

## CS548 - Homework 3

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1. "I, Apurv Upasani, declare that the submitted work is original and adheres to all University policies and acknowledge the consequences that may result from a violation of those rules"

**Note :** The output of the queries are obtained from curl command and put into a csv file and extracted from there.

2. Queries

i) **Query 1**

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

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

```
PREFIX dbontology: <http://dbpedia.org/ontology/>
```

```
PREFIX res: <http://dbpedia.org/resource/>
```

```
PREFIX dbprop: <http://dbpedia.org/property/>
```

```
SELECT ?label, str(?student) as ?numStudents WHERE {  
  <http://dbpedia.org/resource/University_of_California,_Los_Angeles>  
  dbontology:numberOfStudents ?student .  
  <http://dbpedia.org/resource/University_of_California,_Los_Angeles> rdfs:label ?label .  
  FILTER(langMatches(lang(?label), "EN"))  
} UNION  
  {res:University_of_Southern_California dbontology:numberOfStudents ?student .  
  res:University_of_Southern_California dbprop:label ?label .  
  }  
}  
LIMIT 10
```

**Output**

"label"	"numStudents"
University of California, Los Angeles"	"42163"
University of Southern California"	"39958"

## ii) Query 2

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

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

PREFIX dbontology: <http://dbpedia.org/ontology/>

PREFIX res: <http://dbpedia.org/resource/>

PREFIX dbprop: <http://dbpedia.org/property/>

```
SELECT ?univ AS ?university, str(?student) as ?student_count WHERE {  
  ?univ dbontology:type res:Private_university .  
  ?univ rdf:type  
<http://dbpedia.org/class/yago/UniversitiesAndCollegesInLosAngelesCounty,California> .  
  ?univ dbontology:numberOfStudents ?student  
}  
ORDER BY DESC(?student)  
LIMIT 10
```

## Output

"university"	"student_count"
<a href="http://dbpedia.org/resource/University_of_Southern_California">http://dbpedia.org/resource/University_of_Southern_California</a>	39958
<a href="http://dbpedia.org/resource/National_University_(California)">http://dbpedia.org/resource/National_University_(California)</a>	22712
<a href="http://dbpedia.org/resource/Azusa_Pacific_University">http://dbpedia.org/resource/Azusa_Pacific_University</a>	10755
<a href="http://dbpedia.org/resource/Loyola_Marymount_University">http://dbpedia.org/resource/Loyola_Marymount_University</a>	9369
<a href="http://dbpedia.org/resource/Western_University_of_Health_Sciences">http://dbpedia.org/resource/Western_University_of_Health_Sciences</a>	3692
<a href="http://dbpedia.org/resource/Mount_St._Mary's_College">http://dbpedia.org/resource/Mount_St._Mary's_College</a>	3299
<a href="http://dbpedia.org/resource/The_Art_Institute_of_California_%E2%80%93_Hollywood">http://dbpedia.org/resource/The_Art_Institute_of_California_%E2%80%93_Hollywood</a>	2300
<a href="http://dbpedia.org/resource/California_Institute_of_Technology">http://dbpedia.org/resource/California_Institute_of_Technology</a>	2231
<a href="http://dbpedia.org/resource/Occidental_College">http://dbpedia.org/resource/Occidental_College</a>	2123
<a href="http://dbpedia.org/resource/Art_Center_College_of_Design">http://dbpedia.org/resource/Art_Center_College_of_Design</a>	1737

### iii) Query 3

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

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

PREFIX dbontology: <http://dbpedia.org/ontology/>

PREFIX res: <http://dbpedia.org/resource/>

PREFIX dbprop: <http://dbpedia.org/property/>

```
SELECT ?campusType,(COUNT(?campusType) AS ?count) WHERE {  
  ?univ dbontology:campus ?campusType .  
  ?univ dbontology:type res:Public_university .  
  ?univ rdf:type  
<http://dbpedia.org/class/yago/UniversitiesAndCollegesInLosAngelesCounty,California> .  
}  
GROUP BY ?campusType  
ORDER BY DESC (?count)  
LIMIT 10
```

#### Output

campusType	count
<a href="http://dbpedia.org/resource/Urban_area">http://dbpedia.org/resource/Urban_area</a>	2
<a href="http://dbpedia.org/resource/Suburb">http://dbpedia.org/resource/Suburb</a>	1

iv) Query 4

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX dbontology: <http://dbpedia.org/ontology/>
PREFIX res: <http://dbpedia.org/resource/>
PREFIX dbprop: <http://dbpedia.org/property/>

