**Student Graph Database Cypher Queries**

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**Course: BigData2 ITE 5424  
  
 #1 MATCH (n) DETACH DELETE n;  
 #2 run the following script  
 CREATE (c1:Customer {Name: "Orren"})**

**CREATE (c21:Customer {Name: "Peter"})**

**CREATE (c31:Customer {Name: "Preeti"})**

**CREATE (c41:Customer {Name: "John"})**

**CREATE (c51:Customer {Name: "Angus"})**

**CREATE (c61:Customer {Name: "Pamela"})**

**CREATE (c71:Customer {Name: "Jaipaul"})**

**CREATE (c81:Customer {Name: "Jane"})**

**CREATE (c91:Customer {Name: "Sunil"})**

**CREATE (g1:Group {Name: "Breakfast"})**

**CREATE (g21:Group {Name: "Meat"})**

**CREATE (g31:Group {Name: "Vegetable"})**

**CREATE (g41:Group {Name: "Fruit"})**

**CREATE (g51:Group {Name: "Pastry"})**

**CREATE (g61:Group {Name: "Other"})**

**CREATE (g71:Group {Name: "Beverage"})**

**CREATE (i1:Item {Name: "Bread"})**

**WITH i1**

**MATCH (g1:Group {Name:"Pastry"})**

**CREATE (i1)-[:IN\_GROUP]->(g1);**

**CREATE (i2:Item {Name: "Milk"})**

**WITH i2**

**MATCH (g2:Group {Name:"Beverage"})**

**CREATE (i2)-[:IN\_GROUP]->(g2);**

**CREATE (i3:Item {Name: "Cheese"})**

**WITH i3**

**MATCH (g3:Group {Name:"Other"})**

**CREATE (i3)-[:IN\_GROUP]->(g3);**

**CREATE (i4:Item {Name: "Pasta"})**

**WITH i4**

**MATCH (g4:Group {Name:"Other"})**

**CREATE (i4)-[:IN\_GROUP]->(g4);**

**CREATE (i5:Item {Name: "Tomato"})**

**WITH i5**

**MATCH (g5:Group {Name:"Vegetable"})**

**CREATE (i5)-[:IN\_GROUP]->(g5);**

**CREATE (i6:Item {Name: "Beef"})**

**WITH i6**

**MATCH (g6:Group {Name:"Meat"})**

**CREATE (i6)-[:IN\_GROUP]->(g6);**

**CREATE (i7:Item {Name: "Fish"})**

**WITH i7**

**MATCH (g7:Group {Name:"Meat"})**

**CREATE (i7)-[:IN\_GROUP]->(g7);**

**CREATE (i8:Item {Name: "Onions"})**

**WITH i8**

**MATCH (g8:Group {Name:"Vegetable"})**

**CREATE (i8)-[:IN\_GROUP]->(g8);**

**CREATE (i9:Item {Name: "Cake"})**

**WITH i9**

**MATCH (g9:Group {Name:"Pastry"})**

**CREATE (i9)-[:IN\_GROUP]->(g9);**

**CREATE (i10:Item {Name: "Muffin"})**

**WITH i10**

**MATCH (g10:Group {Name:"Pastry"})**

**CREATE (i10)-[:IN\_GROUP]->(g10);**

**CREATE (i11:Item {Name: "Burgers"})**

**WITH i11**

**MATCH (g11:Group {Name:"Meat"})**

**CREATE (i11)-[:IN\_GROUP]->(g11);**

**CREATE (i12:Item {Name: "Coconut"})**

**WITH i12**

**MATCH (g12:Group {Name:"Beverage"})**

**CREATE (i12)-[:IN\_GROUP]->(g12);**

**CREATE (i13:Item {Name: "Carrots"})**

**WITH i13**

**MATCH (g13:Group {Name:"Vegetable"})**

**CREATE (i13)-[:IN\_GROUP]->(g13);**

**CREATE (i14:Item {Name: "Lettuce"})**

**WITH i14**

**MATCH (g14:Group {Name:"Vegetable"})**

**CREATE (i14)-[:IN\_GROUP]->(g14);**

**CREATE (i15:Item {Name: "Lamb"})**

**WITH i15**

**MATCH (g15:Group {Name:"Meat"})**

**CREATE (i15)-[:IN\_GROUP]->(g15);**

**CREATE (i16:Item {Name: "Chicken"})**

**WITH i16**

**MATCH (g16:Group {Name:"Meat"})**

**CREATE (i16)-[:IN\_GROUP]->(g16);**

**CREATE (i17:Item {Name: "Oats"})**

**WITH i17**

**MATCH (g17:Group {Name:"Breakfast"})**

**CREATE (i17)-[:IN\_GROUP]->(g17);**

**CREATE (i18:Item {Name: "Cornflakes"})**

**WITH i18**

**MATCH (g18:Group {Name:"Breakfast"})**

**CREATE (i18)-[:IN\_GROUP]->(g18);**

**CREATE (i19:Item {Name: "Eggs"})**

**WITH i19**

**MATCH (g19:Group {Name:"Breakfast"})**

**CREATE (i19)-[:IN\_GROUP]->(g19);**

**CREATE (i20:Item {Name: "Pancakes"})**

**WITH i20**

**MATCH (g20:Group {Name:"Breakfast"})**

**CREATE (i20)-[:IN\_GROUP]->(g20);**

**CREATE (i21:Item {Name: "Bacon"})**

**WITH i21**

**MATCH (g21:Group {Name:"Breakfast"})**

**CREATE (i21)-[:IN\_GROUP]->(g21);**

**CREATE (i22:Item {Name: "Biscuit"})**

**WITH i22**

**MATCH (g22:Group {Name:"Pastry"})**

**CREATE (i22)-[:IN\_GROUP]->(g22);**

**CREATE (i23:Item {Name: "Coffee"})**

**WITH i23**

**MATCH (g23:Group {Name:"Beverage"})**

**CREATE (i23)-[:IN\_GROUP]->(g23);**

**CREATE (i24:Item {Name: "Tea"})**

**WITH i24**

**MATCH (g24:Group {Name:"Beverage"})**

**CREATE (i24)-[:IN\_GROUP]->(g24);**

**CREATE (i25:Item {Name: "Oranges"})**

**WITH i25**

**MATCH (g25:Group {Name:"Fruit"})**

**CREATE (i25)-[:IN\_GROUP]->(g25);**

**CREATE (i26:Item {Name: "Apples"})**

**WITH i26**

**MATCH (g26:Group {Name:"Fruit"})**

**CREATE (i26)-[:IN\_GROUP]->(g26);**

**MATCH (c1:Customer {Name: "Orren"}), (i1:Item {Name: "Milk"}), (i2:Item {Name: "Tomato"}), (i3:Item {Name: "Burgers"}), (i4:Item {Name: "Coffee"})**

**CREATE (c1)-[:BUYS]->(i1)**

**CREATE (c1)-[:BUYS]->(i2)**

**CREATE (c1)-[:BUYS]->(i3)**

**CREATE (c1)-[:BUYS]->(i4);**

**MATCH (c1:Customer {Name: "Peter"}), (i1:Item {Name: "Onions"}), (i2:Item {Name: "Carrots"}), (i3:Item {Name: "Eggs"}), (i4:Item {Name: "Milk"}), (i5:Item {Name: "Lettuce"}), (i6:Item {Name: "Bacon"})**

**CREATE (c1)-[:BUYS]->(i1)**

**CREATE (c1)-[:BUYS]->(i2)**

**CREATE (c1)-[:BUYS]->(i3)**

**CREATE (c1)-[:BUYS]->(i4)**

**CREATE (c1)-[:BUYS]->(i5)**

**CREATE (c1)-[:BUYS]->(i6);**

**MATCH (c1:Customer {Name: "Preeti"}), (i1:Item {Name: "Bread"}), (i2:Item {Name: "Pancakes"}), (i3:Item {Name: "Bacon"}), (i4:Item {Name: "Beef"}), (i5:Item {Name: "Lamb"}), (i6:Item {Name: "Pasta"}), (i7:Item {Name: "Tomato"}), (i8:Item {Name: "Onions"})**

