

Hypercar Information System Ontology

Team 10

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Background

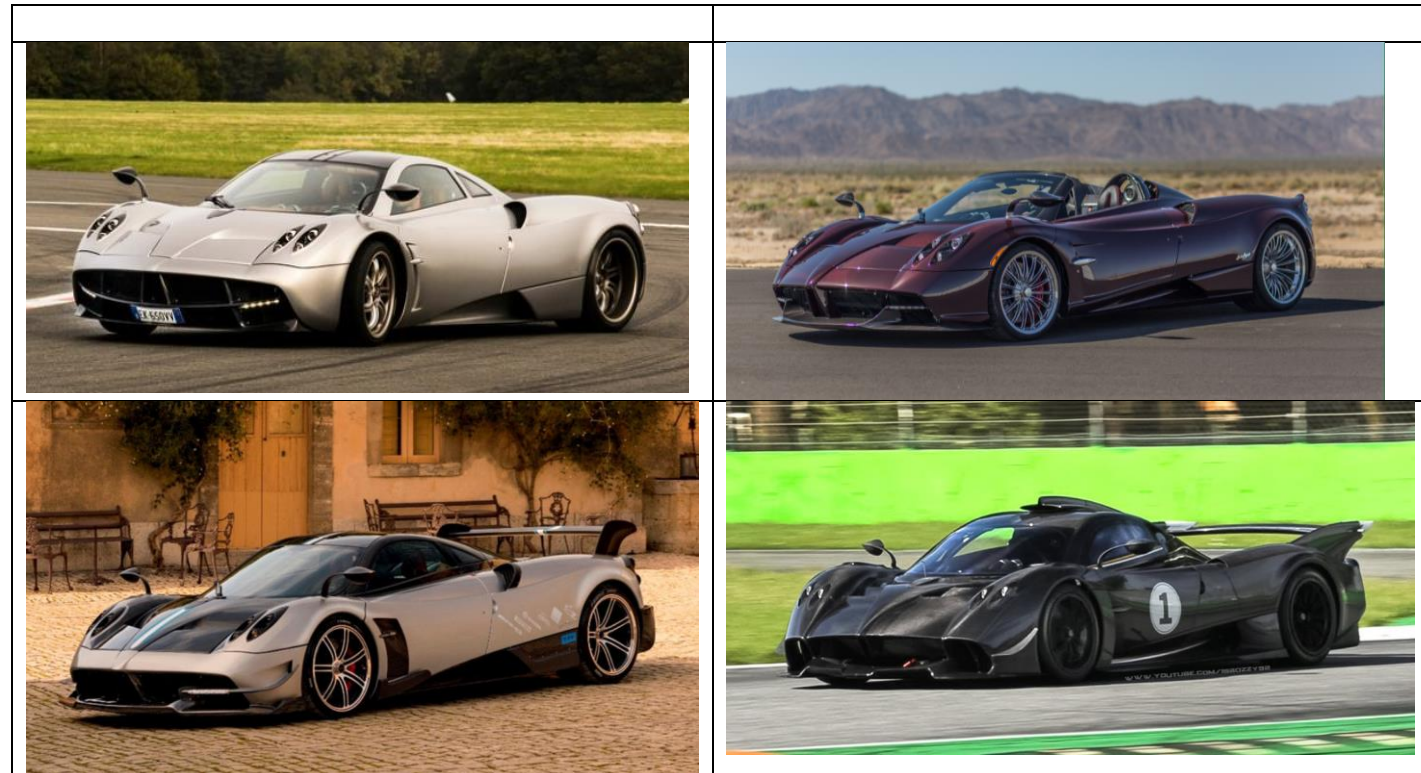
Hypercar Information System is used as a registry for hypercars, storing information about hypercars including engine spec, performance spec, transmission, model type and manufacturer. It also helps us find common specs between the various hypercar models.

The reason we register this information using ontology is because there are relations between models.

Hypercar manufacturers (i.e. Bugatti) do not make new models frequently. What they do is, they put out one base model (i.e. Bugatti Chiron) every 10-12 years. And during this gap they produce special editions and variants based on this model.

These variants can be track-only versions of the base model, downforce (track-focused lightweight) model, low drag (top-speed focused), one-off (coach-built, unique) model, or roadster version. These variants share specs with each other and with the base model while differing in other specs.

For example, the models can share the same engine (number of cylinders, layout, capacity, ..) and share the transmission spec (same number of gears, same transmission type) but differ in performance specs.





Description

Manufacturer makes at least 1 Model.

Models are divided into:

- Base Model (from which variants are made),
- Downforce Model (high-downforce track-focused sports model),
- Low Drag Model (top-speed-focused model),
- One-Off Model (unique model of which only 1 car is made)
- Roadster Model (model with removable/convertible roof)
- Track Only Model (track model illegal on road)

Model has exactly 1 Bodystyle (model bodystyle is coupe or roadster).

Model has exactly one Performance Spec (power, torque, drivetrain).

Model has max 1 Retractable Wing (wing width, wing adjustment type, angle of attack).

Model has exactly 1 Transmission Spec.

Model has exactly 1 Engine Spec (cylinders, capacity, layout, aspiration).

Model has exactly 1 Wheel Type (material, spokes, bolting).

Downforce Model, Track Only Model has exactly 1 Fixed Wing.

Roadster Model has exactly one Roadster (bodystyle).

Downforce Model, Low Drag Model, One Off Model, Roadster Model, Track Only Model have exactly 1 Base Model.

Transmission Spec is divided into A/T, Dual Clutch, Manual, Multi Clutch, Single Speed Direct Drive.

Wheel is divided into Carbon Wheel, Alloy Wheel, CenterLockWheel, LugNutWheel.

Carbon Wheel and Alloy Wheel are disjoint.







Center Lock Wheel and Lug Nut Wheel are disjoint.















A Wheel can be of type Carbon Wheel and Center Lock Wheel for example.

