## **PA2 REPORT**

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

## **Alternating-Bit-Protocol (ABT)**

basic tests screenshots

```
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.1, ARRIVAL:1000, WINDOW:0 ...
Running simulator [10 Runs] ...
Running simulat
```

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]
        [seed=1234]
[seed=1111]
                                Done!
                                Done!
                                Done!
                                Done!
  esting with MESSAGES:1000, LOSS:0.2, CORRUPTION:0.0, ARRIVAL:50, WINDOW:0 ...
 unning simulator [10 Runs] ...
        [seed=1234]
[seed=1111]
[seed=2222]
                                Done!
  un#3 [seed=2222]
un#4 [seed=3333]
un#5 [seed=4444]
un#6 [seed=5555]
un#7 [seed=6666]
                                Done!
                                Done!
                                Done!
 ASS!
esting with MESSAGES:1000, LOSS:0.4, CORRUPTION:0.0, ARRIVAL:50, WINDOW:0 ...
 Running simulator [10 Runs] ...
                                Done!
                                Done!
                                Done!
                                Done!
                                 Done!
```

```
LOSS:0.6, CORRUPTION:0.0, ARRIVAL:50, WINDOW:0
Running simulator [10 Runs] ...
          [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
[seed=66666]
                                            Done!
                                            Done!
                                            Done!
                                            Done!
  esting with MESSAGES:1000, LOSS:0.8, CORRUPTION:0.0, ARRIVAL:50, WINDOW:0 ...
 unning simulator [10 Runs] ...
 kunning simulator
kun#1 [seed=1234]
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!
                                            Done!
                                            Done!
                                            Done!
                                             Done
 esting with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.1, ARRIVAL:50, WINDOW:0 ...
unning simulator [10 Runs] ...
 Running Simulator
kun#1 [seed=1234]
kun#2 [seed=1111]
kun#3 [seed=2222]
kun#4 [seed=3333]
kun#5 [seed=4444]
kun#6 [seed=5555]
                                            Done!
                                            Done!
                                            Done!
                                            Done!
  un#8 [seed=7777] .
un#9 [seed=8888] .
un#10 [seed=9999]
                                             Done!
```

```
Running simulator [10 Runs] ...
         [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
                                         Done!
                                         Done!
                                         Done!
                                         Done!
                                         Done!
                                         Done!
                                         Done!
Running simulator [10 Runs] ...
         [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
                                         Done!
                                         Done!
                                         Done!
                                         Done!
                                         Done!
                                         Done!
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.6, ARRIVAL:50, WINDOW:0 ...
Running simulator [10 Runs] ...
        ng Simutator [re-

[seed=1234] ...

[seed=1111] ...

[seed=2222] ...

[seed=3333] ...

[seed=4444] ...

[seed=5555] ...
                                         Done!
                                         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=111] ... 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#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 ...
                                              Done!
            [seed=1234]
[seed=1111]
            [seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
[seed=6666]
                                               Done!
                                               Done!
                                              Done!
                                               Done!
  unning simulator [10 Runs] ...
            [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
                                              Done!
                                              Done!
           [seed=5555]
[seed=6666]
[seed=7777]
[seed=8888]
                                               Done!
                                              Done!
   esting with MESSAGES:1000, LOSS:0.4, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
  kunning simulator [10 Runs] ...
  un#1 [sed=1234]

un#2 [seed=1214]

un#3 [seed=2222]

un#4 [seed=2222]

un#4 [seed=3333]

un#5 [seed=4444]

un#6 [seed=5555]

un#7 [seed=6666]

un#8 [seed=7777]

un#9 [seed=8888]
                                              Done!
                                               Done!
                                               Done!
                                              Done!
  ASS!
```

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

