



Ain Shams University
Faculty of Engineering – CHEP
CESS Program
Spring 2022



Ontologies & the Semantic Web (CSE488)

Project

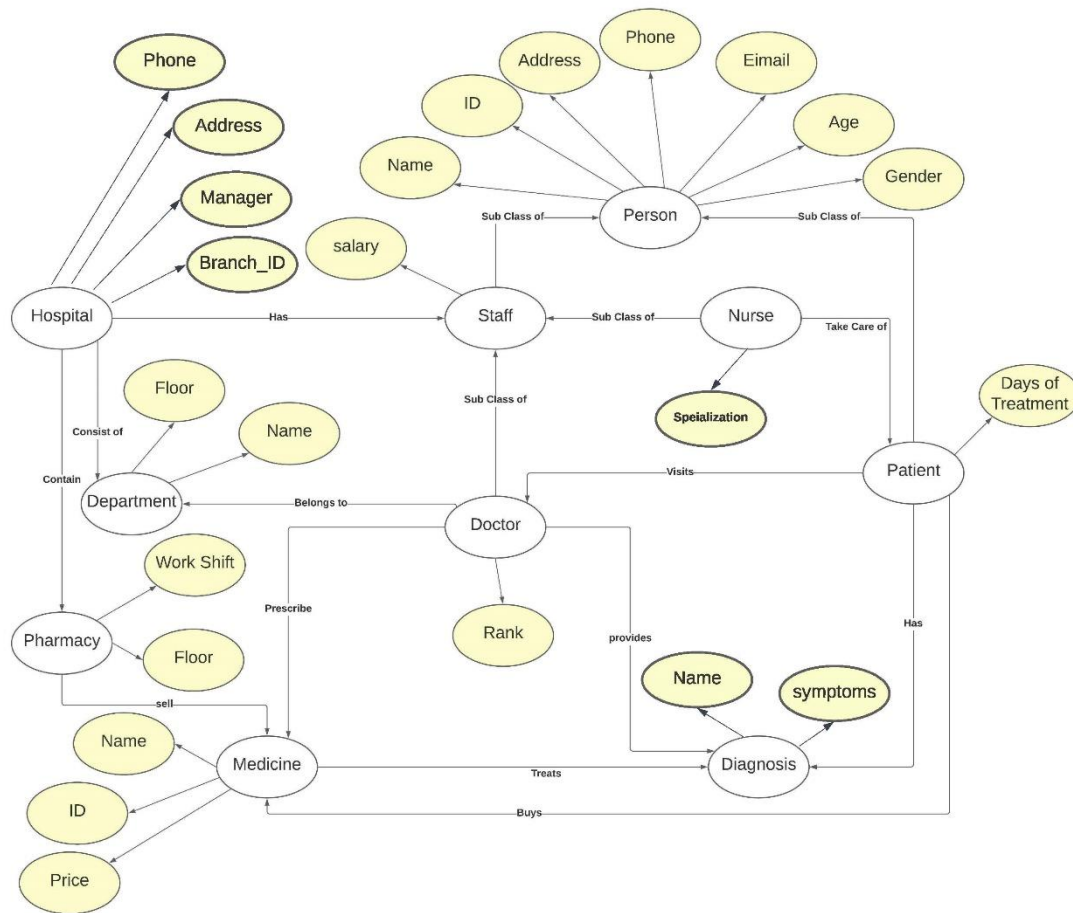
HOSPITAL SYSTEM

Submitted by

Ahmed Abd El-Nasser	(17P8113)
Amr Mohamed	(17P8120)
Seif Allah Khaled	(17P1048)
Mohamed Ashraf	(17P6078)

May 26, 2022

I. DIAGRAM



II. DESCRIPTION

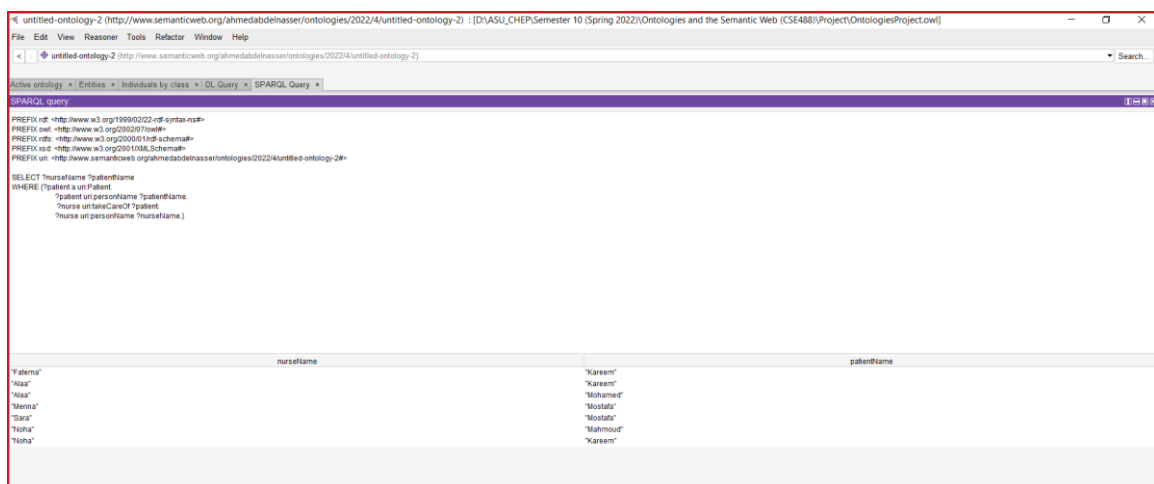
Class	Data Properties
Hospital	Address, Phone, Manager, Branch_ID
Department	Name, Floor
Person	Name, Gender, Age, Address, Phone, ID
Staff	Salary
Doctor	Rank
Nurse	Specialization
Patient	Days of Treatment
Diagnosis	Name, Symptoms
Pharmacy	Work Shift, Floor
Medicine	Name, ID, Price