Object Properties (Relations)

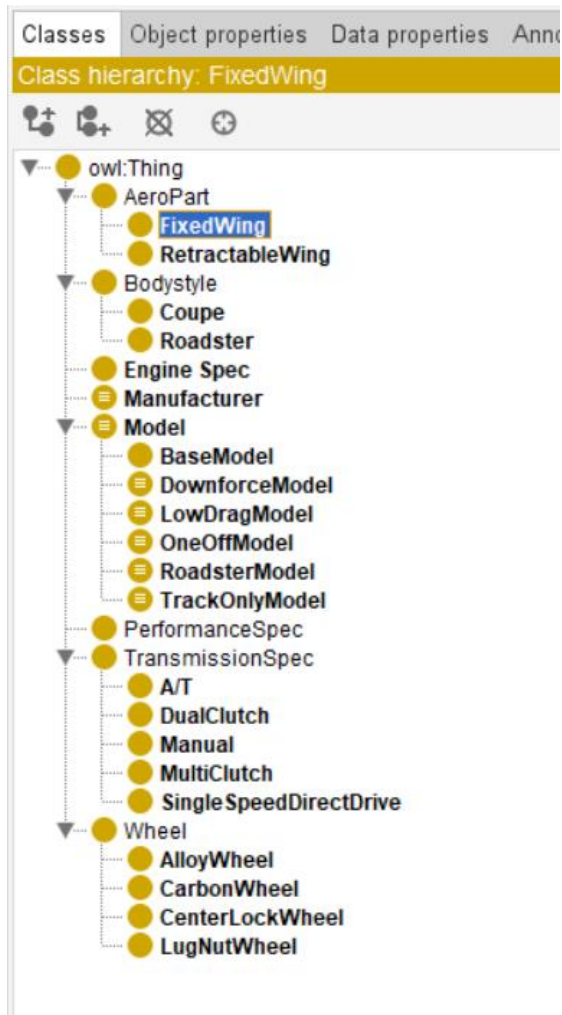
	Domain	Range
hasFixedWing	DownforceModel, RoadsterModel, TrackOnlyModel	FixedWing
hasRetractableWing	Model	RetractableWing
hasBaseModel	DownforceModel, LowDragModel, OneOffModel, RoadsterModel, TrackOnlyModel	BaseModel
hasBodystyle	Model	Bodystyle
hasEngineSpec	Model	EngineSpec
hasPerformanceSpec	Model	PerformanceSpec
hasTransmission	Model	TransmissionSpec
hasWheelType	Model	Wheel
isRoadsterVersionOf	RoadsterModel	BaseModel, DownforceModel, LowDragModel, OneOffModel, TrackOnlyModel
isVariantOf	DownforceModel, LowDragModel, OneOffModel, RoadsterModel, TrackOnlyModel	Model
makesModel	Manufacturer	Model

Data properties (attributes)






















	Domain	Range
drivetrain	Performance Spec	{AWD, FWD, RWD}
	Domains (intersection)  <ul style="list-style-type: none"> ● Performance Spec ● (drivetrain value "AWD") or (drivetrain value "FWD") or (drivetrain value "RWD") 	
engineAspiration	EngineSpec	{Natural, Twin-turbocharged, Quad-turbocharged}
	Domains (intersection)  <ul style="list-style-type: none"> ● (engineAspiration value "Natural") or (engineAspiration value "Quad-turbocharged") or (engineAspiration value "Twin-turbocharged") ● Engine Spec 	
engineCapacity	EngineSpec	String
engineCylinders	EngineSpec	Some int >5
	Domains (intersection)  <ul style="list-style-type: none"> ● Engine Spec ● engineCylinders some xsd:int[> "5"^^xsd:int] 	
engineLayout	EngineSpec	{Front-engined, Mid-engined, Rear-engined}
	Domains (intersection)  <ul style="list-style-type: none"> ● Engine Spec ● (engineLayout value "Front-engined") or (engineLayout value "Mid-engined") or (engineLayout value "Rear-engined") 	
label	AeroPart , Bodystyle , EngineSpec , Manufacturer , Model , PerformanceSpec TransmissionSpec , Wheel	String
manufacturerLocation	Manufacturer	String
Material	AeroPart , Bodystyle , Wheel	{Alloy, Carbon fibre}
	Domains (intersection)  <ul style="list-style-type: none"> ● AeroPart ● Wheel ● (material value "Alloy") or (material value "Carbon fibre") ● Bodystyle 	
numOfGears	TransmissionSpec	Some int >0
	Domains (intersection)  <ul style="list-style-type: none"> ● numOfGears some xsd:int[> "0"^^xsd:int] ● TransmissionSpec 	

numOfSpokes	Wheel	String
numOfUnits	Model	Some int >0
	Domains (intersection)  <ul style="list-style-type: none">  Model  numOfUnits some xsd:int[> "0"^^xsd:int] 	
power	PerformanceSpec	String
roadLegality	Model	String
roofMaterial	Roadster	{Hardtop, Vinyl}
	Domains (intersection)  <ul style="list-style-type: none">  (roofMaterial value "Hardtop") or (roofMaterial value "Vinyl")  Roadster 	
roofMechanism	Roadster	{Convertible, Detachable}
	Domains (intersection)  <ul style="list-style-type: none">  Roadster  (roofMechanism value "Convertible") or (roofMechanism value "Detachable") 	
torque	PerformanceSpec	String
versionType	Model	String
wheelBolting	Wheel	{center lock, lug nuts}
	Domains (intersection)  <ul style="list-style-type: none">  Wheel  (wheelBolting value "center lock") or (wheelBolting value "lug nuts") 	
wingAdjustment Type	Wing	{Active Aero, Fixed, Fixed - Active Aero}
	Domains (intersection)  <ul style="list-style-type: none">  (wingAdjustmentType value "Active Aero") or (wingAdjustmentType value "Fixed") or (wingAdjustmentType value "Fixed - Active Aero") 	
wingAttackAngle	Wing	String
wingWidth	Wing	String

