

## Interactive / update / 1

IU 1  
IU 2  
IU 3  
IU 4  
IU 5  
IU 6  
IU 7  
IU 8

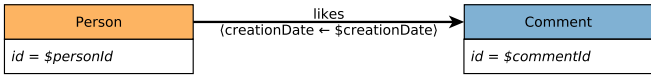
query	Interactive / update / 1																																																										
title	Add person																																																										
pattern	<pre> graph LR     City[City] -- isLocatedIn --&gt; Person[Person]     Tag[Tag] -- hasInterest --&gt; Person     Person -- studyAt --&gt; University[University]     Person -- workAt --&gt; Company[Company]     </pre> <p>City: <code>id = \$cityId</code></p> <p>Tag: <code>id in \$tagIds</code></p> <p>Person: <code>id ← \$personId</code>, <code>firstName ← \$personFirstName</code>, <code>lastName ← \$lastName</code>, <code>gender ← \$gender</code>, <code>birthday ← \$birthday</code>, <code>creationDate ← \$creationDate</code>, <code>locationIP ← \$locationIP</code>, <code>browserUsed ← \$browserUsed</code>, <code>{speaks} ← \$languages</code>, <code>{email} ← \$emails</code></p> <p>University: <code>id = \$studyAt[i]</code></p> <p>Company: <code>id = \$workAt[j]</code></p>																																																										
desc.	Add a Person <b>node</b> , connected to the network by 4 possible <b>edge</b> types.																																																										
params	<table border="1"> <tbody> <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>personFirstName</td></tr> <tr><td>3</td><td>Person.lastName</td><td>String</td><td>personLastName</td></tr> <tr><td>4</td><td>Person.gender</td><td>String</td><td>gender</td></tr> <tr><td>5</td><td>Person.birthday</td><td>Date</td><td>birthday</td></tr> <tr><td>6</td><td>Person.creationDate</td><td>DateTime</td><td>creationDate</td></tr> <tr><td>7</td><td>Person.locationIP</td><td>String</td><td>locationIP</td></tr> <tr><td>8</td><td>Person.browserUsed</td><td>String</td><td>browserUsed</td></tr> <tr><td>9</td><td>Person-isLocatedIn-&gt;City.id</td><td>ID</td><td>cityId</td></tr> <tr><td>10</td><td>Person.speaks</td><td>{String}</td><td>languages</td></tr> <tr><td>11</td><td>Person.email</td><td>{String}</td><td>emails</td></tr> <tr><td>12</td><td>Person-hasInterest-&gt;Tag.id</td><td>{ID}</td><td>tagIds</td></tr> <tr><td>13</td><td>(Person-studyAt-&gt;University.id, Person-studyAt-&gt;.classYear)</td><td>{(ID, 32-bit Integer)}</td><td>studyAt</td></tr> <tr><td>14</td><td>(Person-workAt-&gt;Company.id, Person-workAt-&gt;.workFrom)</td><td>{(ID, 32-bit Integer)}</td><td>workAt</td></tr> </tbody> </table>			1	Person.id	ID	personId	2	Person.firstName	String	personFirstName	3	Person.lastName	String	personLastName	4	Person.gender	String	gender	5	Person.birthday	Date	birthday	6	Person.creationDate	DateTime	creationDate	7	Person.locationIP	String	locationIP	8	Person.browserUsed	String	browserUsed	9	Person-isLocatedIn->City.id	ID	cityId	10	Person.speaks	{String}	languages	11	Person.email	{String}	emails	12	Person-hasInterest->Tag.id	{ID}	tagIds	13	(Person-studyAt->University.id, Person-studyAt->.classYear)	{(ID, 32-bit Integer)}	studyAt	14	(Person-workAt->Company.id, Person-workAt->.workFrom)	{(ID, 32-bit Integer)}	workAt
1	Person.id	ID	personId																																																								
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14	(Person-workAt->Company.id, Person-workAt->.workFrom)	{(ID, 32-bit Integer)}	workAt																																																								

## Interactive / update / 2

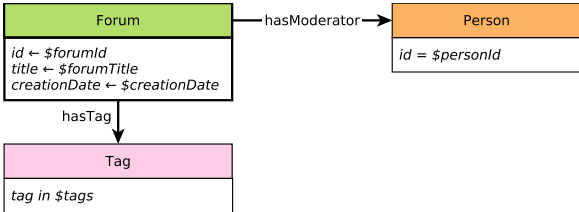
IU 1  
IU 2  
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IU 6  
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IU 8

query	Interactive / update / 2														
title	Add like to post														
pattern	<pre> graph LR     Person[Person] -- likes --&gt; Post[Post]     </pre> <p>Person: <code>id = \$personId</code></p> <p>Post: <code>id = \$postId</code></p>														
desc.	Add a likes <b>edge</b> to a Post.														
params	<table border="1"> <tbody> <tr><td>1</td><td>Person.id</td><td>ID</td><td>personId</td></tr> <tr><td>2</td><td>Post.id</td><td>ID</td><td>postId</td></tr> <tr><td>3</td><td>Person-likes-&gt;.creationDate</td><td>DateTime</td><td>creationDate</td></tr> </tbody> </table>			1	Person.id	ID	personId	2	Post.id	ID	postId	3	Person-likes->.creationDate	DateTime	creationDate
1	Person.id	ID	personId												
2	Post.id	ID	postId												
3	Person-likes->.creationDate	DateTime	creationDate												

