

Comsats University Islamabad Lahore Campus

Artificial Intelligence

Lab Task 3

Submitted to :

Sir Zeeshan Gillani

Submitted By :

Mohammad Abuzar
SP19-BCS-089
SECTION B

Code:

```
create (s:Students{ name:"Mohammad Abuzar" ,Rollno:89 ,Batch:"SP19",Section:"B"}),(s1:Students{ name:"Rubab Rana" ,Rollno:90 ,Batch:"SP19",Section:"B"}),(s2:Students{ name:"Abdul Rauf" ,Rollno:91 ,Batch:"FA18",Section:"A"}),(s3:Students{ name:"Abdul Rehman Haris" ,Rollno:101 ,Batch:"SP19",Section:"B"}),(s4:Students{ name:"Uzair Sufyan" ,Rollno:29 ,Batch:"FA18",Section:"A"}),(s5:Students{ name:"Faiq Iqbal" ,Rollno:138 ,Batch:"SP19",Section:"B"}),(s6:Students{ name:"Taimoor" ,Rollno:50,Batch:"SP19",Section:"B"}),(s7:Students{ name:"Ayesha" ,Rollno:17 ,Batch:"SP19",Section:"B"}),(s8:Students{ name:"Amna Solat Khan" ,Rollno:83 ,Batch:"SP19",Section:"B"}),(s9:Students{ name:"Ayaz Asghar" ,Rollno:80 ,Batch:"FA18",Section:"A"})
```

```
create (t:Teachers{ name:"Dr. Zeeshan Gillani",tid:"T70",Joined_Year:"2007"}),(t1:Teachers{ name:"Dr. Hassan Jamal",tid:"T71",Joined_Year:"2000"}),(t2:Teachers{ name:"Dr. Shahid Bhatti",tid:"T72",Joined_Year:"1999"}),(t3:Teachers{ name:"Chaudhry Nadeem Gafoor",tid:"T73",Joined_Year:"1995"}),(t4:Teachers{ name:"Sr. Sana Javed",tid:"T74",Joined_Year:"2012"}),(t5:Teachers{ name:"Majid Khattak",tid:"T75",Joined_Year:"2004"})
```

```
create (c:Courses{ name:"Artificial Intelligence",courseid:"AI103"}),(c1:Courses{ name:"Data Science",courseid:"DT104"}),(c2:Courses{ name:"Operating System",courseid:"OS109"}),(c3:Courses{ name:"Design and Analysis of Algorithm",courseid:"DAA105"}),(c4:Courses{ name:"Multivariable Calculus",courseid:"MV106"}),(c5:Courses{ name:"Numerical Computing",courseid:"NC107"})
```

```
create (s)-[r:is_enrolled_in]->(c1)
create (s1)-[r1:is_enrolled_in]->(c)
create (s4)-[r31:is_enrolled_in]->(c2)
create (s4)-[r32:is_enrolled_in]->(c5)
create (s4)-[r33:is_enrolled_in]->(c3)
create (s2)-[r34:is_enrolled_in]->(c2)
create (s3)-[r35:is_enrolled_in]->(c5)
create (s5)-[r5:is_enrolled_in]->(c4)
create (s6)-[r6:is_enrolled_in]->(c1)
create (s7)-[r7:is_enrolled_in]->(c5)
create (s8)-[r8:is_enrolled_in]->(c1)
create (s9)-[r9:is_enrolled_in]->(c5)
```

