# Function Description

**Function Name:** calculateMinDistance

**Parameter List:**

|  |  |  |
| --- | --- | --- |
| Parameter Name | Type | Description |
| truck | const struct Truck\* | “truck” is a struct variable that stores the details of a truck route. It has 5 member variables:  char routeSymbol;  int weight;  double volume;  double minDistance;  int isReady;  “routeSymbol” denotes the route symbol of the truck  “weight” stores the current weight held by the truck  “volume” stores the current volume held by the truck  “minDistance” stores the shortest distance needed to travel to the destination  “isReady” indicates whether the truck is ready for delivery (neither full nor unreachable to destination) |
| dest | const struct Point\* | “dest” is a struct variable that stores the row-column position of the destination on a map. It has 2 member variables:  char row;  char col;  “row” stores the row number, while “col” stores the column number. |

**Returns:** The return type is double. It means the minimum distance from the nearest point on the route to the destination, i.e. diversion distance.

**Description:** This function returns the minimum diversion distance from the route to deliver a package to a destination. First, it should get the route the truck runs on from the parameter “truck”. Then it should call the “getClosestPoint” function by inputting the “truck” and “dest” values to find the nearest point on the route to diver. After that, it should call the “shortestPath” function to calculate the minimum distance to divert from the route to the destination. Finally, return the diversion distance.