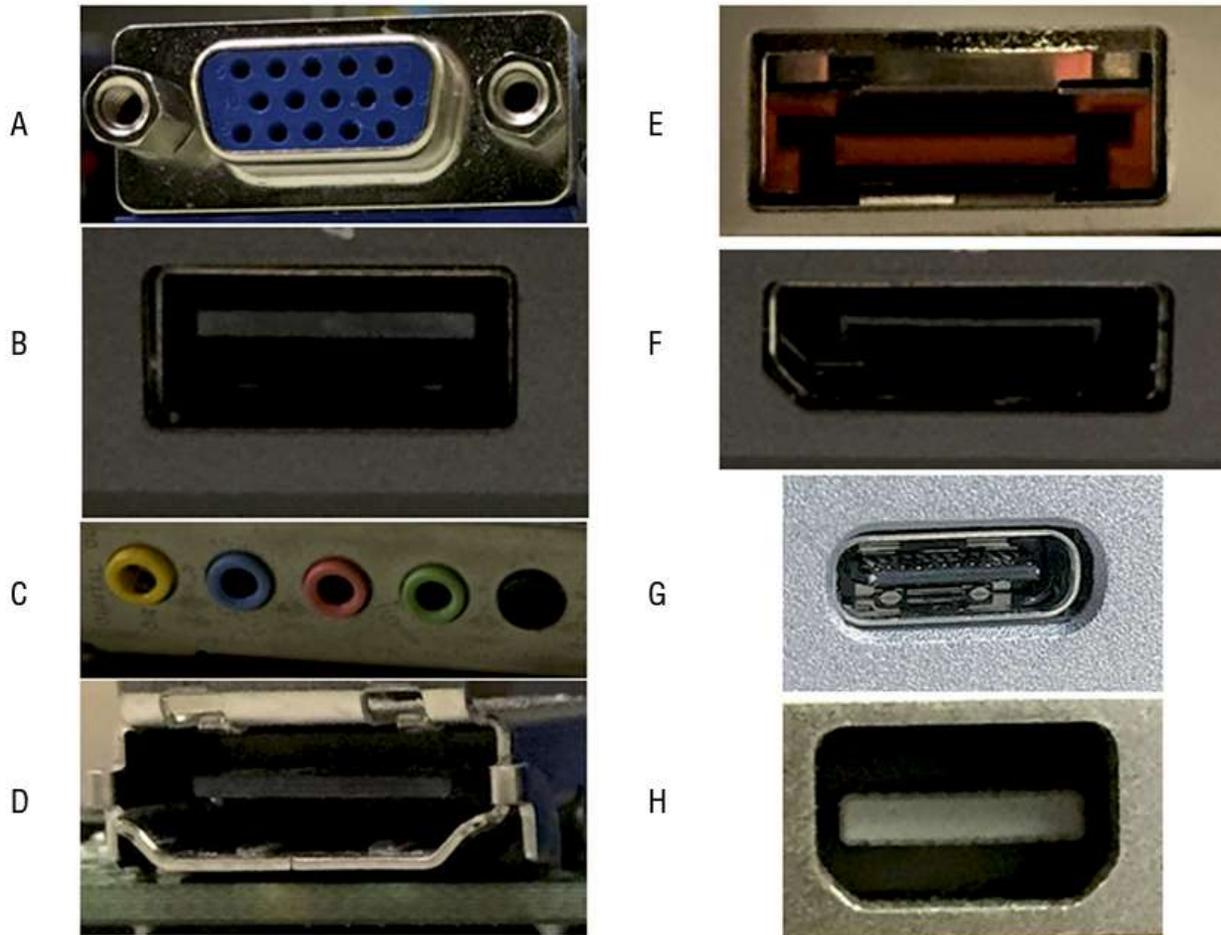


Peripherals and Connectors

Looking at the back of a computer, you see the interfaces shown in the following graphic. Which type of cables do you need to plug into each one?



Custom PC Configurations

List the steps required to stream video from one Windows 10 computer to another in the same house. Assume that the two computers are members of the same network.

Installing and Configuring Printers

Your network has several inkjet printers in use. A user is complaining that their documents are consistently printing with extra smudges along the lines of print on one of them. What steps would you take to clean the printer?

