

Overview in General

This file contains a general overview of the data in the graph including node labels and relationships types.

References

- [jqassistant](#)
- [Neo4j Python Driver](#)

Node Labels

Table 1a - Highest node count by label combination

Lists the 30 label combinations with the highest number of nodes. The labels with the lowest node count are listed in table 1b. The total list would sum up to the total number of labels (100%).

The whole table can be found in the CSV report `Node_label_combination_count`.

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Git, Change]	241021	73.171480
1	[Java, ByteCode, Member, Method]	13184	4.002526
2	[Java, ByteCode, Parameter]	13000	3.946665
3	[Git, Commit]	11872	3.604216
4	[File, Git]	10647	3.232319
5	[Java, ByteCode, Bound, ParameterizedType]	7166	2.175523
6	[Java, ByteCode, Bound]	7112	2.159130
7	[Java, ByteCode, Member, Field]	3489	1.059224
8	[Java, ByteCode, Bound, WildcardType]	2906	0.882232
9	[Java, Value, ByteCode, Annotation]	2821	0.856426
10	[Xml, Element]	2144	0.650896
11	[Java, ByteCode, Member, Constructor, Method]	2042	0.619930
12	[Xml, Text]	1436	0.435955
13	[Java, ByteCode, Bound, TypeVariable]	1096	0.332734
14	[Java, ByteCode, Member, Method, Lambda]	936	0.284160
15	[Type, File, Java, ByteCode, ResolvedDuplicate...	900	0.273231
16	[Type, File, Java, ByteCode, Class]	861	0.261391
17	[Type, File, Java, ByteCode, JavaType]	746	0.226478
18	[Java, Value, ByteCode, Primitive]	650	0.197333
19	[Java, ByteCode, GenericDeclaration, Member, M...	569	0.172743
20	[Json, Key]	555	0.168492
21	[Value, Json, Scalar]	539	0.163635
22	[Type, File, Java, ByteCode, ExternalType]	396	0.120221
23	[Author, Git, Person]	290	0.088041
24	[Value, Array]	267	0.081058
25	[Committer, Git, Person]	244	0.074076
26	[Type, File, Java, ByteCode, Class, GenericDec...	236	0.071647
27	[Value, Property]	202	0.061325
28	[Type, File, Java, ByteCode, Interface]	187	0.056771
29	[Java, Value, ByteCode, Class]	172	0.052217

Chart 1a - Highest node count by label combination

Values under 0.5% will be grouped into "others" to get a cleaner plot. The group "others" is then broken down in Chart 1b.

<Figure size 640x480 with 0 Axes>

Nodes per label combination (more than 0.5% overall)

