

Interactive / complex / 1

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| query | Interactive / complex / 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| title | Friends with certain name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pattern | <pre>graph LR P1[Person: id = \$id] -- knows*1..3 --> P2[person: Person: firstName = \$firstName] P2 -- isLocatedIn --> C1[City: name] P2 -- workAt --> Co[Company: name] P2 -- studyAt --> U[University: name] Co -- isLocatedIn --> Cn[Country: name] U -- isLocatedIn --> C2[City: name]</pre> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| desc. | Given a start Person, find Persons with a given first name (firstName) that the start Person is connected to (excluding start Person) by at most 3 steps via the knows relationships. Return Persons, including the distance (1..3), summaries of the Persons workplaces and places of study. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| params | <table><tr><td>1</td><td>Person.id</td><td>ID</td><td>personId</td></tr><tr><td>2</td><td>Person.firstName</td><td>String</td><td>firstName</td></tr></table> | | | | | 1 | Person.id | ID | personId | 2 | Person.firstName | String | firstName | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Person.id | ID | personId | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Person.firstName | String | firstName | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| result | <table><tr><td>1</td><td>Person.id</td><td>ID</td><td>R</td><td>friendId</td></tr><tr><td>2</td><td>Person.lastName</td><td>String</td><td>R</td><td>friendLastName</td></tr><tr><td>3</td><td>distanceFromPerson</td><td>32-bit Integer</td><td>C</td><td>distanceFromPerson</td></tr><tr><td>4</td><td>Person.birthday</td><td>Date</td><td>R</td><td>friendBirthday</td></tr><tr><td>5</td><td>Person.creationDate</td><td>DateTime</td><td>R</td><td>friendCreationDate</td></tr><tr><td>6</td><td>Person.gender</td><td>String</td><td>R</td><td>friendGender</td></tr><tr><td>7</td><td>Person.browserUsed</td><td>String</td><td>R</td><td>friendBrowserUsed</td></tr><tr><td>8</td><td>Person.locationIP</td><td>String</td><td>R</td><td>friendLocationIp</td></tr><tr><td>9</td><td>{Person.email}</td><td>{String}</td><td>R</td><td>friendEmails</td></tr><tr><td>10</td><td>{Person.speaks}</td><td>{String}</td><td>R</td><td>friendLanguages</td></tr><tr><td>11</td><td>Person-isLocatedIn->City.name</td><td>String</td><td>R</td><td>friendCityName</td></tr><tr><td>12</td><td>{Person-studyAt->University.name, Person-studyAt->.classYear, Person-studyAt->University-isLocatedIn->City.name}</td><td>{<String, 32-bit Integer, String>}</td><td>A</td><td>friendUniversities</td></tr><tr><td>13</td><td>{Person-workAt->Company.name, Person-workAt->.workFrom, Person-workAt->Company-isLocatedIn->Country.name}</td><td>{<String, 32-bit Integer, String>}</td><td>A</td><td>friendCompanies</td></tr></table> | | | | | 1 | Person.id | ID | R | friendId | 2 | Person.lastName | String | R | friendLastName | 3 | distanceFromPerson | 32-bit Integer | C | distanceFromPerson | 4 | Person.birthday | Date | R | friendBirthday | 5 | Person.creationDate | DateTime | R | friendCreationDate | 6 | Person.gender | String | R | friendGender | 7 | Person.browserUsed | String | R | friendBrowserUsed | 8 | Person.locationIP | String | R | friendLocationIp | 9 | {Person.email} | {String} | R | friendEmails | 10 | {Person.speaks} | {String} | R | friendLanguages | 11 | Person-isLocatedIn->City.name | String | R | friendCityName | 12 | {Person-studyAt->University.name, Person-studyAt->.classYear, Person-studyAt->University-isLocatedIn->City.name} | {<String, 32-bit Integer, String>} | A | friendUniversities | 13 | {Person-workAt->Company.name, Person-workAt->.workFrom, Person-workAt->Company-isLocatedIn->Country.name} | {<String, 32-bit Integer, String>} | A | friendCompanies |
| 1 | Person.id | ID | R | friendId | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Person.lastName | String | R | friendLastName | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | distanceFromPerson | 32-bit Integer | C | distanceFromPerson | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Person.birthday | Date | R | friendBirthday | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Person.creationDate | DateTime | R | friendCreationDate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Person.gender | String | R | friendGender | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Person.browserUsed | String | R | friendBrowserUsed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Person.locationIP | String | R | friendLocationIp | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | {Person.email} | {String} | R | friendEmails | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | {Person.speaks} | {String} | R | friendLanguages | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Person-isLocatedIn->City.name | String | R | friendCityName | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | {Person-studyAt->University.name, Person-studyAt->.classYear, Person-studyAt->University-isLocatedIn->City.name} | {<String, 32-bit Integer, String>} | A | friendUniversities | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | {Person-workAt->Company.name, Person-workAt->.workFrom, Person-workAt->Company-isLocatedIn->Country.name} | {<String, 32-bit Integer, String>} | A | friendCompanies | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sort | <table><tr><td>1</td><td>distanceFromPerson</td><td>↑</td><td></td></tr><tr><td>2</td><td>Person.lastName</td><td>↑</td><td></td></tr><tr><td>3</td><td>Person.id</td><td>↑</td><td></td></tr></table> | | | | | 1 | distanceFromPerson | ↑ | | 2 | Person.lastName | ↑ | | 3 | Person.id | ↑ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | distanceFromPerson | ↑ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Person.lastName | ↑ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Person.id | ↑ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| limit | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CPs | 2.1, 5.3, 8.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| relevance | This query is a representative of a simple navigational query. It looks for paths of length 1..3 through the knows relation, starting from a given Person and ending at a Person with a given first name. It is interesting for several aspects. (1) It requires for a complex aggregation for returning the concatenation of universities, companies, languages and email information of the Person. (2) It tests the ability of the optimizer to move the evaluation of sub-queries functionally dependant on the Person, after the evaluation of the top-k. (3) Its performance is highly sensitive to properly estimating the cardinalities in each transitive path, and paying attention not to explore already visited Persons. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |