Homework 5

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1) Please use direct mapping to map the following three relational tables to RDF triples,

Given:

@base <http://foo.example/DB/> .

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>.

Student

PK		→ Major(ID)
ID	sname	major
001	Wang	211

Major

PK		
ID	mname	address
211	AI	CS_Building

Course

PK		→ Major(ID)
ID	cname	major
8	KG	211
9	NLP	211

Solution:

@base <http://foo.example/DB/> .

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>.

<Student/ID=001> rdf:type <Student>.

<Student/ID=001> <Student#ID> "001".

<Student/ID=001> <Student#sname> "Wang".

<Student/ID=001> <Student#major> "211".

<Student/ID=001> <Student#ref-major> <Major/ID=211>.

<Course/ID=8> rdf:type <course>.

<Course/ID=8> <Course#ID> "8".

<Course/ID=8> <Course#cname> "KG".

<Course/ID=8> <Course#major> "211".

<Course/ID=8> <Course#ref-major> <Major/ID=211>.

<Course/ID=9> rdf:type <course>.

<Course/ID=9> <Course#ID> "9".

<Course/ID=9> <Course#cname> "NLP".

<Course/ID=9> <Course#major> "211".

<Course/ID=9> <Course#ref-major> <Major/ID=211>.

<Major/ID=8> rdf:type <Major>.

<Major/ID=8> <Major#ID> "211".

<Major/ID=8> <Major#mname> "AI".

<Major/ID=8> <Major#address> "CS_Building".

2) Given a relational database and RDF triples, please write corresponding R2RML triples maps which can map the given RDB to RDF.

RDB

Student

ID	sname	major	gender
001	Wang	211	Male
002	Wu	201	Female

RDF Triples

<http://data.example.com/student/001> rdf:type ex:Student ;

                 ex:id "001" ;

                 foaf:name "Wang" ;

                 ex:major "211" ;

                 ex:gender "Male".

<http://data.example.com/student/001> rdf:type ex:Student ;

                 ex:id "002" ;

                 foaf:name "Wu" ;

                 ex:major "201" ;

                 ex:gender "Female".

Solution:

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@prefix rr: <http://www.w3.org/ns/r2rml#>.
@prefix ex: <http://example.com/ns#>.
@prefix foaf: <http://xmlns.com/foaf/0.1/>.
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>.
<#TriplesMap1>
    rr:logicalTable [rr:tableName "Student"];
    rr:subjectMap[
        rr:template "http://data.example.com/student/{ID}";
        rr:class ex:Student;
    ];
    rr:predicateObjectMap[
        rr:predicate ex:id;
        rr:objectMap [rr:colum "ID"];
    ];
    rr:predicateObjectMap[
        rr:predicate foaf:name;
        rr:objectMap [rr:colum "sname"];
    ];
    rr:predicateObjectMap[
        rr:predicate ex:major;
        rr:objectMap [rr:colum "major"];
    ];
    rr:predicateObjectMap[
        rr:predicate ex:gender;
        rr:objectMap [rr:colum "gender"];
    ].
```