Recitation 1: Group exercises

1. How does a bridge and a hub differ?
2. What fields should be in a link layer header (or trailer)?
3. How will a node know whether a received Ethernet frame contains, e.g., an IP packet, an ARP packet, or an IPX packet?
4. A link layer address can have many names, e.g., a MAC address. What other terms do you know about when referring to a link layer address?
5. IP address terminology, please explain!
   - unicast address
   - multicast address
   - broadcast address
      - limited broadcast address
      - (subnet) directed broadcast address
   - loopback address
   - network address
   - netmask
   - network prefix
   - prefix length

1. How does a bridge and a hub differ?

Some words/terms to assist you in the discussion
- broadcast domain
- collision domain
- store and forward
- multiple data rates
- multiple hops
- address learning, filtering

Additional words/terms to consider
- cut-thru forwarding
- arbitrary topologies (including loops)
- spanning tree protocol

2. What fields should be in a link layer header (or trailer)?

Design your own link layer protocol format. State the name, length and order of the fields! Think freely!

Some hints:
multiaccess or point-to-point?
able to carry multiple or just a single higher layer protocol?
How will the receiver know how long the packet is?
Should you link detect bit errors? Even be able to correct them?
Can the packet be forwarded by a layer-2 device hop count?
(connectionless or connection-oriented)

3. How will a node know whether a received Ethernet frame contains, e.g., an IP packet, an ARP packet, or an IPX packet?

       Hint: Will Bob look into the layer-2 or layer-3 header to find out?

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If you have time, discuss/explain these terms too:
- private addresses
- public addresses
- anycast address