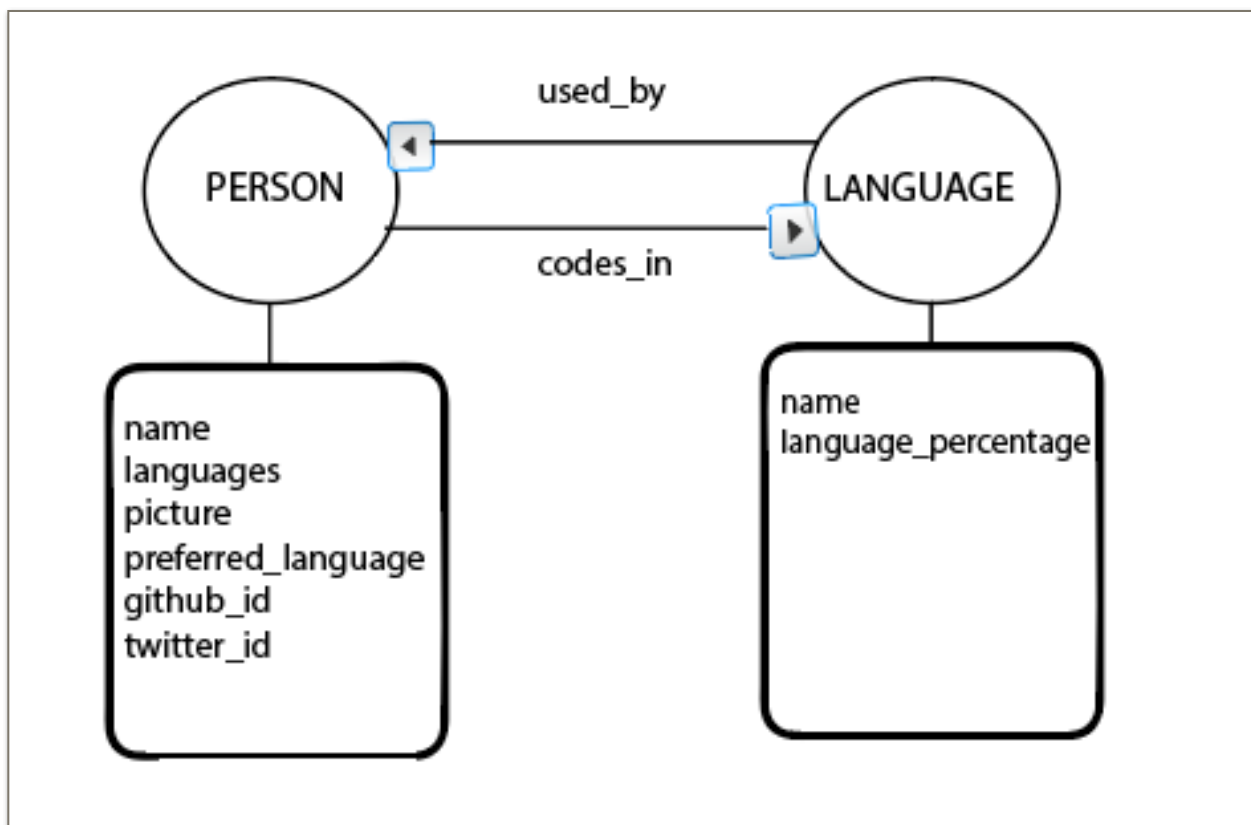# Graph Application of a person and the languages they code

Obtaining GDS Token

```
curl -X "GET" https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/_session \
-H 'content-type: application/json' \
-u "81101f4b-bc03-4565-999d-353dfc0161da:ce990edf-3b1d-422c-94d3-7a7af1700407" || json_pp
```

Output

**ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1M
DYyNzAwNDcwNDA6aEkwYlRlRHJ5VDFPNnNFbjJhRzZDNVFIc1dmTk5JST
d5clMxSU5Ib3h0WT0=**

