```
@prefix : <http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#> .
@prefix lcs: <http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#> .
@prefix owl: <http://www.w3.org/2002/07/owl#> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@base <http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#> .

<http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#> rdf:type owl:Ontology
.


#############################################################
#    Annotation properties
#############################################################

###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#inPar
lcs:inPar rdf:type owl:AnnotationProperty .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#moduleName
lcs:moduleName rdf:type owl:AnnotationProperty .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#outPar
lcs:outPar rdf:type owl:AnnotationProperty .


#############################################################
#    Object Properties
#############################################################

###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#can_drive
lcs:can_drive rdf:type owl:ObjectProperty ;
              rdfs:subPropertyOf owl:topObjectProperty ;
              rdfs:domain lcs:License ;
              rdfs:range lcs:Vehicle_type .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#has_action
lcs:has_action rdf:type owl:ObjectProperty ;
               rdfs:subPropertyOf owl:topObjectProperty ;
               rdfs:domain lcs:Vehicle ,
                           lcs:route_point ;
               rdfs:range lcs:action .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#has_driver
lcs:has_driver rdf:type owl:ObjectProperty ;
               rdfs:subPropertyOf owl:topObjectProperty ;
               rdfs:domain lcs:Vehicle ;
               rdfs:range lcs:Driver .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#has_license
lcs:has_license rdf:type owl:ObjectProperty ;
                rdfs:subPropertyOf owl:topObjectProperty ;
                rdfs:domain lcs:Driver ;
                rdfs:range lcs:License .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#has_location
lcs:has_location rdf:type owl:ObjectProperty ;
                 rdfs:subPropertyOf owl:topObjectProperty ;
```

```
                    rdfs:domain lcs:Vehicle ,
                                lcs:route_point ,
                                lcs:weather_events ;
                    rdfs:range lcs:location .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#has_route
lcs:has_route rdf:type owl:ObjectProperty ;
              rdfs:subPropertyOf owl:topObjectProperty ;
              rdfs:domain lcs:Vehicle ;
              rdfs:range lcs:route .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#has_route_point
lcs:has_route_point rdf:type owl:ObjectProperty ;
                    rdfs:subPropertyOf owl:topObjectProperty ;
                    rdfs:domain lcs:route ;
                    rdfs:range lcs:route_point .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#has_vehicle_type
lcs:has_vehicle_type rdf:type owl:ObjectProperty ;
                     rdfs:subPropertyOf owl:topObjectProperty ;
                     rdfs:domain lcs:Vehicle ;
                     rdfs:range lcs:Vehicle_type .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#has_warning
lcs:has_warning rdf:type owl:ObjectProperty ;
                rdfs:subPropertyOf owl:topObjectProperty ;
                rdfs:domain lcs:weather_events ;
                rdfs:range lcs:warning .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#isOnLane
lcs:isOnLane rdf:type owl:ObjectProperty ;
             rdfs:subPropertyOf owl:topObjectProperty ;
             rdfs:domain lcs:Sign ;
             rdfs:range lcs:Lane .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#isOnRoad
lcs:isOnRoad rdf:type owl:ObjectProperty ;
             rdfs:subPropertyOf owl:topObjectProperty ;
             rdfs:domain lcs:Road_segment ;
             rdfs:range lcs:Road .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#isOnSegment
lcs:isOnSegment rdf:type owl:ObjectProperty ;
                rdfs:subPropertyOf owl:topObjectProperty ;
                rdfs:domain lcs:Lane ;
                rdfs:range lcs:Road_segment .


#################################################################
#    Data properties
#################################################################

###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#hasLanes
lcs:hasLanes rdf:type owl:DatatypeProperty ;
             rdfs:domain lcs:Types_of_roads ;
             rdfs:range xsd:positiveInteger .
```

```
###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#hasTruthValue
lcs:hasTruthValue rdf:type owl:DatatypeProperty ;
                   rdfs:domain lcs:Impossible_scenarios ;
                   rdfs:range xsd:integer .


#################################################################
#    Classes
#################################################################

###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-
2#Ahead_Vehicle_and_Ahead_Safety_Distance
lcs:Ahead_Vehicle_and_Ahead_Safety_Distance rdf:type owl:Class ;
                                             rdfs:subClassOf lcs:Impossible_scenarios .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Ambulance
lcs:Ambulance rdf:type owl:Class ;
              rdfs:subClassOf lcs:Priority_Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Audible_Line
lcs:Audible_Line rdf:type owl:Class ;
                 rdfs:subClassOf lcs:Road_markings .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Bicycle
lcs:Bicycle rdf:type owl:Class ;
            rdfs:subClassOf lcs:Private_Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Bicycle_crossing
lcs:Bicycle_crossing rdf:type owl:Class ;
                     rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-
2#Bicycles_and_pedestrians_only
lcs:Bicycles_and_pedestrians_only rdf:type owl:Class ;
                                  rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Bridge
lcs:Bridge rdf:type owl:Class ;
           rdfs:subClassOf lcs:Infrastructure .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Bus
lcs:Bus rdf:type owl:Class ;
        rdfs:subClassOf lcs:Public_Vehicle ;
        owl:disjointWith lcs:Taxi .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Car
