

Neo4j.rb Screencast Series

Episode 4 Association chaining

```
1 require './config/environment'
2
3 class User
4   include Neo4j::ActiveNode
5
6   has_many :out, :created_assets, type: :CREATED, model_class: :Asset
7 end
8
9 class Asset
10  include Neo4j::ActiveNode
11
12  has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
```



```
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3 class User
4   include Neo4j::ActiveNode
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6   has_many :out, :created_assets, type: :CREATED, model_class: :Asset
7 end
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9 class Asset
10  include Neo4j::ActiveNode
11
12  has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets.to_a # => [#<Asset uuid: "c56caa73-8b00-4840-95e7-0b54e69b2376">, #<Asset uuid: "bcf88f93-b970-4f9e-a452-ae6fd03eab6d">, #<Asset uuid: "d137f683-bed5-4c0e-a315-6d5cb8799a55">, #<Asset uuid: "0df38f05-298f-4c95-84c8-4ebdd1a0c170">]
18
19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
22 # >> LIMIT {limit_1}
23 # >>
24 # >> MATCH user4865
25 # >> WHERE (ID(user4865) = {ID_user4865})
26 # >> MATCH user4865-[rel1:`CREATED`]->(result_created_assets:`Asset`)
27 # >> RETURN result_created_assets
28 # >>
```




```
2
3 class User
4   include Neo4j::ActiveNode
5
6   has_many :out, :created_assets, type: :CREATED, model_class: :Asset
7 end
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9 class Asset
10  include Neo4j::ActiveNode
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12  has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets.categories.to_a # => [#<Category uuid: "8753279d-754b-40cb-a05e-288f46c7ab87"
, created_at: Tue, 28 Jul 2015 19:41:49 +0000, name: "Graph Databases", updated_at: Tue, 28 Jul 2
015 19:41:49 +0000>, #<Category uuid: "ae959f80-dacd-4272-939e-02d5b553f84f", created_at: Tue, 28
Jul 2015 19:55:41 +0000, name: "Poetry", updated_at: Tue, 28 Jul 2015 19:55:41 +0000>, #<Categor
y uuid: "601c51ff-cf2e-439d-9109-481b24b4ae3f", created_at: Tue, 28 Jul 2015 20:22:33 +0000, name
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d_at: Tue, 28 Jul 2015 19:41:49 +0000>, #<Category uuid: "1679a6a5-2e6b-435c-a3ef-eb0470d91dc0",
created_at: Tue, 28 Jul 2015 19:55:00 +0000, name: "Tutorials", updated_at: Tue, 28 Jul 2015 19:5
5:00 +0000>, #<Category uuid: "601c51ff-cf2e-439d-9109-481b24b4ae3f", created_at: Tue, 28 Jul 201
5 20:22:33 +0000, name: "Databases", updated_at: Tue, 28 Jul 2015 20:22:33 +0000>, #<Category uui
d: "8753279d-754b-40cb-a05e-288f46c7ab87", created_at: Tue, 28 Jul 2015 19:41:49 +0000, name: "Gr
aph Databases", updated_at: Tue, 28 Jul 2015 19:41:49 +0000>]
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19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
```



```
12 has_many :out, :categories, type: :HAS_CATEGORY
13 end
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15 user = User.find_by(name: 'Sally')
16
17 user.created_assets.categories.to_a # => [#<Category uuid: "8753279d-754b-40cb-a05e-288f46c7ab87"
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aph Databases", updated_at: Tue, 28 Jul 2015 19:41:49 +0000>]
18
19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
