1.In which OSL layer the Wi-Fi standard/protocol fits.

Wi-Fi (IEEE 802.11) fits into two layers of the **OSI (Open Systems Interconnection) model**:

1. Physical Layer (Layer 1)

- This layer deals with the actual transmission of data over radio waves.
- Wi-Fi uses different frequency bands (**2.4 GHz, 5 GHz, and 6 GHz**) and modulation techniques (**OFDM, DSSS**) to encode and transmit data.
- It defines standards like **802.11a/b/g/n/ac/ax** to specify speed, range, and bandwidth.

2. Data Link Layer (Layer 2)

- Wi-Fi is primarily implemented in the **Data Link Layer**, which consists of two sublayers:
    - **Logical Link Control (LLC) sublayer:** Handles flow control and error checking.
    - **Medium Access Control (MAC) sublayer:** Manages how devices access the wireless medium and avoid collisions (e.g., using **CSMA/CA—Carrier Sense Multiple Access with Collision Avoidance**).
- The MAC layer assigns **unique MAC addresses** to devices and establishes Wi-Fi frames for communication.

Thus, **Wi-Fi operates in both the Physical Layer (Layer 1) and the MAC sublayer of the Data Link Layer (Layer 2)**.