lcs:Car rdf:type owl:Class ;
        rdfs:subClassOf lcs:Private_Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-
2#Closed_to_pedestrian
lcs:Closed_to_pedestrian rdf:type owl:Class ;
                         rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Commercial_Vehicle
```

```
lcs:Commercial_Vehicle rdf:type owl:Class ;
                        rdfs:subClassOf lcs:Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Dividing_Line
lcs:Dividing_Line rdf:type owl:Class ;
                  rdfs:subClassOf lcs:Road_markings .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Driver
lcs:Driver rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Edge_Line
lcs:Edge_Line rdf:type owl:Class ;
              rdfs:subClassOf lcs:Road_markings .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Fire_Truck
lcs:Fire_Truck rdf:type owl:Class ;
               rdfs:subClassOf lcs:Priority_Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Function_calls
lcs:Function_calls rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Gas_Station
lcs:Gas_Station rdf:type owl:Class ;
                rdfs:subClassOf lcs:Infrastructure .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Gragons_Teeth
lcs:Gragons_Teeth rdf:type owl:Class ;
                  rdfs:subClassOf lcs:Road_markings .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Green
lcs:Green rdf:type owl:Class ;
          rdfs:subClassOf lcs:Traffic_Light .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Impossible_scenarios
lcs:Impossible_scenarios rdf:type owl:Class ;
                         owl:disjointWith lcs:Process .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Infrastructure
lcs:Infrastructure rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Keep_Clear_Pavement
lcs:Keep_Clear_Pavement rdf:type owl:Class ;
                        rdfs:subClassOf lcs:Road_markings .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Kerb_Line
lcs:Kerb_Line rdf:type owl:Class ;
              rdfs:subClassOf lcs:Road_markings .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Lane
lcs:Lane rdf:type owl:Class ;
         rdfs:subClassOf lcs:Infrastructure .
```

```
###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Lane_Edges
lcs:Lane_Edges rdf:type owl:Class ;
              rdfs:subClassOf lcs:Impossible_scenarios .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-
2#Left_Lane_and_Vehicles
lcs:Left_Lane_and_Vehicles rdf:type owl:Class ;
                           rdfs:subClassOf lcs:Impossible_scenarios .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-
2#Left_Vehicle_and_Left_Safety_Distance
lcs:Left_Vehicle_and_Left_Safety_Distance rdf:type owl:Class ;
                                          rdfs:subClassOf lcs:Impossible_scenarios .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#License
lcs:License rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Motorcycle
lcs:Motorcycle rdf:type owl:Class ;
              rdfs:subClassOf lcs:Private_Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Municipal_Road
lcs:Municipal_Road rdf:type owl:Class ;
                   rdfs:subClassOf lcs:Road ;
                   rdfs:comment "Its a urban road. Usually present in small cities and towns." .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#National_Expressway
lcs:National_Expressway rdf:type owl:Class ;
                        rdfs:subClassOf lcs:Road ;
                        rdfs:comment """Express way is a type of highway that is used more frequently
between metropolitan cities. These are highest class of all the highways.
Generally they have 4-6 lanes for most distances.""" .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#National_Highway
lcs:National_Highway rdf:type owl:Class ;
                     rdfs:subClassOf lcs:Road .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#No_entry
lcs:No_entry rdf:type owl:Class ;
            rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#No_parking
lcs:No_parking rdf:type owl:Class ;
              rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#One_way
lcs:One_way rdf:type owl:Class ;
           rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-
2#Only_designated_directions_per
lcs:Only_designated_directions_per rdf:type owl:Class ;
```

```
                            rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Painted_Arrow
lcs:Painted_Arrow rdf:type owl:Class ;
                  rdfs:subClassOf lcs:Road_markings .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Painted_Island
lcs:Painted_Island rdf:type owl:Class ;
                   rdfs:subClassOf lcs:Road_markings .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Parking
lcs:Parking rdf:type owl:Class ;
            rdfs:subClassOf lcs:Infrastructure .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Pedestrian_Crossing
lcs:Pedestrian_Crossing rdf:type owl:Class ;
                        rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Pedestrians_only
lcs:Pedestrians_only rdf:type owl:Class ;
                     rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Police_Car
lcs:Police_Car rdf:type owl:Class ;
               rdfs:subClassOf lcs:Priority_Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Priority_Vehicle
lcs:Priority_Vehicle rdf:type owl:Class ;
                     rdfs:subClassOf lcs:Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Private_Vehicle
lcs:Private_Vehicle rdf:type owl:Class ;
                    rdfs:subClassOf lcs:Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Process
lcs:Process rdf:type owl:Class ;
            owl:disjointWith lcs:Types_of_roads .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Process1
lcs:Process1 rdf:type owl:Class ;
             rdfs:subClassOf lcs:Process ;
             rdfs:comment """Lane Tracing and Lane changing block.
This is a parent block for all the sub processes."""^^xsd:string ;
             rdfs:label "LT and LC"^^xsd:string .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Process1-1
lcs:Process1-1 rdf:type owl:Class ;
               rdfs:subClassOf lcs:Process1 ;
               rdfs:comment """LT - Lane Tracing
This detects the lanes on the road and traces them on the image for the system to identify the lane
boundaries."""^^xsd:string ;
               rdfs:label "LT"^^xsd:string .
```