Networking Fundamentals

Draw three examples of physical network topologies and explain how each works.

Introducing TCP/IP

Match the following protocols (services) below to their respective ports in the table:

SMTP, FTP, AFP, RDP, Telnet, LDAP, DHCP, HTTPS, IMAP, NetBIOS/NetBT, POP3, SLP, DNS, SNMP, HTTP, SMB/CIFS, SSH

Protocol (service)	Port(s)
	20, 21
	22
	23
	25
	53
	67,68
	80
	110
	137–139
	143
	161, 162
	389
	427
	443
	445
	548
	3389

Installing Wireless and SOHO Networks

You just purchased a new PCIe network card for a Windows 10 desktop computer. How would you install it?

Network Services, Virtualization, and Cloud Computing

1. Using Ubuntu, perform the following administrative tasks:
2. Create a user account.
3. Manage the hard drives. See how much hard drive space is available. Determine which filesystem is used.
4. Create files and folders. Copy or move them from one location to another.
5. Change the desktop background.
6. Configure accessibility options for users with special needs.

Understanding Laptops

The hard drive on a Dell Inspiron 13 7000 computer failed. You have an extra hard drive of the exact same type. What would you do to replace it?

Understanding Mobile Devices

Explain the five steps to pair a smartphone with a Bluetooth device.

Mobile Device Connectivity and Synchronization

Explain how to establish Wi-Fi connectivity on an Apple iPhone.

Troubleshooting Methodology and Resolving Core Hardware Problems

Place the following steps (and sub-steps) of the best practice methodology in order:

- Verify full system functionality and, if applicable, implement preventive measures.
- Test the theory to determine cause.
- If necessary, conduct external or internal research based on symptoms.
- Identify the problem.
- Once theory is confirmed, determine the next steps to resolve the problem.
- Document findings, actions, and outcomes.
- Inquire regarding environmental or infrastructure changes.
- Establish a plan of action to resolve the problem and implement the solution.
- Establish a theory of probable cause (question the obvious).
- Question the user and identify user changes to the computer, and perform backups before making changes.
- If theory is not confirmed, establish a new theory or escalate the problem.
- Review system and application logs.

Hardware and Network Troubleshooting

Your network users are sending print jobs to the printer, but they are stacking up in the queue and not printing. The printer appears to be online and has paper. How would you stop and restart the print spooler in Windows 10?

