I collaborated with: TA

Solution
The algorithm will turn this problem into a network flow and use the Ford-Fulkerson algorithm to determine whether every client can be connected simultaneously to a base station. We start by making a graph G with a source s and a sink t vertex. We make every client and base station a vertex of G. Now, we go through every client and check if its distance from every base station is within r; if it is, we make an edge with capacity 1 from the client to the base station within distance. We then make an edge of capacity 1 from the source s to every client. We also make edges from every base station to t with capacities L. We have now turned this problem into a network flow. We now run the Ford-Fulkerson algorithm and if the max flow equals n we return true, and return false if otherwise.
Time Complexity: Add every client and base station to $G : O(n + k)$ + Determine edges between clients and base stations $O(nk)$ + adding edges from s to clients and from base stations to $t : O(n + k)$ + Ford-Fulkerson: $O(|E||V|C) = O(|E||V|C)$
Space Complexity: $G = (V, E)$ where $|V| = (n + k + 2)$ and $|E| = (n + 2n + k)$ in the worst case.

Proof. Claim: If the maxflow equals n, then every client can be connected simultaneously to a base station.
If the maxflow equals the number of clients n, then we know that edges from s to every client has a flow of 1. We know that for every vertex, the flow coming into it has to equal the flow leaving it. Thus, having a max flow of n means that every client is connected to a base station by the nature of our graph. This obeys the range and load conditions as clients are only connected to base stations within r distance away and base stations have edges of capacity L coming out of them. $\square$