[seed=1111]
[seed=2222]
                                Done!
                               Done!
                                Done!
                               Done!
                                Done!
                                Done!
ADVANCED TESTS: PASS
```

Selective Repeat(SR):

We used a similar approach to that of gbn implementation for sr as well. But here we are maintaining three extra arrays, sent_time: which is used to record the timestamp of the sent time of a packet. a_ack: used to maintain acknowledgements received on Host A, b_ack used to maintain records for packets received on Host B. Whenever A sends a packet i sent_timer(i) is updated, whenever a receives an acknowledgement a_ack(i) will be set to 1, likewise b_ack(i) = 1means B has received a packet with sequence number i. Using these data we are able to implement the Selective Repeat protocol.

Sanity test screenshots

```
highgate (/local/fsll_2021/smadhadi/cse489589_assignment2/grader) > ./sanity_tests -p ../smadhadi/sr -r ./run_experiments
Testing with NESSAGES:1000, LOSS:0.1, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
Runfsl [seed=1234] ... Done!
Runfsl [seed=1234] ... Done!
Runfsl [seed=1234] ... Done!
Runfsl [seed=2222] ... Done!
Runfsl [seed=2222] ... Done!
Runfsl [seed=2222] ... Done!
Runfsl [seed=43333] ... Done!
Runfsl [seed=45555] ... Done!
Runfsl [seed=45556] ... Done!
Runfsl [seed=4566] ... Done!
Runfsl [seed=9999] ... Done!
Runfsl [seed=4566] ... Done!
Runfsl [seed=45555] ... Done!
Runfsl [seed=4566] ... Done!
Runfsl [seed=4566] ... Done!
Runfsl [seed=4524] ... Done!
Runfsl [seed=45555] ... Done!
Runfsl [seed=45555] ... Done!
Runfsl [seed=45555] ... Done!
Runfsl [seed=45555] ... Done!
Runfsl [seed=4524] ... Done!
Runfsl [seed=4524] ... Done!
Runfsl [seed=45555] ... Done!
Runfsl [seed
```

```
sting with MESSAGES:1000, LOSS:0.6, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
Run#1 [seed=1234] ... Done!
Run#2 [seed=1111] ... Done!
Run#3 [seed=2222] ... Done!
 Run#4 [seed=3333] ...
 lun#5 [seed=4444] ...
 lun#6 [seed=5555] ...
lun#7 [seed=6666] ...
 Run#8 [seed=7777] ... Done!
Run#9 [seed=8888] ... Done!
 esting with MESSAGES:1000, LOSS:0.8, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
Run#1 [seed=1234] ... Done!
Run#2 [seed=1111] ... Done!
Run#3 [seed=2222] ... Done!
 Run#4 [seed=3333] ... Done!
 kun#5 [seed=4777]
kun#6 [seed=5555] ...
kun#7 [seed=6666] ...
Run#8 [seed=0000] ... Done!
Run#9 [seed=8888] ... Done!
Run#10 [seed=9999] ... Done!
 esting with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.1, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
Run#1 [seed=1234] ... Done!
Run#2 [seed=1111] ... Done!
Run#3 [seed=2222] ... Done!
                                                                                      П
 Run#4 [seed=3333] ... Done!
Run#5 [seed=4444] ... Done!
 Run#7 [seed=5555] ...
Run#7 [seed=6666] ...
 tun#8 [seed=7777] ... Done!
 lun#9 [seed=8888] ... Done!
lun#10 [seed=9999] ... Done!
```

