R2RML mappings

```
# Mapping created using Juma editor.
  @prefix rr: <http://www.w3.org/ns/r2rml#> .
  @prefix rrf: <http://kdeg.scss.tcd.ie/ns/rrf#> .
    @prefix ex: <http://example.org/> .
    @prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
    @prefix dbo: <http://dbpedia.org/ontology/> .
    @prefix sur: <https://w3id.org/survey-ontology#> .
    @prefix disco: <http://rdf-
vocabulary.ddialliance.org/discovery#> .


  <#TriplesMapTriplesMapEDA69>
  rr:logicalTable [
    rr:tableName "EDA69";
  ];

   rr:subjectMap [
      rr:template "http://www.example.org/EDA69Record/{ID}";
      rr:class sur:Survey;
   ];

  rr:predicateObjectMap [
    rr:predicateMap [
      rr:constant dbo:censusYear;
    ];

    rr:objectMap [
     rr:column "YEAR";
    ];
  ];
  rr:predicateObjectMap [
    rr:predicateMap [
      rr:constant disco:statisticsCategory;
    ];

    rr:objectMap [
     rr:column "STATISTIC";
    ];
  ];
  rr:predicateObjectMap [
```

```
    rr:predicateMap [
      rr:constant disco:frequency;
    ];


     rr:objectMap [
      rr:column "VALUE";
     ];
  ];
  rr:predicateObjectMap [
    rr:predicateMap [
      rr:constant rdfs:label;
    ];


     rr:objectMap [
      rr:column "TYPE_OF_SCHOOL";
     ];
  ];
  rr:predicateObjectMap [
    rr:predicateMap [
      rr:constant dbo:county;
    ];


     rr:objectMap [
      rr:column "COUNTY";
     ];
  ];
  .
# Mapping created using Juma editor.
  @prefix rr: <http://www.w3.org/ns/r2rml#> .
  @prefix rrf: <http://kdeg.scss.tcd.ie/ns/rrf#> .
    @prefix ex: <http://example.org/> .
    @prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
    @prefix dbo: <http://dbpedia.org/ontology/> .
    @prefix sur: <https://w3id.org/survey-ontology#> .
    @prefix disco: <http://rdf-
vocabulary.ddialliance.org/discovery#> .
    @prefix dcterms:<http://purl.org/dc/terms#> .
    @prefix foaf:<http://xmlns.com/foaf/0.1/#> .

  <#TriplesMapTriplesMapEZ037>
  rr:logicalTable [
    rr:tableName "EZ037";
  ];
```

```
 rr:subjectMap [
    rr:template "http://www.example.org/EZ037Record/{ID}";
    rr:class sur:Survey;
 ];

rr:predicateObjectMap [
  rr:predicateMap [
    rr:constant dbo:sex;
  ];

   rr:objectMap [
    rr:column "SEX";
   ];
];
rr:predicateObjectMap [
  rr:predicateMap [
    rr:constant dbo:county;
  ];

   rr:objectMap [
    rr:column "COUNTY_AND_CITY";
   ];
];
rr:predicateObjectMap [
  rr:predicateMap [
    rr:constant disco:statisticsCategory;
  ];

   rr:objectMap [
    rr:column "STATISTIC";
   ];
];
rr:predicateObjectMap [
  rr:predicateMap [
    rr:constant disco:frequency;
  ];

   rr:objectMap [
    rr:column "VALUE";
   ];
];
rr:predicateObjectMap [
  rr:predicateMap [
    rr:constant dbo:censusYear;
```

```
      ];

       rr:objectMap [
        rr:column "CENSUS_YEAR";
       ];
    ];
    rr:predicateObjectMap [
      rr:predicateMap [
        rr:constant dcterms:educationLevel;
      ];

       rr:objectMap [
        rr:column "HIGHEST_LEVEL_OF_ED";
       ];
    ];
    rr:predicateObjectMap [
      rr:predicateMap [
        rr:constant foaf:age;
      ];

       rr:objectMap [
        rr:column "AGE_AT_WHICH_FULL_TIME_EDUCATION_CEASED";
       ];
    ];
    .
# Mapping created using Juma editor.
  @prefix rr: <http://www.w3.org/ns/r2rml#> .
  @prefix rrf: <http://kdeg.scss.tcd.ie/ns/rrf#> .
    @prefix csv: <http://example.org/csv/> .
    @prefix dbpedia: <http://dbpedia.org/ontology/> .

  <#TriplesMapTriplesMapMean>
  rr:logicalTable [
    rr:tableName "Mean";
  ];

   rr:subjectMap [
      rr:template
"http://www.example.org/record/MeanEarning/{COUNTY}/{YEAR}";
      rr:class csv:MeanEarningRecord;
   ];

  rr:predicateObjectMap [
    rr:predicateMap [
```

```
      rr:constant dbpedia:average;
    ];

    rr:objectMap [
     rr:column "VALUE";
    ];
  ];
  rr:predicateObjectMap [
    rr:predicateMap [
      rr:constant dbpedia:censusYear;
    ];

    rr:objectMap [
     rr:column "YEAR";
    ];
  ];
  rr:predicateObjectMap [
    rr:predicateMap [
      rr:constant dbpedia:county;
    ];

    rr:objectMap [
     rr:column "COUNTY";
    ];
  ];
  .


  @prefix time: <http://www.w3.org/2006/time/> .
# Mapping created using Juma editor.
  @prefix rr: <http://www.w3.org/ns/r2rml#> .
  @prefix rrf: <http://kdeg.scss.tcd.ie/ns/rrf#> .
    @prefix csv: <http://example.org/csv/> .
    @prefix dbpedia: <http://dbpedia.org/ontology/> .
    @prefix sch: <http://schema.org/> .

  <#TriplesMapTriplesMapMean>
  rr:logicalTable [
    rr:tableName "Median";
  ];

   rr:subjectMap [
      rr:template
"http://www.example.org/record/MedianEarning/{COUNTY}/{YEAR}";
```

```
      rr:class csv:MedianEarningRecord;
 ];


 rr:predicateObjectMap [
   rr:predicateMap [
     rr:constant sch:median;
   ];

    rr:objectMap [
     rr:column "VALUE";
    ];
 ];
 rr:predicateObjectMap [
   rr:predicateMap [
     rr:constant dbpedia:censusYear;
   ];

    rr:objectMap [
     rr:column "YEAR";
    ];
 ];
 rr:predicateObjectMap [
   rr:predicateMap [
     rr:constant dbpedia:county;
   ];

    rr:objectMap [
     rr:column "COUNTY";
    ];
 ];
 .



 @prefix time: <http://www.w3.org/2006/time/> .
```

