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Audie's party

Instructions

1. Implement the necessary code to solve the problem.

   (a) Make sure that you apply **greedy** algorithms to your solution. ✓

   (b) Do not forget to write clean code and follow best practices. ✓

2. Write a brief explanation of why you have chosen the greedy algorithm to solve the problem.

   I have chosen the greedy algorithm for selecting from the List of Guests greater than X, first the higher weight and join between sub-graphs always prioritizing the higher weights of adjacent sub-graphs and repeat the process K-1 times.

   Greedy Choice: Using DFS to go through edges starting with higher weight till there is no other adjacent sub-graph, then cutting the graph by assigning a negative weight and start the process again until we get K-1 cuts and K subgraphs.

   Optimal Solution:

   OptimalSolution(Global) = Graph = Subgraph **U** [Subgraph[1….K].Edge[1…n-1].weight > X] **U**….✓

   (a) If you use a new algorithm, include the correctness proof; otherwise, you only need to mention the algorithm's name.

   I used the Deep First Search algorithm to iterate through the weighted graph (DFS is already proved). ✓

3. Identify the time complexity of your solution.

   O (n^2) ✓