```
Testing with MESSAGES:1800, LOSS:0.0, CORRUPTION:0.2, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
kunf1 [seed=1234] ... Done!
Runf2 [seed=1111] ... Done!
Runf3 [seed=2222] ... Done!
Runf4 [seed=3333] ... Done!
Runf5 [seed=4444] ... Done!
Runf6 [seed=5555] ... Done!
Runf6 [seed=5555] ... Done!
Runf7 [seed=6666] ... Done!
Runf8 [seed=7777] ... Done!
Runf9 [seed=8888] ... Done!
Runf9 [seed=8888] ... Done!
Runf10 [seed=9999] ... Done!
Runf10 [seed=9999] ... Done!
Runf10 [seed=1234] ... Done!
Runf11 [seed=1234] ... Done!
Runf12 [seed=1111] ... Done!
Runf13 [seed=2222] ... Done!
Runf14 [seed=3333] ... Done!
Runf15 [seed=4444] ... Done!
Runf16 [seed=5555] ... Done!
Runf17 [seed=666] ... Done!
Runf18 [seed=666] ... Done!
Runf18 [seed=9999] ... Done!
Runf19 [seed=9999] ... Done!
Runf19 [seed=9999] ... Done!
Runf19 [seed=3333] ... Done!
Runf19 [seed=3330] ... Done!
Runf19 [seed=3330] ... Done!
Runf10 [seed=5555] ... Done!
Runf10 [seed=5555] ... Done!
Runf10 [seed=5555] ... Done!
Runf10 [seed=3333] ... Done!
Runf10 [seed=3333] ... Done!
Runf10 [seed=3330] ... Done!
```

```
S:1000, LOSS:0.0, CORRUPTION:0.8, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
            [seed=1234] ...
[seed=1111] ...

    kun#2 [seed=1111]
    ...

    kun#3 [seed=2222]
    ...

    kun#4 [seed=3333]
    ...

    kun#5 [seed=4444]
    ...

    pone!

            [seed=6666]
 un## [seed=0000] ... Done!
un#9 [seed=8888] ... Done!
un#10 [seed=9999] ... Done!
Running simulator [10 Runs] ...
 Run#1 [seed=1234] ... Done!
Run#2 [seed=1111] ... Done!
Run#3 [seed=2222] ... Done!
Run#4 [seed=3333] ... Done!
Run#5 [seed=4444] ... Done!
 Run#5 [seed=4444] ... Done!
Run#6 [seed=5555] ... Done!
Run#7 [seed=6666] ... Done!
Run#8 [seed=7777] ... Done!
Run#9 [seed=8888] ... Done!
Run#10 [seed=9999] ... Done!
  esting with MESSAGES:20, LOSS:1.0, CORRUPTION:0.0, ARRIVAL:50, WINDOW:50 ...
Running simulator [10 Runs] ...
  tun#1 [seed=1234] ... Done!
tun#2 [seed=1111] ... Done!
 Run#3 [seed=1111] ... Done!
Run#4 [seed=3333] ... Done!
Run#5 [seed=4444] ... Done!
            [seed=44444] ...
[seed=5555] ...
[seed=6666] ...
  lun#7
  tun#8 [seed=7777] ... Done!
tun#9 [seed=8888] ... Done!
```

```
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:1.0, ARRIVAL:50, WINDOW:50 ...

Running simulator [10 Runs] ...

Run#1 [seed=1234] ... Done!

Run#2 [seed=1111] ... Done!

Run#3 [seed=2222] ... Done!

Run#4 [seed=3333] ... Done!

Run#5 [seed=4444] ... Done!

Run#5 [seed=5555] ... Done!

Run#7 [seed=6666] ... Done!

Run#8 [seed=7777] ... Done!

Run#9 [seed=8888] ... Done!

Run#9 [seed=9999] ... Done!

Run#10 [seed=9999] ... Done!

SANITY TESTS: PASS
```

Basic test screenshots

```
highgate (/local/Fall_2021/smadhadi/cse489589_assignment2/grader) > ./basic_tests -p ../smadhadi/sr -r ./run_experiments
Testing with MESSAGES:20, LOSS:0.1, CORRUPTION:0.0, ARRIVAL:50, WINDOM:50 ...
Runfl [seed:1234] ... Donel
Runfl [seed:1234] ... Donel
Runfl [seed:2133] ... Donel
Runfl [seed:3333] ... Donel
Runfl [seed:3333] ... Donel
Runfl [seed:4444] ... Donel
Runfl [seed:45555] ... Donel
Runfl [seed:45555] ... Donel
Runfl [seed:4666] ... Donel
Runfl [seed:4224] ... Don
```