Answers

Motherboards, Processors, and Memory

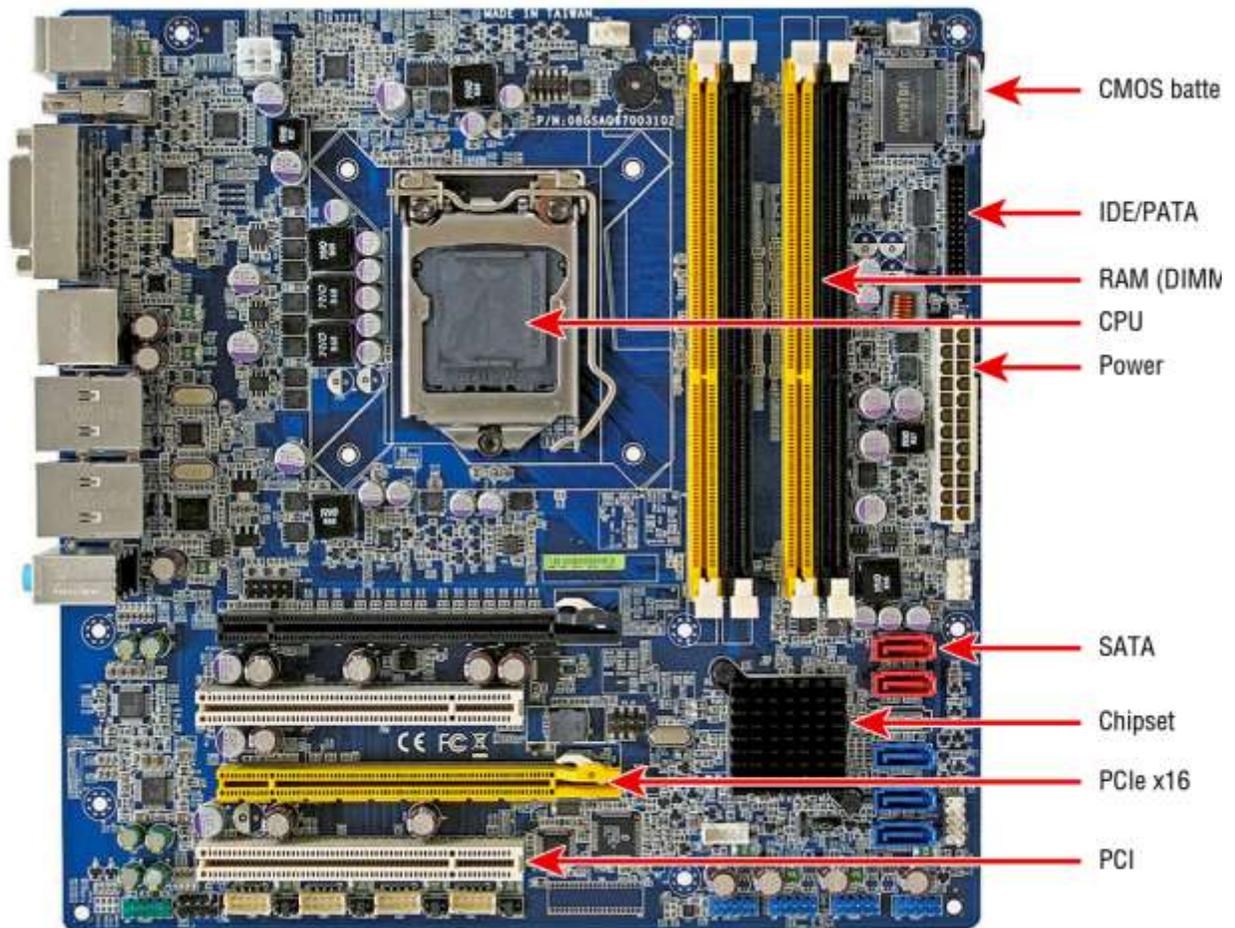
Answer to Performance-Based Question 1

Here is how to remove a DIMM and replace it with another one:

1. Pull the tabs on either end of the DIMM away from the DIMM.
2. Pull the loose DIMM straight out of the slot and away from the motherboard.
3. Ensure that the locking tabs are completely opened and out of the way of the slot.
4. Align the module's notch with the tab or tabs in the slot.
5. Insert the new DIMM straight down into the slot.
6. Apply firm and even pressure downward until the locking tabs automatically snap into place.
7. Nudge the tabs inward toward the module to make sure that they are tight.

Answer to Performance-Based Question 2

The components are labeled in the following illustration.



Internal Expansion, Storage Devices, and Power Supplies

Here are the steps to remove a power supply from a computer chassis:

1. Remove the power source from the system.
2. Ground yourself and the computer to the same source of ground.
3. Remove the cover from the system.
4. Locate the power supply.
5. Follow all wiring harnesses from the power supply to their termini, disconnecting each one.
6. Remove any obstructions that appear as if they might hinder removal of the power supply.
7. Locate and remove the machine screws on the outside of the case that are used to secure the power supply.
8. Pull the power supply out of the case.

Peripherals and Connectors

The answers to the Chapter 3 performance-based question are as follows:

- A: VGA
- B: USB
- C: Audio (or 1/8 ")
- D: HDMI
- E: eSATA
- F: DisplayPort
- G: USB-C
- H: Mini-DisplayPort or Thunderbolt

A:
VGA



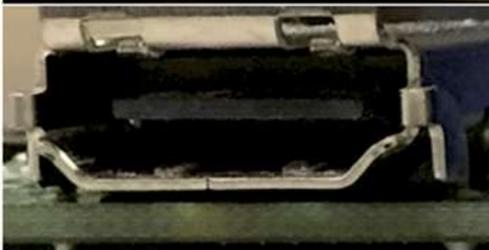
B:
USB



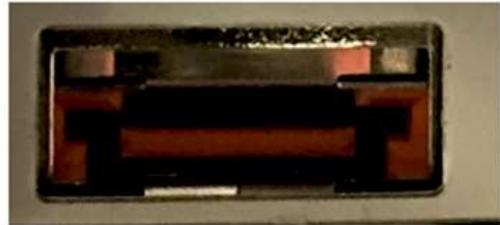
C:
Audio
(1/8")