Classes, Subclasses and Restrictions



FixedWing, RetractableWing (Subclasses of AeroPart)

Description: FixedWing	Description: RetractableWing
Equivalent To 	Equivalent To 
SubClass Of   AeroPart	SubClass Of   AeroPart
General class axioms 	General class axioms 
SubClass Of (Anonymous Ancestor)	SubClass Of (Anonymous Ancestor)
Instances 	Instances 
 BolideWing	 ChironRetractableWing
 FXXKWing	 RegeraWing
 HuayraBCWing	
 HuayraRWing	
 JeskoWing	
 PurSportWing	
 VulcanTrackWing	
 ZondaCinqueWing	
 ZondaRWing	

Coupe, Roadster (Subclasses of Bodystyle)


Description: Coupe	Description: Roadster
Equivalent To	Equivalent To
SubClass Of Bodystyle	SubClass Of Bodystyle
General class axioms	General class axioms
SubClass Of (Anonymous Ancestor)	SubClass Of (Anonymous Ancestor)
Instances FrontEngAlloyCoupe FrontEngCarbonCoupe MidEngCarbonCoupe	Instances HardTopRoadster VinylRoofRoadster


EngineSpec


Description: Engine Spec
Instances AM77Engine Spec AMVulcanEngine Spec ChironEngine Spec HuayraEngine Spec JeskoEngine Spec LaFerrariEngine Spec RegeraEngine Spec ZondaEngine Spec


Manufacturer

Description: Manufacturer


Equivalent To 


 **makesModel** **min 1 Model**


SubClass Of 


General class axioms 


SubClass Of (Anonymous Ancestor)


Instances 

 **AstonMartin**

 **Bugatti**

 **Ferrari**

 **Koenigsegg**


 **Pagani**

Model, BaseModel, DownforceModel, LowDragModel, OneOffModel, RoadsterModel, TrackOnlyModel






































<p>Model</p> <p>Description: Model</p> <p>Equivalent To </p> <ul style="list-style-type: none"> hasBodystyle exactly 1 Bodystyle hasPerformanceSpec exactly 1 PerformanceSpec hasRetractableWing max 1 RetractableWing hasTransmission exactly 1 TransmissionSpec hasEngineSpec exactly 1 'Engine Spec' 	
<p>BaseModel</p>	<p>DownforceModel</p>
<p>Description: BaseModel</p> <p>SubClass Of </p> <ul style="list-style-type: none"> Model <p>General class axioms </p> <p>SubClass Of (Anonymous Ancestor)</p> <ul style="list-style-type: none"> hasBodystyle exactly 1 Bodystyle hasPerformanceSpec exactly 1 PerformanceSpec hasRetractableWing max 1 RetractableWing hasTransmission exactly 1 TransmissionSpec hasEngineSpec exactly 1 'Engine Spec' <p>Instances </p> <ul style="list-style-type: none"> Chiron Huayra Jesko LaFerrari One_77 Regera Zonda 	<p>Description: DownforceModel</p> <p>Equivalent To </p> <ul style="list-style-type: none"> hasFixedWing exactly 1 FixedWing hasBaseModel max 1 BaseModel <p>SubClass Of </p> <ul style="list-style-type: none"> Model <p>General class axioms </p> <p>SubClass Of (Anonymous Ancestor)</p> <ul style="list-style-type: none"> hasBodystyle exactly 1 Bodystyle hasPerformanceSpec exactly 1 PerformanceSpec hasRetractableWing max 1 RetractableWing hasTransmission exactly 1 TransmissionSpec hasEngineSpec exactly 1 'Engine Spec' <p>Instances </p> <ul style="list-style-type: none"> ChironPur Sport HuayraBC JeskoAttack ZondaCinque
<p>LowDragModel</p>	<p>OneOffModel</p>

<div> <div>Description: LowDragModel</div> <div> <div>Equivalent To +</div> <ul style="list-style-type: none"> ● hasBaseModel max 1 BaseModel </div> <div> <div>SubClass Of +</div> <ul style="list-style-type: none"> ● Model </div> <div> <div>General class axioms +</div> </div> <div> <div>SubClass Of (Anonymous Ancestor)</div> <ul style="list-style-type: none"> ● hasBodystyle exactly 1 Bodystyle ● hasPerformanceSpec exactly 1 PerformanceSpec ● hasRetractableWing max 1 RetractableWing ● hasTransmission exactly 1 TransmissionSpec ● hasEngineSpec exactly 1 'Engine Spec' </div> <div> <div>Instances +</div> <ul style="list-style-type: none"> ◆ ChironSuperSport ◆ JeskoAbsolut </div> </div>	<div> <div>Description: OneOffModel</div> <div> <div>Equivalent To +</div> <ul style="list-style-type: none"> ● hasBaseModel max 1 BaseModel </div> <div> <div>SubClass Of +</div> <ul style="list-style-type: none"> ● Model </div> <div> <div>General class axioms +</div> </div> <div> <div>SubClass Of (Anonymous Ancestor)</div> <ul style="list-style-type: none"> ● hasBodystyle exactly 1 Bodystyle ● hasPerformanceSpec exactly 1 PerformanceSpec ● hasRetractableWing max 1 RetractableWing ● hasTransmission exactly 1 TransmissionSpec ● hasEngineSpec exactly 1 'Engine Spec' </div> <div> <div>Instances +</div> <ul style="list-style-type: none"> ◆ LaVoitureNoire ◆ Victor </div> </div>
<div> <div>Roadster Model</div> <div> <div>Description: RoadsterModel</div> <div> <div>Equivalent To +</div> <ul style="list-style-type: none"> ● hasBodystyle exactly 1 Roadster ● hasBaseModel max 1 BaseModel </div> <div> <div>SubClass Of +</div> <ul style="list-style-type: none"> ● Model </div> <div> <div>General class axioms +</div> </div> <div> <div>SubClass Of (Anonymous Ancestor)</div> <ul style="list-style-type: none"> ● hasBodystyle exactly 1 Bodystyle ● hasPerformanceSpec exactly 1 PerformanceSpec ● hasRetractableWing max 1 RetractableWing ● hasTransmission exactly 1 TransmissionSpec ● hasEngineSpec exactly 1 'Engine Spec' </div> <div> <div>Instances +</div> <ul style="list-style-type: none"> ◆ HuayraRoadster ◆ ZondaCinqueRoadster </div> </div> </div>	<div> <div>Track Only Model</div> <div> <div>Description: TrackOnlyModel</div> <div> <div>Equivalent To +</div> <ul style="list-style-type: none"> ● hasFixedWing exactly 1 FixedWing ● hasBaseModel max 1 BaseModel </div> <div> <div>SubClass Of +</div> <ul style="list-style-type: none"> ● Model </div> <div> <div>General class axioms +</div> </div> <div> <div>SubClass Of (Anonymous Ancestor)</div> <ul style="list-style-type: none"> ● hasBodystyle exactly 1 Bodystyle ● hasPerformanceSpec exactly 1 PerformanceSpec ● hasRetractableWing max 1 RetractableWing ● hasTransmission exactly 1 TransmissionSpec ● hasEngineSpec exactly 1 'Engine Spec' </div> <div> <div>Instances +</div> <ul style="list-style-type: none"> ◆ Bolide ◆ FXX_K ◆ HuayraR ◆ Vulcan ◆ ZondaR </div> </div> </div>