Create Schema :

```
curl -X "POST"  "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/schema" \
-H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk50WQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5VDFPNnNFbjJhRzzDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
-H "Content-Type: application/json" \
-d "{\"propertyKeys\":[{\"name\":\"name\",\"dataType\":\"String\",\"cardinality\":\"SINGLE\"},{\"name\":\"languages\",\"dataType\":\"String\",\"cardinality\":\"SINGLE\"},{\
name\":\"picture\",\"dataType\":\"String\",\"cardinality\":\"SINGLE\"},{\"name\":\"preferred_language\",\"dataType\":\"String\",\"cardinality\":\"SINGLE\"},{\"name\":\"bytes
,\"dataType\":\"Integer\",\"cardinality\":\"SINGLE\"},{\"name\":\"github_id\",\"dataType\":\"String\",\"cardinality\":\"SINGLE\"},{\"name\":\"twitter_id\",\"dataType\":\"St
ng\",\"cardinality\":\"SINGLE\"},{\"name\":\"language_percentage\",\"dataType\":\"Float\",\"cardinality\":\"SINGLE\"}],\"vertexLabels\":[{\"name\":\"person\"},{\"name\":\"l
guage\"}],\"edgeLabels\":[{\"name\":\"codes_in\",\"multiplicity\":\"MULTI\"},{\"name\":\"used_by\",\"multiplicity\":\"MULTI\"}],\"vertexIndexes\":[{\"name\":\"vByName\",\"p
pertyKeys\":[\"name\"],\"composite\":true,\"unique\":false},{\"name\":\"vByPreferredLang\",\"propertyKeys\":[\"preferred_language\"],\"composite\":true,\"unique\":false},{\
ame\":\"vByLanguages\",\"propertyKeys\":[\"languages\"],\"composite\":false,\"unique\":false}],\"edgeIndexes\":[{\"name\":\"eByName\",\"propertyKeys\":[\"name\"],\"composit
:true,\"unique\":false},{\"name\":\"eByLanguagePercentage\",\"propertyKeys\":[\"language_percentage\"],\"composite\":true,\"unique\":false}]}" || json_pp
```

Output:

```
"requestId": "970fbf0a-c09f-4c55-95c9-2ee420f7ddbc",
"status": {
        "message": "",
        "code": 200,
        "attributes": {}
},
"result": {
        "data": [{
                "propertyKeys": [{
                        "name": "name",
                        "dataType": "String",
                        "cardinality": "SINGLE"
                }, {
                        "name": "languages",
                        "dataType": "String",
                        "cardinality": "SINGLE"
                }, {
                        "name": "picture",
                        "dataType": "String",
                        "cardinality": "SINGLE"
                }, {
                        "name": "preferred_language",
                        "dataType": "String",
                        "cardinality": "SINGLE"
                }, {
```

```json
        "name": "bytes",
        "dataType": "Integer",
        "cardinality": "SINGLE"
}, {
        "name": "github_id",
        "dataType": "String",
        "cardinality": "SINGLE"
}, {
        "name": "twitter_id",
        "dataType": "String",
        "cardinality": "SINGLE"
}, {
        "name": "language_percentage",
        "dataType": "Float",
        "cardinality": "SINGLE"
}],
"vertexLabels": [{
        "name": "person"
}, {
        "name": "language"
}],
"edgeLabels": [{
        "name": "codes_in",
        "directed": true,
        "multiplicity": "MULTI"
}, {
        "name": "used_by",
        "directed": true,
        "multiplicity": "MULTI"
}],
"vertexIndexes": [{
        "name": "vByName",
        "composite": true,
        "unique": false,
        "propertyKeys": ["name"],
        "requiresReindex": false,
```

```json
                                        "type": "vertex"
                        }, {

                                "name": "vByPreferredLang",
                                "composite": true,
                                "unique": false,
                                "propertyKeys": ["preferred_language"],
                                "requiresReindex": false,
                                "type": "vertex"
                        }, {

                                "name": "vByLanguages",
                                "composite": false,
                                "unique": false,
                                "propertyKeys": ["languages"],
                                "requiresReindex": false,
                                "type": "vertex"
                        }],
                        "edgeIndexes": [{
                                "name": "eByName",
                                "composite": true,
                                "unique": false,
                                "propertyKeys": ["name"],
                                "requiresReindex": false,
                                "type": "edge"
                        }, {

                                "name": "eByLanguagePercentage",
                                "composite": true,
                                "unique": false,
                                "propertyKeys": ["language_percentage"],
                                "requiresReindex": false,
                                "type": "edge"
                        }]
                }],
                "meta": {}
        }
}
```