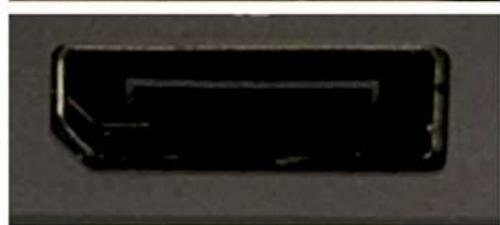
D:
HDMI



E:
eSATA



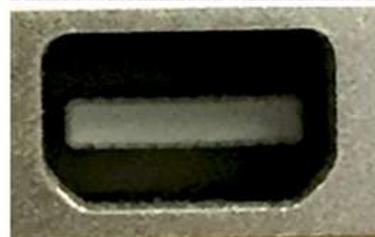
F:
Display
Port



G:
USB-C



H:
Mini-DP or
Thunderbolt



Custom PC Configurations

These are the steps to set up video streaming from one Windows 10 computer to another in the same house:

1. Run Network and Sharing Center.
2. Click the Change Advanced Sharing Settings link in the left frame.
3. Expand the Home or Work configuration section.
4. Click the Choose Media Streaming Options link.
5. Change desired Blocked buttons to Allow.
6. Open Windows Media Player and switch to Library mode, if necessary.
7. Ensure that streaming is enabled.
8. Start Windows Media Player on the remote system.
9. Expand the remote library that you just shared under Other Libraries to play music, watch videos or recorded TV, and view pictures.

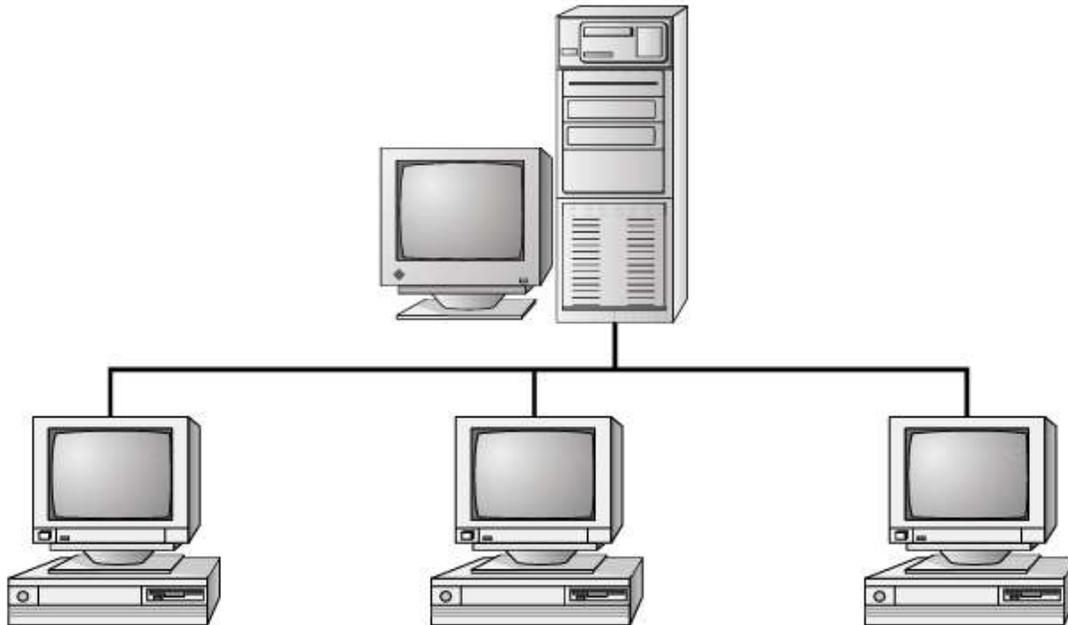
Installing and Configuring Printers

Here are some example steps to take to clean an inkjet printer. The process for starting the cleaning cycle on inkjet printers can vary, and some printers have both quick and deep-clean cycles. Always check your documentation for steps specific to your printer.