22 # >> LIMIT {limit_1}
23 # >>
24 # >> MATCH user4865
25 # >> WHERE (ID(user4865) = {ID_user4865})
26 # >> MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`)
27 # >> MATCH node3-[rel2:`HAS_CATEGORY`]->(result_categories:`Category`)
28 # >> RETURN result_categories
29 # >>
```




```
12 has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets.categories.assets.to_a # => [#<Asset uuid: "67676eab-bbac-4398-80e6-f43c9e46078e">, #<Asset uuid: "c56caa73-8b00-4840-95e7-0b54e69b2376">, #<Asset uuid: "bcf88f93-b970-4f9e-a452-ae6fd03eab6d">, #<Asset uuid: "d137f683-bed5-4c0e-a315-6d5cb8799a55">, #<Asset uuid: "c56caa73-8b00-4840-95e7-0b54e69b2376">, #<Asset uuid: "bcf88f93-b970-4f9e-a452-ae6fd03eab6d">, #<Asset uuid: "67676eab-bbac-4398-80e6-f43c9e46078e">, #<Asset uuid: "c56caa73-8b00-4840-95e7-0b54e69b2376">, #<Asset uuid: "bcf88f93-b970-4f9e-a452-ae6fd03eab6d">, #<Asset uuid: "d137f683-bed5-4c0e-a315-6d5cb8799a55">, #<Asset uuid: "bcf88f93-b970-4f9e-a452-ae6fd03eab6d">, #<Asset uuid: "c56caa73-8b00-4840-95e7-0b54e69b2376">, #<Asset uuid: "bcf88f93-b970-4f9e-a452-ae6fd03eab6d">, #<Asset uuid: "67676eab-bbac-4398-80e6-f43c9e46078e">, #<Asset uuid: "c56caa73-8b00-4840-95e7-0b54e69b2376">, #<Asset uuid: "bcf88f93-b970-4f9e-a452-ae6fd03eab6d">, #<Asset uuid: "d137f683-bed5-4c0e-a315-6d5cb8799a55">]
18
19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
22 # >> LIMIT {limit_1}
23 # >>
24 # >> MATCH user4865
25 # >> WHERE (ID(user4865) = {ID_user4865})
26 # >> MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`)
27 # >> MATCH node3-[rel2:`HAS_CATEGORY`]->(node4:`Category`)
28 # >> MATCH node4<-[rel3:`HAS_CATEGORY`]->(result_assets:`Asset`)
29 # >> RETURN result_assets
30 # >>
```

```
12   has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets.categories.assets.to_cypher # => "MATCH user4865 WHERE (ID(user4865) = {ID_us
er4865}) MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`) MATCH node3-[rel2:`HAS_CATEGORY`]->(nod
e4:`Category`) MATCH node4<-[rel3:`HAS_CATEGORY`]->(result_assets:`Asset`)"
18
19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
22 # >> LIMIT {limit_1}
23 # >>
```

```
12   has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets.categories.assets.print_cypher # => nil
18
19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
22 # >> LIMIT {limit_1}
23 # >>
24 # >> MATCH user4865
25 # >> WHERE (ID(user4865) = {ID_user4865})
26 # >> MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`)
27 # >> MATCH node3-[rel2:`HAS_CATEGORY`]->(node4:`Category`)
28 # >> MATCH node4<-[rel3:`HAS_CATEGORY`]->(result_assets:`Asset`)
```




```
12   has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets.where(public: true).categories.to_a # => [#<Category uuid: "8753279d-754b-40cb-a05e-288f46c7ab87", created_at: Tue, 28 Jul 2015 19:41:49 +0000, name: "Graph Databases", updated_at: Tue, 28 Jul 2015 19:41:49 +0000>, #<Category uuid: "8753279d-754b-40cb-a05e-288f46c7ab87", created_at: Tue, 28 Jul 2015 19:41:49 +0000, name: "Graph Databases", updated_at: Tue, 28 Jul 2015 19:41:49 +0000>, #<Category uuid: "1679a6a5-2e6b-435c-a3ef-eb0470d91dc0", created_at: Tue, 28 Jul 2015 19:55:00 +0000, name: "Tutorials", updated_at: Tue, 28 Jul 2015 19:55:00 +0000>, #<Category uuid: "601c51ff-cf2e-439d-9109-481b24b4ae3f", created_at: Tue, 28 Jul 2015 20:22:33 +0000, name: "Databases", updated_at: Tue, 28 Jul 2015 20:22:33 +0000>]
18
19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
22 # >> LIMIT {limit_1}
23 # >>
24 # >> MATCH user4865
25 # >> WHERE (ID(user4865) = {ID_user4865})
26 # >> MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`)
27 # >> WHERE (node3.public = {node3_public})
28 # >> MATCH node3-[rel2:`HAS_CATEGORY`]->(result_categories:`Category`)
29 # >> RETURN result_categories
30 # >>
```



```
12   has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets.categories(:category).pluck(['category.name', 'count(*)']) # => [{"Poetry", 1},
    [{"Tutorials", 1}, {"Databases", 2}, {"Graph Databases", 3}]
18
19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
22 # >> LIMIT {limit_1}
23 # >>
24 # >> MATCH user4865
25 # >> WHERE (ID(user4865) = {ID_user4865})
26 # >> MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`)
27 # >> MATCH node3-[rel2:`HAS_CATEGORY`]->(category:`Category`)
28 # >> RETURN
29 # >>   category.name,
30 # >>   count(*)
31 # >>
```




```
12   has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets.categories(:category, :has_category_rel).pluck(:category, :has_category_rel)
# => [[#<Category uuid: "8753279d-754b-40cb-a05e-288f46c7ab87", created_at: Tue, 28 Jul 2015 19:41:49 +0000, name: "Graph Databases", updated_at: Tue, 28 Jul 2015 19:41:49 +0000>, CypherRelationship 25045], [#<Category uuid: "ae959f80-dacd-4272-939e-02d5b553f84f", created_at: Tue, 28 Jul 2015 19:55:41 +0000, name: "Poetry", updated_at: Tue, 28 Jul 2015 19:55:41 +0000>, CypherRelationship 25051], [#<Category uuid: "601c51ff-cf2e-439d-9109-481b24b4ae3f", created_at: Tue, 28 Jul 2015 20:22:33 +0000, name: "Databases", updated_at: Tue, 28 Jul 2015 20:22:33 +0000>, CypherRelationship 25053], [#<Category uuid: "8753279d-754b-40cb-a05e-288f46c7ab87", created_at: Tue, 28 Jul 2015 19:41:49 +0000, name: "Graph Databases", updated_at: Tue, 28 Jul 2015 19:41:49 +0000>, CypherRelationship 25044], [#<Category uuid: "1679a6a5-2e6b-435c-a3ef-eb0470d91dc0", created_at: Tue, 28 Jul 2015 19:55:00 +0000, name: "Tutorials", updated_at: Tue, 28 Jul 2015 19:55:00 +0000>, CypherRelationship 25050], [#<Category uuid: "601c51ff-cf2e-439d-9109-481b24b4ae3f", created_at: Tue, 28 Jul 2015 20:22:33 +0000, name: "Databases", updated_at: Tue, 28 Jul 2015 20:22:33 +0000>, CypherRelationship 25054], [#<Category uuid: "8753279d-754b-40cb-a05e-288f46c7ab87", created_at: Tue, 28 Jul 2015 19:41:49 +0000, name: "Graph Databases", updated_at: Tue, 28 Jul 2015 19:41:49 +0000>, CypherRelationship 25043]]
18
19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
22 # >> LIMIT {limit_1}
23 # >>
24 # >> MATCH user4865
25 # >> WHERE (ID(user4865) = {ID_user4865})
26 # >> MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`)
27 # >> MATCH node3-[has_category_rel:`HAS_CATEGORY`]->(category:`Category`)
28 # >> RETURN
```



```
12   has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets(:asset).categories(:category, :has_category_rel, optional: true).p|
18
19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
22 # >> LIMIT {limit_1}
23 # >>
24 # >> MATCH user4865
25 # >> WHERE (ID(user4865) = {ID_user4865})
26 # >> MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`)
27 # >> MATCH node3-[has_category_rel:`HAS_CATEGORY`]->(category:`Category`)
28 # >> RETURN
29 # >>   category,
30 # >>   has_category_rel
31 # >>
```



```
12   has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets(:asset).categories(:category, :has_category_rel, optional: true).pluck(['asset
  .title', 'collect(category.name)']) # => [["A Database By Any Other Name", ["Graph Databases", "Po
  etry", "Databases"]], ["Database Principles", []], ["Graphs and You", ["Graph Databases"]], ["Bui
  lding With Graph Databases", ["Graph Databases", "Tutorials", "Databases"]]]
18
19 # >> MATCH (n:`User`)
20 # >> WHERE (n.name = {n_name})
21 # >> RETURN n
22 # >> LIMIT {limit_1}
23 # >>
24 # >> MATCH user4865
25 # >> WHERE (ID(user4865) = {ID_user4865})
26 # >> MATCH user4865-[rel1:`CREATED`]->(asset:`Asset`)
27 # >> OPTIONAL MATCH asset-[has_category_rel:`HAS_CATEGORY`]->(category:`Category`)
28 # >> RETURN
29 # >>   asset.title,
30 # >>   collect(category.name)
31 # >>
```



```
12   has_many :out, :categories, type: :HAS_CATEGORY
13 end
14
15 user = User.find_by(name: 'Sally')
16
17 user.created_assets(:asset).categories.where(name: /*computer.*/i).pluck(['DISTINCT asset.title'])
18   # => ["A Database By Any Other Name", "Building With Graph Databases"]
19
20 # >> MATCH (n:`User`)
21 # >> WHERE (n.name = {n_name})
22 # >> RETURN n
23 # >> LIMIT {limit_1}
24 # >>
25 # >> MATCH user4865
26 # >> WHERE (ID(user4865) = {ID_user4865})
27 # >> MATCH user4865-[rel1:`CREATED`]->(asset:`Asset`)
28 # >> MATCH asset-[rel2:`HAS_CATEGORY`]->(result_categories:`Category`)
29 # >> WHERE (result_categories.name =~ '(?i).*computer.*')
30 # >> RETURN DISTINCT asset.title
```




```
5
6   has_many :out, :created_assets, type: :CREATED, model_class: :Asset
7   has_many :out, :viewed_assets, type: :VIEWED, model_class: :Asset
8 end
9
10 class Asset
11   include Neo4j::ActiveNode
12
13   has_many :out, :categories, type: :HAS_CATEGORY
14 end
15
16 user = User.find_by(name: 'Sally')
17
18 User.viewed_assets.to_a # => [#<Asset uuid: "d137f683-bed5-4c0e-a315-6d5cb8799a55">, #<Asset uuid:
: "bcf88f93-b970-4f9e-a452-ae6fd03eab6d">, #<Asset uuid: "67676eab-bbac-4398-80e6-f43c9e46078e">,
#<Asset uuid: "67676eab-bbac-4398-80e6-f43c9e46078e">, #<Asset uuid: "49f6c8b8-a4f7-48d1-9b2f-2f
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-4c0e-a315-6d5cb8799a55">, #<Asset uuid: "bcf88f93-b970-4f9e-a452-ae6fd03eab6d">]
19
20 # >> MATCH (n:`User`)
21 # >> WHERE (n.name = {n_name})
22 # >> RETURN n
23 # >> LIMIT {limit_1}
24 # >>
25 # >> MATCH (node2:`User`)
26 # >> MATCH node2-[rel1:`VIEWED`]->(result_viewed_assets:`Asset`)
27 # >> RETURN result_viewed_assets
28 # >>
```

```
5
6  has_many :out, :created_assets, type: :CREATED, model_class: :Asset
7  has_many :out, :viewed_assets, type: :VIEWED, model_class: :Asset
8  end
9
10 class Asset
11   include Neo4j::ActiveNode
12
13   has_many :out, :categories, type: :HAS_CATEGORY
14 end
15
16 user = User.find_by(name: 'Sally')