Relations between entities are indicated within the graph.

III. SAMPLE QUERIES

A. Nurses And Patients, They Take Care Of

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX uri:
<http://www.semanticweb.org/ahmedabdelnasser/ontologies/2022/4/untitled-ontology-2#>
SELECT ?patientName ?nurseName
WHERE {?patient a uri:Patient.
       ?patient uri:personName ?patientName.
       ?nurse uri:takeCareOf ?patient.
       ?nurse uri:personName ?nurseName.}
```

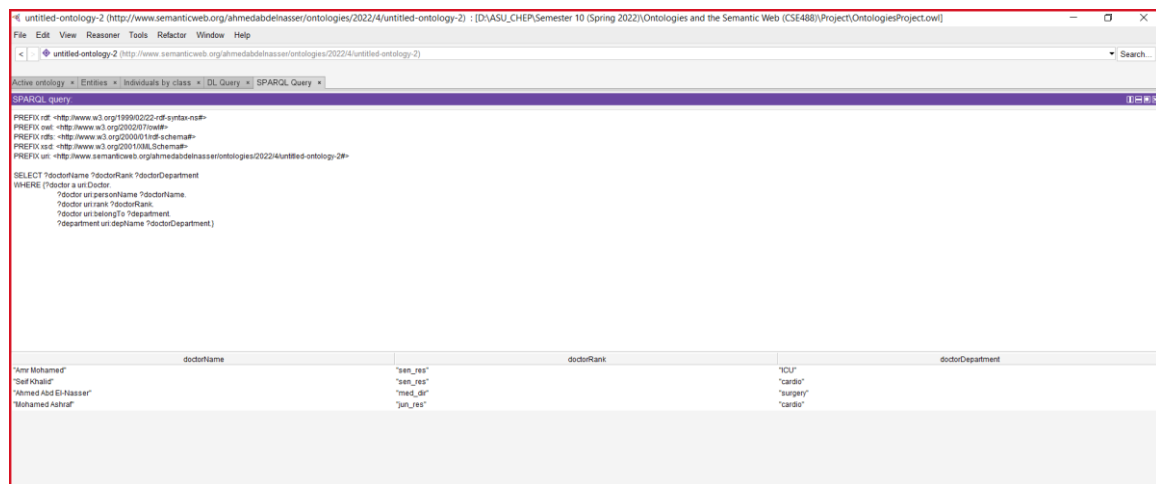


The screenshot shows a web browser window with a SPARQL query editor. The query is the same as the one in the previous block. The results are displayed in a table with two columns: 'nurseName' and 'patientName'.

nurseName	patientName
"Yatema"	"Kareem"
"Alaa"	"Kareem"
"Hajar"	"Mohamed"
"Menna"	"Mostafa"
"Sara"	"Mostafa"
"Noha"	"Mahmoud"
"Noha"	"Kareem"

B. Doctors, Their Ranks and Departments

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX                                     uri:
<http://www.semanticweb.org/ahmedabdelnasser/ontologies/2022/4/untitled-ontology-
2#>
SELECT ?doctorName ?doctorRank ?doctorDepartment
WHERE {?doctor a uri:Doctor.
      ?doctor uri:personName ?doctorName.
      ?doctor uri:rank ?doctorRank.
      ?doctor uri:belongsTo ?department.
      ?department uri:depName ?doctorDepartment.}
```



The screenshot shows a web browser window with a SPARQL query editor. The query is the same as the one in the previous block. Below the query, the results are displayed in a table with four columns: doctorName, doctorRank, doctorDepartment, and an unnamed column. The results are as follows:

doctorName	doctorRank	doctorDepartment	
"Amr Mohamed"	"sen_res"	"ICU"	"cardio"
"Saf Khalid"	"sen_res"	"cardio"	"surgery"
"Ahmed Abd El-Nasser"	"med_dir"	"cardio"	"cardio"
"Mohamed Ashraf"	"jun_res"	"cardio"	"cardio"

C. Doctors who prescribe a specific medicine

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX
uri:
<http://www.semanticweb.org/ahmedabdelnasser/ontologies/2022/4/untitled-ontology-
2#>
SELECT ?doctorName ?medicineName
WHERE {?doctor a uri:Doctor.
      ?doctor uri:personName ?doctorName.
      ?doctor uri:prescribe ?medicine.
      ?medicine uri:medName ?medicineName.
      FILTER(?medicineName = "b").}
```