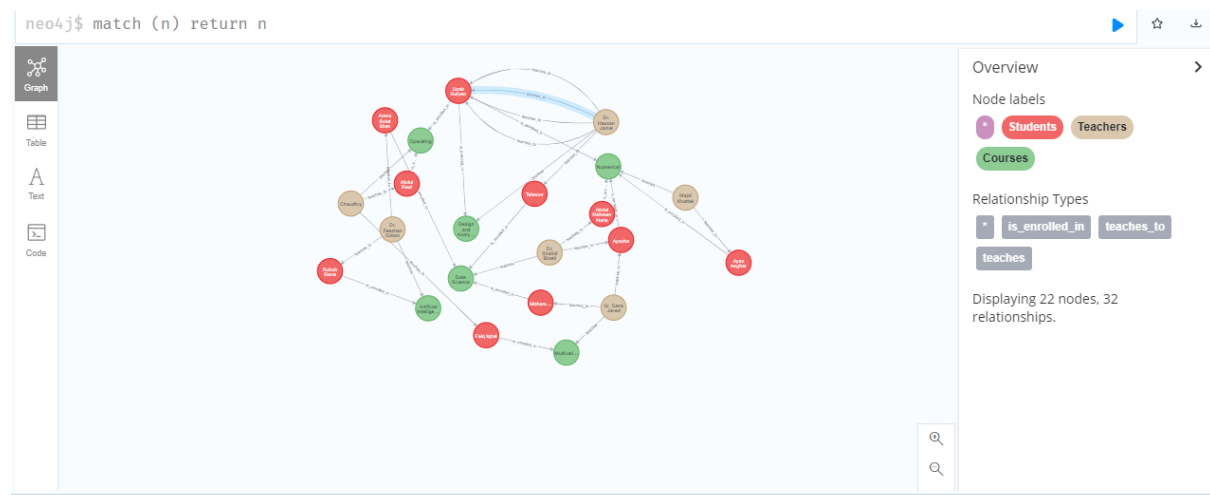
```
create (t)-[r10:teaches]->(c)
create (t1)-[r16:teaches]->(c3)
create (t2)-[r17:teaches]->(c1)
create (t3)-[r18:teaches]->(c2)
create (t4)-[r19:teaches]->(c4)
create (t5)-[r20:teaches]->(c5)
create (t)-[r12:teaches_to]->(s1)
```

```

create (t3)-[r13:teaches_to]->(s2)
create (t2)-[r14:teaches_to]->(s3)
create (t1)-[r15:teaches_to]->(s4)
create (t4)-[r21:teaches_to]->(s7)
create (t)-[r22:teaches_to]->(s8)
create (t5)-[r23:teaches_to]->(s9)
create (t4)-[r24:teaches_to]->(s)
create (t3)-[r25:teaches_to]->(s5)
create (t2)-[r26:teaches_to]->(s7)
create (t1)-[r27:teaches_to]->(s6)
create (t1)-[r28:teaches_to]->(s4)
create (t1)-[r29:teaches_to]->(s4)
create (t1)-[r30:teaches_to]->(s4)

```

Output:



Query 1:

return all students who r enrolled in courses

```

match (s:Students) - [:is_enrolled_in] -> (c:Courses) return s

```

neo4j\$ match (s:Students) - [:is_enrolled_in] -> (c:Courses) return s

{ "name": "Mohammad Abuzar", "Rollno": 89, "Batch": "SP19", "Section": "B" }
{ "name": "Rubab Rana", "Rollno": 90, "Batch": "SP19", "Section": "B" }
{ "name": "Abdul Rauf", "Rollno": 91, "Batch": "FA18", "Section": "A" }
{ "name": "Abdul Rehman Haris", "Rollno": 101, "Batch": "SP19", "Section": "B" }
{ "name": "Uzair Sufyan", "Rollno": 29, "Batch": "FA18", "Section": "A" }
{ "name": "Uzair Sufyan", "Rollno": 29, "Batch": "FA18", "Section": "A" }
{ "name": "Uzair Sufyan", "Rollno": 29, "Batch": "FA18", "Section": "A" }
{ "name": "Faiq Iqbal", "Rollno": 138, "Batch": "SP19", "Section": "B" }
{ "name": "Taimoor", "Rollno": 50, "Batch": "SP19", "Section": "B" }
{ "name": "Ayesha", "Rollno": 17, "Batch": "SP19", "Section": "B" }
{ "name": "Amna Solat khan", "Rollno": 83, "Batch": "SP19", "Section": "B" }
{ "name": "Ayaz Asghar", "Rollno": 80, "Batch": "FA18", "Section": "A" }