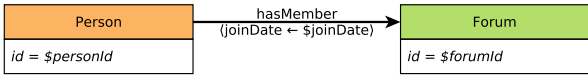
### Interactive / update / 3

IU 1	query	Interactive / update / 3		
IU 2	title	Add like to comment		
IU 3	pattern	 <pre> graph LR     Person[Person id = \$personId] -- "(creationDate &lt;= \$creationDate)" -- likes --&gt; Comment[Comment id = \$commentId]           </pre>		
IU 6	desc.	Add a likes <b>edge</b> to a Comment.		
IU 7	params	1	Person.id	ID
IU 8		2	Comment.id	ID
		3	Person-likes->.creationDate	DateTime
				personId
				commentId
				creationDate

### Interactive / update / 4

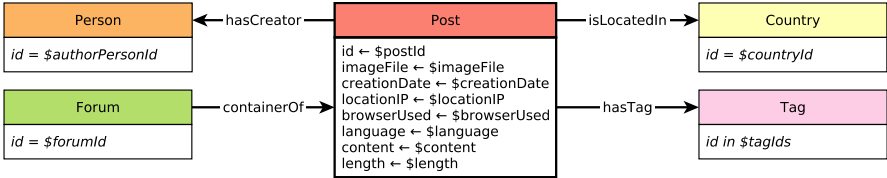
IU 1	query	Interactive / update / 4		
IU 2	title	Add forum		
IU 3	pattern	 <pre> graph LR     Forum[Forum id &lt;= \$forumId title &lt;= \$forumTitle creationDate &lt;= \$creationDate] -- "hasModerator" --&gt; Person[Person id = \$personId]     Forum -- "hasTag" --&gt; Tag[Tag tag in \$tags]           </pre>		
	desc.	Add a Forum <b>node</b> , connected to the network by 2 possible <b>edge</b> types.		
	params	1	Forum.id	ID
		2	Forum.title	String
		3	Forum.creationDate	DateTime
		4	Forum-hasModerator->Person.id	ID
		5	Forum-hasTag->Tag.id	{ID}
				forumId
				forumTitle
				creationDate
				moderatorPersonId
				tagIds

### Interactive / update / 5

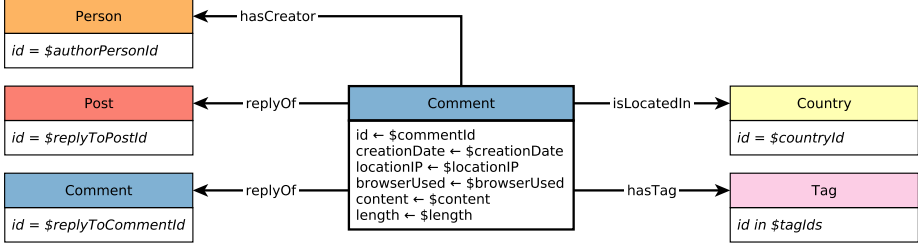
IU 1	query	Interactive / update / 5		
IU 2	title	Add forum membership		
IU 3	pattern	 <pre> graph LR     Person[Person id = \$personId] -- "(joinDate &lt;= \$joinDate)" -- hasMember --&gt; Forum[Forum id = \$forumId]           </pre>		
IU 6	desc.	Add a Forum membership <b>edge</b> (hasMember) to a Person.		
IU 7	params	1	Person.id	ID
IU 8		2	Forum.id	ID
		3	Forum-hasMember->.joinDate	DateTime
				personId
				forumId
				joinDate

IU 1  
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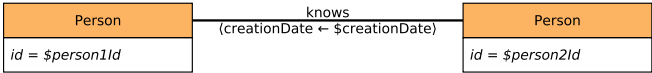
Interactive / update / 6

