CSE6730 Modeling & Simulation : Project-1

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Contents

Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 2

Class Index

2.1 Class List

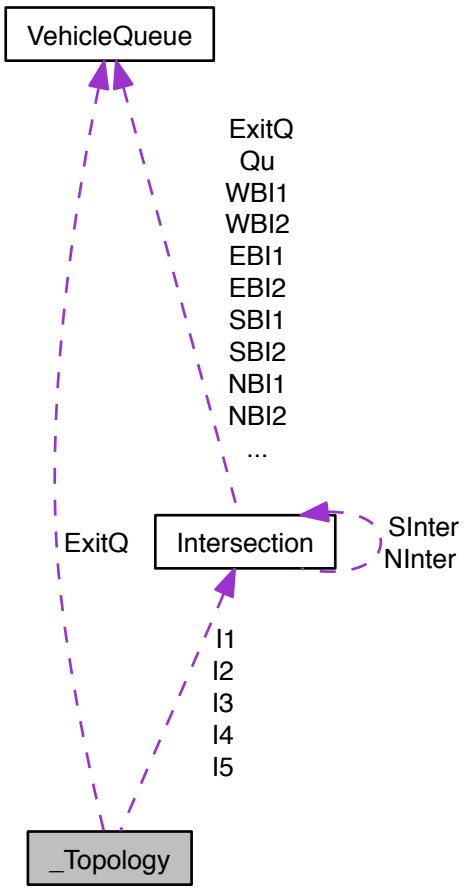
Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 3

Class Documentation

3.1 _Topology Class Reference

Collaboration diagram for _Topology:



Public Attributes

- Intersection * **I1**
- Intersection * **I2**
- Intersection * **I3**
- Intersection * **I4**
- Intersection * **I5**
- VehicleQueue * **ExitQ**

The documentation for this class was generated from the following file:

- Topology.h

3.2 calender_queue Class Reference

`#include <calender_queue.h>`

Public Member Functions

- void **insert** (EventBase *)
- void **dequeue** (EventBase *)
- EventBase * **PopNext** ()
- EventBase * **next_event** (int)
- void **remove_event** (int, EventBase *)
- int **isEmpty** ()
- int **get_bucket_count** ()
- int **getQsize** ()
- int **gettimeframe** ()
- void **check659bucket** ()

3.2.1 Detailed Description

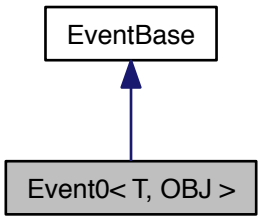
Name changed from prioqueue to calender_queue for sake of clearity

The documentation for this class was generated from the following files:

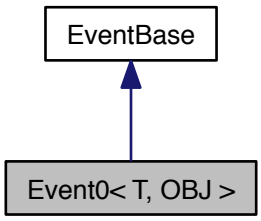
- calender_queue.h
- calender_queue.cc

3.3 Event0< T, OBJ > Class Template Reference

Inheritance diagram for Event0< T, OBJ >:



Collaboration diagram for Event0< T, OBJ >:



Public Member Functions

- **Event0** (double t, void(T::*f)(), OBJ *obj0)
- void **CallHandler** ()

Public Attributes

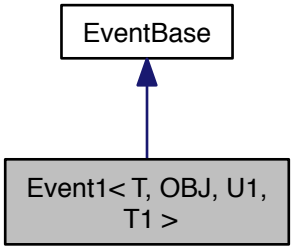
- void(T::* **handler**)(void)
- OBJ * **obj**

The documentation for this class was generated from the following file:

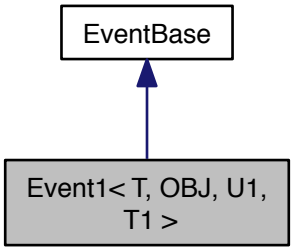
- Events.h

3.4 Event1< T, OBJ, U1, T1 > Class Template Reference

Inheritance diagram for Event1< T, OBJ, U1, T1 >:



Collaboration diagram for Event1< T, OBJ, U1, T1 >:



Public Member Functions

- **Event1** (double t, void(T::*f)(U1), OBJ *obj0, T1 t1_0)
- void **CallHandler** ()

Public Attributes

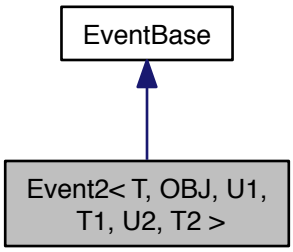
- void(T::* **handler**)(U1)
- OBJ * **obj**
- T1 **t1**

The documentation for this class was generated from the following file:

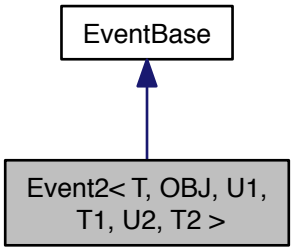
- Events.h

3.5 Event2< T, OBJ, U1, T1, U2, T2 > Class Template Reference

Inheritance diagram for Event2< T, OBJ, U1, T1, U2, T2 >:



Collaboration diagram for Event2< T, OBJ, U1, T1, U2, T2 >:



Public Member Functions

- **Event2** (double t, void(T::∗f)(U1, U2), OBJ ∗obj0, T1 t1_0, T2 t2_0)
- void **CallHandler** ()

Public Attributes

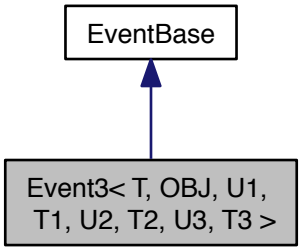
- void(T::∗ **handler**)(U1, U2)
- OBJ ∗ **obj**
- T1 **t1**
- T2 **t2**

The documentation for this class was generated from the following file:

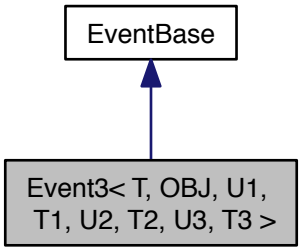
- Events.h

3.6 Event3< T, OBJ, U1, T1, U2, T2, U3, T3 > Class Template Reference

Inheritance diagram for Event3< T, OBJ, U1, T1, U2, T2, U3, T3 >:



Collaboration diagram for Event3< T, OBJ, U1, T1, U2, T2, U3, T3 >:



Public Member Functions

- **Event3** (double t, void(T::*f)(U1, U2, U3), OBJ *obj0, T1 t1_0, T2 t2_0, T3 t3_0)
- void **CallHandler** ()

Public Attributes

- void(T::* **handler**)(U1, U2, U3)
- OBJ * **obj**
- T1 **t1**
- T2 **t2**
- T3 **t3**

The documentation for this class was generated from the following file:

- Events.h

3.7 event_compare Class Reference

Public Member Functions

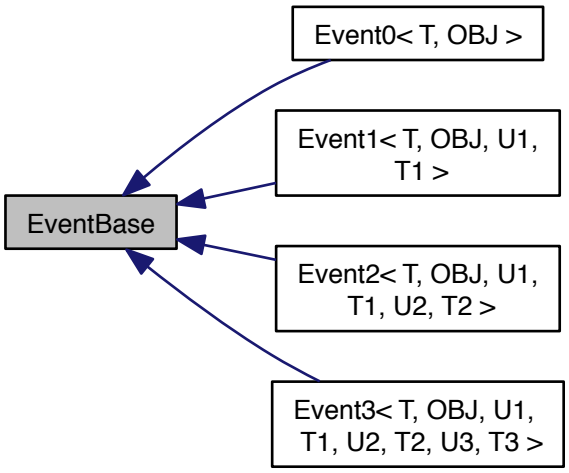
- bool **operator()** (EventBase ∗const &l, const EventBase ∗const &r) const

The documentation for this class was generated from the following file:

- Events.h

3.8 EventBase Class Reference

Inheritance diagram for EventBase:



Public Member Functions

- **EventBase** (Time_t t)
- virtual void **CallHandler** ()=0
- Time_t **getTime** ()

Public Attributes

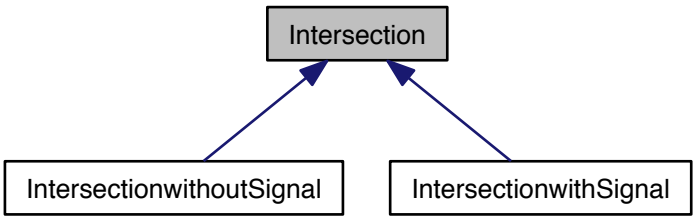
- Time_t **time**

The documentation for this class was generated from the following file:

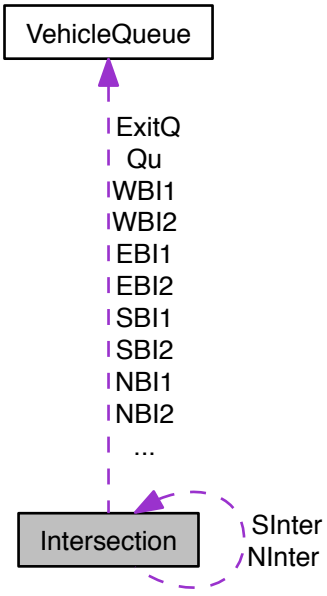
- Events.h

3.9 Intersection Class Reference

Inheritance diagram for Intersection:



Collaboration diagram for Intersection:



Public Member Functions

- **Intersection** (int)
- int **getID** ()
- void **VehiclePass** (VehicleClass ∗vehicle, int Turn)
- void **VehicleDeparture** (VehicleClass ∗vehicle)
- void **EvictQ** (VehicleQueue ∗joinqueue)
- virtual void **addVehicletoQueue** (VehicleQueue ∗joinqueue, VehicleClass ∗vehicle)=0

- virtual int **QCanGo** (int direction, int lane)=0
- int **getQdirection** (VehicleQueue ∗Q)
- int **getQlane** (VehicleQueue ∗Q)
- void **NextQInfo** (VehicleQueue ∗currentQ, VehicleClass ∗vehicle, Intersection ∗&NextInter, VehicleQueue ∗&FutureQ, bool &isfull, int &Turn)

Public Attributes

- VehicleQueue ∗ **EBI1**
- VehicleQueue ∗ **EBI2**
- VehicleQueue ∗ **WBI1**
- VehicleQueue ∗ **WBI2**
- VehicleQueue ∗ **NBI1**
- VehicleQueue ∗ **NBI2**
- VehicleQueue ∗ **SBI1**
- VehicleQueue ∗ **SBI2**
- VehicleQueue ∗ **Qu** [4][2]
- dir **routingtable** [12]
- int **NBIlength**
- int **SBIlength**
- VehicleQueue ∗ **ExitQ**
- Intersection ∗ **NInter**
- Intersection ∗ **SInter**

Protected Attributes

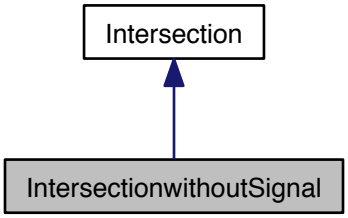
- int **ID**
- bool **haveSignal**
- bool **busy**

The documentation for this class was generated from the following files:

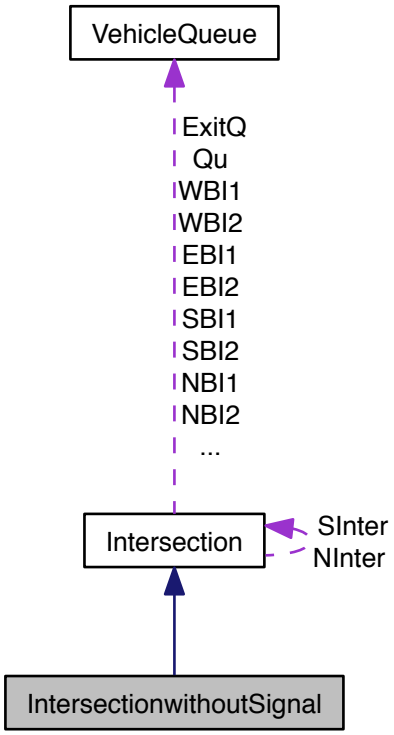
- Intersection.h
- Intersection.cpp

3.10 IntersectionwithoutSignal Class Reference

Inheritance diagram for IntersectionwithoutSignal:



Collaboration diagram for IntersectionwithoutSignal:



Public Member Functions

- virtual void **addVehicletoQueue** (VehicleQueue ∗joinqueue, VehicleClass ∗vehicle)
- virtual int **QCanGo** (int direction, int lane)
- **IntersectionwithoutSignal** (int)

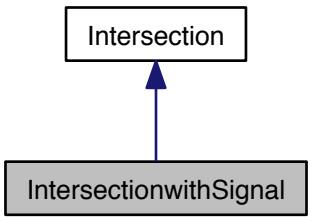
Additional Inherited Members

The documentation for this class was generated from the following files:

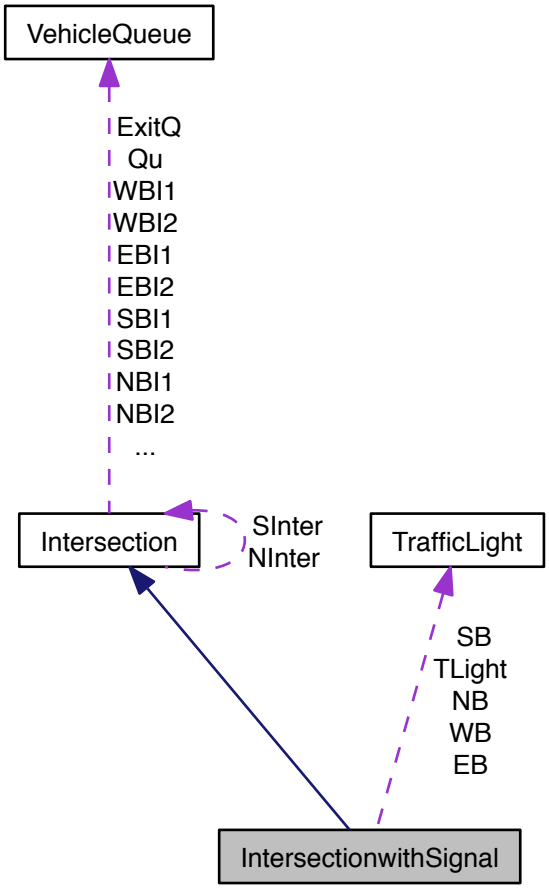
- IntersectionwoSignal.h
- IntersectionwoSignal.cpp

