

The PA was attempted with the help of graph and using dijkstra's algorithm. The time complexity of getting the input from the files is mn . Where m is the number of rows and n is the number of columns. The graph is stored as an adjacent matrix rather than a list as it was much easier to implement. One vertex of a graph constitutes to the number of poles connected together in the river by a plank. If multiple poles were connected to each other horizontally then it would be considered as a single vertex. The weight of edges is the number of empty poles that has to be traversed through to get to the next plank. Once the graph was created, dijkstra's algorithm was implemented to determine the shortest path from the left bank to the right bank. Since I used adjacent matrix, the time complexity is $O(V^2)$. Where, V is the number of plank connected horizontally. It should be noted as the files get larger, the value of V^2 becomes much lesser than mn . The worst case scenario happens to be when there are no planks in the river in which case it takes $O(mn)$ time.