http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Process1-2
```
lcs:Process1-2 rdf:type owl:Class ;
                rdfs:subClassOf lcs:Process1 ;
                rdfs:comment """PP - Predicting Possibilities
This block reads the environment and predicts the possibilities of the system to perform the action
of Lane changing safely."""^^xsd:string ;
                rdfs:label "PP"^^xsd:string .
```


http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Process1-3
```
lcs:Process1-3 rdf:type owl:Class ;
                rdfs:subClassOf lcs:Process1 ;
                rdfs:comment """DMS - Decision Making to Steer
This system gives a decision to steer the vehicle left or right or not to steer based on the
environment and real-time data supproted by NN and Mathematical Model"""^^xsd:string ;
                rdfs:label "DMS"^^xsd:string .
```


http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Process1-3-1
```
lcs:Process1-3-1 rdf:type owl:Class ;
                rdfs:subClassOf lcs:Process1-3 ;
                owl:disjointWith lcs:Process1-3-2 ;
                rdfs:comment """LC - Lane changing
This block makes use of motion planning algorithms to decide the path and the target lane for the ego
vehicle."""^^xsd:string ;
                rdfs:label "LC"^^xsd:string .
```


http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Process1-3-2
```
lcs:Process1-3-2 rdf:type owl:Class ;
                rdfs:subClassOf lcs:Process1-3 ;
                rdfs:comment """DDS - Deciding the direction to steer
This is a subsystem of DMS that performs the part function of chossing the direction of steer or the
yaw angle."""^^xsd:string ;
                rdfs:label "DDS"^^xsd:string .
```


http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Public_Vehicle
```
lcs:Public_Vehicle rdf:type owl:Class ;
                rdfs:subClassOf lcs:Vehicle .
```


http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Railway_Crossing
```
lcs:Railway_Crossing rdf:type owl:Class ;
                rdfs:subClassOf lcs:Traffic_Sign .
```


http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Red
```
lcs:Red rdf:type owl:Class ;
        rdfs:subClassOf lcs:Traffic_Light .
```


http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Right_Lane_and_Vehicles
```
lcs:Right_Lane_and_Vehicles rdf:type owl:Class ;
                            rdfs:subClassOf lcs:Impossible_scenarios .
```


http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Right_Vehicle_and_Right_Safety_Distance
```
lcs:Right_Vehicle_and_Right_Safety_Distance rdf:type owl:Class ;
                                            rdfs:subClassOf lcs:Impossible_scenarios .
```