MAX COLUMN WIDTH:

Query 2:

Course Instructors

`match(tea:Teachers)-[:teaches]->(co:Courses) return tea.name ,co.name`

Table	<table><tr><th>"tea.name"</th><th>"co.name"</th></tr><tr><td>"Dr. Zeeshan Gillani"</td><td>"Artificial Intelligence"</td></tr><tr><td>"Dr. Hassan Jamal"</td><td>"Design and Analysis of Algorithm"</td></tr><tr><td>"Dr. Shahid Bhatti"</td><td>"Data Science"</td></tr><tr><td>"Chaudhry Nadeem Gafoor"</td><td>"Operating System"</td></tr><tr><td>"Sr. Sana Javed"</td><td>"Multivariable Calculus"</td></tr><tr><td>"Majid Khattak"</td><td>"Numerical Computing"</td></tr></table>	"tea.name"	"co.name"	"Dr. Zeeshan Gillani"	"Artificial Intelligence"	"Dr. Hassan Jamal"	"Design and Analysis of Algorithm"	"Dr. Shahid Bhatti"	"Data Science"	"Chaudhry Nadeem Gafoor"	"Operating System"	"Sr. Sana Javed"	"Multivariable Calculus"	"Majid Khattak"	"Numerical Computing"
"tea.name"	"co.name"														
"Dr. Zeeshan Gillani"	"Artificial Intelligence"														
"Dr. Hassan Jamal"	"Design and Analysis of Algorithm"														
"Dr. Shahid Bhatti"	"Data Science"														
"Chaudhry Nadeem Gafoor"	"Operating System"														
"Sr. Sana Javed"	"Multivariable Calculus"														
"Majid Khattak"	"Numerical Computing"														
Text															
Code															

MAX COLUMN WIDTH:

Query 3:

No of students enrolled in all course

neo4j\$ match (S:Students)-[:is_enrolled_in]→(C:Courses) return count(S) as Total_Students_in_All_Courses			
Table	<table><tr><th>"Total_Students_in_All_Courses"</th></tr><tr><td>12</td></tr></table>	"Total_Students_in_All_Courses"	12
"Total_Students_in_All_Courses"			
12			
Text			
Code			

Query 4:

Student who enrolled more courses

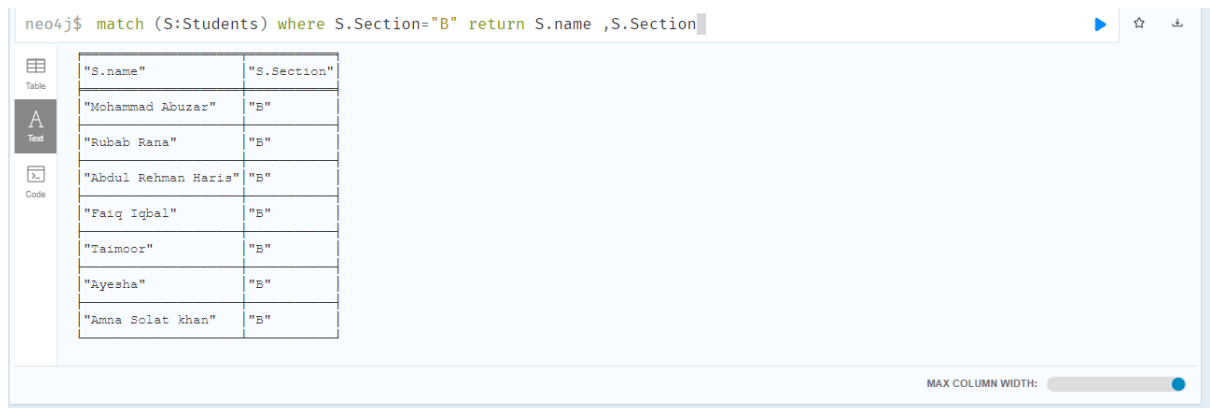
`match (S:Students)-[:is_enrolled_in]->(C:Courses) return S.name , count(S.name) order by count(S.name) desc limit 1`