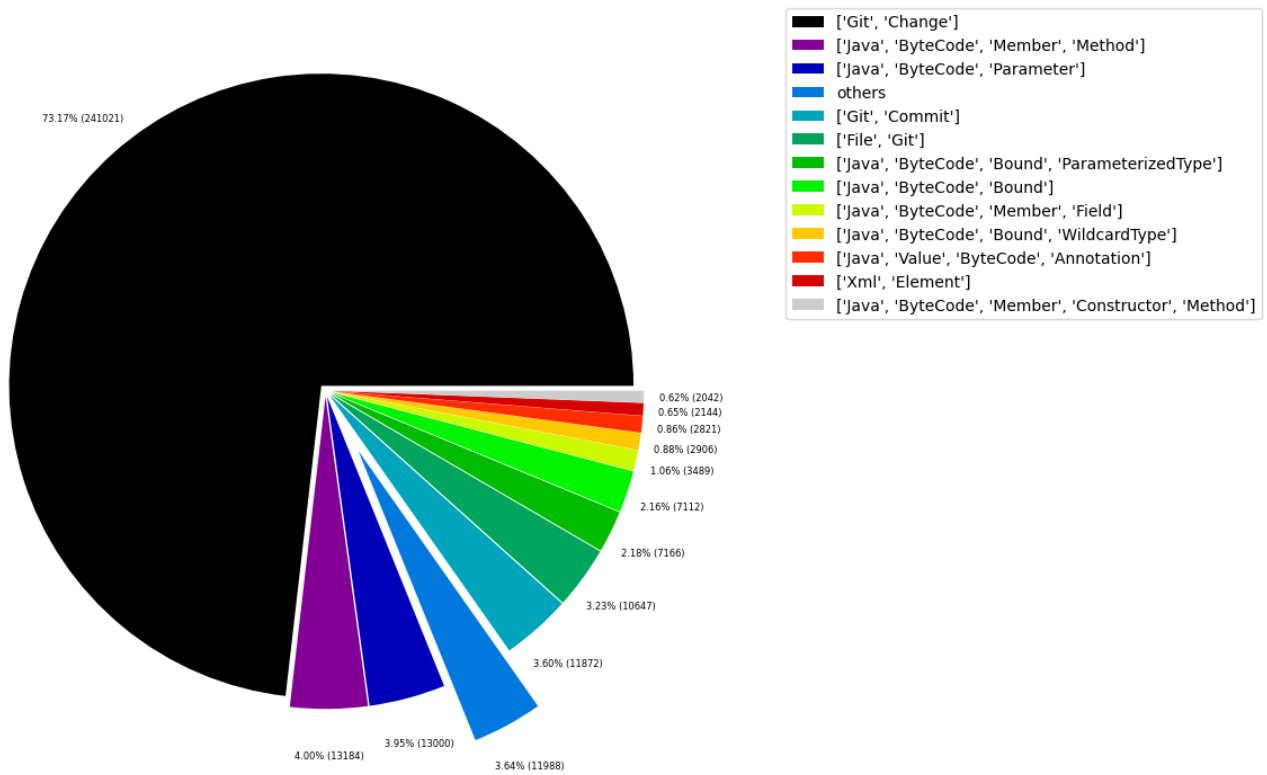


Table 1b - Lowest node count by label combination

Lists the 30 label combinations with the lowest number of nodes until they reach 0.5% of the total node count, which are shown above.

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Analyze, Task, JQAssistant]	1	0.000304
1	[File, TS, Scan]	1	0.000304
2	[File, Json]	2	0.000607
3	[File]	3	0.000911
4	[Java, ByteCode, GenericDeclaration, Member, C...	4	0.001214
5	[Maven, Exclusion]	5	0.001518
6	[Value, Array, Json]	6	0.001822
7	[Type, File, Java, ByteCode, Void]	9	0.002732
8	[File, Maven, Xml, Pom, Document]	9	0.002732
9	[Java, ManifestSection]	9	0.002732
10	[File, Java, Manifest]	9	0.002732
11	[Artifact, File, Jar, Archive, Zip, Java]	9	0.002732
12	[File, Java, ServiceLoader]	10	0.003036
13	[File, Java, Properties]	12	0.003643
14	[Maven, ExecutionGoal]	16	0.004857
15	[Maven, PluginExecution]	16	0.004857
16	[Xml, Attribute]	18	0.005465
17	[JQAssistant, Rule, Concept]	19	0.005768
18	[Maven, Plugin]	21	0.006375
19	[Maven, Configuration]	21	0.006375
20	[Git, Branch]	27	0.008197
21	[Type, File, Java, ByteCode, Enum]	28	0.008501
22	[Type, File, Java, ByteCode, PrimitiveType]	29	0.008804
23	[Xml, Namespace]	36	0.010929
24	[Type, File, Java, ByteCode, Annotation]	43	0.013054
25	[File, Directory]	44	0.013358
26	[Type, File, Java, ByteCode, GenericDeclaratio...	85	0.025805
27	[Artifact, Maven]	92	0.027930
28	[Type, File, Java, ByteCode, ExternalAnnotatio...	93	0.028234
29	[Value, ManifestEntry]	120	0.036431

Chart 1b - Lowest node count by label combination

Shows the lowest (less than 0.5% overall) node count label combinations. Therefore, this plot breaks down the "others" slice of the pie chart above. Values under 0.01% will be grouped into "others" to get a cleaner plot.

<Figure size 640x480 with 0 Axes>

Nodes per label combination (less than 0.5% overall)

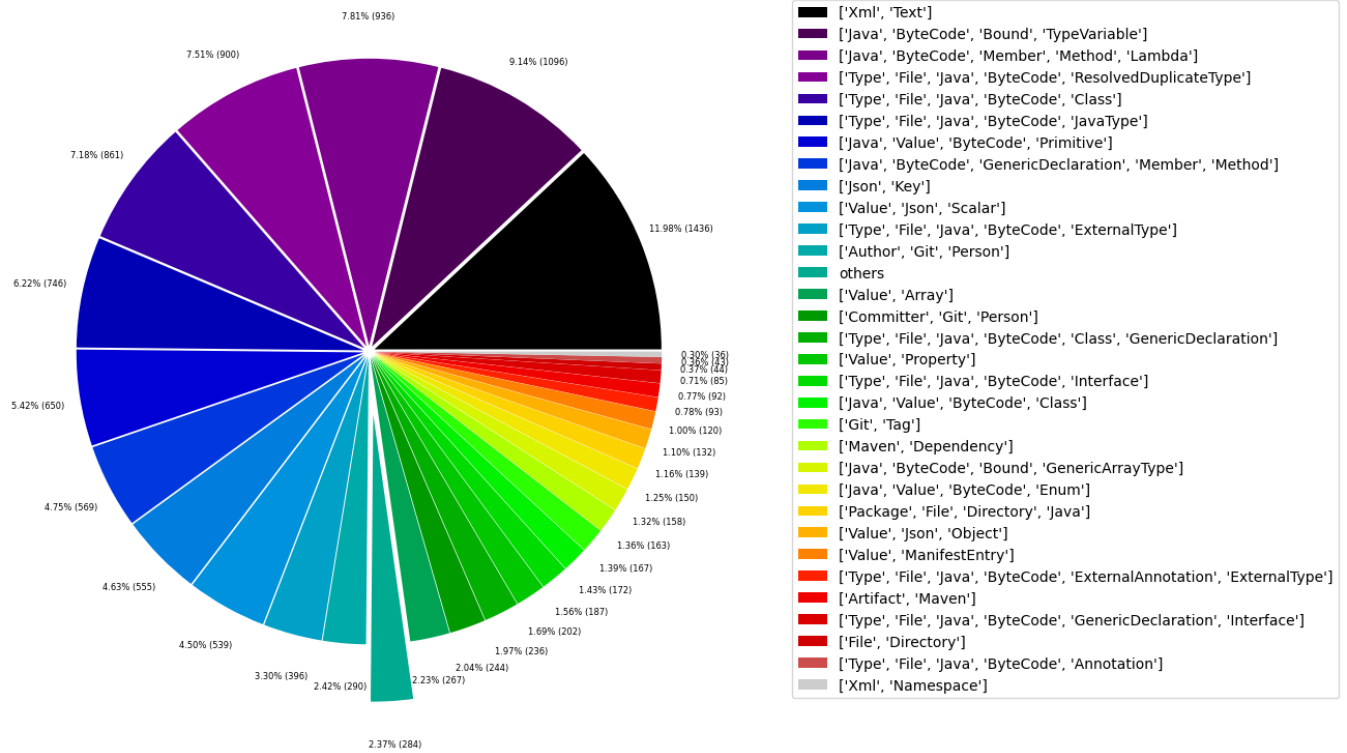


Table 1c - Highest node count by single label

Lists the 40 labels with the highest number of nodes. Doesn't sum up to the total number of nodes or 100% because one node can have multiple labels. Helps to identify commonly used labels.