PerformanceSpec

Description: PerformanceSpec	
Instances 	
	BolidePerfSpec
	ChironPerfSpec
	ChironSSPerfSpec
	FXX_KPerfSpec
	HuayraBCPerfSpec
	HuayraPerfSpec
	HuayraRPerfSpec
	JeskoPerfSpec
	LaFerrariPerfSpec
	One77PerfSpec
	RegeraPerfSpec
	ZondaCinquePerfSpec
	ZondaPerfSpec
	ZondaRPerfSpec

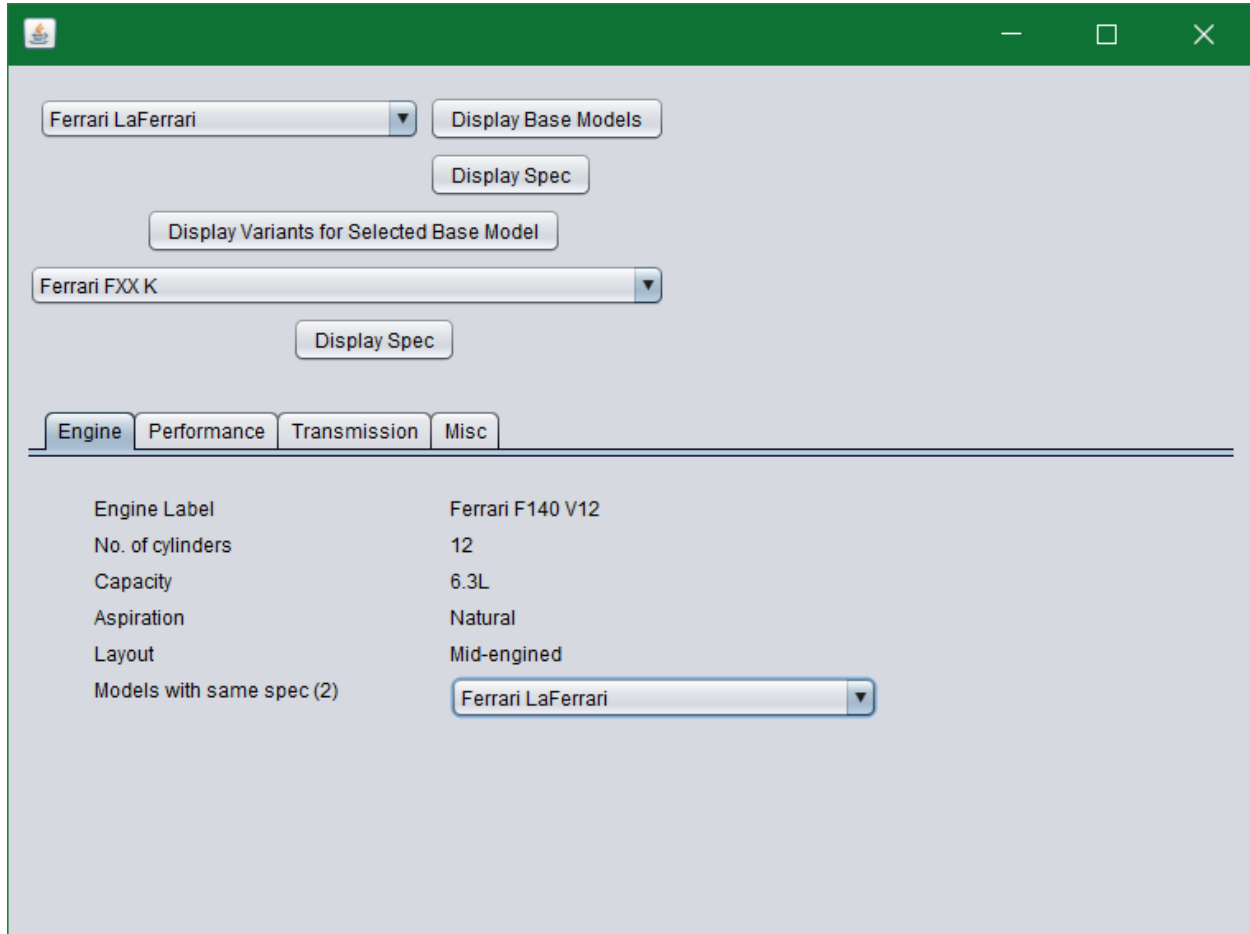
TransmissionSpec subclasses

Description: A/T	Description: DualClutch	Description: Manual
<p>Equivalent To </p> <p>SubClass Of   TransmissionSpec</p> <p>General class axioms </p> <p>SubClass Of (Anonymous Ancestor)</p> <p>Instances   AM6SpeedAT</p>	<p>Equivalent To </p> <p>SubClass Of   TransmissionSpec</p> <p>General class axioms </p> <p>SubClass Of (Anonymous Ancestor)</p> <p>Instances   ChironDualClutch7Speed  LaFerrariDualClutch7Speed</p>	<p>Equivalent To </p> <p>SubClass Of   TransmissionSpec</p> <p>General class axioms </p> <p>SubClass Of (Anonymous Ancestor)</p> <p>Instances   AM6SpeedManual  AM6SpeedSeq  HuayraManualSeq6Speed  HuayraManualSeq7Speed  ZondaManual  ZondaManual6Speed  ZondaSeqManual</p>
Description: MultiClutch	Description: SingleSpeedDirectDrive	
<p>Equivalent To </p> <p>SubClass Of   TransmissionSpec</p> <p>General class axioms </p> <p>SubClass Of (Anonymous Ancestor)</p> <p>Instances   JeskoTransmission9Speed</p>	<p>Equivalent To </p> <p>SubClass Of   TransmissionSpec</p> <p>General class axioms </p> <p>SubClass Of (Anonymous Ancestor)</p> <p>Instances   RegeraTransmission</p>	

Wheel subclasses

<div><div>Description: AlloyWheel</div><div>Equivalent To </div><div>SubClass Of Wheel</div><div>General class axioms </div><div>SubClass Of (Anonymous Ancestor)</div><div>Instances CenterLockAlloyWheel LugNutAlloyWheel</div><div>Target for Key </div><div>Disjoint With CarbonWheel</div></div>	<div><div>Description: CarbonWheel</div><div>Equivalent To </div><div>SubClass Of Wheel</div><div>General class axioms </div><div>SubClass Of (Anonymous Ancestor)</div><div>Instances CenterLockCarbonWheel LugNutCarbonWheel</div><div>Target for Key </div><div>Disjoint With AlloyWheel</div></div>
