

Task 1:

Firstly I imported `heapq` to use the priority queue to efficiently explore the graph and find the shortest path. To implement the Dijkstra algorithm here I took a dictionary called `distances` to store the shortest distance from the start. The priority queue while loop is used to keep track of the nodes which will be explored next. The if condition checks whether the `current_distance` is shortest or not, depending on that the loop will continue. In the next condition if the distance is shorter than before it will assign that distance into the `distances` dictionary. This process will continue up until the end of `priority_queue`. Finally the correct distance will be returned.

Task 2:

The `pq_S`, `pq_T` while loop part is similar to task 1. Then the for loop iterates all nodes and calculates the maximum distance. It updates `min_time` and `meeting_node` variable if a smaller `total_time` is found. Finally based on those values the if condition writes the final output.

Task 3:

Here the Dijkstra algorithm is similar to task 1. The Dijkstra function returns the distances. In the function there is a little difference instead of keeping track of the minimum distance it keeps track of the maximum danger level encountered in the path so far. The goal is to minimize the maximum danger level. Finally the if condition writes the output depending on `min_danger_level`.