SLIDING WINDOW PROTOCOL:

```
import time
import random

class Packet:
    def __init__(self, id, content):
        self.id = id
        self.content = content
        self.is_acknowledged = False

def transmit_packets(packets, wnd_size):
    print("\nPacket Transmission")
    for packet in packets[:wnd_size]:
        if not packet.is_acknowledged:
            print(f"Transmitting Packet {packet.id}: {packet.content}")
    print("Packets transmitted, awaiting acknowledgment\n")

def handle_acknowledgment(packets, wnd_size):
    print("\nAcknowledging Packets")
    for packet in packets[:wnd_size]:
        if not packet.is_acknowledged:
            if random.random() < 0.2:
                print(f"Received Packet {packet.id}: {packet.content} [ERROR]")
            else:
                print(f"Received Packet {packet.id}: {packet.content} [RECEIVED]")
                packet.is_acknowledged = True

def sliding_window_simulation():
    wnd_size = int(input("Enter window size: "))
    msg = input("Enter the message to send: ")
```

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    packets = [Packet(i, msg[i]) for i in range(len(msg))]
    window_start = 0

    while window_start < len(packets):
        transmit_packets(packets[window_start:], wnd_size)
        time.sleep(2)
        handle_acknowledgment(packets[window_start:], wnd_size)

        while window_start < len(packets) and packets[window_start].is_acknowledged:
            window_start += 1

        if window_start < len(packets):
            print("\nResending packets that is not acknowledged\n")
            time.sleep(2)

    print("\nAll packets have been sent and acknowledged")

if __name__ == "__main__":
    sliding_window_simulation()
```