SPARQL queries

Q1. Out of the county with the highest number of bachelor degrees,
what is the mean earnings?
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
select * where {

```
    ?s rdf:type <http://example.org/csv/MeanEarningRecord> .
    ?s <http://dbpedia.org/ontology/censusYear> "2018" .
    ?s <http://dbpedia.org/ontology/county> ?c .
    ?s <http://dbpedia.org/ontology/average> ?mean .

    ?beachelordegree <http://dbpedia.org/ontology/county> ?c .
    ?beachelordegree <http://dbpedia.org/ontology#censusYear>
"2016" .
    ?beachelordegree <http://purl.org/dc/terms#educationLevel>
"Ordinary bachelor degree/professional qualification or both" .
    ?beachelordegree <http://dbpedia.org/ontology/sex> "Both sexes".
    ?beachelordegree <http://rdf-
vocabulary.ddialliance.org/discovery#frequency> ?beachelordegree_valu
e
}
ORDER BY DESC(?beachelordegree_value)
limit 10
```

Q2. What county has the lowest number of third level degrees and what age on average does their education cease?

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
select  ?c ?mean  (SUM(xsd:integer(?degree_value)) as ?degree_sum)
where {
    ?s rdf:type <http://example.org/csv/MeanEarningRecord> .
    ?s <http://dbpedia.org/ontology/censusYear> "2018" .
    ?s <http://dbpedia.org/ontology/county> ?c .
    ?s <http://dbpedia.org/ontology/average> ?mean .

    ?beachelordegree <http://dbpedia.org/ontology/county> ?c .
    ?beachelordegree <http://dbpedia.org/ontology#censusYear>
"2016" .

    ?beachelordegree
<http://purl.org/dc/terms#educationLevel>  ?degree.