**CREATE (c1)-[:BUYS]->(i1)**

**CREATE (c1)-[:BUYS]->(i2)**

**CREATE (c1)-[:BUYS]->(i3)**

**CREATE (c1)-[:BUYS]->(i4)**

**CREATE (c1)-[:BUYS]->(i5)**

**CREATE (c1)-[:BUYS]->(i6)**

**CREATE (c1)-[:BUYS]->(i7)**

**CREATE (c1)-[:BUYS]->(i8);**

**MATCH (c1:Customer {Name: "John"}), (i1:Item {Name: "Chicken"}), (i2:Item {Name: "Beef"}), (i3:Item {Name: "Lettuce"}), (i4:Item {Name: "Tea"}), (i5:Item {Name: "Oranges"}), (i6:Item {Name: "Biscuit"}), (i7:Item {Name: "Fish"}), (i8:Item {Name: "Onions"})**

**CREATE (c1)-[:BUYS]->(i1)**

**CREATE (c1)-[:BUYS]->(i2)**

**CREATE (c1)-[:BUYS]->(i3)**

**CREATE (c1)-[:BUYS]->(i4)**

**CREATE (c1)-[:BUYS]->(i5)**

**CREATE (c1)-[:BUYS]->(i6)**

**CREATE (c1)-[:BUYS]->(i7)**

**CREATE (c1)-[:BUYS]->(i8);**

**MATCH (c1:Customer {Name: "Angus"}), (i1:Item {Name: "Apples"}), (i2:Item {Name: "Burgers"}), (i3:Item {Name: "Cornflakes"}), (i4:Item {Name: "Eggs"}), (i5:Item {Name: "Cake"})**

**CREATE (c1)-[:BUYS]->(i1)**

**CREATE (c1)-[:BUYS]->(i2)**

**CREATE (c1)-[:BUYS]->(i3)**

**CREATE (c1)-[:BUYS]->(i4)**

**CREATE (c1)-[:BUYS]->(i5);**

**MATCH (c1:Customer {Name: "Pamela"}), (i1:Item {Name: "Muffin"}), (i2:Item {Name: "Burgers"}), (i3:Item {Name: "Coconut"}), (i4:Item {Name: "Carrots"}), (i5:Item {Name: "Lettuce"}), (i6:Item {Name: "Lamb"})**

**CREATE (c1)-[:BUYS]->(i1)**

**CREATE (c1)-[:BUYS]->(i2)**

**CREATE (c1)-[:BUYS]->(i3)**

**CREATE (c1)-[:BUYS]->(i4)**

**CREATE (c1)-[:BUYS]->(i5)**

**CREATE (c1)-[:BUYS]->(i6);**

**MATCH (c1:Customer {Name: "Jaipaul"}), (i1:Item {Name: "Muffin"}), (i2:Item {Name: "Burgers"}), (i3:Item {Name: "Coconut"}), (i4:Item {Name: "Carrots"}), (i5:Item {Name: "Lettuce"}), (i6:Item {Name: "Lamb"})**

**CREATE (c1)-[:BUYS]->(i1)**

**CREATE (c1)-[:BUYS]->(i2)**

**CREATE (c1)-[:BUYS]->(i3)**

**CREATE (c1)-[:BUYS]->(i4)**

**CREATE (c1)-[:BUYS]->(i5)**

**CREATE (c1)-[:BUYS]->(i6);**

**MATCH (c1:Customer {Name: "Jane"}), (i1:Item {Name: "Tea"}), (i2:Item {Name: "Bread"}), (i3:Item {Name: "Milk"}), (i4:Item {Name: "Cheese"}), (i5:Item {Name: "Pasta"}), (i6:Item {Name: "Tomato"}), (i7:Item {Name: "Beef"})**

**CREATE (c1)-[:BUYS]->(i1)**

**CREATE (c1)-[:BUYS]->(i2)**

**CREATE (c1)-[:BUYS]->(i3)**

**CREATE (c1)-[:BUYS]->(i4)**

**CREATE (c1)-[:BUYS]->(i5)**

**CREATE (c1)-[:BUYS]->(i6)**

**CREATE (c1)-[:BUYS]->(i7);**

**MATCH (c1:Customer {Name: "Sunil"}), (i1:Item {Name: "Tea"}), (i2:Item {Name: "Bread"}), (i3:Item {Name: "Milk"}), (i4:Item {Name: "Cheese"}), (i5:Item {Name: "Pasta"}), (i6:Item {Name: "Tomato"}), (i7:Item {Name: "Beef"})**

