PA3 report
Data structure (3%)
⚫ How do you store the given graph?
For the undirected graph, I use an adjacency matrix to store the graph. For directed graph, I use an adjacency list.

⚫ Algorithm (5%)Describe the algorithm of your program
➢ For undirected graph, how do you make the graph an acyclic connected component and find the optimal solution? (2%)
Undirected graph:
1. Modify Prim's minimum spanning tree algorithm to get the maximum spanning tree for the graph
2. The edges not in the maximum spanning tree will be the minimum cost edges that should be removed to make the graph acyclic
(set a boolean matrix initialed as false, and turn into true when the edge was added into Maximum spanning tree）
3. The total cost of the removed edge can be calculated by adding up the removed edge weight in 2.

➢ For directed graph, how do you make the graph an acyclic weakly connected component and minimize the total weight removed? (3%)
Direct Graph:
1. Use depth first search to get the cycles of the graph
2. in the cycles, determine the minimum edge weight and remove the edge from the graph
3. continue until the graph has no cycle.
4. this method is done by a greedy algorithm which get the best choice at the current moment.

⚫ README (2%)
in the file