    FILTER (
          ?degree in ("Ordinary bachelor degree/professional
qualification or both","Honours bachelor degree/professional
qualification or both","Postgraduate diploma or degree","Doctorate
(Ph.D.)")
    )

    ?beachelordegree <http://dbpedia.org/ontology/sex> "Both sexes".
```

```
    ?beachelordegree <http://rdf-
vocabulary.ddialliance.org/discovery#frequency> ?degree_value
}
GROUP BY ?c ?mean
ORDER BY DESC(?degree_sum)
limit 10
```

Q3. What county has the lowest earning and what age on average does their education cease?

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
select * where {
    ?s rdf:type <http://example.org/csv/MeanEarningRecord> .
    ?s <http://dbpedia.org/ontology/censusYear> "2018" .
    ?s <http://dbpedia.org/ontology/county> ?c .
    ?s <http://dbpedia.org/ontology/average> ?mean .

    ?ageeduceased <http://dbpedia.org/ontology/county> ?c .
    ?ageeduceased <http://dbpedia.org/ontology#censusYear> "2016" .
    ?ageeduceased <http://rdf-
vocabulary.ddialliance.org/discovery#statisticsCategory>
"Average_Age_Education_Ceased_(Number)".
    ?ageeduceased <http://rdf-
vocabulary.ddialliance.org/discovery#frequency> ?ageeduceased_value
}
ORDER BY ASC(?mean)
limit 10000
```

Q4. Does the county with highest number of ceased education earn most in 2011?

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
select * where {
    ?s rdf:type <http://example.org/csv/MeanEarningRecord> .
    ?s <http://dbpedia.org/ontology/censusYear> "2011" .
    ?s <http://dbpedia.org/ontology/county> ?c .
    ?s <http://dbpedia.org/ontology/average> ?mean .

    ?ageeduceased <http://dbpedia.org/ontology/county> ?c .
    ?ageeduceased <http://dbpedia.org/ontology#censusYear> "2011" .
    ?ageeduceased <http://rdf-
vocabulary.ddialliance.org/discovery#statisticsCategory>
"Average_Age_Education_Ceased_(Number)".
    ?ageeduceased <http://rdf-
vocabulary.ddialliance.org/discovery#frequency> ?ageeduceased_value
}
ORDER BY DESC(?ageeduceased_value)
limit 10000
```

```
Q5. Does the county with the lowest secondary school dropout rate
earn the most money on average?
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
select  ?c ?mean
(SUM(xsd:integer(?nodegreesum))/SUM(xsd:integer(?degree_value))
as ?nodegree_perc) where {
    ?s rdf:type <http://example.org/csv/MeanEarningRecord> .
    ?s <http://dbpedia.org/ontology/censusYear> "2018" .
    ?s <http://dbpedia.org/ontology/county> ?c .
    ?s <http://dbpedia.org/ontology/average> ?mean .

    ?beachelordegree <http://dbpedia.org/ontology/county> ?c .
    ?beachelordegree <http://dbpedia.org/ontology#censusYear>
"2016" .

    ?beachelordegree
<http://purl.org/dc/terms#educationLevel>   ?degree.

    BIND ( IF(?degree not in ("Ordinary bachelor degree/professional
qualification or both","Honours bachelor degree/professional
qualification or both","Postgraduate diploma or degree","Doctorate
(Ph.D.)", "Upper secondary"), ?degree_value, 0 ) as ?nodegreesum )

    ?beachelordegree <http://dbpedia.org/ontology/sex> "Both sexes".
    ?beachelordegree <http://rdf-
vocabulary.ddialliance.org/discovery#frequency> ?degree_value
}
GROUP BY ?c ?mean
ORDER BY DESC(?nodegree_perc)
limit 10
Q6. Does the county with the lowest average age education ceased earn
the least?
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
select * where {
    ?s rdf:type <http://example.org/csv/MeanEarningRecord> .
    ?s <http://dbpedia.org/ontology/censusYear> "2018" .
    ?s <http://dbpedia.org/ontology/county> ?c .
    ?s <http://dbpedia.org/ontology/average> ?mean .