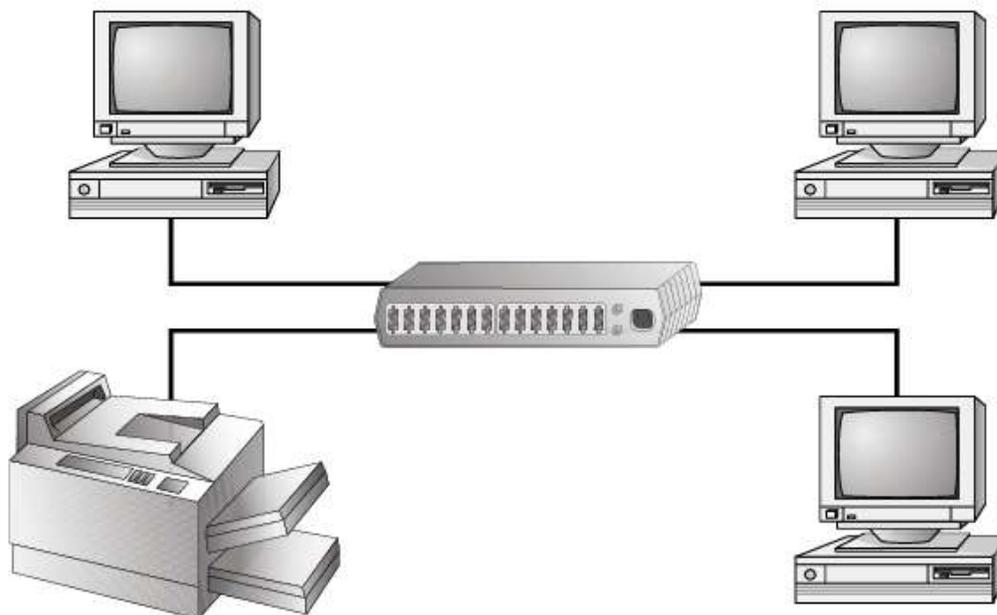
1. Power on the printer, and open the top cover to expose the area containing the print cartridges.
2. Initiate a self-cleaning cycle.
3. When the print head moves from its resting place, pull the AC power plug.
4. Locate the sponge pads on which to apply the cleaning solution.
5. Using the supplied syringe, apply the cleaning solution to the sponge pads until they are saturated.
6. Plug the printer back into the wall outlet and turn it on. The print heads will park themselves.
7. Turn off the printer. Let the solution sit for at least three hours.
8. Power the printer back on and run three printer cleaning cycles. Print a nozzle check pattern (or a test page) after each cleaning cycle to monitor the cleaning progress.

Networking Fundamentals

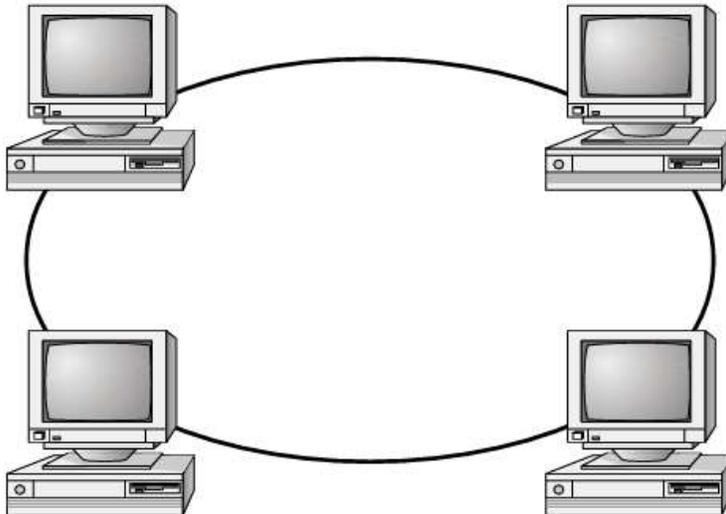
Possible answers for examples of physical network topologies could include bus, ring, star, mesh, and hybrid. The simplest topology, and the one that uses the least amount of cable, is a bus. It consists of a single cable that runs to every workstation, as shown in the following illustration.



