# Function Description

**Function Name:** findTruckAndDiversion

**Parameter List:**

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| Parameter Name | Type | Description |
| *struct Dispatch \*org* | Pointer to struct | The Dispatch struct represents the delivery system; It nests structs for the map, the three trucks (struct Fleet), and order information for other days. This pointer is used in the function to access and modify data regarding the trucks’ routes, weights, and volume. |
| *double* *dists[]*[2] | 2D array of doubles | This array represents the 3 trucks and their distances from the destination. Each row contains identifiers for the truck’s closest point from the destination and the truck itself. |
| *struct* OrderInfo *order* | struct | The struct represents information about an order. The OrderInfo struct contains data about the order’s weight, volume, destination, and its associations with a route diversion, if any. The function mainly uses this struct to modify a truck’s weight and volume. It’s also used to calculate a truck’s shortest path to the order’s destination. |
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**Returns:** The function returns an integer value, representing whether an order can be assigned to a truck. If a suitable truck is *not* found (with or without a diversion), the integer value returned is 0. Otherwise, the function returns 1.

**Description:** This function finds a suitable truck for delivering an order based on the distances of their closest point from the destination and their limiting factor (truck’s weight or volume). It assigns the order to a truck based on this condition:

If a suitable truck is found (i.e. if the distance of the truck’s closest point is 1), and if the truck has enough capacity, the order is added to the truck. The function returns 1.

If not, the function calculates a diversion: It finds the shortest path to the destination by comparing the trucks’ routes. Once the truck with the shortest path is found, the function assigns the order to the truck by updating the truck's current volume and weight, and 1 is returned.