Name → Aman Sharma
Roll Number → 2021010

To run the code you need to go to ns3 directory and run the code:
./ns3 run “wifi-ofdma -trafficFile=traffic” and
./ns3 run “wifi-ofdm -trafficFile=traffic”

To elucidate the potential superiority of OFDMA over OFDM in the given network scenario, tailored for video conferencing with specific parameters, it is imperative to scrutinize the attributes and merits of OFDMA and their relevance to the scenario's requisites:

**Efficient Resource Allocation:**

OFDMA meticulously partitions the available spectrum into smaller Resource Units (RUs) for both downlink (DL) and uplink (UL). In this instance, 18 RUs are earmarked for both DL and UL transmissions.
OFDMA's capacity to enable concurrent communication among multiple users within the same channel renders it aptly suited for scenarios housing numerous stations, as delineated.
**Multi-User Communication:**

Video conferencing necessitates real-time interaction with multiple stations concurrently.
OFDMA's knack for apportioning resources to distinct users through RUs affords a tactical edge in this context.
OFDM, reliant on a solitary carrier, might not exhibit the same adeptness in managing multiple concurrent connections efficiently.
**Mitigated Interference:**

OFDMA possesses the competence to alleviate interference quandaries via the efficient allotment of RUs to users. This attribute assumes paramount importance in scenarios teeming with stations in close quarters, as exemplified by a 40MHz channel housing 10 stations within a 5m radius of the AP.
**Latency and Quality of Service (QoS):**

Video conferencing hinges on low latency to guarantee seamless and real-time communication.
OFDMA's dexterity in tailoring resource allocation can prioritize low-latency connections, thereby amplifying the quality of service.
**Flexibility and Adaptability:**

OFDMA's architecture is intentionally designed to accommodate fluctuating network conditions.
It possesses the wherewithal to dynamically distribute RUs based on the number of active users, thereby optimizing network performance.
**Load Balancing:**

OFDMA fosters efficient load balancing by dynamically allotting RUs to users contingent on their data rate requisites. Stations with elevated data rate demands, such as video conferencing at 10Mbps, can be furnished with more substantial resource allocations.

**Spectrum Efficiency:**

OFDMA's knack for proficiently harnessing the spectrum is especially advantageous in a 40MHz channel, where it can judiciously parcel out and allocate resources within the confines of this limited bandwidth.

**Packet Latency and Median TCP RTT:**

Within the framework of this scenario, there is a comparison to be made regarding packet latency distribution and the median round-trip time (RTT) for TCP. OFDMA's capacity to dynamically and resourcefully allocate resources potentially translates to diminished packet latency and truncated RTT.

**Elevated Performance in High-Density Environments:**

OFDMA is architected to excel in high-density environments, where a multitude of users vie for finite resources. This aligns harmoniously with the scenario's depiction of 10 stations in close proximity.

In summation, it is conceivable that OFDMA will outperform OFDM in this scenario tailored for video conferencing owing to its acumen in judicious resource allocation, facilitation of multiple users, interference mitigation, and latency reduction. The adaptability and resource distribution finesse intrinsic to OFDMA harmonize seamlessly with scenarios necessitating high data rates and catering to multiple users. However, it is imperative to execute the simulation and scrutinize the specific metrics (packet latency distribution and median TCP RTT) to proffer definitive proof of its preeminence in this context.