

Government College of Engineering, Jalgaon

(An Autonomous Institute of Govt. of Maharashtra)

Department of Computer Engineering

Student Name : _____ PRN: _____

Course Teacher : Mrs Priyanka H. Gadade, Government College of Engg., Jalgaon

Experiment No. _____

Title: -Crimping of cross-wire and straight-through UTP cable to inter-connect two computers.

Aim: -To study of crimping tool, color coding of Network cables, crimping the cable using Crimping Tool & Test the crimping by interconnecting two computers

Theory:

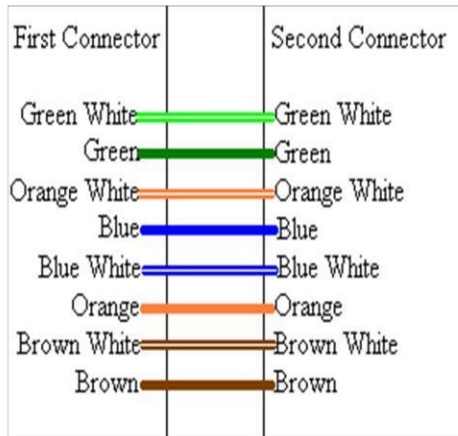
Crimping is joining two pieces of metal or other ductile material by deforming one or both of them to hold the other. The bend or deformity is called the crimp.

Crimping is most extensively used in metalworking. Crimping is commonly used to fix bullets in their cartridge cases, for rapid but lasting electrical connections, securing lids on metal food cans, and many other applications. Because it can be a cold-working technique, crimping can also be used to form a strong bond between the work piece and a non-metallic component. Sometimes, a similar deformity created for reasons other than forming a join may also be called a crimp.

Crimping is most extensively used in metalworking. Crimping is commonly used to fix bullets in their cartridge cases, for rapid but lasting electrical connections, securing lids on metal food cans, and many other applications. Because it can be a cold- working technique, crimping can also be used to form a strong bond between the work piece and a non-metallic component. Typically, the metals are joined together via a special connector. Stripped wire (often stranded) is inserted through the correctly sized opening of the connector, and a crimper is used to tightly squeeze the opening against the wire. Depending on the type of connector used, it may be attached to a metal plate by a separate

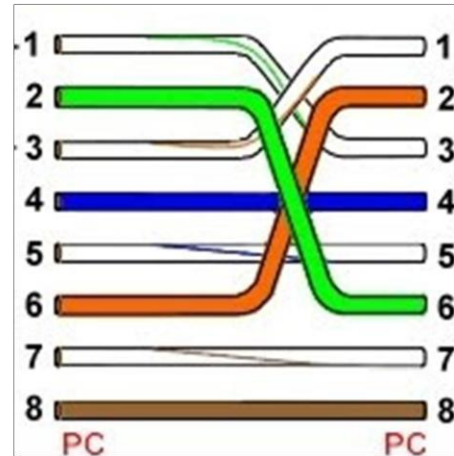
screw or bolt or it could be simply screwed on using the connector itself to make the attachment like an [F connector](#). **Types of crimping**

Straight Through Crimping



The Order We Have To Follow While Crimping Computer to Hub
 { (1-1), (2-2), (3-3), (4-4),
 (5-5), (6-6), (7-7), (8-8) }.

Cross Over Crimping



The order we have to follow while crimping for computer 2 is
 { (1-3), (2-6), (3-1), (4-4)
 (5-5), (6-2), (7-7), (8-8) }.

A) Straight through crimping

Straight-Through refers to cables that have the pin assignments on each end of the cable. In other words Pin 1 connector A goes to Pin 1 on connector B, Pin 2 to Pin 2 ect. Straight-Through wired cables are most commonly used to connect a host to client. When we talk about cat5e patch cables, the Straight-Through wired cat5e patch cable is used to connect computers, printers and other network client devices to the router switch or hub (the host device in this instance).