<div><div>Description: CenterLockWheel</div><div>Equivalent To </div><div>SubClass Of Wheel</div><div>General class axioms </div><div>SubClass Of (Anonymous Ancestor)</div><div>Instances CenterLockAlloyWheel CenterLockCarbonWheel</div><div>Target for Key </div><div>Disjoint With LugNutWheel</div></div>	<div><div>Description: LugNutWheel</div><div>Equivalent To </div><div>SubClass Of Wheel</div><div>General class axioms </div><div>SubClass Of (Anonymous Ancestor)</div><div>Instances LugNutAlloyWheel LugNutCarbonWheel</div><div>Target for Key </div><div>Disjoint With CenterLockWheel</div></div>

Jena Application (Variants Spec Display) (DisplayFrame.java)



Ferrari LaFerrari ▼ Display Base Models

Display Spec


Display Variants for Selected Base Model

Ferrari FXX K ▼

Display Spec

Engine Performance Transmission Misc

Engine Label	Ferrari F140 V12
No. of cylinders	12
Capacity	6.3L
Aspiration	Natural
Layout	Mid-engined
Models with same spec (2)	Ferrari LaFerrari ▼



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□

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Ferrari LaFerrari

▼

Display Base Models

Display Spec

Display Variants for Selected Base Model

Ferrari FXX K

▼

Display Spec

Engine

Performance

Transmission

Misc

Performance Spec

Performance Specs

Power

950 hp

Torque

700 Nm


Drivetrain

RWD

Models with same spec (1)

Ferrari LaFerrari

▼



—

□

×

Ferrari LaFerrari

▼

Display Base Models

Display Spec

Display Variants for Selected Base Model

Ferrari FXX K

▼

Display Spec

Engine

Performance

Transmission

Misc

Transmission Type

7-speed dual clutch


No. of gears

7

Models with same spec (2)

