Discuss TCP & UDP Protocoals and mention the difference between the two along examples where they are used?

TCP { Transmission Control Protocol }

Tcp make a connection between server and receiver before transferring the data begins by a three-way handshake : SYN, SYN-ACK, ACK.

It makes ensure that data is delivered in order and correct.

Examples : TCP used in web browsing [HTTP/HTTPS] and transferring files [FTP] also.

UDP { User Datagram Protocol }

UDP dost not establish the connection before sending data. It sends packets directly to the receiver.

It does not checking delivery of packets and errors, packets will be lost.

Examples : UDP used in online gaming and video streaming [You Tube, Netflix etc.]

List the TCP Flags along with their use / function?

1. URG [urgent] : Data contained in the packet should be processed immediately.
2. FIN [finish] : After the transmission of the file then there is no need of establishing the network connection.
3. RST [reset]. : Reset a connection for resolving the issues like slow packets transmission.
4. PSH [push] : Sends all buffered data immidiately.
5. ACK [acknowledgment] : Receiver end acknowledge the receipt of the packet to the ender host.
6. SYN [synchronise] : Always used in first step for the connection request , initiates the connection between two hosts.

What is the difference in executing nmap as root user and as normal user? Give the flags in map which require root

permission to be performed?

Normal User — It cannot perform stealth cans which are slower and less stealthier.
Root User — It can perform stealth scans which are faster.

Nmap - A [target ip address] : A stands for Aggressive, displaying the open ports and running services along with their versions and details of target.
Nmap -sU [target ip address] : - sU scans UDP ports, which require raw packet sending.
Nmap -O [target ip address] : -O detects the operating system of the target by analysing TCP/IP stack behaviour.
Nmap -S [target ip address]. : -S spoofs the source IP address of the scan.
Nmap — scan flags : allows settings custom TCP flags in packets.