http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Road

```
lcs:Road rdf:type owl:Class ;
        rdfs:subClassOf lcs:Infrastructure .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Road_Intersection
lcs:Road_Intersection rdf:type owl:Class ;
                      rdfs:subClassOf lcs:Infrastructure .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Road_closed
lcs:Road_closed rdf:type owl:Class ;
                rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-
2#Road_closed_to_all_vehicles
lcs:Road_closed_to_all_vehicles rdf:type owl:Class ;
                                rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Road_markings
lcs:Road_markings rdf:type owl:Class ;
                  rdfs:subClassOf lcs:Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Road_segment
lcs:Road_segment rdf:type owl:Class ;
                 rdfs:subClassOf lcs:Infrastructure .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Roundabout
lcs:Roundabout rdf:type owl:Class ;
               rdfs:subClassOf lcs:Infrastructure .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#School_Nursery
lcs:School_Nursery rdf:type owl:Class ;
                   rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Sign
lcs:Sign rdf:type owl:Class ;
        rdfs:subClassOf lcs:Infrastructure .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Slow_down
lcs:Slow_down rdf:type owl:Class ;
              rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Speed_Limit
lcs:Speed_Limit rdf:type owl:Class ;
                rdfs:subClassOf lcs:Traffic_Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#State_Highway
lcs:State_Highway rdf:type owl:Class ;
                  rdfs:subClassOf lcs:Road .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Stop
lcs:Stop rdf:type owl:Class ;
        rdfs:subClassOf lcs:Traffic_Sign .
```

```
###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Taxi
lcs:Taxi rdf:type owl:Class ;
        rdfs:subClassOf lcs:Public_Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Toll_controller
lcs:Toll_controller rdf:type owl:Class ;
                    rdfs:subClassOf lcs:Infrastructure .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Traffic_Light
lcs:Traffic_Light rdf:type owl:Class ;
                  rdfs:subClassOf lcs:Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Traffic_Sign
lcs:Traffic_Sign rdf:type owl:Class ;
                 rdfs:subClassOf lcs:Sign .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Tunnel
lcs:Tunnel rdf:type owl:Class ;
           rdfs:subClassOf lcs:Infrastructure .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Types_of_roads
lcs:Types_of_roads rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Vehicle
lcs:Vehicle rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Vehicle_Part
lcs:Vehicle_Part rdf:type owl:Class ;
                 rdfs:subClassOf lcs:Vehicle .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Vehicle_type
lcs:Vehicle_type rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Yellow
lcs:Yellow rdf:type owl:Class ;
           rdfs:subClassOf lcs:Traffic_Light .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#action
lcs:action rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#final_result
lcs:final_result rdf:type owl:Class ;
                 rdfs:subClassOf lcs:Function_calls ;
                 lcs:inPar "seg_vals,count" ;
                 lcs:moduleName "demo" ;
                 lcs:outPar "msg" ;
                 rdfs:label "final_result" .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#lane_counting
lcs:lane_counting rdf:type owl:Class ;
                  rdfs:subClassOf lcs:Function_calls ;
                  lcs:inPar "cur_lane,rt_turn,lt_turn" ;
                  lcs:moduleName "query" ;
```

```
                    lcs:outPar "cur_lane" ;
                    rdfs:label "lane_counting" .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#location
lcs:location rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#m_model
lcs:m_model rdf:type owl:Class ;
            rdfs:subClassOf lcs:Function_calls ;
            lcs:inPar "seg_vals" ;
            lcs:moduleName "mm" ;
            lcs:outPar "lane_info,r_depth,l_depth,a_depth" ;
            rdfs:label "m_model" .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#route
lcs:route rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#route_point
lcs:route_point rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#set_vars
lcs:set_vars rdf:type owl:Class ;
            rdfs:subClassOf lcs:Function_calls ;
            lcs:inPar "lane_info,r_depth,l_depth,a_depth" ;
            lcs:moduleName "mm" ;
            lcs:outPar "lt_sd,lt_veh,rt_sd,rt_veh,a_sd,ah_veh" ;
            rdfs:label "set_vars" .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#warning
lcs:warning rdf:type owl:Class .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#weather_events
lcs:weather_events rdf:type owl:Class .


#################################################################
#    Individuals
#################################################################

###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-
2#Ahead_Safety_Distance
lcs:Ahead_Safety_Distance rdf:type owl:NamedIndividual ,
                                   lcs:Ahead_Vehicle_and_Ahead_Safety_Distance ;
                          lcs:hasTruthValue 1 .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Ahead_Vehicle
lcs:Ahead_Vehicle rdf:type owl:NamedIndividual ,
                            lcs:Ahead_Vehicle_and_Ahead_Safety_Distance ;
                  lcs:hasTruthValue 1 .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Express_way
lcs:Express_way rdf:type owl:NamedIndividual ,
                         lcs:Types_of_roads ;
                lcs:hasLanes 6 ;
                rdfs:comment """Express way is a type of highway that is used more frequently between
metropolitan cities. These are highest class of all the highways.
```

```
Generally they have 4-6 lanes for most distances."""^^xsd:string .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Left_Lane_Edge
