1. TCP and UDP are protocols of the transport layer. The biggest differences between them are that TCP requires a connection and is slower, while UDP does not require a connection and is faster.

|  |  |  |
| --- | --- | --- |
|  | TCP | UDP |
| Connection | Requires a connection before data is transmitted | Does not require a connection |
| Speed | Relatively slower in exchange for increased reliability | Faster in exchange for decreased reliability |
| Error Checking | Provides error checking | Does not provide error checking |
| Retransmission | Provides support for retransmission of dropped packets | Does not retransmit dropped packets |
| Sequencing | Sequences packets in order | Packets are sent out of order and interpreted by the receiver |

Source: <https://www.geeksforgeeks.org/differences-between-tcp-and-udp/>

|  |  |
| --- | --- |
| Application | HTTPS, HTML |
| Presentation | LPP |
| Session | RPG |
| Transport | UDP and TCP |
| Network | IP and IP addresses |
| Data Link | ARP |
| Physical Link | Ethernet cable, fiber optic cables |

1. HTTP is the protocol for communicating with servers on the internet, and HTTPS is the secure version of that. It uses a private and public key to encrypt communication between the computer and the server. Encryption is just altering the plain text being sent using some algorithm derived from the public and private keys of the server and computer. This scrambles the text and makes it difficult to interpret for anyone without the algorithm for deciphering it. This prevents sensitive information from being accessed by entities that aren’t the server or computer.
2. Ports are standardized numbers describing what service a packet is intended for. They are application level and differentiate between the various services receiving packets in a computer. A socket is a combination of a port and an IP address. This provides a full description of what a packet is and where it’s headed. 25 is the standard SMTP port, but 587 is the modern standard for secure SMTP, and 2525 is an alternative.

Source: <https://www.sparkpost.com/blog/what-smtp-port/>

1. Public wifi allows others using the same wifi to monitor the traffic occurring on that network, which can compromise passwords and private information. This is especially the case with HTTP connections, since the data being transferred is unencrypted.
2. 192.168.1.71
3. Graphical user interface, text

   Description automatically generated

The ping command sends a GET request from the computer to the server specified by the domain. The server then responds, and the command notes the time it takes for a response.

1. A. 5 GHz frequency

b. 52

c. 80 MHz

d. yes, you can change wifi password

e. no, you cannot change email password

9. 1. Status code 200 is the standard OK response for a successful HTTP request

2. Status code 404 is the not found response that indicates that a request was unsuccessful due to not being able to contact the server.

3. Text

Description automatically generated

4. Text

Description automatically generated