Experiment1.1

Student Name: Jeetendra patel **UID:22BCS12228**
Branch:BE/CSE **Section/Group:702_DC-B**
Semester: 5th **Date of Performance:20/07/24**
Subject Name:Computer Networks **Subject Code: : 22-CSH-312**

1. **Aim:** Study of different types of Network cables & their Color coding and practically implement the cross-wired cable and straight through cable using crimping tool.

2. **Requirements(Hardware/Software):**
   RJ-45 connector, Crimping Tool, Twisted pair Cable.

3. **Theory:**
   Straight Wire: A straight-through cable is an Ethernet cable designed to connect various network devices together. It's commonly used to link a computer to a network hub, switch, or router. The internal wiring of a straight-through cable follows the same sequence at both ends. The two most prevalent wiring standards for these cables are T568A and T568B.

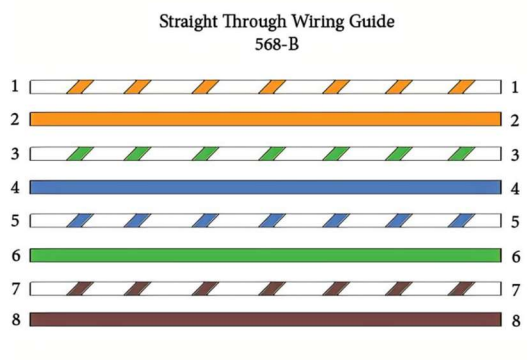
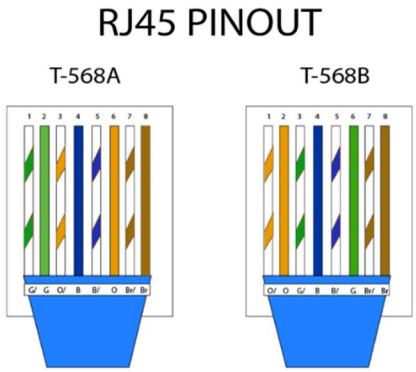
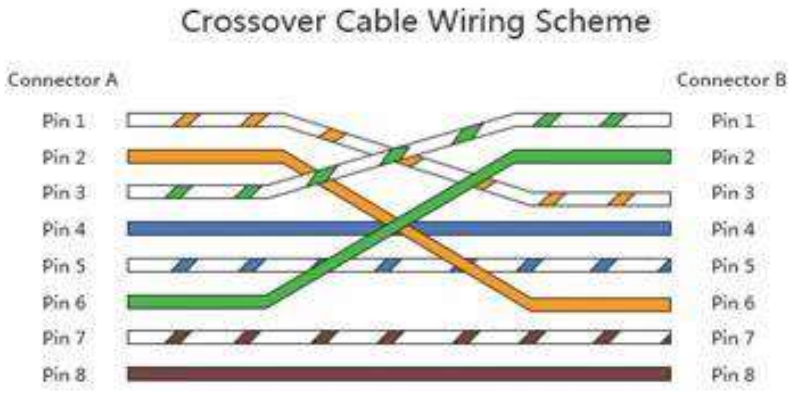


Fig 1 : Straight wired cable through 568B standard (here we can see both end of cable are connected straight through same color)



Crossed Wire: A crossover cable is a specialized type of Ethernet cable used to directly connect two similar devices without the intermediary of a network switch or hub. Unlike regular straight-through cables, which maintain consistent wiring from one end to the other, crossover cables intentionally swap the transmit (Tx) and receive (Rx) signal pairs. This clever wiring arrangement allows direct communication between two devices of the same type—such as two computers or two switches—making it handy for specific networking scenarios where direct device-to-device communication is needed.



4. Procedure:

Step 1: Strip the cable jacket about 1.5 inch down from the end.

Step 2: Spread the four pairs of twisted wire apart. For Cat 5e, you can use the pull string to strip the jacket farther down if you need to, then cut the pull string. Cat 6 cables have a spine that will also need to be cut.

Step 3: Untwist the wire pairs and neatly align them in the T568B orientation. Be sure not to untwist them any farther down the cable than where the jacket begins; we want to leave as much of the cable twisted as possible.

Step 4: Cut the wires as straight as possible, about 0.5 inch above the end of the jacket.

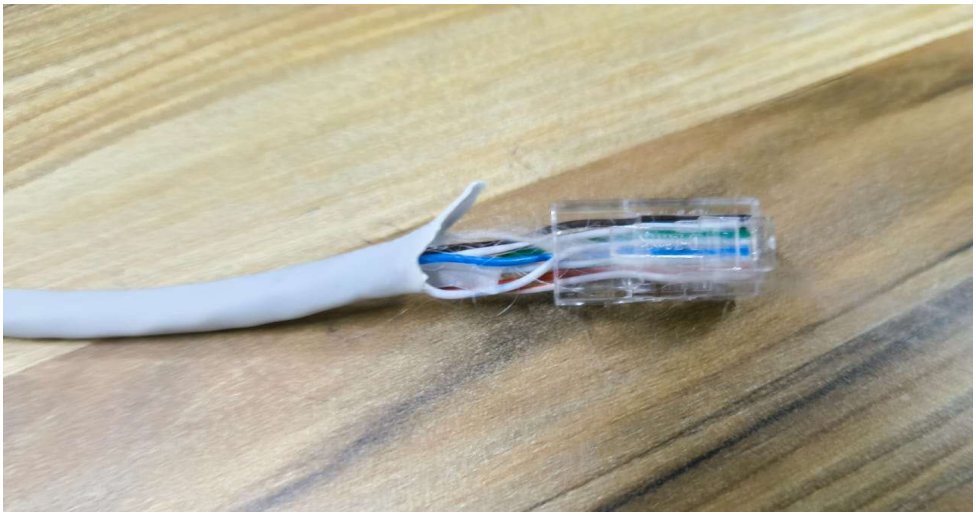
Step 5: Carefully insert the wires all the way into the modular connector, making sure that each wire passes through the appropriate guides inside the connector.

Step 6: Push the connector inside the crimping tool and squeeze the crimper all the way down.

Step 7: Repeat steps 1-6 for the other end of the cable.

Step 8: To make sure you've successfully terminated each end of the cable, use a cable tester to test each pin. When you're all done, the connectors should look like this

5. Output:



Built this Twisted pair cable to establish a network over computer

6. Learning Outcome:

1.Understanding Cable Types: Gain knowledge about different types of network cables, including straight-through and crossover cables, and their specific uses in networking.

2.Color Coding Proficiency: Learn the color coding standards (T568A and T568B) for Ethernet cables and how to apply them correctly during cable assembly.

3.Practical Crimping Skills: Develop hands-on skills in using a crimping tool to create both straight-through and crossover cables, ensuring proper connections for network devices.

4.Network Device Connectivity: Understand the practical applications of straight-through and crossover cables in connecting various network devices, such as computers, switches, and routers.

5.Troubleshooting and Testing: Acquire the ability to troubleshoot and test network cables for connectivity issues, ensuring reliable network performance.