    ?ageeduceased <http://dbpedia.org/ontology/county> ?c .
    ?ageeduceased <http://dbpedia.org/ontology#censusYear> "2016" .
```

```
    ?ageeduceased <http://rdf-
vocabulary.ddialliance.org/discovery#statisticsCategory>
"Average_Age_Education_Ceased_(Number)".
    ?ageeduceased <http://rdf-
vocabulary.ddialliance.org/discovery#frequency> ?ageeduceased_value
}
ORDER BY ASC(?ageeduceased_value)
limit 10000
```

Q7. Does the county with the highest average age for ceasing education earn the most?

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
select * where {
    ?s rdf:type <http://example.org/csv/MeanEarningRecord> .
    ?s <http://dbpedia.org/ontology/censusYear> "2018" .
    ?s <http://dbpedia.org/ontology/county> ?c .
    ?s <http://dbpedia.org/ontology/average> ?mean .


    ?ageeduceased <http://dbpedia.org/ontology/county> ?c .
    ?ageeduceased <http://dbpedia.org/ontology#censusYear> "2016" .
    ?ageeduceased <http://rdf-
vocabulary.ddialliance.org/discovery#statisticsCategory>
"Average_Age_Education_Ceased_(Number)".
    ?ageeduceased <http://rdf-
vocabulary.ddialliance.org/discovery#frequency> ?ageeduceased_value
}
ORDER BY DESC(?ageeduceased_value)
limit 10000
```

Q8. For the county with the most postgraduate degree holders, what was the mean earnings in 2018?

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
select  ?c ?mean  (SUM(xsd:integer(?degree_value)) as ?degree_sum)
where {
    ?s rdf:type <http://example.org/csv/MeanEarningRecord> .
    ?s <http://dbpedia.org/ontology/censusYear> "2018" .
    ?s <http://dbpedia.org/ontology/county> ?c .
    ?s <http://dbpedia.org/ontology/average> ?mean .


    ?beachelordegree <http://dbpedia.org/ontology/county> ?c .
    ?beachelordegree <http://dbpedia.org/ontology#censusYear>
"2016" .
```

```
    ?beachelordegree
<http://purl.org/dc/terms#educationLevel>   ?degree.

    FILTER (
          ?degree in ("Postgraduate diploma or degree","Doctorate
(Ph.D.)")
    )

    ?beachelordegree <http://dbpedia.org/ontology/sex> "Both sexes".
    ?beachelordegree <http://rdf-
vocabulary.ddialliance.org/discovery#frequency> ?degree_value
}
GROUP BY ?c ?mean
ORDER BY DESC(?degree_sum)
limit 10
```

Q9. For the county with the highest percentage of PHD degrees, what's the mean earning?

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
select  ?c ?mean
(SUM(xsd:integer(?nodegreesum))/SUM(xsd:integer(?degree_value))
as ?nodegree_perc) where {
    ?s rdf:type <http://example.org/csv/MeanEarningRecord> .
    ?s <http://dbpedia.org/ontology/censusYear> "2018" .
    ?s <http://dbpedia.org/ontology/county> ?c .
    ?s <http://dbpedia.org/ontology/average> ?mean .

    ?beachelordegree <http://dbpedia.org/ontology/county> ?c .
    ?beachelordegree <http://dbpedia.org/ontology#censusYear>
"2016" .

    ?beachelordegree
<http://purl.org/dc/terms#educationLevel>   ?degree.

    BIND ( IF(?degree in ("Doctorate (Ph.D.)"), ?degree_value, 0 )
as ?nodegreesum )

    ?beachelordegree <http://dbpedia.org/ontology/sex> "Both sexes".
    ?beachelordegree <http://rdf-
vocabulary.ddialliance.org/discovery#frequency> ?degree_value
}
GROUP BY ?c ?mean
ORDER BY DESC(?nodegree_perc)
limit 10
```

Q10. In 2016, the county with the lowest mean earning , what age on
average do they finish their education ?
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
select * where {
    ?s rdf:type <http://example.org/csv/MeanEarningRecord> .
    ?s <http://dbpedia.org/ontology/censusYear> "2018" .
    ?s <http://dbpedia.org/ontology/county> ?c .
    ?s <http://dbpedia.org/ontology/average> ?mean .

    ?ageeduceased <http://dbpedia.org/ontology/county> ?c .
    ?ageeduceased <http://dbpedia.org/ontology#censusYear> "2016" .
    ?ageeduceased <http://rdf-
vocabulary.ddialliance.org/discovery#statisticsCategory>
"Average_Age_Education_Ceased_(Number)".
    ?ageeduceased <http://rdf-
vocabulary.ddialliance.org/discovery#frequency> ?ageeduceased_value
}
ORDER BY ASC(?mean)
limit 10000