B) Cross over crimping

Crossover wired cables (commonly called crossover cables) are very much like Straight-Through cables with the exception that TX and RX lines are crossed (they are at opposite positions on either end of the cable). Using the 568-B standard as an example below you will see that Pin 1 on connector A goes to Pin 3 on connector B. Pin 2 on connector A goes to Pin 6 on connector B ect. Crossover cables are most commonly used to connect two hosts directly. Examples would be connecting a computer directly to another computer, connecting a switch directly to another switch, or connecting a router to a router.

Step of Crimping CAT 5/ Cat 6 Cable:

Category-5 cable (or Cat-5 cable) is the most common type of cord used for wiring computers together in a network. While Cat-5 cables are readily available in various finished lengths, cutting and crimping your own is a far more cost-effective method for wiring together large networks. Learning how to cut and crimp Cat-5 cable is a simple process requiring only a few items.

Step 1. Determine the amount of Cat-5 cable you will need. If you only need a few lengths of cord to wire a home network or other small network, consider buying cables in finished lengths from a computer supply store. If your needs are larger, come up with a rough estimate of the total length of cable you need.



Step 2. Purchase the items you will need to build the cables. You will need to buy 3 things: a length of Cat-5 cable, as many RJ-45 heads as you need, and a wire crimping tool. Cat-5 cable is best purchased from small computer supply stores; larger chain stores are less likely to carry bulk spools of cable. The plastic ends of the cables are called RJ-45 heads, and can also be purchased from computer supply stores. Each cable needs 2 heads, so buy twice as many as the number of cables you want to make. When buying a Cat-5 crimping tool, look for a model that includes a wire snipping tool. To be conservative, buy more cable and heads than you think you need.



Step 3. Cut the cable to length. Determine the length needed for your cable and use the wire cutting tool on the crimping tool to cut the cable to this length.

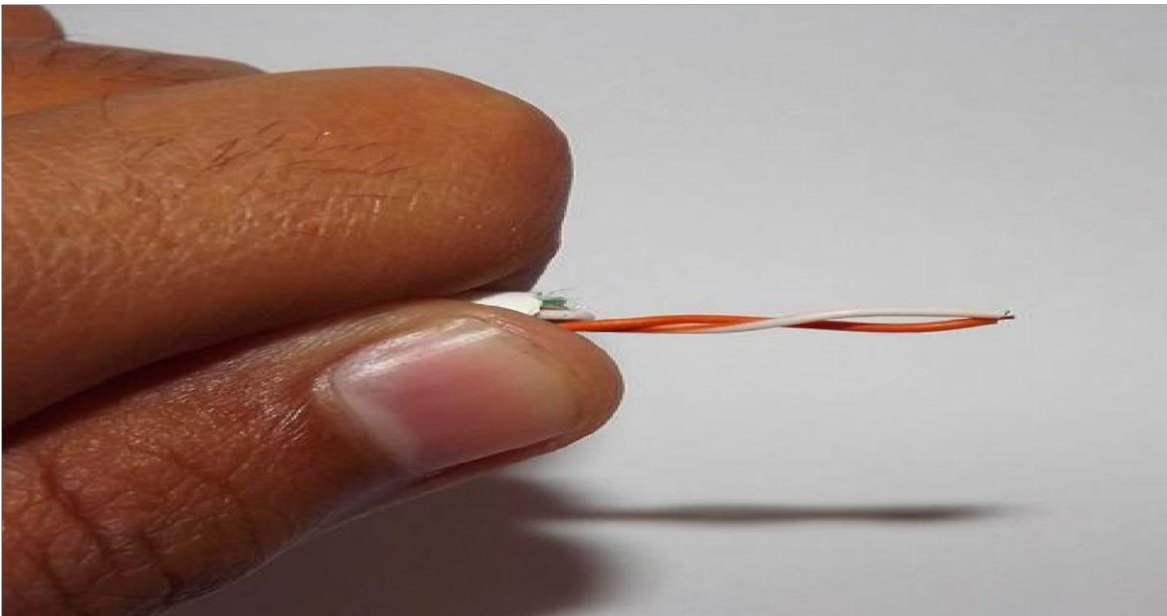


Step 4. Prepare the ends of the cable for crimping. Use the wire cutting tool to strip away about half an inch (12.5 mm) of the outer coating on each end of the cable. You will see 8 small colored wires twisted into 4 pairs. Carefully untwist each pair so that each of the 8 wires is separate. Now arrange the wires in the proper order. From left to right, put the wires in this order: green and white, green, orange and white, blue, blue and white, orange, brown and white, brown.