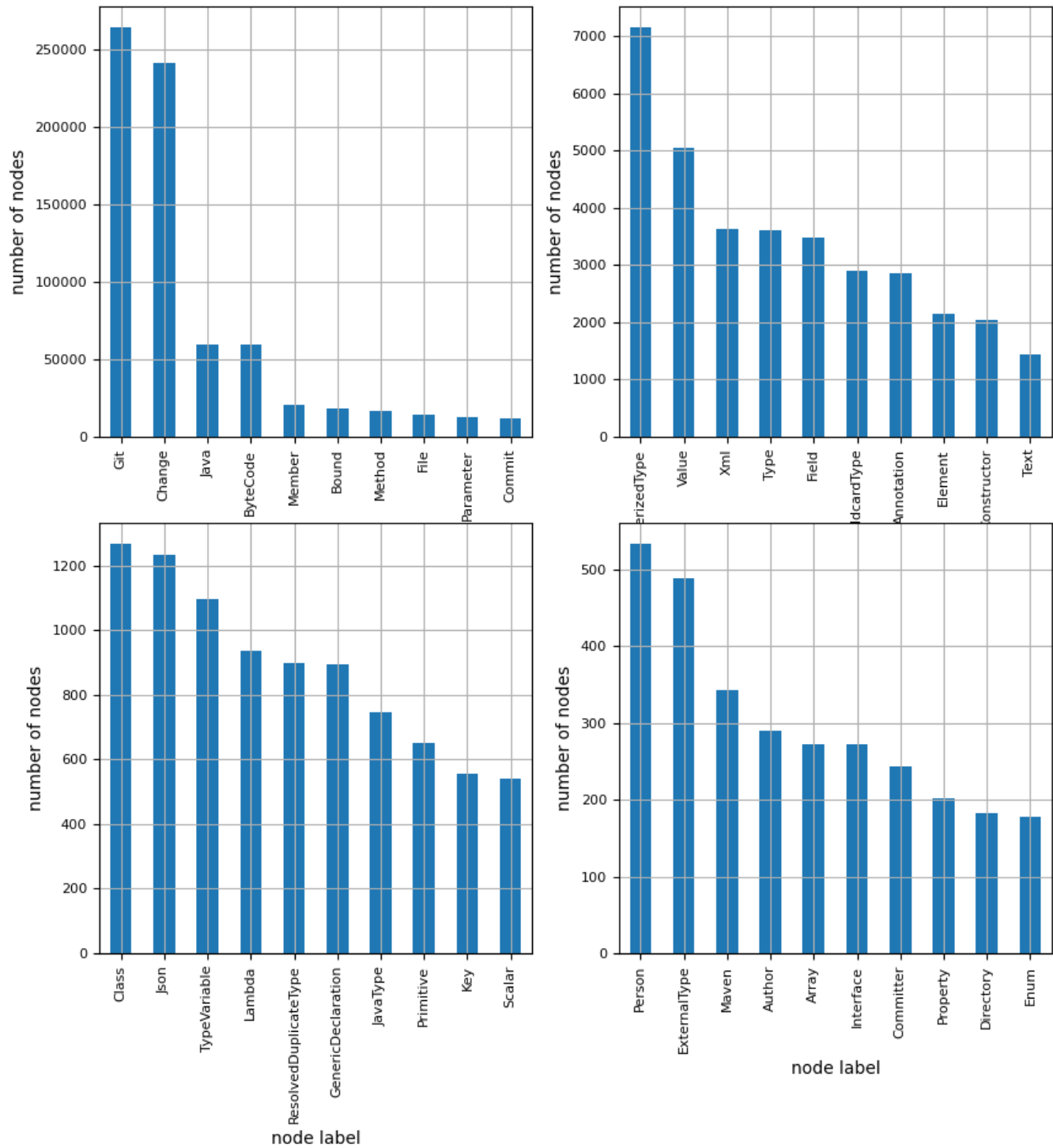
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	264268	80.229028
1	Change	241021	73.171480
2	Java	59256	17.989508
3	ByteCode	59068	17.932433
4	Member	20224	6.139797
5	Bound	18438	5.597586
6	Method	16735	5.080573
7	File	14498	4.401443
8	Parameter	13000	3.946665
9	Commit	11872	3.604216
10	ParameterizedType	7166	2.175523
11	Value	5059	1.535860
12	Xml	3643	1.105977
13	Type	3613	1.096869
14	Field	3489	1.059224
15	WildcardType	2906	0.882232
16	Annotation	2864	0.869481
17	Element	2144	0.650896
18	Constructor	2046	0.621144
19	Text	1436	0.435955
20	Class	1269	0.385255
21	Json	1234	0.374630
22	TypeVariable	1096	0.332734
23	Lambda	936	0.284160
24	ResolvedDuplicateType	900	0.273231
25	GenericDeclaration	894	0.271409
26	JavaType	746	0.226478
27	Primitive	650	0.197333
28	Key	555	0.168492
29	Scalar	539	0.163635
30	Person	534	0.162117
31	ExternalType	489	0.148455
32	Maven	343	0.104131
33	Author	290	0.088041
34	Array	273	0.082880
35	Interface	272	0.082576
36	Committer	244	0.074076
37	Property	202	0.061325
38	Directory	183	0.055557
39	Enum	178	0.054039

