A widely used key exchange protocol

Diffie-Hellman-Merkle is in many protocols

- SSH
- TLS (used by HTTPS)
- Signal (used by most messaging apps like Whatsapp)
- and so on . . .

✓ It is fast and requires two exchanges only

✓ Solves the problem of having a key distribution server

✓ Ensures Perfect Forward Secrecy

◉ But how to make sure Alice is talking to Bob and vice-versa?
Diffie-Hellman-Merkle alone **does not ensure authentication**

Another Challenge

1. Establish a session key to exchange data while ensuring Perfect Forward Secrecy

   ✓ Use the Diffie-Hellman key exchange protocol

2. Ensure one-way or mutual authentication

   ✓ Use asymmetric encryption