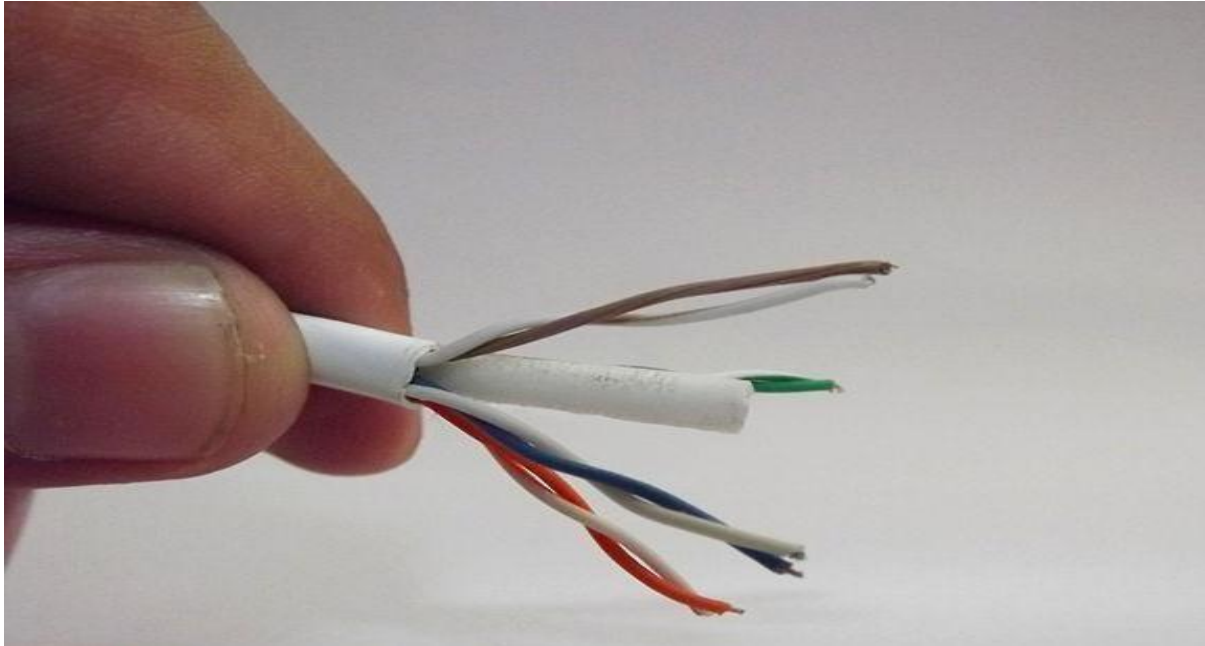
Step 5. Strip 1 to 2 inches (2.5 to 5.1 cm) of the outer skin at the end of the cable wire by making a shallow cut in the skin with a utility knife. Run the knife around the cable, and the jacket should slide off easily. There will be 4 pairs of twisted wires exposed, each of them a different color or color combination.

