DETOURS!

You are working for the Department of Transportation (DOT) in road repair. When a road is closed for repairs, the public would like the detour to be the shortest available combination of roads to travel from one end of the closed road to the other.

To simplify the data, we will only consider roads between cities/towns/villages/etc., rather than roads or intersections with no direct roads connected to them. The DOT would like the marked detour to be the shortest route available.

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Sample I/O:

Input:
8
Connell Coulee City Davenport George Moses Lake Ritzville Sprague Wilbur
Connell "Moses Lake" 46
Connell Ritzville 45
Connell Wilbur 99
"Coulee City" George 55
"Coulee City" "Moses Lake" 52
"Coulee City" Wilbur 35
Davenport Sprague 38
Davenport "Moses Lake" 32
"Coulee City" "Moses Lake" 35
"Coulee City" "Moses Lake" 32
"Coulee City" "Moses Lake" 35
"Coulee City" "Moses Lake" 99
"Coulee City" "Moses Lake" 45
"Coulee City" "Moses Lake" 46
Output:
0 EOD
Seattle Spokane George "Moses Lake" "Coulee City" "Moses Lake"
Moses Lake Coulee City George
Total distance: 86 miles
Seattle is not a recognized city.

EOD EOD
Seattle Spokane George "Moses Lake" "Coulee City" "Moses Lake"
"Coulee City" "Moses Lake" Seattle Spokane
Seattle is not a recognized city.

EOD EOD
Seattle Spokane George "Moses Lake" "Coulee City" "Moses Lake"
Seattle is not a recognized city.

EOD EOD