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**FACULTY OF
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OSW - Road accidents within the weather context in Prague - CP 2

Version 1.1, 11-01-2018

Table of Contents

Pipeline	1
UML diagrams of the data set schemas	1
Queries	2
Query1 - Vypis pocet nehod, ktere se udaly pod bodem mrazu a nad bodem mrazu.	2
Query2 - Pocet nehod (spadaji pod meteorologickou stanici Libus), ktere nemaji zaznam o 3 pocet lehce zranenych nebo zaznam neexistuje.	3
Query3 - Vypis (datum, pocet lehce a tezce zranenych, pocet usmrcenych osob, mnozstvi 3 srazek) vseh srazek s chodcem za destiveho dne.	3
Query4 - V ktery den se stalo nejvice nehod, kdy maximalni teplota prekrocila 6.0 stupne.	4
Query5 - Vyber nehody (+ info o dobe svitu), ktere se neudaly mezi silvestrem(2017-01-01) 5 a Vanocemi(2016-12-24).	5

Pipeline

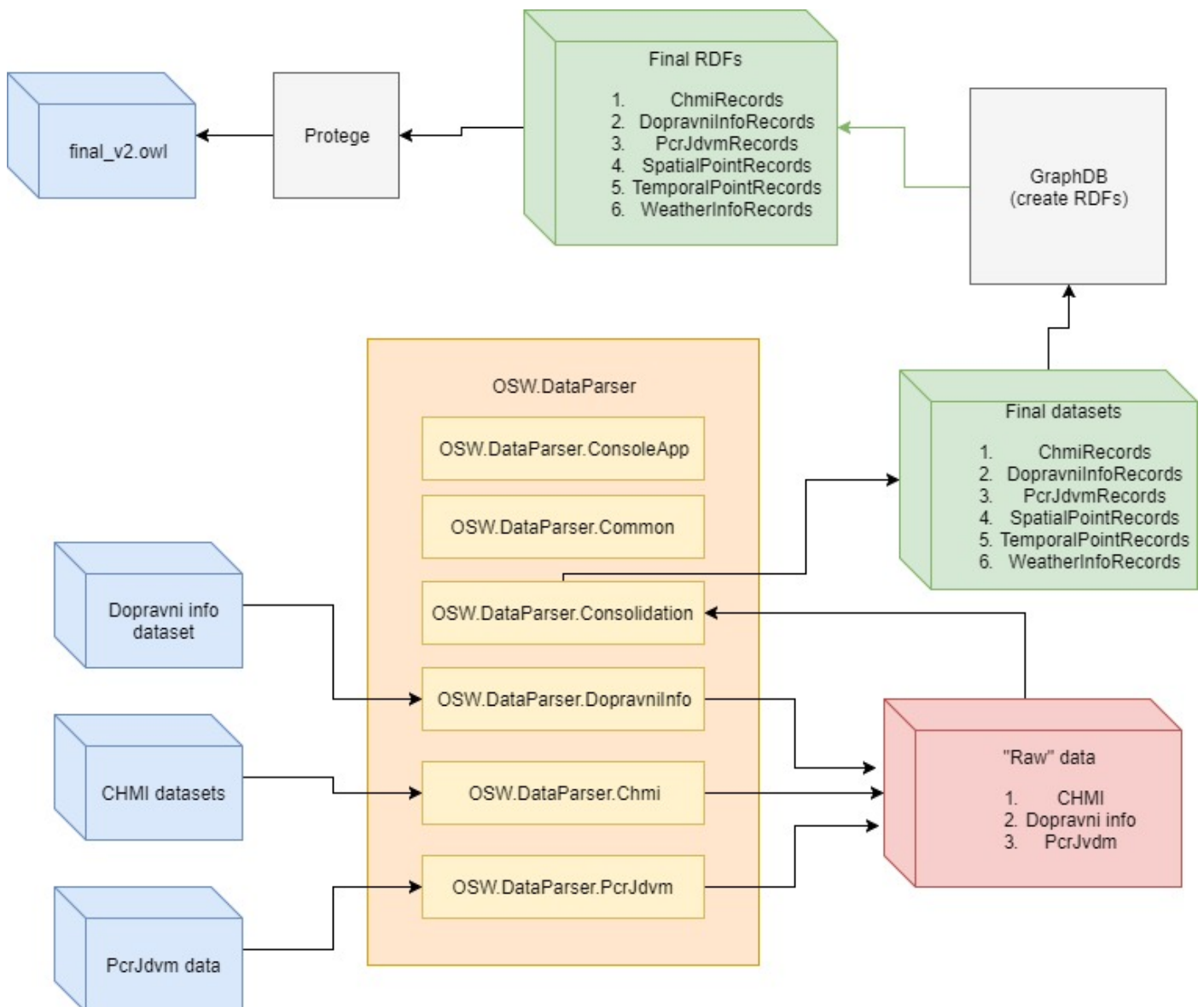


Figure 1. Pipeline

UML diagrams of the data set schemas

cd UMLClassDiagram1

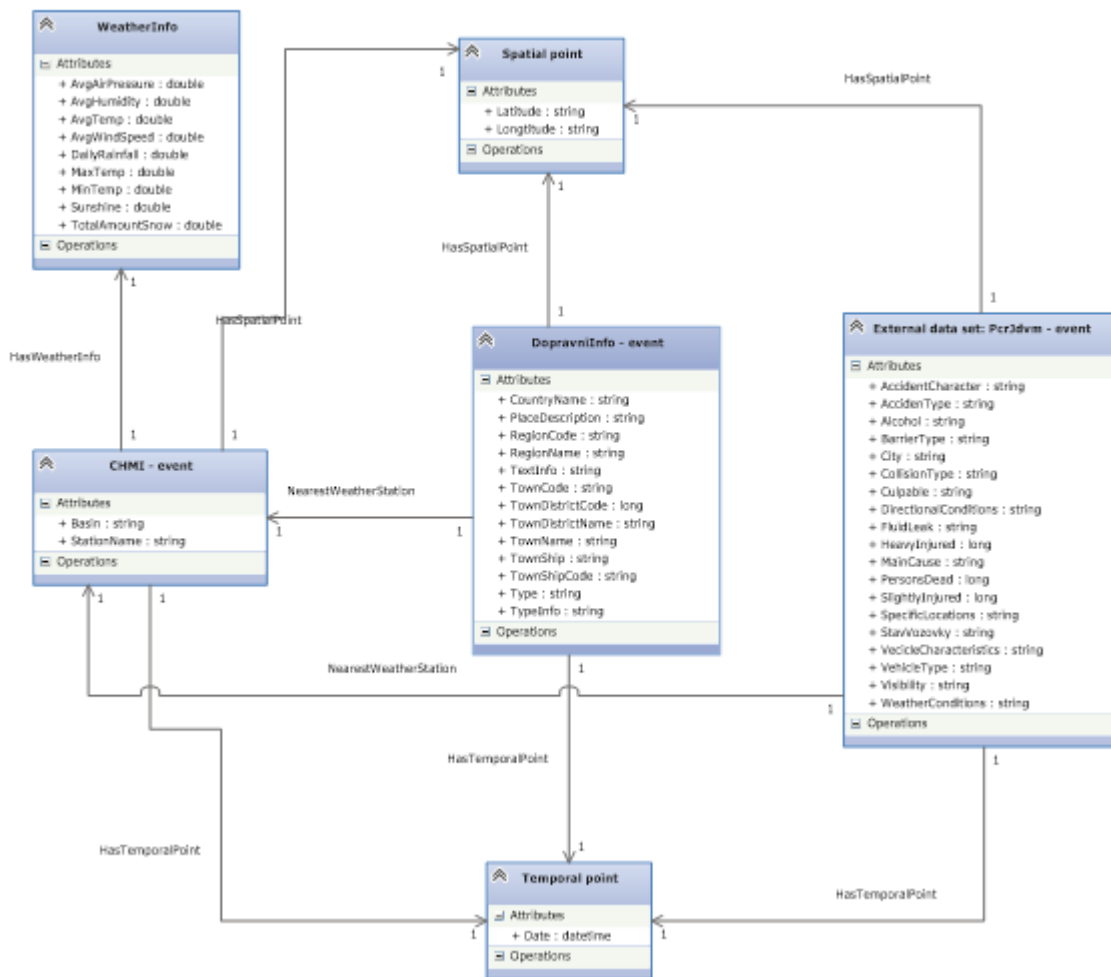


Figure 2. UML diagrams

Queries

Query1 - Vypis pocet nehod, které se udaly pod bodem mrazu a nad bodem mrazu.

```

PREFIX trans: <http://onto.fel.cvut.cz/ontologies/transportation/>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?state (COUNT(?state) AS ?count)
WHERE
{
  ?we rdf:type trans:weather-event .
  ?we trans:HasWeatherInfo ?wi .
  ?a trans:NearestWeatherStation ?we .
  ?wi trans:MinTemp ?MinTemp .
  ?wi trans:HasTemporalPoint ?tp .
  ?tp trans>Date ?dt .
  BIND((concat(str(year(?dt)),"-", str(month(?dt)),"-", str(day(?dt)))) as ?date)
  BIND(if(?MinTemp <= 0.0, "Count_Accidents_Freezing", "Count_Accidents_Warm") as
  ?state)
}
GROUP BY ?state

