FindTime function algorithm

This algorithm is a part of CheckAvailablity algorithm/function. It is activated only if a conflict occurs during the reservation process of a cell. The CheckAvailablity algorithm/function uses a binary search method called red-black tree to check cell reservation time conflicts. If any (conflict) exists, then FindTime algorithm/function is run to check the earliest time to be reserved as the crossing time of that vehicle for the same cell.

Algorithm

1- Check the last node (red-black tree node) of the cell where the conflict occurred
2- In the red-black tree of the cell where one wished to reserve time, go back to the child node successor of the root node
3- Calculate the time spent (ts) by a vehicle to entirely cross a reserved cell
4- Calculate the time gap (tg) between the root node and the successor
5- Calculate the time span (ts) between the departure time of the successor cell and the arrival time one wishes to reserve.
6- Calculate the new earliest arrival time and the new late departure time by adding the time span (ts) value to both arrival and departure time of the previously rejected time.
7- Display (Return) those values.