Ferrari LaFerrari

▼



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Ferrari LaFerrari

▼

Display Base Models

Display Spec

Display Variants for Selected Base Model

Ferrari FXX K

▼

Display Spec

Engine

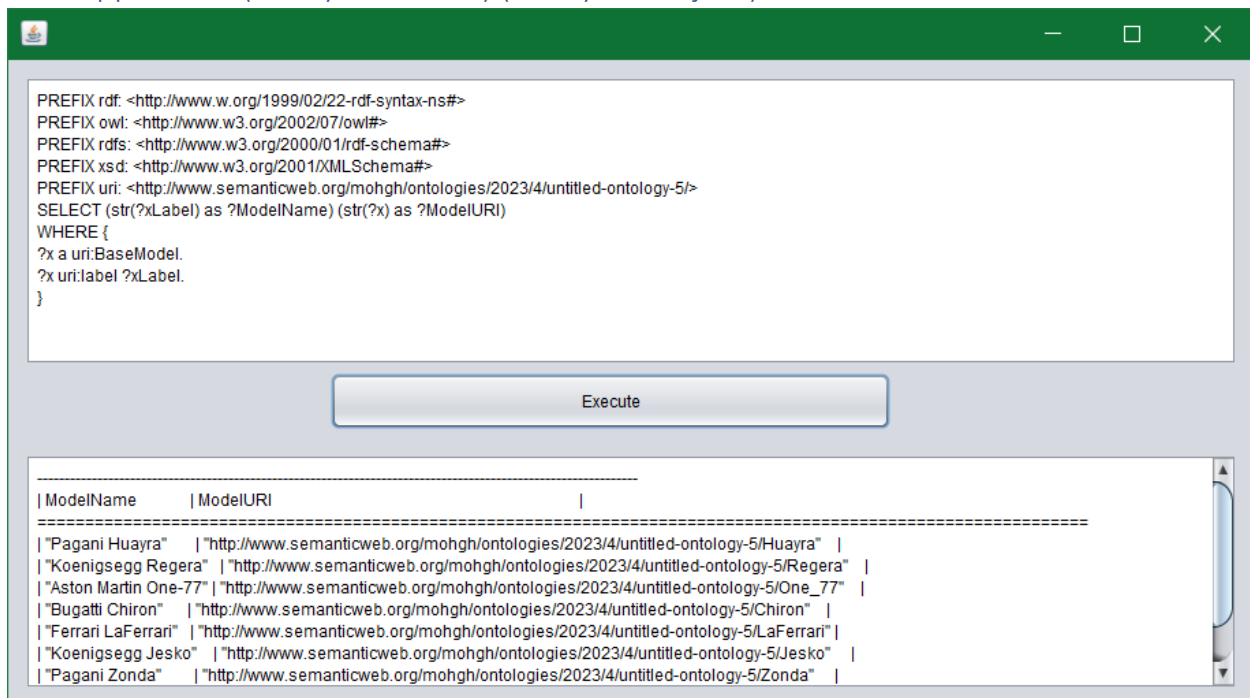
Performance

Transmission

Misc

Model name	Ferrari LaFerrari	Bodystyle	Mid-engined coupe
Model type	Base model	Body material	Carbon fibre
No. of units	499	Wheel bolting	center lock
Manufacturer	Ferrari	No. of spokes	5-spoke
Location	Modena, Italy	Wheel material	Alloy

Jena Application (Query Execution) (QueryFrame.java)

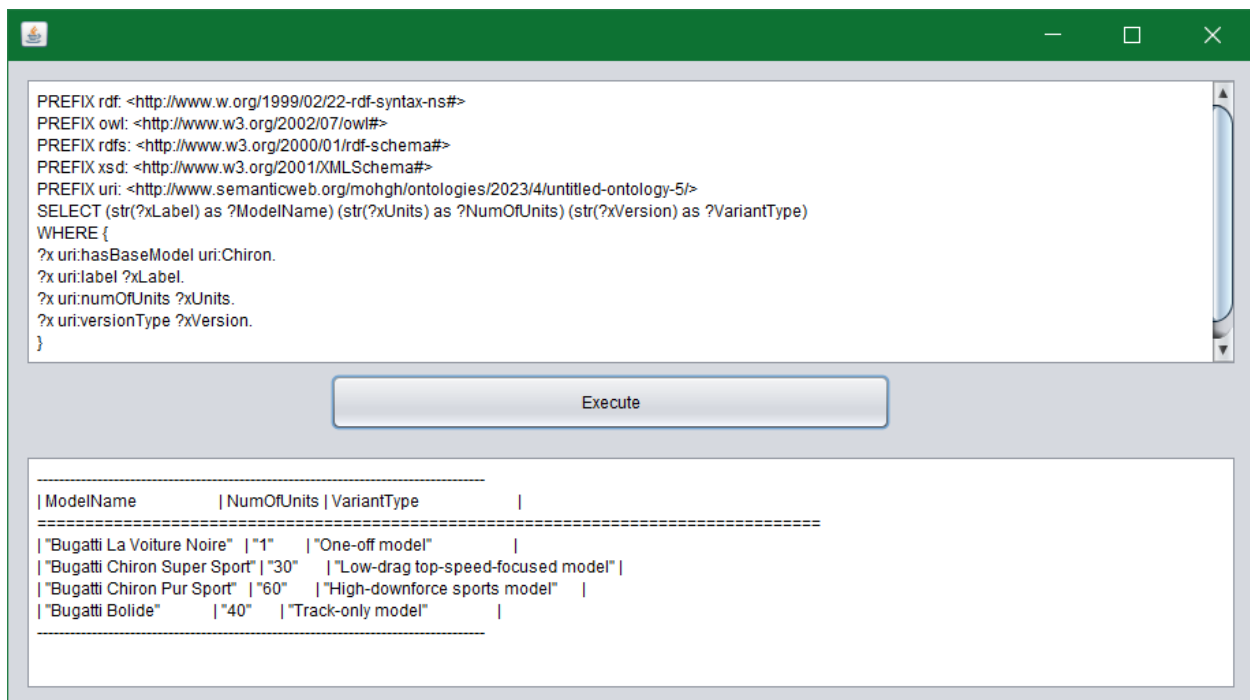


The screenshot shows the Jena Application Query Execution window. The query is as follows:

```
PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>
SELECT (str(?xLabel) as ?modelName) (str(?x) as ?modelURI)
WHERE {
  ?x a uri:BaseModel.
  ?x uri:label ?xLabel.
}
```

The results are displayed in a table with two columns: ModelName and ModelURI.

ModelName	ModelURI
"Pagani Huayra"	"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/Huayra"
"Koenigsegg Regera"	"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/Regera"
"Aston Martin One-77"	"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/One_77"
"Bugatti Chiron"	"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/Chiron"
"Ferrari LaFerrari"	"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/LaFerrari"
"Koenigsegg Jesko"	"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/Jesko"
"Pagani Zonda"	"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/Zonda"




The screenshot shows the Jena Application Query Execution window. The query is as follows:

```
PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>
SELECT (str(?xLabel) as ?modelName) (str(?xUnits) as ?numOfUnits) (str(?xVersion) as ?variantType)
WHERE {
  ?x uri:hasBaseModel uri:Chiron.
  ?x uri:label ?xLabel.
  ?x uri:numOfUnits ?xUnits.
  ?x uri:versionType ?xVersion.
}
```

The results are displayed in a table with three columns: ModelName, NumOfUnits, and VariantType.

