Elevator System Design

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1.user selects a destination floor from any source floor and a lift number is shown & User enters lift and goes to destination floor

2.User selects a direction and a lift comes to the source floor and user gets in and selects a destination floor from inside hte lift and goes ot destination floor

<<ILiftSelectionStrategyWithDestination>>

SelectElevator(int SourceFloorId,int DestinationFloorId)

NearestLiftSelectionStrategy

SelectElevator(int SourceFloorId,int DestinationFloorId)

DefaultLiftSelectionStrategy

SelectElevator(int SourceFloorId,int DestinationFloorId)

SourceFloor

InitializeElevatorSelectionStrategy()
IntializeElevatorController()
SelectWithDestionation(SourceFloorId, DestinationFloorId)
SelectWithDirection(SourceFloorId, Direction)
SelectDestinationFromInsideLift (ElevatorId,DestinationId)

ElevatorController

Dictionary<ElevatorCarId,SingletonInstanceOfEachCar>

GetInstane()
AddElevatorCar(IElevatorCar Car)
RemoveElevatorCar(ElevatorCarId)
Move(int DestinationFloorId, Int ElevatorId)
UpdateStatus(StatusEnum,int ElevatorId)

<<ILiftSelectionStrategyWithDirection>>

SelectElevator(int SourceFloorId,Enum Direction)

NearestLiftSelectionStrategy

SelectElevator(int SourceFloorId,Enum Direction)

DefaultLiftSelectionStrategy

SelectElevator(int SourceFloorId,Enum Direction)

<<ElevatorCar>>

Id
MaxFloor
MinFloor
HashSet<BlackListedFloor>
MinHeap<Floor> Up
MaxHeap<Floor> Down
Status
int CurrentFloorId

ValidateDestinatonFloor(Int SoureFloorId, Int DestinationFloorId)

UpdateHeap(int DestinatonFloorId, Enum Direction)

UpdateStatus(StatusEnum)

ElevatorStatus Enum

Idle
UnderMaintenance
Active

Car1

Car2

Car3

Car4