Create Vertex (Person) :

Create Vertex1

```
//v1:
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/vertices" \
-H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5VDFPNnNFbjJh
RzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
-H "Content-Type: application/json" \
-d '{"name": "Saranya SoundarRajan", "languages": "Java,Node", "preferred_language":"Node", "twitter_id":"saranyavsr",
"label": "person"}' || json_pp
```

Output

{"requestId":"12d94927-21df-463e-8819-3057fb5beae5","status":
{"message":"","code":200,"attributes":{}},"result":{"data":[{"id":
4344,"label":"person","type":"vertex","properties":{"languages":
[{"id":"17j-3co-1l1","value":"Java,Node"}],"name":[{"id":"1lr-3co-
sl","value":"Saranya SoundarRajan"}],"twitter_id":
[{"id":"1zz-3co-5j9","value":"saranyavsr"}],"preferred_language":
[{"id":"2e7-3co-35x","value":"Node"}]}}],"meta":{}}}

Create Vertex 2

```
//v2:
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/vertices" \
-H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5VDFPNnNFbjJh
RzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
-H "Content-Type: application/json" \
-d '{"name": "Arshiya Pathan", "languages": "Python", "preferred_language":"Python", "twitter_id":"Unknown", "label":
"person"}' || json_pp
```

Output
{"requestId":"2703cc89-e14f-4028-ba7e-0e54dba3aef6","status":
{"message":"","code":200,"attributes":{}},"result":{"data":[{"id":
4240,"label":"person","type":"vertex","properties":{"languages":
[{"id":"176-39s-1l1","value":"Python"}],"name":[{"id":"1le-39s-
sl","value":"Arshiya Pathan"}],"twitter_id":

[{"id":"1zm-39s-5j9","value":"Unknown"}],"preferred_language":
[{"id":"2du-39s-35x","value":"Python"}]}],"meta":{}}}

Create Vertex 3

```
//v3.
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/vertices" \
-H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYYlRlRHJ5VDFPNnNFbjJh
RzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
-H "Content-Type: application/json" \
-d '{"name": "Vasu Bansal", "languages": "Perl", "preferred_language":"Perl", "twitter_id":"Unknown", "label":
"person"}' || json_pp
```

Output

{"requestId":"cdd1c6dc-04a7-4a79-96b2-cdd576f28212","status":
{"message":"","code":200,"attributes":{}},"result":{"data":[{"id":
4272,"label":"person","type":"vertex","properties":{"languages":
[{"id":"17a-3ao-1l1","value":"Perl"}],"name":[{"id":"1li-3ao-sl","value":"Vasu
Bansal"}],"twitter_id":
[{"id":"1zq-3ao-5j9","value":"Unknown"}],"preferred_language":
[{"id":"2dy-3ao-35x","value":"Perl"}]}}],"meta":{}}}

Create Vertex 4

```
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/vertices" \
-H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYYlRlRHJ5VDFPNnNFbjJh
RzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
-H "Content-Type: application/json" \
-d '{"name": "Zeeshan Ali", "languages": "Perl,Javascript", "preferred_language":"Javascript", "twitter_id":"Unknown",
"label": "person"}' || json_pp
```

