测试用例详解

根据同学们的问题和反馈，对测试用例做出如下调整和补充。希望能够减轻同学们的负担，不用纠结极端情况，关注主线任务。

（一）sender测试

1. 评分测试用例细则：

* Normal case without network failures (10%)
* Loss of arbitrary amount and types of ACK messages (5% 🡪 10%)

说明：对于DATA类型的ACK报文丢失，需要通过超时重传，进行恢复；

对于START类型的ACK报文丢失，sender判断超时后，直接向receiver发送END消息，sender在收到END的ACK消息之后，结束进程；

对于END类型的ACK报文丢失，sender判断超时后，连接关闭失败，sender端主动关闭连接。

* Reordering of ACKs for DATA messages (5%)
* Duplication of ACKs for DATA messages (5%)
* ~~Delay in the arrivals of ACK messages (5%)~~

说明：ACK报文延迟到达可能造成的后果，在模拟超时丢包、收到乱序、重复报文的情况中已经涵盖，因此不再单独测试

* Connection failure (receive incorrect ACK for START message) (5%)

说明： sender判断ACK消息损坏后，直接向receiver发送END消息，sender在收到END的ACK消息之后，结束进程；

2. broken\_receiver支持的错误类型

* Error code is 1, broken\_receiver will drop one DATA packet randomly during transmission (without ACK).
* Error code is 2, broken\_receiver will exchange the order of two ACK packets.
* Error code is 3, broken\_receiver will select one received packet and send its ACK twice.
* Error code is 4, the ACK for START message will lost (broken\_receiver receives START but the ACK for START message get lost).
* Error code is 5, the ACK for END message will lost (broken\_receiver receives END but the ACK for END message get lost).
* Error code is 6, broken\_receiver will send ACK with wrong checksum for START message.

(二) receiver测试

1. 评分测试用例细则

* Normal case without network failures (10%)
* Loss of arbitrary levels of DATA messges (5%)
* Reordering of DATA messages (5%)
* Duplication of any amount for any DATA packet (5%)
* Packet corruption (bad checksum) (5%)
* Wrong connection (receive incorrect START message) (5%)

说明：receiver判断START message的checksum错误以后，连接建立失败（listen返回-1），receiver进程结束即可。sender仍旧按照没有接收到START的ACK消息方式处理。

2. broken\_sender支持的错误类型

* Error code is 1, broken\_sender will drop one DATA packet randomly during transmission.
* Error code is 2, broken\_sender will select one DATA packet and send it twice.
* Error code is 3, broken\_sender will send one DATA packet with wrong checksum.
* Error code is 4, broken\_sender will send two DATA packets in wrong order.
* Error code is 5, broken\_sender will send the START message with wrong checksum.