- Orange-white striped and solid orange

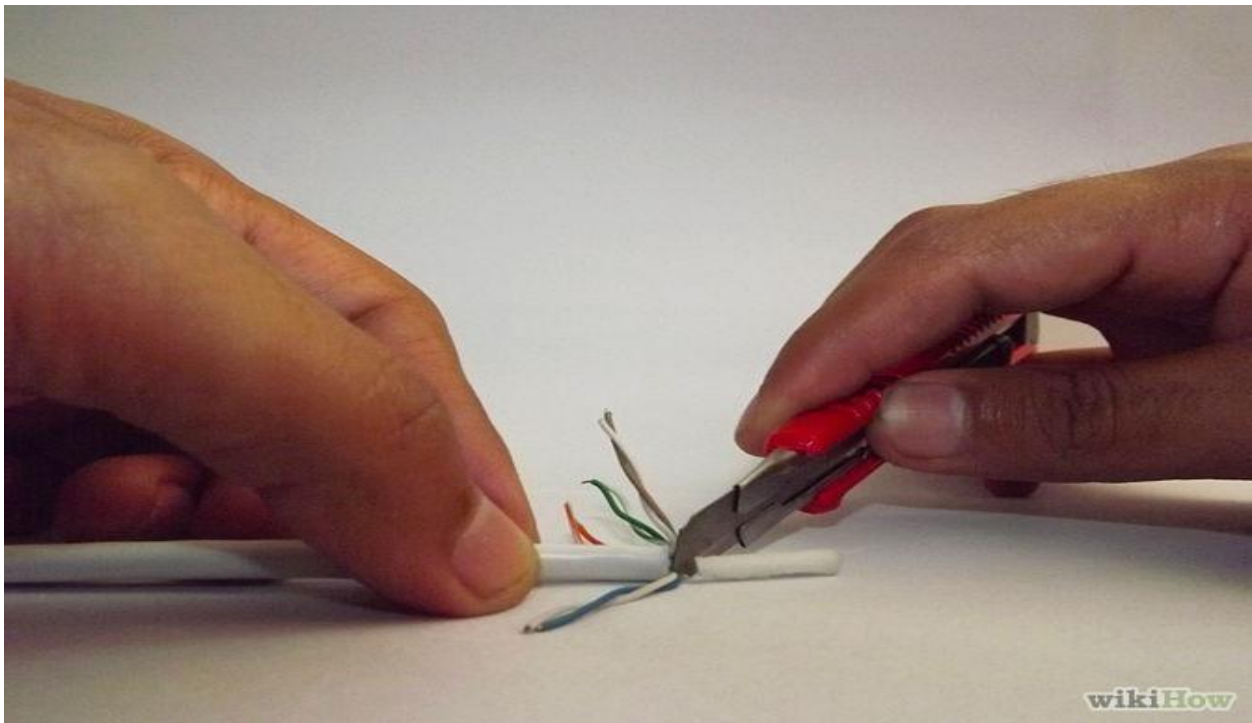


-same as above image separate all Green-white striped and solid green, Blue-white striped and solid blue, Brown-white striped and solid brown.

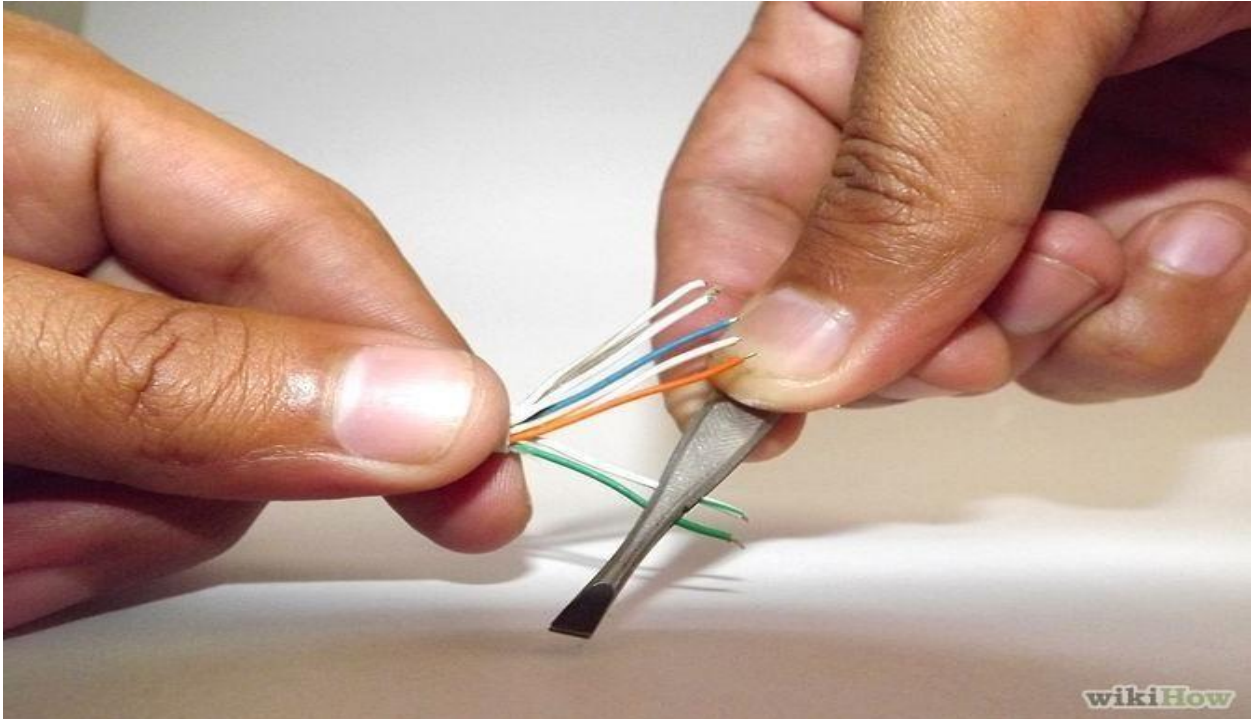
Step 6. Fold each pair of wires backwards to expose the core of the cable.



