### **Q**

### **Provide the number of art galleries, museums, and botanical gardens in the city. Note that there are several different types of museums on Wikidata.**

### **SPARQL query for task-3**

SELECT ?cities

?wiki\_cities

(STR(COUNT(DISTINCT ?botanical\_garden)) as ?number\_of\_botanical\_garden) (STR(COUNT(DISTINCT ?museum)) as ?number\_of\_museum)

(STR(COUNT(DISTINCT ?art\_gallery)) as ?number\_of\_art\_gallery)

WHERE

{

?cities rdf:type this:City.

?wiki\_cities owl:sameAs ?cities.

SERVICE <http://query.wikidata.org/sparql> {

?wiki\_cities wdt:P17 ?wiki\_country.

?wiki\_cities rdfs:label ?label.

OPTIONAL{

?botanical\_garden wdt:P31 wd:Q167346.

?botanical\_garden wdt:P17 ?wiki\_country.

?botanical\_garden schema:description ?BG\_description.

FILTER (lang(?BG\_description) = "en")

FILTER (lang(?label) = "en")

FILTER REGEX(?BG\_description, ?label, "i")

}

}

SERVICE <http://query.wikidata.org/sparql> {

?wiki\_cities wdt:P17 ?wiki\_country.

?wiki\_cities rdfs:label ?label.

OPTIONAL{

?museum wdt:P31/wdt:P31 wd:Q63982911.

?museum wdt:P17 ?wiki\_country.

?museum schema:description ?M\_description.

FILTER (lang(?M\_description) = "en")

FILTER (lang(?label) = "en")

FILTER REGEX(?M\_description, ?label, "i")

}

}

SERVICE <http://query.wikidata.org/sparql> {

?wiki\_cities wdt:P17 ?wiki\_country.

?wiki\_cities rdfs:label ?label.

OPTIONAL{

?art\_gallery wdt:P31 wd:Q1007870.

?art\_gallery wdt:P17 ?wiki\_country.

?art\_gallery schema:description ?AG\_description.

FILTER (lang(?AG\_description) = "en")

FILTER (lang(?label) = "en")

FILTER REGEX(?AG\_description, ?label, "i")

}

}

}

GROUP BY ?cities ?wiki\_cities

ORDER BY ?cities

### 

### **Results of task-3**

Please note that, the query will keep running up to 30 minutes when executed in Apache Jena Fuseki. Although the query satisfies the requirement specifications in the coursework, there were few glitches found in the results while working on this Query. Some of them are:

* Results of art gallery disappeared.
* Individual of City- Mysore disappeared (found in the Figure 12.1 bellow)

表格

描述已自动生成

**Figure 12.1 : Output results for Query 3 using regular expression filtering.**

## 

## **Federated Queries Results of Task 3**

To overcome this glitch, we divided this query into multiple sections of federated query and executed each section of the federated query individually i.e. one federated query at a time. By doing this we successfully got the expected results as illustrated in the figure 12.2.1, Figure 12.2.2 and Figure 12.2.3.

Here in the output the value Zero is obtained if there are no botanical garden or art gallery is found in that Wikidata city.

表格

描述已自动生成

**Figure 12.2.1: Federated Query output for Number of botanical garden in the cities.**

表格

描述已自动生成

**Figure 12.2.2: Federated query output for Number of museum in the cities**

表格

描述已自动生成

**Figure 12.2.3: Federated query output for Number of Art Gallery in the city.**