Greedy Project

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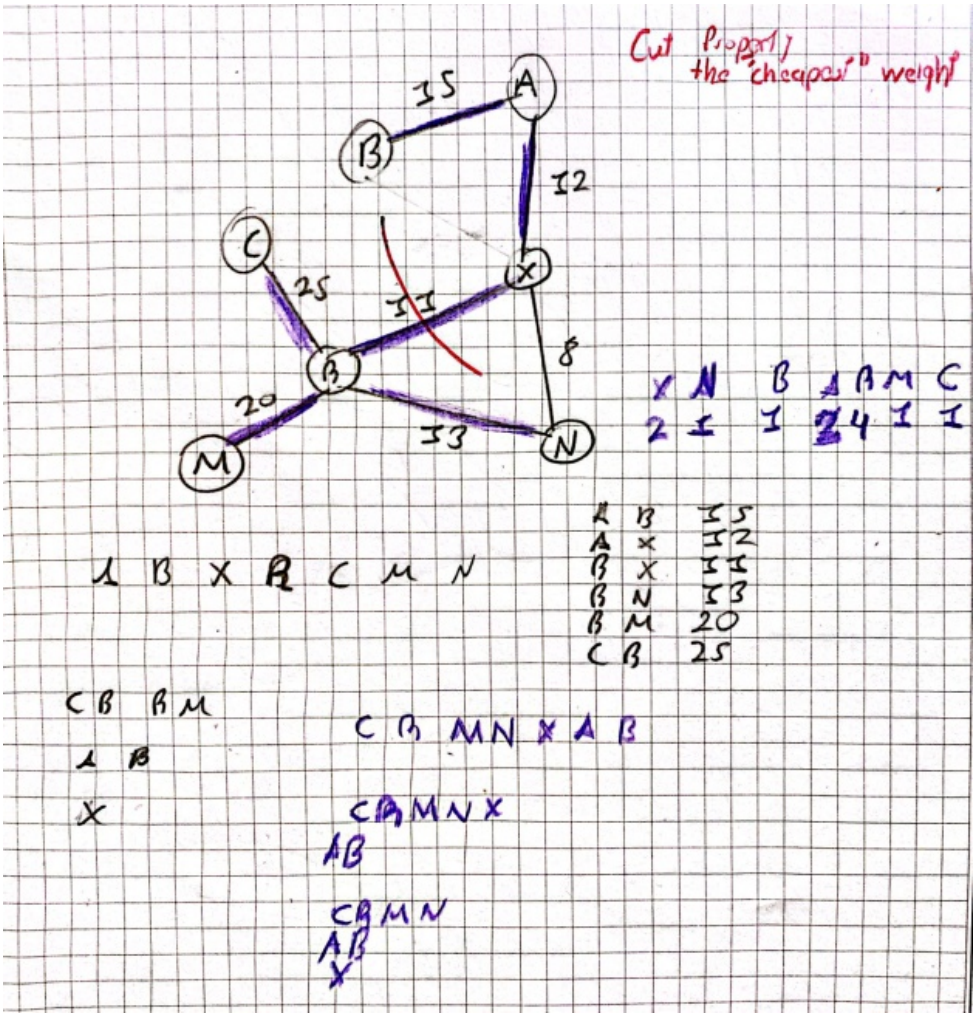
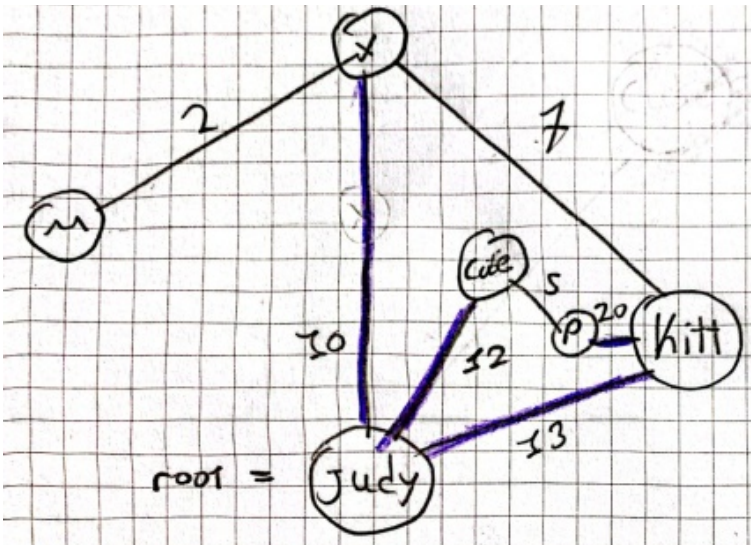
Write a brief explanation of why you have chosen the greedy algorithm to solve the problem.

Kruskal's algorithm was chosen because it is a greedy algorithm that constructs a MST by selecting the smallest weighted edges while avoiding cycles. By selecting the smallest weighted edges first, we ensure that we prioritize connections that have the highest likelihood of minimizing the overall weight of the tree. Removing the highest weighted edges from the MST ensures that we divide the tree into the maximum number of groups possible without introducing cycles. Also the mst cut propert was applied by separating into groups for the second output.

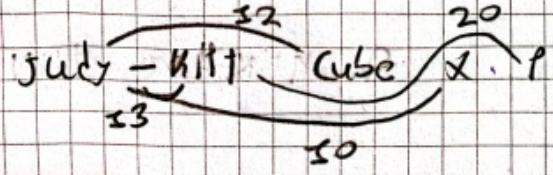
Identify the time complexity of your solution.

The time complexity of Kruskal's algorithm is O(E log E), where E is the number of edges in the graph. Sorting the edges by weight initially takes O(E log E) time, and then each edge is processed once during the algorithm, which also takes O(log E) time in the worst case due to union-find operations.





Case 1 $x = 7$ Ámsladi > 7



judy - Kitt = 13
judy - x = 10
judy - cube = 12
Kitt - P = 20

Kitt P judy