Step 7. Cut off the core and discard.

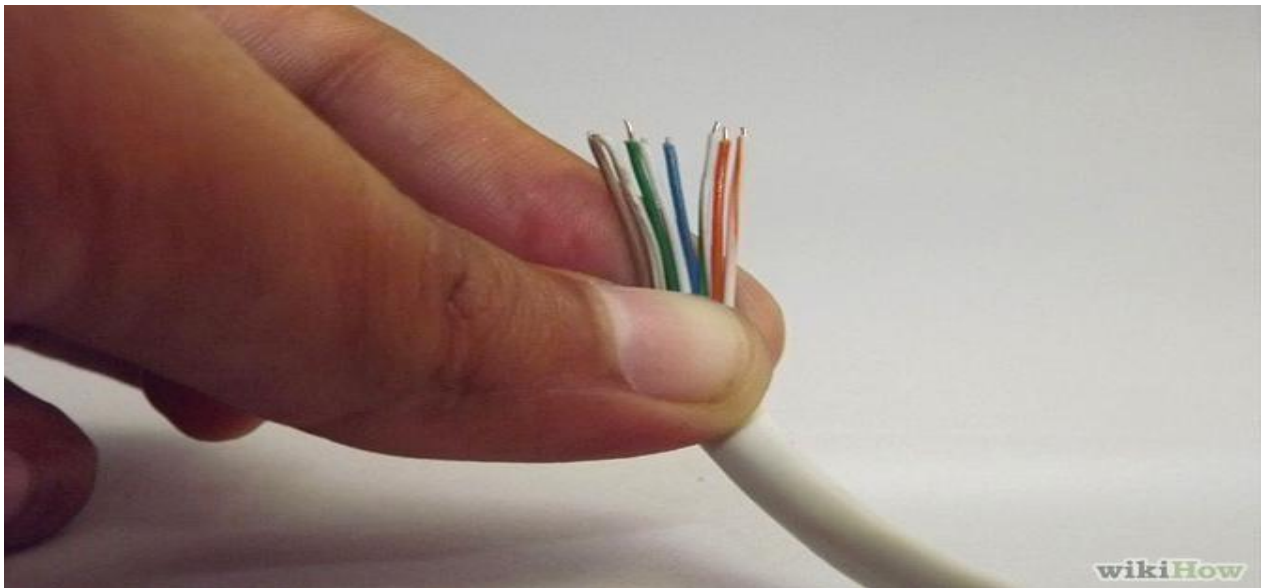


Step 8. Straighten the twisted wires using 2 pair of tweezers. Grasp a wire beneath a bend with 1 pair of tweezers, and use the other pair to gently straighten the bend. The straighter your wires, the easier your job will be.