Output

{"requestId":"f2f0bd2a-3ffc-402c-8266-59bf62d38728","status":
{"message":"","code":200,"attributes":{}},"result":{"data":[{"id":
4256,"label":"person","type":"vertex","properties":{"languages":

[{"id":"178-3a8-1l1","value":"Perl,Javascript"}],"name":[{"id":"1lg-3a8-sl","value":"Zeeshan Ali"}],"twitter_id":
[{"id":"1zo-3a8-5j9","value":"Unknown"}],"preferred_language":
[{"id":"2dw-3a8-35x","value":"Javascript"}]}}],"meta":{}}

Create Vertex (Language) :

Create Vertex1

```
//v1:
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/vertices" \
-H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5VDFPNn
NFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
-H "Content-Type: application/json" \
-d '{"name": "Java", "label": "language"}' || json_pp
```

Output

{"requestId":"b5739f18-a9ab-4bfc-ad16-a9ac15cd85d4","status":
{"message":"","code":200,"attributes":{}},"result":{"data":[{"id":
4160,"label":"language","type":"vertex","properties":{"name":
[{"id":"16w-37k-sl","value":"Java"}]}}],"meta":{}}

Create Vertex 2

```
//v2:
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/vertices" \
-H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5VDFPNn
NFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
-H "Content-Type: application/json" \
-d '{"name": "Node", "label": "language"}' || json_pp
```

Output

{"requestId":"5cf8684b-ab43-47b2-8adb-90ceb58bb0e9","status":
{"message":"","code":200,"attributes":{}},"result":{"data":[{"id":
4304,"label":"language","type":"vertex","properties":{"name":
[{"id":"17e-3bk-sl","value":"Node"}]}}],"meta":{}}

Create Vertex 3

```
//v3.
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/vertices" \
-H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5VDFPNn
NFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
-H "Content-Type: application/json" \
-d '{"name": "Perl", "label": "language"}' || json_pp
```

Output

{"requestId":"3d834e53-90b2-4809-9b3d-128eec7377e0","status":
{"message":"","code":200,"attributes":{}},"result":{"data":[{"id":
4136,"label":"language","type":"vertex","properties":{"name":
[{"id":"16t-36w-sl","value":"Perl"}]}}],"meta":{}}}

Create Vertex 4

```
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/vertices" \
-H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5VDFPNn
NFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
-H "Content-Type: application/json" \
-d '{"name": "Python", "label": "language"}' || json_pp
```

Output

{"requestId":"3c34ec66-3877-42a1-bfab-44cd55740749","status":
{"message":"","code":200,"attributes":{}},"result":{"data":[{"id":
4232,"label":"language","type":"vertex","properties":{"name":
[{"id":"175-39k-sl","value":"Python"}]}}],"meta":{}}}

Create Vertex 5

```
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/vertices" \
-H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5VDFPNn
NFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
-H "Content-Type: application/json" \
-d '{"name": "Javascript", "label": "language"}' || json_pp
```

Output

{"requestId":"aaa41726-b8a0-42b3-9d06-072dc6bfc9c2","status":
{"message":"","code":200,"attributes":{}},"result":{"data":
[{"id":"odxck-3a8-8ph-38w","label":"codes_in","type":"edge","inVLabel":"la
nguage","outVLabel":"person","inV":4208,"outV":4256,"properties":
{"language_percentage":0.7}}],"meta":{}}}

Create edges

Create edge 1

```
//e1:
 curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/edges" \
  -H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5V
  DFPNnNFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
  -H "Content-Type: application/json" \
  -d '{"outV":"4256", "label":"codes_in", "inV":"4208","language_percentage":0.7 }' || json_pp
```

Output

{"requestId":"aaa41726-b8a0-42b3-9d06-072dc6bfc9c2","status":
{"message":"","code":200,"attributes":{}},"result":{"data":
[{"id":"odxck-3a8-8ph-38w","label":"codes_in","type":"edge","inVLabel":"la
nguage","outVLabel":"person","inV":4208,"outV":4256,"properties":
{"language_percentage":0.7}}],"meta":{}}}