Chart 1c - Highest node count by label

Shows the 40 labels with the highest number of nodes.

<Figure size 640x480 with 0 Axes>

Node count by label



Relationship Types

Table 2a - Highest relationship count by type

Lists the 30 relationship types with the highest number of occurrences. The whole table can be found in the CSV report `Relationship_type_count` .

Total number of relationships: 998742

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	241021	24.132459
1	MODIFIES	241021	24.132459
2	UPDATES	155532	15.572791
3	CREATES	58919	5.899321
4	DELETES	36725	3.677126
5	INVOKES	35597	3.564184
6	COMMITTED	23744	2.377391
7	DEPENDS_ON	21873	2.190055
8	OF_TYPE	21347	2.137389
9	DECLARES	20665	2.069103
10	OF_RAW_TYPE	17077	1.709851
11	HAS_PARENT	14435	1.445318
12	HAS	14094	1.411175
13	RETURNS	12547	1.256280
14	RENAMES	10155	1.016779
15	READS	9076	0.908743
16	HAS_ACTUAL_TYPE_ARGUMENT	8276	0.828642
17	HAS_NEW_NAME	6190	0.619780
18	OF_GENERIC_TYPE	5902	0.590943
19	RESOLVES_TO	5229	0.523559
20	SIMILAR	3968	0.397300
21	CONTAINS	3805	0.380979
22	WRITES	3803	0.380779
23	RETURNS_GENERIC	3543	0.354746
24	ANNOTATED_BY	2809	0.281254
25	REQUIRES	2173	0.217574
26	HAS_FIRST_CHILD	2144	0.214670
27	HAS_LAST_CHILD	2144	0.214670
28	HAS_ELEMENT	2126	0.212868
29	HAS_UPPER_BOUND	1521	0.152292

Chart 2a - Highest relationship count by type

Values under 0.5% will be grouped into "others" to get a cleaner plot. The group "others" is then broken down in the second chart.

<Figure size 640x480 with 0 Axes>

Relationship types (more than 0.5% overall)

