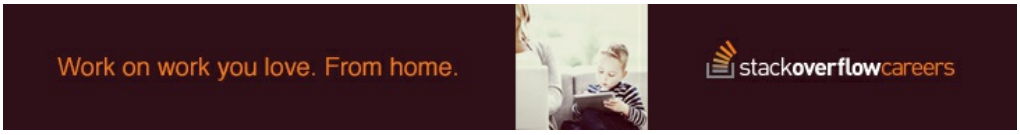
Find a node and all its incoming and outgoing nodes in neo4j cypher



asked 4 months ago

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I want to write a single cypher query that fetches a node, and all of its incoming and outgoing relationships.

For example, assume we have node N, with two incoming relationships: (I1)-[IR1]->(N) and (I2)-[IR2]->(N), and two outgoing relationships: (N)-[OR1]->(O1) and (N)-[OR2]->(O2).

I want a query that can produce:

```
{
    node: { properties of N },
    incoming: [
        { relationship: IR1, node: { properties of I1 } },
        { relationship: IR2, node: { properties of I2 } }
    ],
    outgoing: [
        { relationship: OR1, node: { properties of O1 } },
        { relationship: OR2, node: { properties of O2 } }
    ]
}
```

The closest cypher query I could get to was:

```
match (node { criterial })
match (incoming)-[incomingr]->(node)
match (node)-[outgoingr]->(outgoing)
return node, collect(distinct incoming), collect(distinct outgoing)
```

But it doesn't contain type(incomingr) and type(outgoingr).

Returnting the paths also doesn't give me what I want as it includes the relationship properties but not the type, not to mention it returns many duplicate copies of (node).

I know I can simply

```
return node, incoming, outgoing, type(incomingr), type(outgoingr)
```

to get everything and then process through the JSON to get what I want, but as the number of relationships increases the returned data will grow way too large, as it returns the combination of all incoming paths and outgoing paths. And it's just not neat.

neo4j cypher

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asked Apr 7 at 22:48

Haoyang Feng

13 ● 2

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Based on the standard demo dataset in http://console.neo4j.org the following query is close to what you want to achieve :

```
MATCH (n:Crew)
WHERE n.name='Morpheus'
MATCH ()-[rin]->(n)-[rout]->()
WITH n, collect(DISTINCT
       { relationship:type(rin),
         node: startNode(rin)
```

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```
      }) AS incoming,
collect(DISTINCT
       { relationship:type(rout),
         node: endNode(rout)
       }) AS outgoing
RETURN { node: n, incoming: incoming, outgoing: outgoing } AS result
```

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answered Apr 7 at 23:03

Christophe Willemsen
5,115 ● 1 ● 4 ● 17

Thanks a lot. Didn't know about the {JSON} syntax. – Haoyang Feng Apr 8 at 2:15

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