Create edge 2

```
 curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/edges" \
  -H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5V
  DFPNnNFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
  -H "Content-Type: application/json" \
  -d '{"outV":"4256", "label":"codes_in", "inV":"4136","language_percentage":0.9 }' || json_pp
```

Output

{"requestId":"e621d551-e1d2-4de8-b89d-e3f8de2e48af","status":
{"message":"","code":200,"attributes":{}},"result":{"data":
[{"id":"1cruac-3a8-8ph-36w","label":"codes_in","type":"edge","inVLabel":"l
anguage","outVLabel":"person","inV":4136,"outV":4256,"properties":
{"language_percentage":0.9}}],"meta":{}}}

Create edge 3

```
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/edges" \
  -H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5V
  DFPNnNFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
  -H "Content-Type: application/json" \
  -d '{"outV":"4240", "label":"codes_in", "inV":"4232","language_percentage":0.9 }' || json_pp
```

Output

{"requestId":"ca02f55d-ccf6-419a-9d13-f3b51676ae26","status":
{"message":"","code":200,"attributes":{}},"result":{"data":
[{"id":"odxci-39s-8ph-39k","label":"codes_in","type":"edge","inVLabel":"lan
guage","outVLabel":"person","inV":4232,"outV":4240,"properties":
{"language_percentage":0.9}}],"meta":{}}}

Create edge 4

```
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/edges" \
  -H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5V
  DFPNnNFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
  -H "Content-Type: application/json" \
  -d '{"outV":"4344", "label":"codes_in", "inV":"4304","language_percentage":0.6 }' || json_pp
```

Output

{"requestId":"5214fbe6-fb2d-4bac-b2c1-48d1f34b72a9","status":
{"message":"","code":200,"attributes":{}},"result":{"data":
[{"id":"odxcv-3co-8ph-3bk","label":"codes_in","type":"edge","inVLabel":"la
nguage","outVLabel":"person","inV":4304,"outV":4344,"properties":
{"language_percentage":0.6}}],"meta":{}}}

Create edge 5

```
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/edges" \
  -H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5V
DFPNnNFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
  -H "Content-Type: application/json" \
  -d '{"outV":"4344", "label": "codes_in", "inV":"4160","language_percentage":0.4 }' || json_pp
```

Output

{"requestId":"51a0e1f6-b542-4f10-bab4-b3bfb7738f9b","status":
{"message":"","code":200,"attributes":{}},"result":{"data":
[{"id":"odxr3-3co-8ph-37k","label":"codes_in","type":"edge","inVLabel":"la
nguage","outVLabel":"person","inV":4160,"outV":4344,"properties":
{"language_percentage":0.4}}],"meta":{}}}

Create edge 6

```
curl -X "POST" "https://ibmgraph-alpha.ng.bluemix.net/74a21773-92ce-4b86-ac22-875ca39133c3/sampletwo/edges" \
  -H 'Authorization: gds-token ODExMDFmNGItYmMwMy00NTY1LTk5OWQtMzUzZGZjMDE2MWRhOjE1MDYyNzAwNDcwNDA6aEkwYlRlRHJ5V
DFPNnNFbjJhRzZDNVFIc1dmTk5JSTd5clMxSU5Ib3h0WT0=' \
  -H "Content-Type: application/json" \
  -d '{"outV":"4272", "label": "codes_in", "inV":"4136","language_percentage":1.0 }' || json_pp
```

Output

{"requestId":"98382933-ca61-42ee-874e-24254bc500ac","status":
{"message":"","code":200,"attributes":{}},"result":{"data":
[{"id":"odxcm-3ao-8ph-36w","label":"codes_in","type":"edge","inVLabel":"l

anguage","outVLabel":"person","inV":4136,"outV":4272,"properties":
{"language_percentage":1}}],"meta":{}}}