17
18 User.as(:user).viewed_assets.categories(:category).pluck(['user.name', 'collect(category.name)']) #
=> [{"Jim", ["Neo4j", "Graph Databases", "Love", "Graph Databases", "Computers", "Tutorials", "G
raph Databases"]], ["Sally", ["Graph Databases", "Computers", "Tutorials", "Graph Databases", "Ne
o4j", "Graph Databases"]]}
19
20 # >> MATCH (n:`User`)
21 # >> WHERE (n.name = {n_name})
22 # >> RETURN n
23 # >> LIMIT {limit_1}
24 # >>
25 # >> MATCH (user:`User`)
26 # >> MATCH user-[rel1:`VIEWED`]->(node3:`Asset`)
27 # >> MATCH node3-[rel2:`HAS_CATEGORY`]->(category:`Category`)
28 # >> RETURN
29 # >>   user.name,
30 # >>   collect(category.name)
31 # >>
```




```
5
6   has_many :out, :created_assets, type: :CREATED, model_class: :Asset
7   has_many :out, :viewed_assets, type: :VIEWED, model_class: :Asset
8 end
9
10 class Asset
11   include Neo4j::ActiveNode
12
13   has_many :out, :categories, type: :HAS_CATEGORY
14 end
15
16 class Category
17   include Neo4j::ActiveNode
18
19   property :name
20   scope :ordered, -> { order(:name) }
21 end
22
23 user = User.find_by(name: 'Sally')
24
25 user.created_assets.categories.ordered.pluck[:name] # => ["Computers", "Computers", "Graph Databa
ses", "Graph Databases", "Graph Databases", "Poetry", "Tutorials"]
26
27 # >> MATCH (n:`User`)
28 # >> WHERE (n.name = {n_name})
29 # >> RETURN n
30 # >> LIMIT {limit_1}
31 # >>
32 # >> MATCH user4865
33 # >> WHERE (ID(user4865) = {ID_user4865})
34 # >> MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`)
35 # >> MATCH node3-[rel2:`HAS_CATEGORY`]->(result_categories:`Category`)
```



```
6   has_many :out, :created_assets, type: :CREATED, model_class: :Asset
7   has_many :out, :viewed_assets, type: :VIEWED, model_class: :Asset
8 end
9
10 class Asset
11   include Neo4j::ActiveNode
12
13   has_many :out, :categories, type: :HAS_CATEGORY
14 end
15
16 class Category
17   include Neo4j::ActiveNode
18
19   property :name
20   def self.ordered
21     all.order(:name)
22   end
23 end
24
25 user = User.find_by(name: 'Sally')
26
27 user.created_assets.categories.ordered.pluck(:name) # => ["Computers", "Computers", "Graph Databa
ses", "Graph Databases", "Graph Databases", "Poetry", "Tutorials"]
28
29 # >> MATCH (n:`User`)
30 # >> WHERE (n.name = {n_name})
31 # >> RETURN n
32 # >> LIMIT {limit_1}
33 # >>
34 # >> MATCH user4865
35 # >> WHERE (ID(user4865) = {ID_user4865})
36 # >> MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`)
```



```
15
16 class Category
17   include Neo4j::ActiveNode
18
19   property :name
20   def self.most_recently_updated
21     all.order(:updated_at).last
22   end
23 end
24
25 user = User.find_by(name: 'Sally')
26
27 user.created_assets.categories.most_recently_updated # => #<Category uuid: "601c51ff-cf2e-439d-91
09-481b24b4ae3f", name: "Computers">
28
29 # >> MATCH (n:`User`)
30 # >> WHERE (n.name = {n_name})
31 # >> RETURN n
32 # >> LIMIT {limit_1}
33 # >>
34 # >> MATCH user4865
35 # >> WHERE (ID(user4865) = {ID_user4865})
36 # >> MATCH user4865-[rel1:`CREATED`]->(node3:`Asset`)
37 # >> MATCH node3-[rel2:`HAS_CATEGORY`]->(n:`Category`)
38 # >> WITH n
39 # >> ORDER BY n.updated_at
40 # >> RETURN LAST(COLLECT(n)) as n
41 # >>
```

~
~
~
~