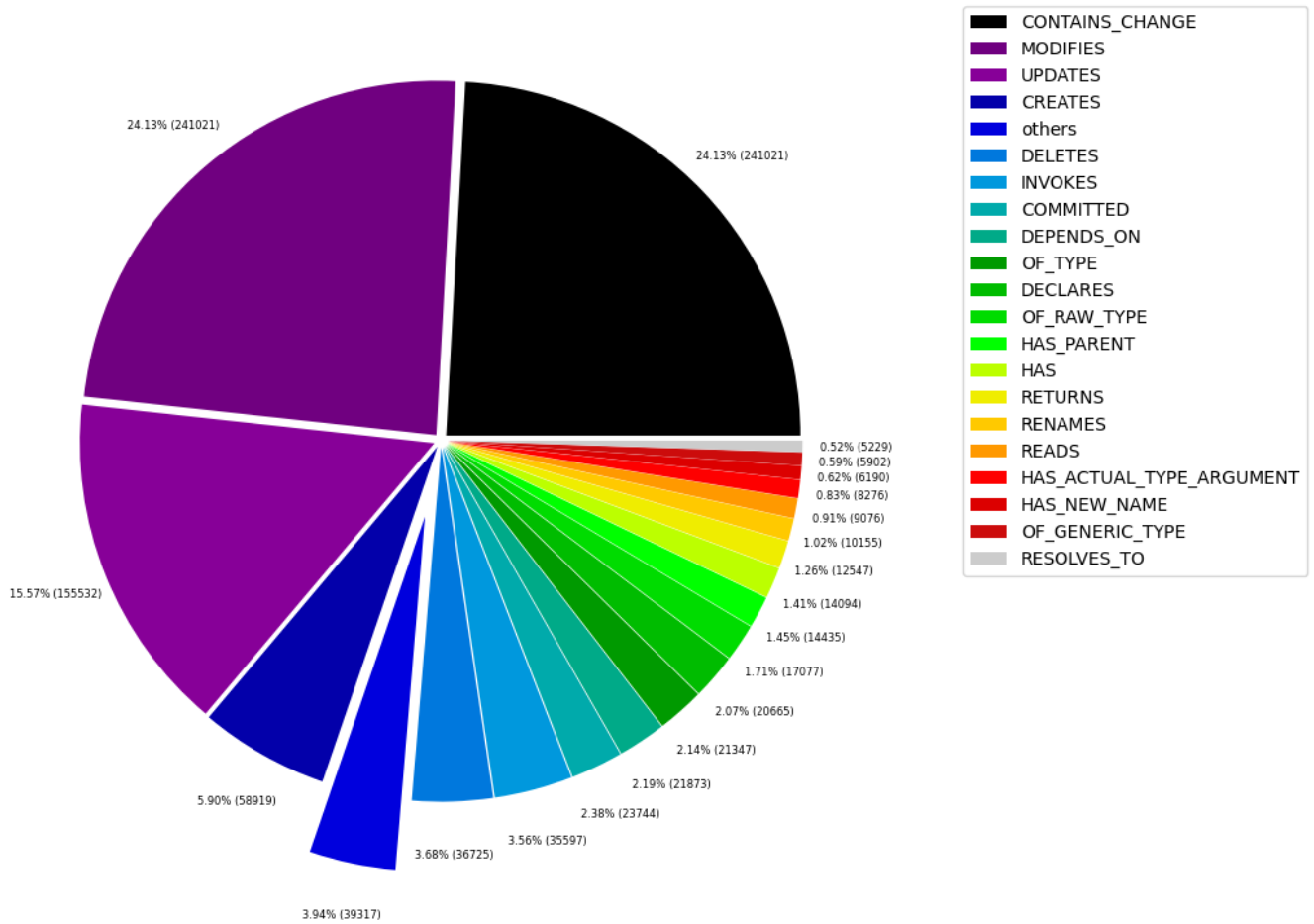


Table 2b - Lowest relationship count by type

Lists the 30 relationships type with the lowest number of occurrences up to 0.5% of the total node count. This is essentially breaking down the "others" slice from the chart above.