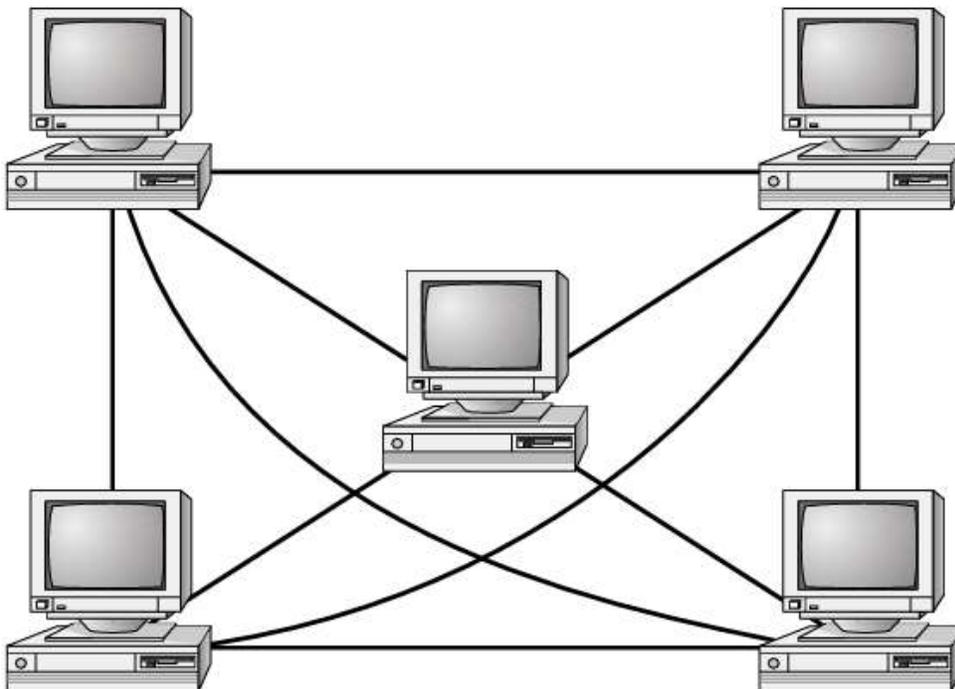
In a star topology, shown in the next illustration, each network device branches off a central device called a hub or a switch, making it easy to add a new workstation. If the hub or switch fails, the entire network fails.



In a physical ring topology, shown next, each computer connects to two other computers, joining them in a circle and creating a unidirectional path where messages move from workstation to workstation. These are very rarely implemented.



The mesh topology is the most complex topology in terms of physical design. In a mesh network, each device is connected to every other device, as shown in the following illustration. This provides redundancy but costs more to implement.



A hybrid topology combines two or more other topologies into one network. An example might be a server room that has a partial mesh for redundancy but the clients are all connected to switches in a star.

Introducing TCP/IP

Here is the correct matching of protocols and services to their ports:

Protocol (service)	Port(s)
FTP	20, 21
SSH	22
Telnet	23
SMTP	25
DNS	53
DHCP	67,68
HTTP	80
POP3	110
NetBIOS/NetBT	137–139
IMAP	143
SNMP	161, 162
LDAP	389
SLP	427
HTTPS	443
SMB/CIFS	445
AFP	548
RDP	3389

Installing Wireless and SOHO Networks

Here are the steps to install a PCIe network card for a Windows 10 desktop:

1. Power off the PC.
2. Remove the case and the metal or plastic blank covering the expansion slot opening.
3. Insert the new expansion card into the open slot.
4. Secure the expansion card with the screw provided.
5. Put the case back on the computer and power it up. Windows Plug and Play (PnP) should recognize the NIC and install the driver automatically. It may also ask you to provide a copy of the necessary driver if it does not recognize the type of NIC that you have installed. If Windows does not start the installation routine immediately, you can add it manually.
6. click Start > Settings (it looks like a gear) > Devices > Bluetooth & Other Devices, and then click the plus sign next to Add Bluetooth or Other Device. That will bring up the Add a Device window.
7. Click Everything Else.
8. When Windows finds the NIC, choose it and continue the installation. After installing a NIC, you must hook the card to the network using the appropriate cable (if you're using wired connections).
9. attach a patch cable to the connector on the NIC and to a port in the wall (or connectivity device), thus connecting your PC to the rest of the network.