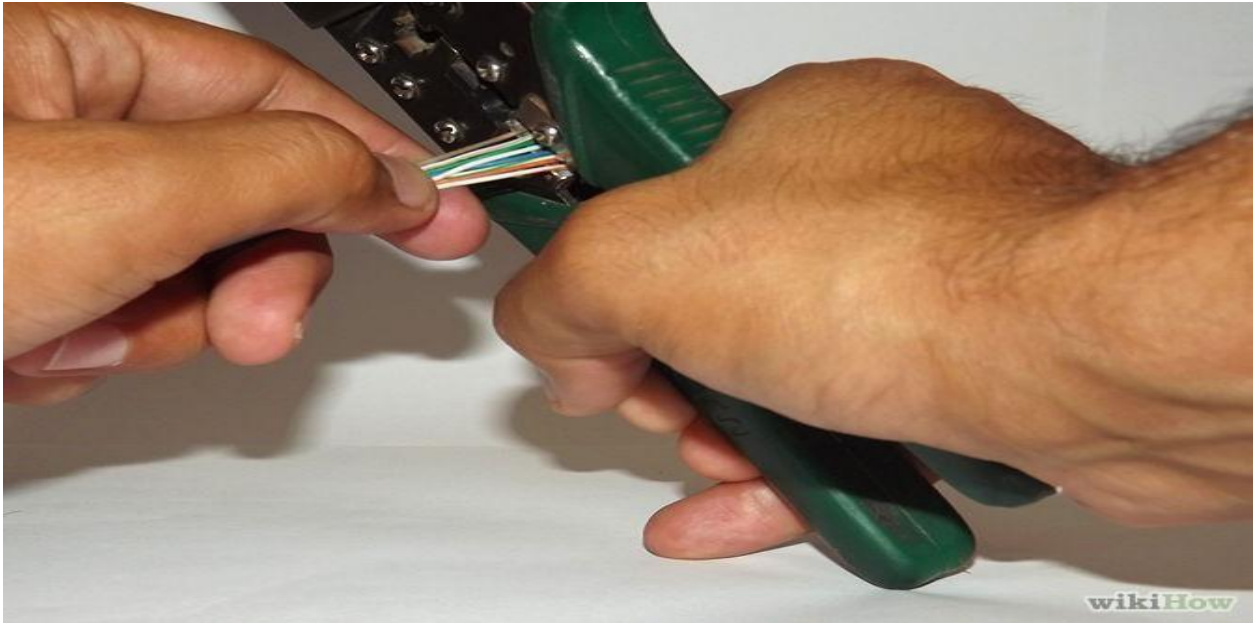
Step 9. Arrange the untwisted wires in a row, placing them into the position, and running from right to left, in which they will go into the RJ-45 connector:

Orange with a white stripe, Green with a white stripe, Brown with a white stripe, Blue with a white strip