ModelName	NumOfUnits	VariantType
"Bugatti La Voiture Noire"	"1"	"One-off model"
"Bugatti Chiron Super Sport"	"30"	"Low-drag top-speed-focused model"
"Bugatti Chiron Pur Sport"	"60"	"High-downforce sports model"
"Bugatti Bolide"	"40"	"Track-only model"


— □ ×


```

PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>
SELECT (str(?EngSpec) as ?EngURI) (str(?a) as ?Label) (str(?b) as ?Cylinders) (str(?c) as ?Aspiration) (str(?d) as ?Capacity) (str(?e) as ?Layout) (str(?xLabel) as ?ModelLabel)
WHERE {
  uri:Zonda uri:hasEngineSpec ?EngSpec.
  ?EngSpec uri:label ?a.
  ?EngSpec uri:engineCylinders ?b.
  ?EngSpec uri:engineAspiration ?c.
  ?EngSpec uri:engineCapacity ?d.
  ?EngSpec uri:engineLayout ?e.
  ?EngSpec uri:engineModelLabel ?xLabel.
}

```

Execute

EngURI	Label	Cylinders	Aspiration	Capacity	Layout	ModelLabel	
"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/ZondaEngineSpec"	"Mercedes-AMG V12"	"12"	"Natural"	"7.3L"	"Mid-engir		
"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/ZondaEngineSpec"	"Mercedes-AMG V12"	"12"	"Natural"	"7.3L"	"Mid-engir		
"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/ZondaEngineSpec"	"Mercedes-AMG V12"	"12"	"Natural"	"7.3L"	"Mid-engir		
"http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/ZondaEngineSpec"	"Mercedes-AMG V12"	"12"	"Natural"	"7.3L"	"Mid-engir		


— □ ×

```

PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>
SELECT (str(?xLabel) as ?ModelName) (str(?xVersion) as ?VariantType)
WHERE {
  ?x a uri:BaseModel.
  ?x uri:label ?xLabel.
  ?x uri:versionType ?xVersion.
}

```

Execute

ModelName	VariantType
"Pagani Huayra"	"Base model"
"Koenigsegg Regera"	"Base model"
"Aston Martin One-77"	"Base model"
"Bugatti Chiron"	"Base model"
"Ferrari LaFerrari"	"Base model"
"Koenigsegg Jesko"	"Base model"
"Pagani Zonda"	"Base model"

—□×

PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>
SELECT (str(?xLabel) as ?modelName) (str(?whlMat) as ?wheelMaterial) (str(?whlBolting) as ?wheelBolting)
WHERE {
 ?x uri:hasWheelType ?whl.
 ?x uri:label ?xLabel.
 ?whl uri:wheelBolting ?whlBolting.
 ?whl uri:material ?whlMat.
 ?whl a <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5#CarbonWheel>.
}

Execute

modelName	wheelMaterial	wheelBolting
"Aston Martin Vulcan"	"Carbon fibre"	"center lock"
"Koenigsegg Regera"	"Carbon fibre"	"center lock"
"Koenigsegg Jesko Attack"	"Carbon fibre"	"center lock"
"Koenigsegg Jesko Absolut"	"Carbon fibre"	"center lock"
"Koenigsegg Jesko"	"Carbon fibre"	"center lock"
"Pagani Huayra"	"Carbon fibre"	"center lock"
"Bugatti Chiron Super Sport"	"Carbon fibre"	"center lock"

Queries

SPARQL query to get all models based on Bugatti Chiron

PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>

PREFIX owl: <http://www.w3.org/2002/07/owl#>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>

SELECT (str(?xLabel) as ?modelName) (str(?xUnits) as ?numOfUnits) (str(?xVersion) as ?variantType)

WHERE {

?x uri:hasBaseModel uri:Chiron.

?x uri:label ?xLabel.

?x uri:numOfUnits ?xUnits.

?x uri:versionType ?xVersion.

}

SPARQL query

Snap SPARQL Query

Snap SPARQL Query

```
PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>

SELECT (str(?xLabel) as ?modelName) (str(?xUnits) as ?numOfUnits) (str(?xVersion) as ?variantType)
WHERE {

  ?x uri:hasBaseModel uri:Chiron.
  ?x uri:label ?xLabel.
  ?x uri:numOfUnits ?xUnits.
  ?x uri:versionType ?xVersion.
}
```

Execute

?modelName	?numOfUnits	?variantType
Bugatti Bolide	40	Track-only model
Bugatti Chiron Pur Sport	60	High-downforce sports model
Bugatti Chiron Super Sport	30	Low-drag top-speed-focused model
Bugatti La Voiture Noire	1	One-off model

SPARQL query to get all models with same Engine Spec as Pagani Zonda

PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>

PREFIX owl: <http://www.w3.org/2002/07/owl#>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>

SELECT (str(?EngSpec) as ?engURI) (str(?a) as ?label) (str(?b) as ?cylinders) (str(?c) as ?aspiration)
(str(?d) as ?capacity) (str(?e) as ?layout) (str(?xLabel) as ?modelLabel)

WHERE {

uri:Zonda uri:hasEngineSpec ?EngSpec.

?EngSpec uri:label ?a.

?EngSpec uri:engineCylinders ?b.

?EngSpec uri:engineAspiration ?c.

?EngSpec uri:engineCapacity ?d.

```

?EngSpec uri:engineLayout ?e.
?x uri:hasEngineSpec ?EngSpec.
?x uri:label ?xLabel.
}

```

Snap SPARQL Query:

```

PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>

SELECT (str(?EngSpec) as ?EngURI) (str(?a) as ?Label) (str(?b) as ?Cylinders) (str(?c) as ?Aspiration) (str(?d) as ?Capacity) (str(?e) as ?Layout) (str(?xLabel) as ?ModelLabel)
WHERE {
  uri:Zonda uri:hasEngineSpec ?EngSpec.
  ?EngSpec uri:label ?a.
  ?EngSpec uri:engineCylinders ?b.
  ?EngSpec uri:engineAspiration ?c.
  ?EngSpec uri:engineCapacity ?d.
  ?EngSpec uri:engineLayout ?e.
  ?x uri:hasEngineSpec ?EngSpec.
  ?x uri:label ?xLabel.
}