Network Services, Virtualization, and Cloud Computing

Using Ubuntu will probably feel a lot like using Windows. The interfaces have several similarities in terms of navigation. Here are some hints on where you can find the utilities you need to complete the steps in the Chapter 9 performance-based question.

1. *Creating a user account.* You can do this by clicking the launcher (it looks like a button with a bird on it), about where you would expect the Start button to be in Windows, and then choosing System Tools > Users and Groups. Click the Add button to create a new user.
2. *Managing storage space.* Open the launcher and choose Preferences > Disks. This one won't work exactly like the one in Windows because it's on a virtual hard drive.
3. *Manipulating files.* Open the launcher and choose Accessories > File Manager, or you can choose File Manager using the icon to the right of the launcher. Once File Manager opens, you can right-click files to perform your tasks.
4. *Changing the desktop background.* Right-click the desktop and choose Desktop Preferences.
5. *Configuring accessibility options.* As of now, Ubuntu does not offer the types of accessibility options Windows offers. The developer is committed to accessibility but has not yet developed these capabilities. For more information, see:
<https://wiki.ubuntu.com/Ubuntu/Developers/Accessibility>
Maybe you can help!

Understanding Laptops

Here is how to replace the hard drive in the example laptop computer.

1. Turn off the computer.
2. Remove the bottom of the case.
3. Remove the screw holding the M.2 drive in place.
4. Slide the hard drive straight out of the M.2 connector.
5. Insert the new drive into the connector at the same angle as the old drive was at when it was unscrewed.
6. Press the drive down and secure it with a screw.
7. Put the bottom of the case back on.

Understanding Mobile Devices

The five steps to pair a smartphone with a Bluetooth device are as follows:

1. Turn on the Bluetooth hands-free device.
 - a. Enable Bluetooth.
 - b. Enable pairing.
2. Use your mobile device to locate and select the Bluetooth device.
3. Enter the Bluetooth device's passcode.
4. Confirm pairing on the Bluetooth device by pressing a button or a combination of buttons.
5. Test the connectivity.

Mobile Device Connectivity and Synchronization

Here are the steps to connect an iPhone to a Wi-Fi network:

1. Tap the Settings app on the home screen.
2. Select Wi-Fi from the Settings menu.
3. Swipe the Wi-Fi switch to the right to turn it on if it is off. You can also tap switches to toggle them to the opposite state.
4. In the Choose A Network list, tap the name of the wireless network that you want to join.
5. Enter the password or key for the wireless network, if you are asked for one, and then tap the Join button.

If the connection succeeds, the network name will appear under the Wi-Fi switch with a check mark next to it.

Troubleshooting Methodology and Resolving Core Hardware Problems

The correct order for the best practice methodology is shown here. Getting the sub-steps in the exact order isn't critical, but getting the major steps in order and the right sub-steps under the correct major step is.

1. Identify the problem.
 - a. Question the user and identify user changes to the computer, and perform backups before making changes.
 - b. Inquire regarding environmental or infrastructure changes.
 - c. Review system and application logs.
2. Establish a theory of probable cause (question the obvious).
 - a. If necessary, conduct external or internal research based on symptoms.
3. Test the theory to determine cause.
 - a. Once theory is confirmed, determine the next steps to resolve the problem.
 - b. If theory is not confirmed, establish a new theory or escalate the problem.
4. Establish a plan of action to resolve the problem and implement the solution.
5. Verify full system functionality and, if applicable, implement preventive measures.
6. Document findings, actions, and outcomes.

Hardware and Network Troubleshooting

1. Open the Services app. One way is to click Start and type Services, and then click Services under Best Match.
2. Find the Print Spooler service.
3. Stop the spooler service. There are several ways that you can do this:
Right-click the service and choose Stop.
Click the Stop square above the list of services.
Use the More Actions menu on the right.
4. Restart the spooler by right-clicking the service and choosing Start, or by clicking the Start arrow above the list of services.
5. Close the Services app.