

Interactive / complex / 3

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query	Interactive / complex / 3																																		
title	Friends and friends of friends that have been to given countries																																		
pattern	<p>The diagram illustrates the query pattern. It starts with a person: Person entity (orange box) with attribute <code>id = \$personId</code>. This person knows*1..2 otherPerson: Person entities (orange box). The otherPerson entity has attributes <code>id</code>, <code>firstName</code>, and <code>lastName</code>. From otherPerson, there are two paths: one hasCreator to a Message entity (purple box) and another isLocatedIn to a City entity (teal box). The Message entity has attributes <code>\$startDate ≤ creationDate ≤ \$startDate + \$durationDays</code>. The City entity has attributes <code>countryX: Country</code> and <code>countryY: Country</code>. The Country entities have attributes <code>name = \$countryXName</code> and <code>name = \$countryYName</code>. There are also Message entities associated with the City entity via isLocatedIn relationships. The Message entities are grouped into two sets: xCount = count and yCount = count. The City entity is also associated with Country entities via isPartOf relationships, with a «neg» (negation) constraint.</p>																																		
desc.	Given a start Person, find Persons that are their friends and friends of friends (excluding start Person) that have made Posts / Comments in both of the given Countries, CountryX and CountryY, within a given period. Only Persons that are foreign to Countries CountryX and CountryY are considered, that is Persons whose location is neither CountryX nor CountryY.																																		
params	<table><tr><td>1</td><td>personId</td><td>ID</td><td></td></tr><tr><td>2</td><td>countryXName</td><td>String</td><td></td></tr><tr><td>3</td><td>countryYName</td><td>String</td><td></td></tr><tr><td>4</td><td>startDate</td><td>Date</td><td>Beginning of requested period</td></tr><tr><td>5</td><td>durationDays</td><td>32-bit Integer</td><td>Duration of requested period, in days. The interval [startDate, startDate + durationDays) is closed-open</td></tr></table>					1	personId	ID		2	countryXName	String		3	countryYName	String		4	startDate	Date	Beginning of requested period	5	durationDays	32-bit Integer	Duration of requested period, in days. The interval [startDate, startDate + durationDays) is closed-open										
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result	<table><tr><td>1</td><td>otherPerson.id</td><td>ID</td><td>R</td><td></td></tr><tr><td>2</td><td>otherPerson.firstName</td><td>String</td><td>R</td><td></td></tr><tr><td>3</td><td>otherPerson.lastName</td><td>String</td><td>R</td><td></td></tr><tr><td>4</td><td>xCount</td><td>32-bit Integer</td><td>A</td><td>Number of Messages from Country CountryX created by the Person within the given time</td></tr><tr><td>5</td><td>yCount</td><td>32-bit Integer</td><td>A</td><td>Number of Messages from Country CountryY created by the Person within the given time</td></tr><tr><td>6</td><td>count</td><td>32-bit Integer</td><td>A</td><td>count = xCount + yCount</td></tr></table>					1	otherPerson.id	ID	R		2	otherPerson.firstName	String	R		3	otherPerson.lastName	String	R		4	xCount	32-bit Integer	A	Number of Messages from Country CountryX created by the Person within the given time	5	yCount	32-bit Integer	A	Number of Messages from Country CountryY created by the Person within the given time	6	count	32-bit Integer	A	count = xCount + yCount
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sort	<table><tr><td>1</td><td>xCount</td><td>↓</td><td></td></tr><tr><td>2</td><td>otherPerson.id</td><td>↑</td><td></td></tr></table>					1	xCount	↓		2	otherPerson.id	↑																							
1	xCount	↓																																	
2	otherPerson.id	↑																																	
limit	20																																		
CPs	2.1, 3.1, 5.1, 8.2, 8.5																																		
relevance	<p>This query looks for paths of length two and three, starting from a Person, going to friends or friends of friends, and then moving to Messages. This query tests the ability of the query optimizer to select the most efficient join ordering, which will depend on the cardinalities of the intermediate results. Many friends of friends can be duplicate, then it is expected to eliminate duplicates and those people prior to access the Post and Comments, as well as eliminate those friends from Countries CountryX and CountryY, as the size of the intermediate results can be severely affected. A possible structural optimization could be to materialize the number of Posts and Comments created by a Person, and progressively filter those people that could not even fall in the top 20 even having all their posts in the Countries CountryX and CountryY.</p>																																		