# Function Description

**Function Name:** findTruckForShipment

**Parameter List:**

|  |  |  |
| --- | --- | --- |
| Parameter Name | Type | Description |
| m | const struct Map\* | A pointer to the map structure containing information about the route and locations. |
| trucks | const struct Truck\* | An array of trucks available for shipment. |
| numTrucks | int | The number of trucks in the trucks array. |
| shipment | const struct Package\* | A pointer to the package structure containing details like weight, size, and destination. |

**Returns:** The index of the selected truck that is best suited to transport the shipment. If no suitable truck is found, returns -1.

**Description:** By measuring the shortest distance between the truck's current path and the destination, this finds the closest truck to the delivery. We will choose the truck that makes the best use of the available room if two trucks are equally distributed.

**Function Name:** addPackage

**Parameter List:**

|  |  |  |
| --- | --- | --- |
| Parameter Name | Type | Description |
| tr | struct Truck\* | A pointer to the truck structure where the package will be added. |
| pkg | struct Package | The package to be added to the truck. Includes information such as weight, size, and destination. |

**Returns:** This function does not return any value. Instead, it will add the package to the truck

**Description:** This function will add package to the truck. It will determine that the truck and the remaining weight, volume and package is enough to add a new package, if the truck is full, the message will be prompted to the display, if don’t, then the package will be added to the truck

**Function Name:** capcityLeft

**Parameter List:**

|  |  |  |
| --- | --- | --- |
| Parameter Name | Type | Description |
| tr | const struct Truck\* | A pointer to the truck structure whose remaining capacity will be calculated. |

**Returns:** Return the percentage of remaining capacity in the truck, with the information of both weight and volume. Which one is smaller then will be displayed

**Description:** Calculate the remaining weight and volume based on the limit. The calculation will display for customer or user know that the truck that they aimed to choose is still have enough weight or volume left or not ?

**Function Name:** pathCalculation

**Parameter List:**

|  |  |  |
| --- | --- | --- |
| Parameter Name | Type | Description |
| m | const struct Map\* | A pointer to the map structure containing information about points and paths. |
| begin | struct Point | The starting point of the path. |
| dest | struct Point | The destination point for which the path is to be calculated. |

**Returns:** the combination of row and column of the shortest path

**Description:** A function to help user know that which path or road is the best to transfer the package from entry point to the end.

**Function Name:** canAddPackage

**Parameter List:**

|  |  |  |
| --- | --- | --- |
| Parameter Name | Type | Description |
| tr | const struct Truck\* | A pointer to the truck structure to check its capacity for adding a package. |
| pkg | const struct Package\* | A pointer to the package structure containing weight and size information. |

**Returns:** 1 if package add to the truck and 0 if not and prompt the message for user to know

**Description:** A function that using to help the process of adding package is more versatile. It will be linked to another function to help user to know that the truck they choose is have enough space or not

**Function Name:** countPackages

**Parameter List:**

|  |  |  |
| --- | --- | --- |
| Parameter Name | Type | Description |
| tr | const struct Truck\* | A pointer to the truck structure whose package count will be returned. |

**Returns:** number of packages in the truck

**Description:** A function to calculate how many packages on the truck to help user know more detail.