**CREATE (c1)-[:BUYS]->(i1)**

**CREATE (c1)-[:BUYS]->(i2)**

**CREATE (c1)-[:BUYS]->(i3)**

**CREATE (c1)-[:BUYS]->(i4)**

**CREATE (c1)-[:BUYS]->(i5)**

**CREATE (c1)-[:BUYS]->(i6)**

**CREATE (c1)-[:BUYS]->(i7);**

**MATCH (c:Customer{Name:"Orren"})-[:BUYS]->(i:Item)<-[:BUYS]-(oc:Customer)-[:BUYS]->(oi:Item)**

**RETURN oi.Name AS RecommendedItem, count(oc) AS Score**

**ORDER BY Score DESC;**

**MATCH (p:Item)<-[:BUYS]-()**

**RETURN p.Name, count(\*) AS timesOrdered**

**ORDER BY timesOrdered DESC**

**LIMIT 20;**

**MATCH (p:Item {Name: "Lamb"})<-[:BUYS]-()-[:BUYS]->(otherProduct:Item)**

**RETURN otherProduct.Name, count(\*) AS occurrences**

**ORDER BY occurrences DESC;**

**MATCH (o:Customer)-[:BUYS]->(p:Item),**

**(o)-[:BUYS]->(p2:Item {Name: "Pasta"}),**

**(o)-[:BUYS]->(otherp:Item)**

**WHERE otherp <> p AND otherp <> p2 AND p.Name CONTAINS "Bread"**

**RETURN otherp.Name, count(\*) AS occurrences**

**ORDER BY occurrences DESC**

**LIMIT 10;**

**MATCH (customer)-[:BUYS]->(p2:Item)-[:IN\_GROUP]->(group)**

**RETURN group.Name, count(\*) AS timesOrdered**

**ORDER BY timesOrdered DESC**

**LIMIT 20;  
  
  
  
  
MATCH (n)-[r]->(m) RETURN n, r, m LIMIT 50**

**1. In which rooms does course with course number "1" take place?**// Gurjit  
MATCH (c:Course {courseNr: "1"})-[:TAKESPLACEIN]->(r:Room)  
RETURN c.courseName AS Course, r.roomName AS Room;

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2. How many hours and in which projects does student with student number "1" work on?**

// Gurjit  
MATCH (s:Student {studentID: "1"})-[w:WORKSON]->(p:Project)  
RETURN s.firstName AS Student, p.projectName AS Project, w.hours AS Hours;

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3. Which students and how many hours do they work on the project with project number "24"?**

// Gurjit  
MATCH (s:Student)-[w:WORKSON]->(p:Project {projectNr: "24"})  
RETURN p.projectName AS Project, s.lastName AS Student, w.hours AS Hours;

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**4. Which students work in which projects and how many hours? Order by last name. Limit to four.**

// Gurjit  
MATCH (s:Student)-[w:WORKSON]->(p:Project)  
RETURN s.lastName AS Student, p.projectName AS Project, w.hours AS Hours  
ORDER BY s.lastName  
LIMIT 4;

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**5. Which students work on more than two projects and on how many projects exactly?**

// Gurjit  
MATCH (s:Student)-[:WORKSON]->(p:Project)  
WITH s, COUNT(p) AS projectCount  
WHERE projectCount > 2  
RETURN s.lastName AS Student, projectCount AS NumberOfProjects  
ORDER BY NumberOfProjects;

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**6. Which students have the same last name and work on the same projects?**

// Gurjit  
MATCH (s1:Student)-[:WORKSON]->(p:Project)<-[:WORKSON]-(s2:Student)  
WHERE s1.lastName = s2.lastName AND s1.studentID < s2.studentID  
RETURN s1.firstName AS Student1, s2.firstName AS Student2, p.projectName AS SharedProject;

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AI-generated content may be incorrect.  
  
  
  
  
To show the relationships (lines between nodes), you need to return both nodes and their relationships in your Cypher query.**//GurjitMATCH (n)-[r]->(m) RETURN n, r, m LIMIT 25;

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