lcs:Left_Lane_Edge rdf:type owl:NamedIndividual ,
                              lcs:Lane_Edges ,
                              lcs:Left_Lane_and_Vehicles ;
                    lcs:hasTruthValue 1 .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-
2#Left_Safety_Distance
lcs:Left_Safety_Distance rdf:type owl:NamedIndividual ,
                                   lcs:Left_Vehicle_and_Left_Safety_Distance ;
                          lcs:hasTruthValue 1 .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Left_Vehicle
lcs:Left_Vehicle rdf:type owl:NamedIndividual ,
                           lcs:Left_Lane_and_Vehicles ,
                           lcs:Left_Vehicle_and_Left_Safety_Distance ;
                 lcs:hasTruthValue 1 .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#National_Highway
lcs:National_Highway rdf:type owl:NamedIndividual ,
                               lcs:Types_of_roads ;
                     lcs:hasLanes 4 .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Right_Lane_Edge
lcs:Right_Lane_Edge rdf:type owl:NamedIndividual ,
                              lcs:Lane_Edges ,
                              lcs:Right_Lane_and_Vehicles ;
                    lcs:hasTruthValue 1 .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-
2#Right_Safety_Distance
lcs:Right_Safety_Distance rdf:type owl:NamedIndividual ,
                                    lcs:Right_Vehicle_and_Right_Safety_Distance ;
                          lcs:hasTruthValue 1 .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#Right_Vehicle
lcs:Right_Vehicle rdf:type owl:NamedIndividual ,
                            lcs:Right_Lane_and_Vehicles ,
                            lcs:Right_Vehicle_and_Right_Safety_Distance ;
                  lcs:hasTruthValue 1 .


###  http://www.semanticweb.org/saitejeswar/ontologies/2021/2/untitled-ontology-2#State_Highway
lcs:State_Highway rdf:type owl:NamedIndividual ,
                            lcs:Types_of_roads ;
                  lcs:hasLanes 2 .


#################################################################
#    Annotations
#################################################################

lcs:National_Highway rdfs:comment """National highways are long roads that are present throughout the
country connecting all the important areas of every state.
Generally they have 2-4 lanes."""^^xsd:string .
```

```
lcs:State_Highway rdfs:comment """State Highways are the highways that connect cities  intra-state.
They have only 2 lanes."""^^xsd:string .


###################################################################
#    General axioms
###################################################################

[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Ambulance
                lcs:Fire_Truck
                lcs:Police_Car
              )
] .


[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Audible_Line
                lcs:Dividing_Line
                lcs:Edge_Line
                lcs:Gragons_Teeth
                lcs:Keep_Clear_Pavement
                lcs:Kerb_Line
                lcs:Painted_Arrow
                lcs:Painted_Island
              )
] .


[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Bicycle
                lcs:Car
                lcs:Motorcycle
              )
] .


[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Bicycle_crossing
                lcs:Bicycles_and_pedestrians_only
                lcs:Closed_to_pedestrian
                lcs:No_entry
                lcs:No_parking
                lcs:One_way
                lcs:Only_designated_directions_per
                lcs:Pedestrian_Crossing
                lcs:Pedestrians_only
                lcs:Railway_Crossing
                lcs:Road_closed
                lcs:Road_closed_to_all_vehicles
                lcs:School_Nursery
                lcs:Slow_down
                lcs:Speed_Limit
                lcs:Stop
              )
] .


[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Bridge
                lcs:Gas_Station
                lcs:Lane
                lcs:Parking
                lcs:Road
```

```
                lcs:Road_Intersection
                lcs:Road_segment
                lcs:Roundabout
                lcs:Sign
                lcs:Toll_controller
                lcs:Tunnel
              )
] .


[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Commercial_Vehicle
                lcs:Priority_Vehicle
                lcs:Private_Vehicle
                lcs:Public_Vehicle
                lcs:Vehicle_Part
              )
] .


[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Driver
                lcs:Function_calls
                lcs:Impossible_scenarios
                lcs:Infrastructure
                lcs:License
                lcs:Process
                lcs:Types_of_roads
                lcs:Vehicle
                lcs:Vehicle_type
                lcs:action
                lcs:location
                lcs:route
                lcs:route_point
                lcs:warning
                lcs:weather_events
              )
] .


[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Function_calls
                lcs:Impossible_scenarios
                lcs:Process
                lcs:Types_of_roads
                lcs:Vehicle
              )
] .


[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Green
                lcs:Red
                lcs:Yellow
              )
] .


[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Municipal_Road
                lcs:National_Expressway
                lcs:National_Highway
                lcs:State_Highway
              )
] .
```

```
[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Process1-1
                lcs:Process1-2
                lcs:Process1-3
              )
] .


[ rdf:type owl:AllDisjointClasses ;
  owl:members ( lcs:Road_markings
                lcs:Traffic_Light
                lcs:Traffic_Sign
              )
] .
```

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