query	Interactive / update / 6																																																		
title	Add post																																																		
pattern																																																			
desc.	Add a Post <b>node</b> to the social network connected by 4 possible <b>edge</b> types (hasCreator, containerOf, isLocatedIn, hasTag).																																																		
params	<table><tr><td>1</td><td>Post.id</td><td>ID</td><td>postId</td></tr><tr><td>2</td><td>Post.imageFile</td><td>String</td><td>imageFile</td></tr><tr><td>3</td><td>Post.creationDate</td><td>DateTime</td><td>creationDate</td></tr><tr><td>4</td><td>Post.locationIP</td><td>String</td><td>locationIP</td></tr><tr><td>5</td><td>Post.browserUsed</td><td>String</td><td>browserUsed</td></tr><tr><td>6</td><td>Post.language</td><td>String</td><td>language</td></tr><tr><td>7</td><td>Post.content</td><td>Text</td><td>content</td></tr><tr><td>8</td><td>Post.length</td><td>32-bit Integer</td><td>length</td></tr><tr><td>9</td><td>Post-hasCreator-&gt;Person.id</td><td>ID</td><td>authorPersonId</td></tr><tr><td>10</td><td>Post&lt;-containerOf-Forum.id</td><td>ID</td><td>forumId</td></tr><tr><td>11</td><td>Post-isLocatedIn-&gt;Country.id</td><td>ID</td><td>countryId</td></tr><tr><td>12</td><td>Post-hasTag-&gt;Tag.id</td><td>{ID}</td><td>tagIds</td></tr></table>			1	Post.id	ID	postId	2	Post.imageFile	String	imageFile	3	Post.creationDate	DateTime	creationDate	4	Post.locationIP	String	locationIP	5	Post.browserUsed	String	browserUsed	6	Post.language	String	language	7	Post.content	Text	content	8	Post.length	32-bit Integer	length	9	Post-hasCreator->Person.id	ID	authorPersonId	10	Post<-containerOf-Forum.id	ID	forumId	11	Post-isLocatedIn->Country.id	ID	countryId	12	Post-hasTag->Tag.id	{ID}	tagIds
1	Post.id	ID	postId																																																
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11	Post-isLocatedIn->Country.id	ID	countryId																																																
12	Post-hasTag->Tag.id	{ID}	tagIds																																																

## Interactive / update / 7

IU 1	query	Interactive / update / 7																																													
IU 2	title	Add comment																																													
IU 3	pattern																																														
IU 4	desc.	Add a Comment <b>node</b> replying to a Post/Comment, connected to the network by 4 possible <b>edge</b> types (replyOf, hasCreator, isLocatedIn, hasTag).																																													
IU 5	params	<table> <tr><td>1</td><td>Comment.id</td><td>ID</td><td>commentId</td></tr> <tr><td>2</td><td>Comment.creationDate</td><td>DateTime</td><td>creationDate</td></tr> <tr><td>3</td><td>Comment.locationIP</td><td>String</td><td>locationIP</td></tr> <tr><td>4</td><td>Comment.browserUsed</td><td>String</td><td>browserUsed</td></tr> <tr><td>5</td><td>Comment.content</td><td>Text</td><td>content</td></tr> <tr><td>6</td><td>Comment.length</td><td>32-bit Integer</td><td>length</td></tr> <tr><td>7</td><td>Comment-hasCreator-&gt;Person.id</td><td>ID</td><td>authorPersonId</td></tr> <tr><td>8</td><td>Comment-isLocatedIn-&gt;Country.id</td><td>ID</td><td>countryId</td></tr> <tr><td>9</td><td>Comment-replyOf-&gt;Post.id</td><td>ID</td><td>replyToPostId, -1 if the Comment is a reply of a Comment</td></tr> <tr><td>10</td><td>Comment-replyOf-&gt;Comment.id</td><td>ID</td><td>replyToCommentId, -1 if the Comment is a reply of a Post</td></tr> <tr><td>11</td><td>Comment-hasTag-&gt;Tag.id</td><td>{ID}</td><td>tagIds</td></tr> </table>		1	Comment.id	ID	commentId	2	Comment.creationDate	DateTime	creationDate	3	Comment.locationIP	String	locationIP	4	Comment.browserUsed	String	browserUsed	5	Comment.content	Text	content	6	Comment.length	32-bit Integer	length	7	Comment-hasCreator->Person.id	ID	authorPersonId	8	Comment-isLocatedIn->Country.id	ID	countryId	9	Comment-replyOf->Post.id	ID	replyToPostId, -1 if the Comment is a reply of a Comment	10	Comment-replyOf->Comment.id	ID	replyToCommentId, -1 if the Comment is a reply of a Post	11	Comment-hasTag->Tag.id	{ID}	tagIds
1	Comment.id	ID	commentId																																												
2	Comment.creationDate	DateTime	creationDate																																												
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11	Comment-hasTag->Tag.id	{ID}	tagIds																																												

## Interactive / update / 8

IU 1	query	Interactive / update / 8													
IU 2	title	Add friendship													
IU 3	pattern														
IU 4	desc.	Add a friendship <b>edge</b> (knows) between two Persons.													
IU 5	params	<table> <tr><td>1</td><td>Person.id</td><td>ID</td><td>person1Id</td></tr> <tr><td>2</td><td>Person.id</td><td>ID</td><td>person2Id</td></tr> <tr><td>3</td><td>Person-knows-&gt;.creationDate</td><td>DateTime</td><td>creationDate</td></tr> </table>		1	Person.id	ID	person1Id	2	Person.id	ID	person2Id	3	Person-knows->.creationDate	DateTime	creationDate
1	Person.id	ID	person1Id												
2	Person.id	ID	person2Id												
3	Person-knows->.creationDate	DateTime	creationDate												