Elsa Rodriguez Plaza/CS6310/Assignment 6/Class Diagram These are the changes implemented in the class diagram for Assignment 6: 1. Fixes in bus and route classes from HW2 instructor feedback 2.MTSApplicationEventManager class: In order to avoid confusion, I did not represent the datatypes Includes the methods for adjusting the route, the speed and the rider capacity at simulation and some utility classes, such time Includes the update function for passenger recalculation that calls the necessary functions in stop and bus classes Includes the functions for measuring system efficiency Includes functions for the system's replays, note that the state of the system will be saved to a file or similar structure using the saveSystemStateToFile private function to allow system's SimulationObject rewind up to 3 events as specified in the assignment description #id:int 3.Stop class: Includes waiting and transfer riders lists and the necessary functions for recalculating the waitings and transfers 4 Rue class: Includes the current riders list and the described functions for recalculating the current riders For clarity, I have highlighted in bold the new methods and classes added for this creates MTSApplicationEventManager Lam assuming that a -routes:Map<Routes,Integer Bus -buses:Map<Bus.Integer> -simulationEventQueue: PriorityQueue < SimulationEvent> -riders:Map<Rider,Integer> -stops:Map<Stop,Integer> -kSpeed:double -route:Route -location:int -riderCapacity:int -initialFuel:float -fuelCapacity: float -kCapacity:double -kBuses:double -kCombined:double TravelMapRenderer Rider SimulationEvent -travelSpeed:float -id: String -name: String -departureTime:int -name:String -initialRiders:int #name:String -currentFuel:float -currentRiders:List<Rider +buildSimilationEvents(commandFile:File):void #time:int + moveNextBus():void +resetBuses():void number:int +buildSimulationObjects(command:String):void #id:int -location:Pair<Double.Double> stops:List<Stop> -arrivalTime: int +addBus(id:int,route:Route,routeLocation:int,riders:int,passengerCapacity:int, #eventType:String -waitingRidore I jetcRidora +getCurrentStop():Stop currentRus: String +initSimulation():void ntitialFuel:float,fuelCapacity:float,speed:float) #simulationObject:SimulationObject +findVisualElement(location:Pair<double.double> +getRoute():Route +addStop(id:int, name:String, riders: int,latitude:double,longitude:double):void +getSpeed():float +updateCurrentFuel(travelDistance:float):void +getNumberOfRiders():int +manageExcesRiders():boolean VisualSimulationElement +refreshMapElement(location +getStopLocation(stopId:int): -currentGroup:String Padpuble,double> +getNextStop(stopId:int):Stop +extendRoute(routeld:int.stopId:String):void +execute():void + getLocation():Pair<double,double> along +addRoute(id:int,number.int,name:String):void +addEvent(time:int, eventName:String,simObjectId:int) +getWaitingRiders():int +setIsRidingBus(isRiding:boolean):void Pair<double,double>, displayInformation:String) {ordered} +adjustBusRoute(busld: int, routeld: int, +setWaitingRiders(newV +calculateTravelDistance(egetlsRidingBus():boolean intialStop:int): void +adjustBusSpeed(busId: int, newSpeed: +executeNextLogicalEvent():void :int):void stopId1:int.StopId2:int) +increaseRiders(riders:int):void +getEventEromQueue():SimulationEvent +getTransferRiders():int +setTransferRiders(newTransferRiders:int):void +decreaseRiders(riders:int):void +setNewRoute(route:Route, initialStop:int) simulation +createRider(id:String,name:String,departureTime:String,arrivalTime:String,currentBus:String).void +simulateRiderTimeFromMartaDB(riderId):int int):void +adjustBusRiderCapacity(busld: int, newCapacity: int): void -calculateSystemEfficiency():void +setNewBusSpeed(newSpeed:int) +resetTransfers():void +setNewBusCapacity(newCapacity:int) +createSimulationEvent(event:SimulationEvent) +createsiminationEvenity = High Representation (logical Time (logical Time int): Pair<Integer, Integer> waitingRiders:int) -resetBus():void -setSystemConstants(systemCor newValue: double):void +decreaseWaitingRiders -initSystemConstantsToOne():void watingRiders:int) +adjustRoute(busld: int, routeld: int, initialStop:int): void +adjustSpeed(busld: int, newSpeed: int): void LinearRoute CircularRoute +adjustRiderCapacity(busid: int, newCapacity: int): void Simulation EventMoveBus groups +setSystemConstantKSpeed(newValue:double) +setSystemConstantKCapacity(newValue:double) +setSystemConstantKBuses(newValue:double) +setSystemConstantKBuses(newValue:double) contains currentTravelState:String -calculateWaitingPassengers():Int -calculateBusCost(busId:int):double +measureStopBusEfficiency(waitingPassengers:int,costRunningBuses: Uniform Distribution Generator VisualSimulationElement +execute():void double):void +calculateTravelTime(replaySystemExecution(numberOfEvents:int):void -location:Pair<double.double> travelDistance:float,speed:float): icon lcon displayInformation: String +displayInformationLine(busId:int, nextStopId:int,logicalTime:int, ridersOnboard:int,distaceRemaining: - uses/manages riders --+refresh(newDisplayInformation float):String :String):void +updateBusStop(stop:Stop):void -getCurrentBusStop():int -getNextBusStop():int -getTravelTime(distanceStops:double,busSpeed .int).double -manageWaitingGroupStop():void -manageTransferGroupStop():void -managesCurrentRiders():void -managesRidersDepart():void RiderExchangesSimulator +generateRandom(rangeLow:int, rangeHigh:int):int RiderArriveSimulator RiderOffSimulator RiderOnSimulator RiderDepartSimulator

+generateRidersArrive():int

generateRidersOff():int

generateRidersOn():int

+generateRidersDepart():