

## 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
Testing with MESSAGES:1000, LOSS:0.1, CORRUPTION:0.0, 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!
PASS!
Testing with MESSAGES:1000, LOSS:0.2, CORRUPTION:0.0, 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!
PASS!
Testing with MESSAGES:1000, LOSS:0.4, CORRUPTION:0.0, 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!
PASS!
```

```
Testing with MESSAGES:1000, LOSS:0.6, CORRUPTION:0.0, 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!
PASS!
Testing with MESSAGES:1000, LOSS:0.8, CORRUPTION:0.0, 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!
PASS!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.1, 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!
PASS!
```

```
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.2, 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!
PASS!
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!
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!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.6, 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!
PASS!
```

```
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.0, ARRIVAL:1000, 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!
PASS!
Testing with MESSAGES:20, LOSS:1.0, CORRUPTION:0.0, ARRIVAL:1000, 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!
PASS!
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:1.0, ARRIVAL:1000, 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!
PASS!
SANITY TESTS: PASS
```

- Basic tests screenshots

```
stones {/local/Fall_2021/rajeshre/cse489589_assignment2/grader} > ./basic_tests -p ../rajeshre/abt -r ./run_experiments
Testing with MESSAGES:20, LOSS:0.1, CORRUPTION:0.0, ARRIVAL:1000, 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!
PASS!
Testing with MESSAGES:20, LOSS:0.4, CORRUPTION:0.0, ARRIVAL:1000, 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!
PASS!
Testing with MESSAGES:20, LOSS:0.8, CORRUPTION:0.0, ARRIVAL:1000, 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!
PASS!
```

```
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.1, ARRIVAL:1000, 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!
PASS!
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.4, ARRIVAL:1000, 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!
PASS!
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.8, ARRIVAL:1000, 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!
PASS!
BASIC TESTS: PASS
```

- Advanced tests screenshots

```
stones {/local/Fall_2021/rajeshre/cse489589_assignment2/grader} > ./advanced_tests -p ../rajeshre/abt -r ./run_experiments
Testing with MESSAGES:1000, LOSS:0.1, CORRUPTION:0.0, 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!
PASS!
Testing with MESSAGES:1000, LOSS:0.2, CORRUPTION:0.0, 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!
PASS!
Testing with MESSAGES:1000, LOSS:0.4, CORRUPTION:0.0, 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!
PASS!
```

```
Testing with MESSAGES:1000, LOSS:0.6, CORRUPTION:0.0, 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!
PASS!
Testing with MESSAGES:1000, LOSS:0.8, CORRUPTION:0.0, 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!
PASS!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.1, 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!
PASS!
```

```
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.2, 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!
PASS!
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!
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!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.6, 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!
PASS!
```

```

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!
PASS!
ADVANCED TESTS: PASS

```

## 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] ...
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!
Testing with MESSAGES:1000, LOSS:0.2, 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!
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!
Testing with MESSAGES:1000, LOSS:0.4, 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!
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!

```

```
Testing 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] ... 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!
Testing 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!
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!
Testing 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!
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!
```

```
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.0, 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#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!
Testing with MESSAGES:20, LOSS:1.0, CORRUPTION:0.0, 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#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!
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#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!
SANITY TESTS: PASS
```



- Basic test screenshots

```
highgate {/local/Fall_2021/smadhadi/cse489589_assignment2/grader} > ./basic_tests -p ../smadhadi/gbn -r ./run_experiments
Testing with MESSAGES:20, LOSS:0.1, CORRUPTION:0.0, 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#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!
Testing with MESSAGES:20, LOSS:0.4, CORRUPTION:0.0, 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#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!
Testing with MESSAGES:20, LOSS:0.8, CORRUPTION:0.0, 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#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!
```

```
Testing 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!
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!
Testing 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!
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!
Testing 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!
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!
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] ...
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!
Testing with MESSAGES:1000, LOSS:0.2, 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!
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!
Testing with MESSAGES:1000, LOSS:0.4, 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!
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!
```

```
Testing with MESSAGES:1000, LOSS:0.4, 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!
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!
Testing 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] ... 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!
Testing 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!
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!
```

```
Testing 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!
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!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.2, 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!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.4, 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!
```

```

Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.4, 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!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.6, 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!
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

```

### 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) = 1 means 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/Fall_2021/smadhadi/cse489589_assignment2/grader} > ./sanity_tests -p ../smadhadi/sr -r ./run_experiments
Testing with MESSAGES:1000, LOSS:0.1, 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!
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!
Testing with MESSAGES:1000, LOSS:0.2, 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!
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!
Testing with MESSAGES:1000, LOSS:0.4, 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!
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!
```

```
Testing 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] ... 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!
Testing 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!
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!
Testing 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!
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!
```

```
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.2, 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!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.4, 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!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.6, 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!
```

```
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!
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.0, 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#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!
Testing with MESSAGES:20, LOSS:1.0, CORRUPTION:0.0, 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#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!
```

```
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#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!
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, 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#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!
Testing with MESSAGES:20, LOSS:0.4, CORRUPTION:0.0, 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#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!
Testing with MESSAGES:20, LOSS:0.8, CORRUPTION:0.0, 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#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!
```

```
Testing 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!
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!
Testing 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!
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!
Testing 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!
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!
BASIC TESTS: PASS
```

- Advanced test screenshots

```
highgate {/local/Fall_2021/smadhadi/cse489589_assignment2/grader} > ./advanced_tests -p ../smadhadi/sr -r ./run_experiments
Testing with MESSAGES:1000, LOSS:0.1, 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!
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!
Testing with MESSAGES:1000, LOSS:0.2, 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!
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!
Testing with MESSAGES:1000, LOSS:0.4, 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!
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!
```

```
Testing 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] ... 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!
Testing 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!
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!
Testing 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!
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!
```

```
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.2, 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!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.4, 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!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.6, 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!
```

```
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
```