SELECT str(?univ)as ?university, year(?d) as ?establish_date WHERE {
  ?univ rdf:type
  <http://dbpedia.org/class/yago/UniversitiesAndCollegesInLosAngelesCounty,California> .
  ?univ dbontology:type ?type
  filter(?type = res:Public_university || ?type = res:Private_university).
  {?univ dbprop:established ?date
  filter ( (datatype(?date) = xsd:integer && ?date <1914)).
  BIND(xsd:date(str(?date)) as ?d).
}
UNION
{
  ?univ dbprop:established ?d
  filter(datatype(?d) = xsd:date&& ?d < xsd:date("1914-01-01")).
}
}
ORDER BY (?d)
LIMIT 10

```

**Output**

university	establish_date
<a href="http://dbpedia.org/resource/University_of_Southern_California">http://dbpedia.org/resource/University_of_Southern_California</a>	1880
<a href="http://dbpedia.org/resource/University_of_California,_Los_Angeles">http://dbpedia.org/resource/University_of_California,_Los_Angeles</a>	1882
<a href="http://dbpedia.org/resource/Woodbury_University">http://dbpedia.org/resource/Woodbury_University</a>	1884
<a href="http://dbpedia.org/resource/American_Academy_of_Dramatic_Arts">http://dbpedia.org/resource/American_Academy_of_Dramatic_Arts</a>	1884
<a href="http://dbpedia.org/resource/Whittier_College">http://dbpedia.org/resource/Whittier_College</a>	1887
<a href="http://dbpedia.org/resource/Occidental_College">http://dbpedia.org/resource/Occidental_College</a>	1887
<a href="http://dbpedia.org/resource/California_Institute_of_Technology">http://dbpedia.org/resource/California_Institute_of_Technology</a>	1891
<a href="http://dbpedia.org/resource/Southwestern_Law_School">http://dbpedia.org/resource/Southwestern_Law_School</a>	1911
<a href="http://dbpedia.org/resource/Loyola_Marymount_University">http://dbpedia.org/resource/Loyola_Marymount_University</a>	1911
<a href="http://dbpedia.org/resource/Southern_California_University_of_Health_Sciences">http://dbpedia.org/resource/Southern_California_University_of_Health_Sciences</a>	1911

v) **Query**

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX dbontology: <http://dbpedia.org/ontology/>
PREFIX res: <http://dbpedia.org/resource/>
PREFIX dbprop: <http://dbpedia.org/property/>

SELECT str(?univ) as ?university ,str(?state) as ?university_state ,str(?type) as
?university_type, str(?endow) as ?endowment,?sfRatio as ?studentFacultyRatio WHERE {
    ?univ dbontology:type ?type
    filter(?type= res:Private_university || ?type=res:Public_university).
    OPTIONAL {?univ dbprop:endowment ?endow }
    ?univ dbontology:state ?state
    filter(?state =res:California || ?state = res:Texas).
    ?univ dbontology:facultySize ?faculty
    filter(?faculty > 500 && ?faculty < 2500).
    ?univ dbontology:numberOfStudents ?students
    BIND((?students/?faculty) AS ?sfRatio)
    filter((?students/?faculty)>10).
}
ORDER BY DESC (?sfRatio)
LIMIT 10

```

**Output**

university	university_state	university_type	endowment	student Faculty Ratio
<a href="http://dbpedia.org/resource/Sam_Houston_State_University">http://dbpedia.org/resource/Sam_Houston_State_University</a>	<a href="http://dbpedia.org/resource/Texas">http://dbpedia.org/resource/Texas</a>	<a href="http://dbpedia.org/resource/Public_university">http://dbpedia.org/resource/Public_university</a>	5.20 E+07	32
<a href="http://dbpedia.org/resource/Palomar_College">http://dbpedia.org/resource/Palomar_College</a>	<a href="http://dbpedia.org/resource/California">http://dbpedia.org/resource/California</a>	<a href="http://dbpedia.org/resource/Public_university">http://dbpedia.org/resource/Public_university</a>		24
<a href="http://dbpedia.org/resource/San_Diego_City_College">http://dbpedia.org/resource/San_Diego_City_College</a>	<a href="http://dbpedia.org/resource/California">http://dbpedia.org/resource/California</a>	<a href="http://dbpedia.org/resource/Public_university">http://dbpedia.org/resource/Public_university</a>		24
<a href="http://dbpedia.org/resource/University_of_Texas%E2%80%93Pan_American">http://dbpedia.org/resource/University_of_Texas%E2%80%93Pan_American</a>	<a href="http://dbpedia.org/resource/Texas">http://dbpedia.org/resource/Texas</a>	<a href="http://dbpedia.org/resource/Public_university">http://dbpedia.org/resource/Public_university</a>	6.50 E+07	23
<a href="http://dbpedia.org/resource/California_State_University,_Northridge">http://dbpedia.org/resource/California_State_University,_Northridge</a>	<a href="http://dbpedia.org/resource/California">http://dbpedia.org/resource/California</a>	<a href="http://dbpedia.org/resource/Public_university">http://dbpedia.org/resource/Public_university</a>	7.24 E+07	22

<a href="http://dbpedia.org/resource/University_of_California,_Santa_Barbara">http://dbpedia.org/resource/University_of_California,_Santa_Barbara</a>	<a href="http://dbpedia.org/resource/California">http://dbpedia.org/resource/California</a>	<a href="http://dbpedia.org/resource/Public_university">http://dbpedia.org/resource/Public_university</a>	2.26 E+08	20
<a href="http://dbpedia.org/resource/San_Francisco_State_University">http://dbpedia.org/resource/San_Francisco_State_University</a>	<a href="http://dbpedia.org/resource/California">http://dbpedia.org/resource/California</a>	<a href="http://dbpedia.org/resource/Public_university">http://dbpedia.org/resource/Public_university</a>	5.52 E+07	19
<a href="http://dbpedia.org/resource/California_State_University,_Long_Beach">http://dbpedia.org/resource/California_State_University,_Long_Beach</a>	<a href="http://dbpedia.org/resource/California">http://dbpedia.org/resource/California</a>	<a href="http://dbpedia.org/resource/Public_university">http://dbpedia.org/resource/Public_university</a>	5.05 E+07	19
<a href="http://dbpedia.org/resource/California_State_University,_Sacramento">http://dbpedia.org/resource/California_State_University,_Sacramento</a>	<a href="http://dbpedia.org/resource/California">http://dbpedia.org/resource/California</a>	<a href="http://dbpedia.org/resource/Public_university">http://dbpedia.org/resource/Public_university</a>	2.93 E+07	19
<a href="http://dbpedia.org/resource/California_State_University,_Fresno">http://dbpedia.org/resource/California_State_University,_Fresno</a>	<a href="http://dbpedia.org/resource/California">http://dbpedia.org/resource/California</a>	<a href="http://dbpedia.org/resource/Public_university">http://dbpedia.org/resource/Public_university</a>	1.43 E+08	19