Visualize persons who can code language 'Perl':
It returns 'Vasu Bansal'

```
1   graph.traversal().V().has('languages', 'Perl').outE().inV().path()
```

Graph: **sampletwo**

```
graph.traversal().V().has('languages', 'Perl').outE().inV().path()
 4  ▾      {
 5              "id": 4272,
 6              "label": "person",
 7              "type": "vertex",
 8  ▾          "properties": {
 9  ▾              "languages": [
10                      {
11                          "id": "17a-3ao-1ll",
12                          "value": "Perl"
13                      }
14                  ],
15  ▾              "name": [
16                      {
17                          "id": "1li-3ao-sl",
18                          "value": "Vasu Bansal"
19                      }
20                  ],
```

Filter: Label   Type   Properties   Vertices: **2**

Visualize persons who can code language 'Python':
It returns 'Arshiya Pathan'

```
1   graph.traversal().V().has('languages', 'Python').outE().inV().path()
```

Graph: **sampletwo**

```
graph.traversal().V().has('languages', 'Python').outE().inV().path()
15                      {
16                          "id": "176-39s-1ll",
17                          "value": "Python"
18                      }
19                  ],
20  ▾              "name": [
21                      {
22                          "id": "1le-39s-sl",
23                          "value": "Arshiya Pathan"
24                      }
25                  ],
26  ▾              "twitter_id": [
27                      {
28                          "id": "1zm-39s-5j9",
29                          "value": "Unknown"
30                      }
31                  ],
```

Filter: Label   Type   Properties   Vertices: **2**

Visualize persons who can code language 'Perl,Javascript':
It returns 'Zeeshan Ali'

```
1   graph.traversal().V().has('languages', 'Perl,Javascript').outE().inV().path()
```

Graph: **sampletwo**

```
graph.traversal().V().has('languages', 'Perl,Javascript').outE().inV().path()
14  ▼        "languages": [
15               {
16                   "id": "178-3a8-1ll",
17                   "value": "Perl,Javascript"
18               }
19           ],
20  ▼        "name": [
21               {
22                   "id": "1lg-3a8-sl",
23                   "value": "Zeeshan Ali"
24               }
25           ],
26  ▼        "twitter_id": [
27               {
28                   "id": "1zo-3a8-5j9",
29                   "value": "Unknown"
```

Filter: [Label] [Type] [Properties]   Vertices: **3**

Visualize persons who can code language 'Java, Node':
It returns 'Saranya SoundarRajan'

```
1   graph.traversal().V().has('languages', 'Java,Node').outE().inV().path()
```

Graph: **sampletwo**

```
graph.traversal().V().has('languages', 'Java,Node').outE().inV().path()
10           id : 4344,
11           "label": "person",
12           "type": "vertex",
13  ▼        "properties": {
14  ▼            "languages": [
15                   {
16                       "id": "17j-3co-1ll",
17                       "value": "Java,Node"
18                   }
19               ],
20  ▼            "name": [
21                   {
22                       "id": "1lr-3co-sl",
23                       "value": "Saranya SoundarRajan"
24                   }
25               ],
26  ▼            "twitter_id": [
```

Filter: [Label] [Type] [Properties]   Vertices: **3**

13

Visualize languages which 'Vasu Bansal' can code:
It returns 'Perl'

```
1    graph.traversal().V().has('name', 'Vasu Bansal').outE().inV().path()
```

Graph: **sampletwo**

```
graph.traversal().V().has('name', 'Vasu Bansal').outE().inV().path()
```

```json
1    ▼ [
2    ▼   {
3    ▼     "objects": [
4            {
5              "id": 4272,
6              "label": "person"
7            },
8            {
9              "id": "odxcm-3ao-8ph-36w",
10             "label": "codes_in"
11           },
12           {
13             "id": 4136,
14             "label": "language"
15           }
16
```

Filter: Label Type Properties

Vertices: **2**