```

Execute

?EngURI	?Label	?Cylinders	?Aspiration	?Capacity	?Layout	?ModelLabel
http://www.semanticweb.org/mohgh/o... Mercedes-AMG V12		12	Natural	7.3L	Mid-engined	Pagani Zonda
http://www.semanticweb.org/mohgh/o... Mercedes-AMG V12		12	Natural	7.3L	Mid-engined	Pagani Zonda Cinque
http://www.semanticweb.org/mohgh/o... Mercedes-AMG V12		12	Natural	7.3L	Mid-engined	Pagani Zonda Cinque Roadster
http://www.semanticweb.org/mohgh/o... Mercedes-AMG V12		12	Natural	7.3L	Mid-engined	Pagani Zonda R

SPARQL query to get all models and their manufacturers

```

PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>

SELECT (str(?xLabel) as ?ModelName) (str(?xVersion) as ?VariantType) (str(?yLabel) as ?MakerLabel)
(str(?yLoc) as ?MakerLoc)

WHERE {
  ?x uri:label ?xLabel.
  ?x uri:versionType ?xVersion.
  ?y uri:makesModel ?x.
  ?y uri:label ?yLabel.
  ?y uri:manufacturerLocation ?yLoc.
}

```

Snap SPARQL Query			
<pre> PREFIX owl: <http://www.w3.org/2002/07/owl#> PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#> PREFIX xsd: <http://www.w3.org/2001/XMLSchema#> PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/> SELECT (str(?xLabel) as ?modelName) (str(?xVersion) as ?variantType) (str(?yLabel) as ?makerLabel) (str(?yLoc) as ?makerLoc) WHERE { ?x uri:label ?xLabel. ?x uri:versionType ?xVersion. ?y uri:makesModel ?x. ?y uri:label ?yLabel. ?y uri:manufacturerLocation ?yLoc. }</pre>			
Execute			
?modelName	?variantType	?makerLabel	?makerLoc
Bugatti Bolide	Track-only model	Bugatti	Molsheim, France
Bugatti Chiron	Base model	Bugatti	Molsheim, France
Bugatti Chiron Pur Sport	High-downforce sports model	Bugatti	Molsheim, France
Bugatti Chiron Super Sport	Low-drag top-speed-focused model	Bugatti	Molsheim, France
Ferrari FXX K	Track-only model	Ferrari	Modena, Italy
Pagani Huayra	Base model	Pagani	Modena, Italy
Pagani Huayra BC	High-downforce sports model	Pagani	Modena, Italy
Pagani Huayra R	Track-only model	Pagani	Modena, Italy
Pagani Huayra Roadster	Roadster edition	Pagani	Modena, Italy
Koenigsegg Jesko	Base model	Koenigsegg	Ängelholm, Sweden
Koenigsegg Jesko Absolut	Low-drag top-speed-focused model	Koenigsegg	Ängelholm, Sweden
Koenigsegg Jesko Attack	High-downforce sports model	Koenigsegg	Ängelholm, Sweden
Ferrari LaFerrari	Base model	Ferrari	Modena, Italy
Bugatti La Voiture Noire	One-off model	Bugatti	Molsheim, France
Aston Martin One-77	Base model	Aston Martin	Gaydon, Warwickshire
22 results			

SPARQL query to get all base models

```
PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>
```

```
SELECT (str(?xLabel) as ?modelName) (str(?xVersion) as ?variantType)

WHERE {
  ?x a uri:BaseModel.
  ?x uri:label ?xLabel.
  ?x uri:versionType ?xVersion.
}
```

Snap SPARQL Query	
<pre> PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#> PREFIX owl: <http://www.w3.org/2002/07/owl#> PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#> PREFIX xsd: <http://www.w3.org/2001/XMLSchema#> PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/> SELECT (str(?xLabel) as ?modelName) (str(?xVersion) as ?variantType) WHERE { ?x a uri:BaseModel. ?x uri:label ?xLabel. ?x uri:versionType ?xVersion. }</pre>	
Execute	
?modelName	?variantType
Koenigsegg Regera	Base model
Aston Martin One-77	Base model
Bugatti Chiron	Base model
Pagani Huayra	Base model
Ferrari LaFerrari	Base model
Koenigsegg Jesko	Base model
Pagani Zonda	Base model

SPARQL query to get all models with carbon wheels

PREFIX rdf: <http://www.w.org/1999/02/22-rdf-syntax-ns#>

PREFIX owl: <http://www.w3.org/2002/07/owl#>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>

SELECT (str(?xLabel) as ?modelName) (str(?whlMat) as ?wheelMaterial) (str(?whlBolting) as ?wheelBolting)

WHERE {

?x uri:hasWheelType ?whl.

?x uri:label ?xLabel.

?whl uri:wheelBolting ?whlBolting.

?whl uri:material ?whlMat.

?whl a <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5#CarbonWheel>.

}

Snap SPARQL Query:

PREFIX owl: <http://www.w3.org/2002/07/owl#>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX uri: <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5/>

SELECT (str(?xLabel) as ?modelName) (str(?whlMat) as ?wheelMaterial) (str(?whlBolting) as ?wheelBolting)

WHERE {

?x uri:hasWheelType ?whl.

?x uri:label ?xLabel.

?whl uri:wheelBolting ?whlBolting.

?whl uri:material ?whlMat.

?whl a <http://www.semanticweb.org/mohgh/ontologies/2023/4/untitled-ontology-5#CarbonWheel>.

}

Execute

?modelName	?wheelMaterial	?wheelBolting
Bugatti Bolide	Carbon fibre	center lock
Bugatti Chiron Pur Sport	Carbon fibre	center lock
Bugatti Chiron Super Sport	Carbon fibre	center lock
Pagani Huayra	Carbon fibre	center lock
Koenigsegg Jesko	Carbon fibre	center lock
Koenigsegg Jesko Absolut	Carbon fibre	center lock
Koenigsegg Jesko Attack	Carbon fibre	center lock
Koenigsegg Regera	Carbon fibre	center lock
Aston Martin Vulcan	Carbon fibre	center lock