```

Query2 - Pocet nehod (spadaji pod meteorologickou stanici Libus), ktere nemaji zaznam o poctu lehce zranenych nebo zaznam neexistuje.

```

PREFIX trans: <http://onto.fel.cvut.cz/ontologies/transportation/>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT (COUNT(*) AS ?result)
WHERE
{
  ?we rdf:type trans:weather-event ;
    trans:HasWeatherInfo ?wi ;
    trans:StationName ?st .
  ?a trans:NearestWeatherStation ?we .
  FILTER ( regex(?st, "Libuš"))
  OPTIONAL { ?a trans:SlightlyInjured ?sinj . }
  BIND(if(EXISTS { ?a trans:SlightlyInjured ?sinj . }, ?sinj, 0) as ?res_inj)
  FILTER ( ?res_inj = 0 )
}

```

Query3 - Vypis (datum, pocet lehce a tezce zranenych, pocet usmrcenych osob, mnozstvi srazek) vseh srazek s chodcem za destiveho dne.

```

PREFIX trans: <http://onto.fel.cvut.cz/ontologies/transportation/>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX transportation: <http://onto.fel.cvut.cz/ontologies/transportation/>

SELECT ?dt ?dr ?hi ?pd ?si ?at
WHERE
{
  ?we rdf:type trans:weather-event ;
      trans:HasWeatherInfo ?wi .
  ?a rdf:type trans:accident ;
      trans:NearestWeatherStation ?we ;
      trans:HeavyInjured ?hi ;
      trans:PersonsDead ?pd ;
      trans:SlightlyInjured ?si ;
      trans:AccidentType ?at .
  ?wi trans:DailyRainfall ?dr ;
      trans:HasTemporalPoint ?tp .
  ?tp trans>Date ?dt .
  FILTER(regex(?at, "srážka s chodcem"))
  FILTER(?dr > 0.0)
  FILTER(?hi > 0 || ?pd > 0 || ?si > 0)
}

```

Query4 - V který den se stalo nejvíce nehod, kdy maximální teplota překročila 6.0 stupne.

```

PREFIX trans: <http://onto.fel.cvut.cz/ontologies/transportation/>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX transportation: <http://onto.fel.cvut.cz/ontologies/transportation/>

SELECT ?date (COUNT(?date) AS ?count)
WHERE
{
  ?we rdf:type trans:weather-event ;
      trans:HasWeatherInfo ?wi .
  ?a trans:NearestWeatherStation ?we .
  ?wi trans:MaxTemp ?maxTemp ;
      trans:HasTemporalPoint ?tp .
  ?tp trans>Date ?dt .
  BIND((concat(str(year(?dt)), "-", str(month(?dt)), "-", str(day(?dt)))) as ?date)
  FILTER(?maxTemp > 6.0)
}
GROUP BY ?date
ORDER BY DESC(?count)
LIMIT 1

```

Query5 - Vyber nehody (+ info o dobe svitu), které se neudaly mezi silvestrem(2017-01-01) a Vanocemi(2016-12-24).

```
PREFIX trans: <http://onto.fel.cvut.cz/ontologies/transportation/>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX transportation: <http://onto.fel.cvut.cz/ontologies/transportation/>

SELECT ?a ?dt ?sun
WHERE
{
  ?we rdf:type trans:weather-event ;
      trans:HasWeatherInfo ?wi .
  ?wi trans:Sunshine ?sun .
  ?a trans:NearestWeatherStation ?we ;
      trans:HasTemporalPoint ?tp .
  ?tp trans:Date ?dt .
  MINUS {
    ?e trans:NearestWeatherStation ?we ;
        trans:HasTemporalPoint ?tp .
    ?tp trans:Date ?dt .
    FILTER (?dt >= "2016-12-24T00:00:00.000+01:00"^^xsd:dateTime && ?dt <=
"2017-01-01T00:00:00.000+01:00"^^xsd:dateTime)
  }
}
```