```
esting with MESSAGES:20, LOSS:0.0, CORRUPTION:0.1, ARRIVAL:50, WINDOW:50 ...
Running simulator [10 Runs] ...
 Run#1 [seed=1234] ... Done!
Run#2 [seed=1111] ... Done!
Run#3 [seed=2222] ... Done!
 lun#4 [seed=3333]
lun#5 [seed=4444]
 lun#6 [seed=5555]
 lun#7 [seed=6666]
 lun#8 [seed=7777]
lun#9 [seed=8888]
 lun#10 [seed=9999] ... Done!
 esting with MESSAGES:20, LOSS:0.0, CORRUPTION:0.4, ARRIVAL:50, WINDOW:50 ...
Running simulator [10 Runs] ...
Run#1 [seed=1234] ... Done!
Run#2 [seed=1111] ... Done!
Run#3 [seed=2222] ... Done!
Run#4 [seed=3333] ... Done!
Run#5 [seed=4444] ... Done!
 lun#7 [seed=6666] ... Done!
 Run#8 [seed=7777] ... Done!
Run#9 [seed=8888] ... Done!
Run#10 [seed=9999] ... Done!
                                                                              esting with MESSAGES:20, LOSS:0.0, CORRUPTION:0.8, ARRIVAL:50, WINDOW:50 ...
Running simulator [10 Runs] ...
 Run#1 [seed=1234] ... Done!
Run#2 [seed=1111] ... Done!
Run#3 [seed=2222] ... Done!

      kun#4 [seed=2222]
      Done!

      kun#4 [seed=3333]
      Done!

      kun#5 [seed=4444]
      Done!

      kun#6 [seed=5555]
      Done!

      kun#7 [seed=6666]
      Done!

 Run#8 [seed=9000] ... Done!
Run#9 [seed=8888] ... Done!
Run#10 [seed=9999] ... Done!
BASIC TESTS: PASS
```

Advanced test screenshots

```
Running simulator [10 Runs] ...
         seed=1234]
        seed=1111]
 un#2
        [seed=2222]
 un#3
        [seed=3333]
 un#4
        [seed=4444]
 un#5
       [seed=5555]
[seed=6666]
Running simulator [10 Runs] ...
       [seed=1234]
[seed=1111]
 un#2
       [seed=2222]
[seed=3333]
[seed=4444]
 un#3
 un#4
 un#5
       [seed=5555]
[seed=6666]
Festing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.1, ARRIVAL:50, WINDOW:10 ...
       [seed=1234]
[seed=1111]
 un#2
       [seed=2222]
[seed=3333]
 un#3
 un#4
        [seed=4444]
 un#5
        [seed=5555]
[seed=6666]
```

```
LOSS:0.0, CORRUPTION:0.2, ARRIVAL:50, WINDOW:10
Running simulator [10 Runs] ...
 lun#1 [seed=1234]
lun#2 [seed=1111]
  un#4 [seed=3333]
          [seed=5555] ...
[seed=6666] ...
 Run#8 [seed=7777] ... Done!
Run#9 [seed=8888] ... Done!
Run#10 [seed=9999] ... Done!
 esting with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.4, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
 tun#1 [seed=1234]
tun#2 [seed=1111]
 lun#3 [seed=2222]
 tun#4 [seed=3333] ...
tun#5 [seed=4444] ...
          [seed=5555] ...
[seed=6666] ...
 un#8 [seed=7777] ... Done!
un#9 [seed=8888] ... Done!
un#10 [seed=9999] ... Done!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.6, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
 tun#1 [seed=1234] ... Done!
tun#2 [seed=1111] ... Done!
 Run#2 [seed 1111]
Run#3 [seed=2222] ...
Run#4 [seed=3333] ...
Run#5 [seed=4444] ...
          [seed=5555] ...
 un#7

      kun## [seed=0000]
      Done!

      kun#8 [seed=7777]
      Done!

      kun#9 [seed=8888]
      Done!

      kun#10 [seed=9999]
      Done!
```

```
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.8, ARRIVAL:50, WINDOW:10 ...

Running simulator [10 Runs] ...

Run#1 [seed=1234] ... Done!

Run#2 [seed=1111] ... Done!

Run#3 [seed=2222] ... Done!

Run#4 [seed=3333] ... Done!

Run#5 [seed=4444] ... Done!

Run#6 [seed=5555] ... Done!

Run#7 [seed=6666] ... Done!

Run#8 [seed=7777] ... Done!

Run#9 [seed=8888] ... Done!

Run#10 [seed=9999] ... Done!

PASS!

ADVANCED TESTS: PASS
```