7 - Application
6 - Presentation
5 - Session
4 - Transport
3 - Network
2 - Data Link
1 - Physical

Wi-Fi standards and protocols primarily operate at the **Data Link Layer** (Layer 2) and the **Physical Layer** (Layer 1) of the OSI model.

Physical Layer (Layer 1):

When sending something (like a video or a text) from our device, Wi-Fi turns that data into radio signals. Think of these signals as invisible waves carrying your message.

Wi-Fi router or access point uses an antenna to "shout" these waves into the air on specific frequencies (like 2.4 GHz or 5 GHz)

On the receiving end (say, our phone), the antenna catches these waves and turns them back into data your device can understand.

Wi-Fi standard (e.g., 802.11n, 802.11ac, or 802.11ax) decides **how fast** and **far** these **waves can travel**, how many "lanes" (channels) they use, and how they're **shaped** (modulation).

Data Link Layer (Layer 2):

Before sending, our device wraps the data in a neat package (called a frame) with a label. This label includes the MAC address—a unique ID for our device (like a house address) and the router's address.

Wi-Fi is shared air space (like a busy street), devices take turns "talking" so they don't interrupt each other.
This is managed by a rule called CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance):

- Our device listens to see if the air is "quiet" (no one else is sending).
- If it's clear, it sends a list our data. If it's busy, it waits a tiny moment and tries again.

The router then picks up your frame, checks the address, and forwards it to the right device (or the internet).

Wi-Fi adds security here too—like locking your package with encryption (e.g., WPA2 or WPA3) so only the intended receiver can open it.

Flow :

Sending :

Layer 2 (Data Link): Your phone prepares the request for the video, labels it with your phone's MAC address and the router's MAC address, and waits for a clear moment to send it.

Layer 1 (Physical): The request is turned into radio waves and beamed wirelessly to the router.

Receiving :

Layer 1 (Physical): The router catches the waves and turns them back into data.

Layer 2 (Data Link): The router reads the frame, sees it's for the internet, and passes it along. The video comes back the same way—router to your phone!