neo4j\$ match (S:Students)-[:is_enrolled_in]→(C:Courses) return S.name , count(S.name) order by count(S.name) desc limit 1					
Table	<table><tr><th>"S.name"</th><th>"count(S.name)"</th></tr><tr><td>"Uzair Sufyan"</td><td>3</td></tr></table>	"S.name"	"count(S.name)"	"Uzair Sufyan"	3
"S.name"	"count(S.name)"				
"Uzair Sufyan"	3				
Text					
Code					

MAX COLUMN WIDTH:

Query 5: Students from Section B

`match (S:Students) where S.Section="B" return S.name ,S.Section`



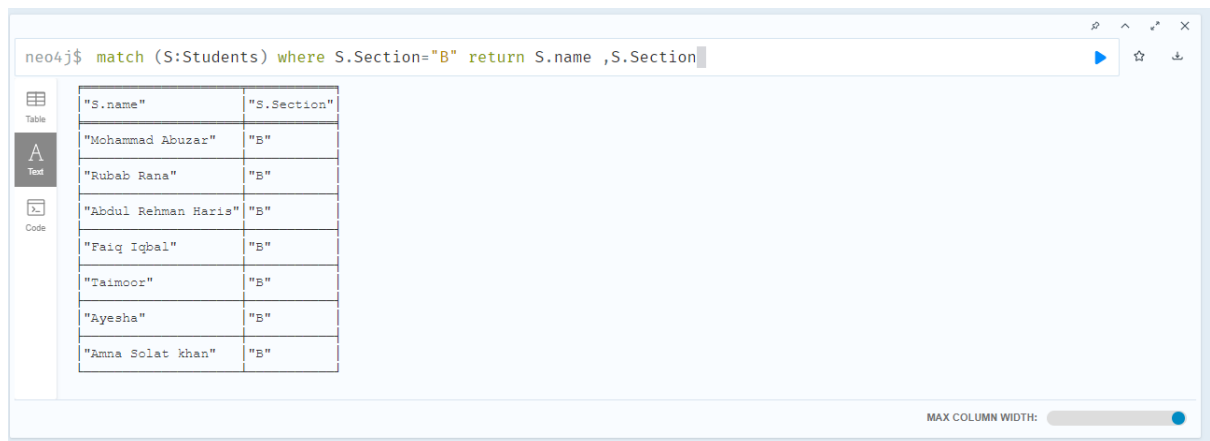
```
neo4j$ match (S:Students) where S.Section="B" return S.name ,S.Section
```

"S.name"	"S.Section"
"Mohammad Abuzar"	"B"
"Rubab Rana"	"B"
"Abdul Rehman Haris"	"B"
"Faig Iqbal"	"B"
"Taimoor"	"B"
"Ayesha"	"B"
"Amna Solat khan"	"B"

MAX COLUMN WIDTH:

Query 6: Students from batch SP19

`match (S:Students) where S.Batch="SP19" return S.name ,S.Batch`



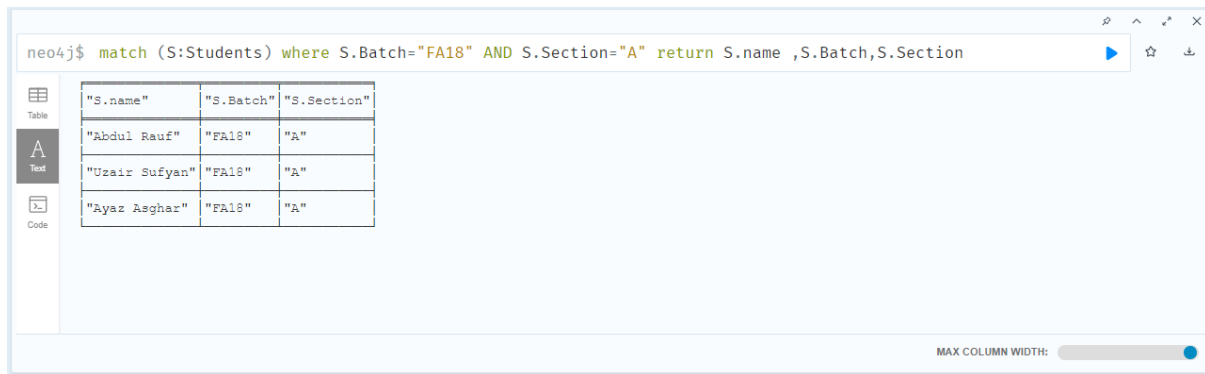
```
neo4j$ match (S:Students) where S.Section="B" return S.name ,S.Section
```

"S.name"	"S.Section"
"Mohammad Abuzar"	"B"
"Rubab Rana"	"B"
"Abdul Rehman Haris"	"B"
"Faig Iqbal"	"B"
"Taimoor"	"B"
"Ayesha"	"B"
"Amna Solat khan"	"B"

MAX COLUMN WIDTH:

Query 7:

match (S:Students) **where** S.Batch="FA18" **AND** S.Section="A" **return** S.name ,S.Batch,S.Se
ction




```
neo4j$ match (S:Students) where S.Batch="FA18" AND S.Section="A" return S.name ,S.Batch,S.Section
```

"S.name"	"S.Batch"	"S.Section"
"Abdul Rauf"	"FA18"	"A"
"Uzair Sufyan"	"FA18"	"A"
"Ayaz Asghar"	"FA18"	"A"

Query 8:

All students studying Operating System

match (S:Students)-[:is_enrolled_in]-
>(C:Courses) **where** C.name="Operating System" **return** S.name, C.name



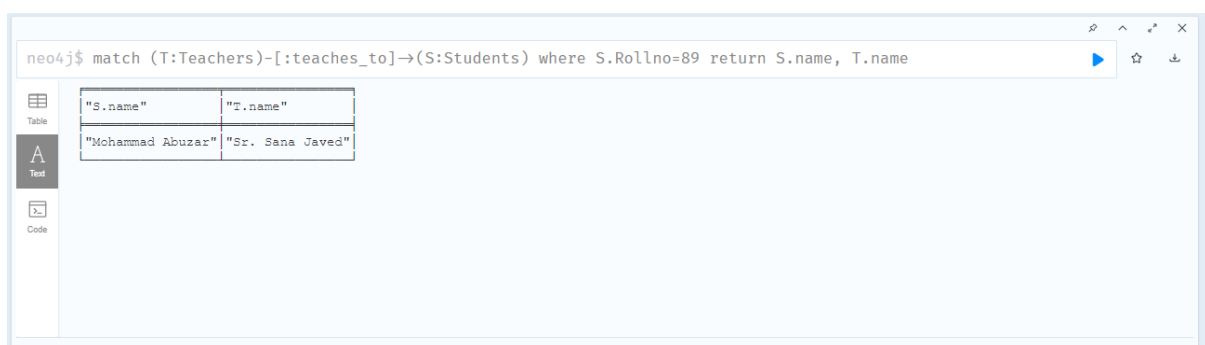
```
neo4j$ match (S:Students)-[:is_enrolled_in]->(C:Courses) where C.name="Operating System" return S.name, C.name
```

"S.name"	"C.name"
"Abdul Rauf"	"Operating System"
"Uzair Sufyan"	"Operating System"

Query 9:

Teacher who teaches to roll numbe r89

match (T:Teachers)-[:teaches_to]->(S:Students) **where** S.Rollno=89 **return** S.name, T.name



```
neo4j$ match (T:Teachers)-[:teaches_to]->(S:Students) where S.Rollno=89 return S.name, T.name
```

"S.name"	"T.name"
"Mohammad Abuzar"	"Mr. Sana Javed"