```
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.0, ARRIVAL:50, WINDOW:50 ...
Running ised=1234] ... Done!
Running ised=1234] ... Done!
Running ised=2222] ... Done!
Running ised=2333] ... Done!
Running ised=4333] ... Done!
Running ised=5553] ... Done!
Running ised=5553] ... Done!
Running ised=5553] ... Done!
Running ised=5553] ... Done!
Running ised=1234] ... Done!
Running ised=1234] ... Done!
Running ised=1234] ... Done!
Running ised=1234] ... Done!
Running ised=2333] ... Done!
Running ised=2333] ... Done!
Running ised=5553] ... Done!
Running ised=5553] ... Done!
Running ised=5553] ... Done!
Running ised=6666] ... Done!
Running ised=66666] ... Done!
Running ised=666666] ... Done!
Running ised=666666] ... Done
```

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]
  Running Simulator
Runn#1 [seed=1234]
Runn#2 [seed=1111]
Runn#3 [seed=2222]
Runn#4 [seed=3333]
Runn#5 [seed=4444]
Runn#6 [seed=5555]
Runn#7 [seed=6666]
Runn#8 [seed=77777]
Runn#9 [seed=8888]
                                                          Done!
                                                          Done!
                                                          Done!
                                                          Done!
                                                          Done!
                                                           Done!
 Running simulator [10 Runs] ...
  Running simulator [
Run#1 [seed=1234] .
Run#2 [seed=111] .
Run#3 [seed=2222] .
Run#4 [seed=3333] .
Run#5 [seed=4444] .
Run#6 [seed=5555] .
Run#7 [seed=6666] .
Run#8 [seed=7777] .
Run#9 [seed=8888] .
Run#10 [seed=9999]
                                                          Done!
                                                          Done!
                                                          Done!
                                                          Done!
                                                          Done!
                                                          Done!
 Running simulator [10 Runs] ...
              [seed=1234]
[seed=1211]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
[seed=7777]
                                                          Done!
                                                          Done!
                                                          Done!
                                                          Done!
   un#8 [seed=7777] .
un#9 [seed=8888] .
un#10 [seed=9999]
                                                          Done!
                                                           Done!
```

```
20, 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]
 Run#3
Run#4
Run#5
Run#6
                                           Done!
                                           Done!
                                           Done!
          [seed=3333]
[seed=6666]
[seed=7777]
                                           Done!
                                           Done!
 PASSI
TRAD3: Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.4, ARRIVAL:50, WINDOW:50 ... Running simulator [10 Runs] ...
 Run#1 [sed=1234]
Run#2 [seed=1211]
Run#3 [seed=2222]
Run#4 [seed=3333]
Run#5 [seed=4444]
Run#6 [seed=5555]
                                          Done!
                                           Done!
                                           Done!
          [seed=7777]
[seed=8888]
  un#8
un#9
                                           Done!
                                           Done!
Testing with MESSAGES:20, LOSS:0.0, CORRUPTION:0.8, ARRIVAL:50, WINDOW:50 ...
Running simulator [10 Runs] ...
 Run#1 [seed=1234]
Run#2 [seed=1111]
Run#3 [seed=2222]
Run#4 [seed=3333]
                                           Done!
                                           Done!
 Run#4 [seed=3333]
Run#5 [seed=4444]
Run#6 [seed=5555]
Run#7 [seed=6666]
Run#8 [seed=7777]
Run#9 [seed=8888]
                                           Done!
                                          Donel
  un#10 [seed=9999] ...
                                            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] ...
           [seed=1234]
[seed=1111]
                                       Done!
                                       Done!
                                       Done!
Done!
  ASSI
 rass:
Testing with MESSAGES:1000, LOSS:0.2, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
                              ... Done!
                                       Done!
                                       Done!
                                        Done!
 PASS!
Festing with MESSAGES:1000, LOSS:0.4, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
         ng simulator [10

[seed=1234]

[seed=1111]

[seed=2222]

[seed=4444]

[seed=5555]

[seed=6666]

[seed=7777]

[seed=8888]

9 [seed=9999]
                                       Done!
Done!
                                       Done!
                                       Done!
                                         Done!
```

```
Testing with MESSAGES:1000, LOSS:0.4, CORRUPTION:0.0, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
Running simula
```

```
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.1, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
Running simula
```

```
Running simulator [10 Runs] ...
        [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
                                      Done!
                                      Done!
                                      Done!
                                      Done!
         [seed=6666]
                                      Done!
  un#8 [seed=7777]
un#9 [seed=8888]
                                      Done!
                                      Done!
  un#10 [seed=9999] ...
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]
[seed=4444]
[seed=5555]
                                      Done!
                                      Done!
                                      Done!
                                      Done!
                                      Done!
        [seed=7777]
[seed=8888]
                                      Done!
                                      Done!
rass:
Testing with MESSAGES:1000, LOSS:0.0, CORRUPTION:0.8, ARRIVAL:50, WINDOW:10 ...
Running simulator [10 Runs] ...
        [seed=1234]
[seed=1111]
[seed=2222]
[seed=3333]
[seed=4444]
[seed=5555]
[seed=6666]
                                      Done!
                                      Done!
                                      Done!
                                      Done
                                      Done!
                                      Done!
                                      Done!
  un#10 [seed=9999] ...
ADVANCED TESTS: PASS
```