**SPARQL QUERIES**

**PREFIXES**

**PREFIX : <http://www.semanticweb.org/alkis/ontologies/2024/6/untitled-ontology-5#>**

**PREFIX rdf: <http://www.w3.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#>**

**SELECT DISTINCT ?dogBreedClass ?property ?restrictionType ?value**

**WHERE {**

**?dogBreedClass rdfs:subClassOf+ :Dog .**

**?dogBreedClass rdfs:subClassOf ?restriction .**

**?restriction rdf:type owl:Restriction ;**

**owl:onProperty ?property ;**

**?restrictionType ?value .**

**FILTER(?restrictionType IN (owl:someValuesFrom, owl:allValuesFrom))**

**}**

**1.Query: Retrieve Dog Breeds Suitable for Children**

SELECT DISTINCT ?dogBreedClass

WHERE {

?dogBreedClass rdfs:subClassOf+ :Dog .

?dogBreedClass rdf:type owl:Class .

?dogBreedClass rdfs:subClassOf [

rdf:type owl:Restriction ;

owl:onProperty :hasSuitabilityForChildren ;

owl:allValuesFrom :suitableForChildren

] .

}

**2.Query: Retrieve Dog Breeds Suitable for Children with Brightest Intelligence and Low Grooming Requirements**

SELECT DISTINCT ?dogBreedClass

WHERE {

?dogBreedClass rdfs:subClassOf+ :Dog .

?dogBreedClass rdfs:subClassOf [

rdf:type owl:Restriction ;

owl:onProperty :hasSuitabilityForChildren ;

owl:allValuesFrom ?suitability

] .

FILTER (?suitability IN (:suitableForChildren, :moderatelySuitableForChildren))

?dogBreedClass rdfs:subClassOf [

rdf:type owl:Restriction ;

owl:onProperty :hasIntelligence ;

owl:allValuesFrom :brightestIntelligence

] .

?dogBreedClass rdfs:subClassOf [

rdf:type owl:Restriction ;

owl:onProperty :hasGroomingFrequency ;

owl:allValuesFrom ?groomingFrequency

] .

FILTER (?groomingFrequency IN (:oncePerWeekGrooming, :onceInFewWeeksGrooming))

}

**3.Query: Retrieve all Dog Breeds with a column displaying their Longevity**

SELECT DISTINCT ?dogBreedClass ?longevity

WHERE {

?dogBreedClass rdfs:subClassOf+ :Dog .

?dogBreedClass rdf:type owl:Class .

{

?dogBreedClass rdfs:subClassOf+ [

rdf:type owl:Restriction ;

owl:onProperty :hasLongevityMedium ;

] .

BIND("Medium" AS ?longevity)

}

UNION

{

?dogBreedClass rdfs:subClassOf+ [

rdf:type owl:Restriction ;

owl:onProperty :hasLongevityShort ;

] .

BIND("Short" AS ?longevity)

}

UNION

{

?dogBreedClass rdfs:subClassOf+ [

rdf:type owl:Restriction ;

owl:onProperty :hasLongevityLong ;

] .

BIND("Long" AS ?longevity)

}

}

ORDER BY ?longevity

LIMIT 10

**4.Query: Retrieve all Dog Breeds with a column displaying their Cost**

SELECT DISTINCT ?dogBreedClass ?cost

WHERE {

?dogBreedClass rdfs:subClassOf+ :Dog .

?dogBreedClass rdf:type owl:Class .

{

?dogBreedClass rdfs:subClassOf+ [

rdf:type owl:Restriction ;

owl:onProperty :hasLifetimeCostCheap ;

] .

BIND("Cheap" AS ?cost)

}

UNION

{

?dogBreedClass rdfs:subClassOf+ [

rdf:type owl:Restriction ;

owl:onProperty :hasLifetimeCostMedium ;

] .

BIND("Medium" AS ?cost)

}

UNION

{

?dogBreedClass rdfs:subClassOf+ [

rdf:type owl:Restriction ;

owl:onProperty :hasLifetimeCostExpensive ;

] .

BIND("Expensive" AS ?cost)

}

}

ORDER BY ?cost

**5.Query: Retrieve all Dog Breeds with that are of type Herding and Working and at the same time are Cheap in terms of LifeCost**

SELECT DISTINCT ?dogBreedClass ?type ?cost

WHERE {

?dogBreedClass rdfs:subClassOf+ :Dog .

?dogBreedClass rdf:type owl:Class .

?dogBreedClass rdfs:subClassOf [

rdf:type owl:Restriction ;

owl:onProperty :hasType ;

owl:allValuesFrom ?type

] .

FILTER (?type IN (:herdingType, :workingType))

?dogBreedClass rdfs:subClassOf [

rdf:type owl:Restriction ;

owl:onProperty :hasLifetimeCostCheap ;

] .

BIND("Cheap" AS ?cost)

}

**6.Query Individuals: Retrieve all Dog Breeds with that have longevity above 8 years**

SELECT DISTINCT ?dogs (str(?longevity) AS ?Longevity)

WHERE {

?dogs rdf:type owl:NamedIndividual.

?dogs :hasLongevity ?longevity.

FILTER (?longevity >= 8)

}

ORDERBY(?longevity)

**7.Query Individuals: Retrieve all Dog Individuals**

SELECT DISTINCT ?dogs ?types

WHERE {

?dogs rdf:type owl:NamedIndividual.

?dogs rdf:type ?types.

?types rdfs:subClassOf :Dog

}

**8.Query Individuals: Retrieve and count all Dog Individuals and group them by Size**

SELECT ?Size (STR(COUNT(DISTINCT ?dogs)) AS ?Dogs)

WHERE {

?dogs rdf:type owl:NamedIndividual.

?dogs rdf:type ?breed.

?breed rdfs:subClassOf+ :Dog.

?breed rdfs:subClassOf ?restriction.

?restriction owl:onProperty :hasSize.

?restriction owl:allValuesFrom ?Size.

}

GROUP BY ?Size