Assignment 1

January 30**, 2025:**

Question: Communication of Simulated Banking Transactions

You are tasked with replicating a communication sequence between an ATM and a bank server using Python and Scapy. The communication begins with authentication using a basic username and password, followed by a series of banking transactions. Plaintext passwords can be used for simplicity purposes.

1. **Authentication:**

   - The bank server receives an authentication request packet from the ATM that includes a username and password.
   - The bank server returns an authentication success message.

2. **Banking Transactions:**

   - After successful authentication, the ATM performs a series of banking transactions.
   - Complete the following scenarios' packet implementations:
     - Request an ATM balance inquiry.
     - The bank's server responds to balance inquiries.
     - Withdrawal Request from an ATM.
     - The bank server responds to withdrawals.

3. **Pcap Export:**

Here is some code to get you started

```
'''
https://scapy.readthedocs.io/en/latest/build_dissect.html#simple-example
1.) filename=customProtocolCreation.py
2.) To execute this file, enter command in bash terminal
        python customProtocolCreation.py
'''# Example code to create custom protocol StudentProtocol and bind it on
```

```python
from scapy.all import *
class StudentProtocol(Packet):
    name = "StudentProtocol"
    fields_desc = [
        StrField("name", ""),

    ]


bind_layers(TCP, StudentProtocol)
# Create two packets
packet1 = IP(dst="127.0.0.1") / TCP(dport=1234) / StudentProtocol(name="Ali
packet2 = IP(dst="127.0.0.1") / TCP(dport=5678) / StudentProtocol(name="Bob


# Combine the packets into a list
packets = [packet1, packet2]

# Save the packets to a pcap file
wrpcap("custom_packets.pcap", packets)


# To open "custom_packets.pcap" in wireshark
# On bash terminal run command
wireshark custom_packets.pcap
```