3.11 IntersectionwithSignal Class Reference

Inheritance diagram for IntersectionwithSignal:



Collaboration diagram for IntersectionwithSignal:



Public Member Functions

- void **changeSignalTrigger** (int LightID)
- virtual void **addVehicletoQueue** (VehicleQueue *joinqueue, VehicleClass *vehicle)
- virtual int **QCanGo** (int direction, int lane)
- **IntersectionwithSignal** (int)

Public Attributes

- TrafficLight * **EB**
- TrafficLight * **WB**
- TrafficLight * **NB**
- TrafficLight * **SB**
- TrafficLight * **TLight** [4]

Additional Inherited Members

The documentation for this class was generated from the following files:

- IntersectionwithSignal.h
- IntersectionwithSignal.cpp

3.12 prioqueue Class Reference

Public Member Functions

- void **enqueue** (EventBase *)
- EventBase * **dequeue** (EventBase *)
- EventBase * **PopNext** ()
- bool **isEmpty** ()

The documentation for this class was generated from the following file:

- prioqueue.h

3.13 RandomNumGen Class Reference

Public Member Functions

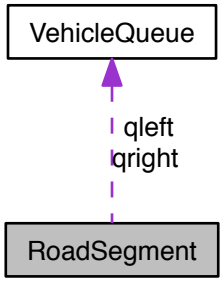
- **RandomNumGen** (unsigned long x0)
- double **Next** ()
- void **Reset** ()
- unsigned long **GetState** ()

The documentation for this class was generated from the following files:

- RandomNum.h
- RandomNum.cc

3.14 RoadSegment Class Reference

Collaboration diagram for RoadSegment:



Public Member Functions

- **RoadSegment** (dir direction, Intersection *par, int cap)
- void **AddVehicle** (VehicleClass *vehicle)
- void **EvictVehicle** ()

Public Attributes

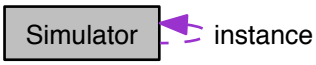
- VehicleQueue **qright**
- VehicleQueue **qleft**

The documentation for this class was generated from the following files:

- RoadSegment.h
- RoadSegment.cpp

3.15 Simulator Class Reference

Collaboration diagram for Simulator:



Public Member Functions

- void **Stop** ()
- Time_t **getNow** ()
- template<typename T , typename OBJ , typename U1 , typename T1 >
  void **Schedule** (double t, void(T::*handler)(U1), OBJ *obj, T1 t1)
- template<typename T , typename OBJ , typename U1 , typename T1 , typename U2 , typename T2 >
  void **Schedule** (double t, void(T::*handler)(U1, U2), OBJ *obj, T1 t1, T2 t2)
- template<typename T , typename OBJ , typename U1 , typename T1 , typename U2 , typename T2 , typename U3 , typename T3 >
  void **Schedule** (double t, void(T::*handler)(U1, U2, U3), OBJ *obj, T1 t1, T2 t2, T3 t3)

Static Public Member Functions

- static void **Run** ()
- static void **StopAt** (Time_t)
- template<typename T , typename OBJ >
  static void **Schedule** (double t, void(T::*handler)(void), OBJ *obj)
- static Time_t **Now** ()

Static Public Attributes

- static Simulator * **instance** =0

The documentation for this class was generated from the following files:

- Simulator.h
- Simulator.cpp

3.16 TrafficLight Class Reference

Public Member Functions

- int **getType** ()
- state **getState** ()
- **TrafficLight** (int id, int typ, state initialState, double Ph1, double Ph2, double Ph3, double Ph4, double Ph5, double Ph6, IntersectionwithSignal *p)
- void **cyclestate** ()

Public Attributes

- int **myid**

The documentation for this class was generated from the following files:

- TrafficLight.h
- TrafficLight.cpp

3.17 VehicleClass Class Reference

Public Member Functions

- void **setEndTime** (Time_t t)
- int **getID** ()
- void updateDirection (dir Direction)

  !Constructor
- dir **getDirection** ()
- void **setLastQ** (VehicleQueue ∗Q)
- VehicleQueue ∗ **getLastQ** ()
- int **getDestination** ()
- **VehicleClass** (int id, int start, int Dest, Time_t starttime)

The documentation for this class was generated from the following files:

- VehicleClass.h
- VehicleClass.cpp

3.18 VehicleQueue Class Reference

The documentation for this class was generated from the following files:

- VehicleQueue.h
- VehicleQueue.cpp

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