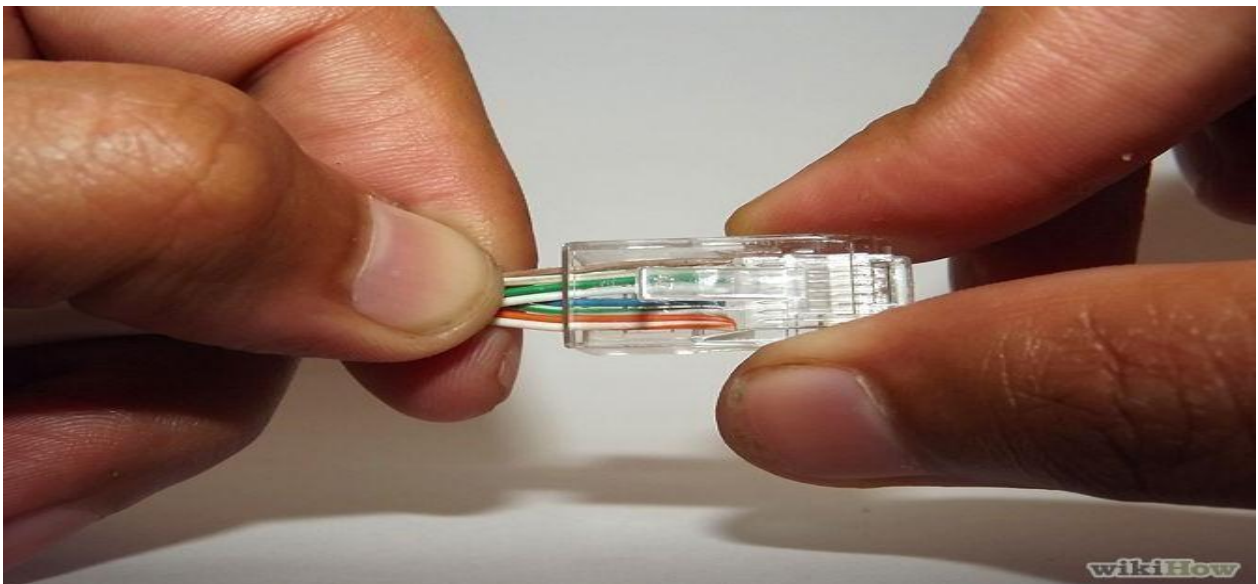


Step 10. Trim the untwisted wires to a suitable length by holding the RJ-45 connector next to the wires. The insulation on the cable should be just inside the bottom of the RJ-45

connector. The wires should be trimmed so that they line up evenly with the top of the RJ-45 connector.

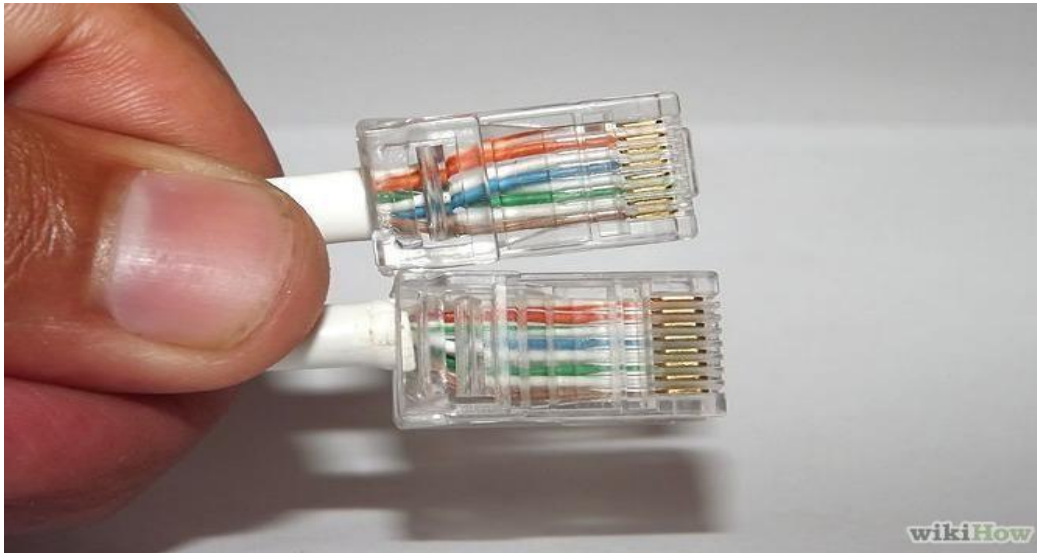


Step 11. Insert the wires into the RJ-45 connector, making sure that they stay aligned and each color goes into its appropriate channel. Make sure that each wire goes all the way to the top of the RJ-45 connector. If you don't make these checks, you will find that your newly crimped RJ45 connector is useless.



Step 12. Use the crimping tool to crimp the RJ-45 connector to the cable by pressing the jacket and cable into the connector so that the wedge at the bottom of the connector is pressed into the jacket. Recrimp the cable once more to ensure proper connection.

Step 13. Follow the instructions above to crimp an RJ-45 connector to the opposite end of the cable.



Step 14. Use a cable tester to assure that your cable is working properly when both ends are crimped.



POST-LABTASK:-

A _____ is a data communication system within a building, plant, or campus, or between nearby buildings.

- A) MAN
- B) LAN
- C) WAN
- D) none of the above

A _____ is a data communication system spanning states, countries, or the whole world.

- A) MAN
- B) LAN
- C) WAN
- D) none of the above

_____ is a collection of many separate networks.

- A) A WAN
- B) An internet
- C) a LAN
- D) None of the above

There are _____ Internet service providers.

- A) local
- B) regional
- C) national and international
- D) all of the above

Mrs. Priyanka H. Gadade
Course Teacher