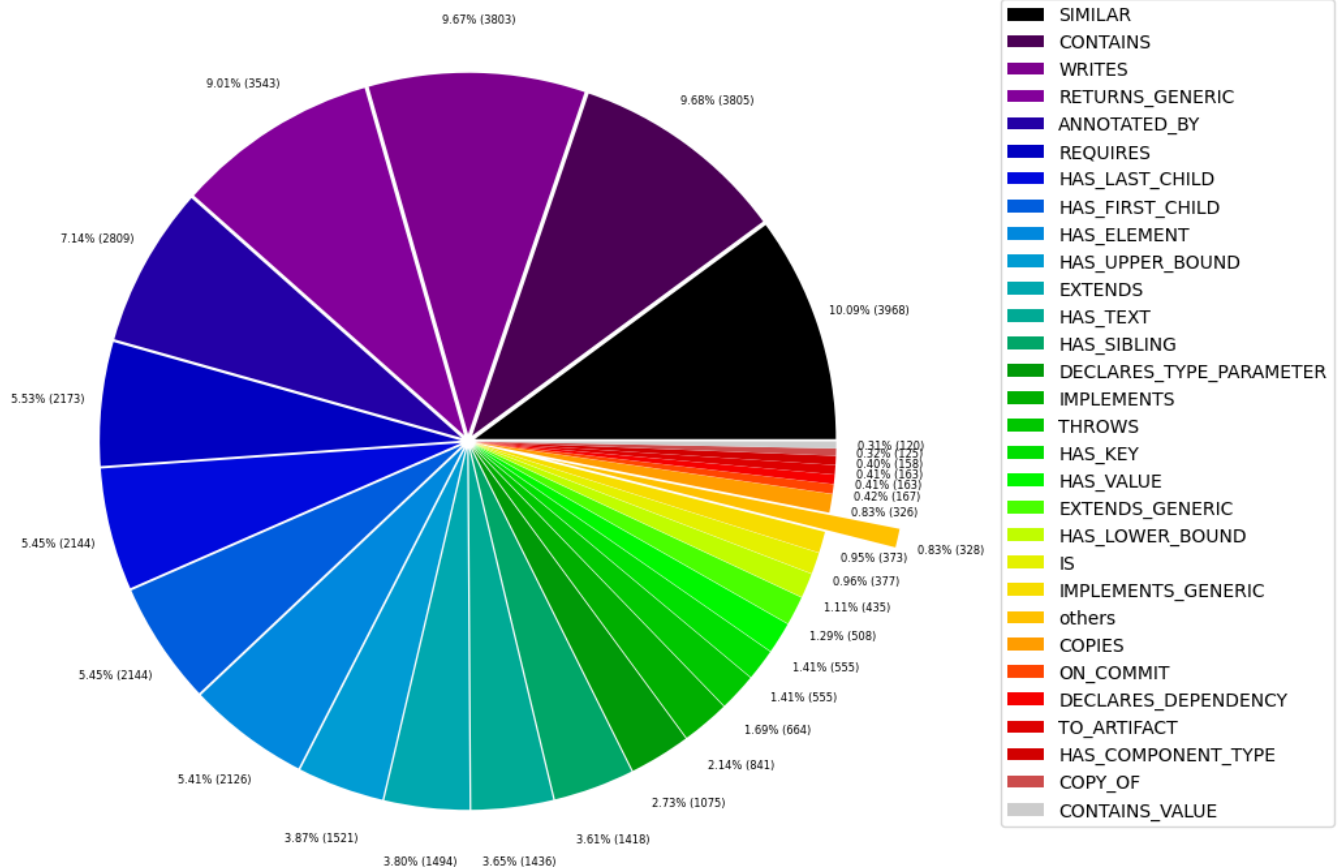
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS_PROPERTY	1	0.000100
1	THROWS_GENERIC	5	0.000501
2	EXCLUDES	5	0.000501
3	DESCRIBES	9	0.000901
4	HAS_ROOT_ELEMENT	10	0.001001
5	HAS_GOAL	16	0.001602
6	HAS_EXECUTION	16	0.001602
7	OF_NAMESPACE	18	0.001802
8	HAS_ATTRIBUTE	18	0.001802
9	INCLUDES_CONCEPT	19	0.001902
10	USES_PLUGIN	21	0.002103
11	REQUIRES_TYPE_PARAMETER	21	0.002103
12	IS_ARTIFACT	21	0.002103
13	HAS_CONFIGURATION	21	0.002103
14	HAS_HEAD	27	0.002703
15	REQUIRES_CONCEPT	28	0.002804
16	DECLARES_NAMESPACE	36	0.003605
17	HAS_DEFAULT	36	0.003605
18	CONTAINS_VALUE	120	0.012015
19	COPY_OF	125	0.012516
20	HAS_COMPONENT_TYPE	158	0.015820
21	TO_ARTIFACT	163	0.016321
22	DECLARES_DEPENDENCY	163	0.016321
23	ON_COMMIT	167	0.016721
24	COPIES	326	0.032641
25	IMPLEMENTS_GENERIC	373	0.037347
26	IS	377	0.037747
27	HAS_LOWER_BOUND	435	0.043555
28	EXTENDS_GENERIC	508	0.050864
29	HAS_VALUE	555	0.055570

Chart 2b - Lowest relationship count by type

Shows the lowest (less than 0.5% overall) relationship types. This plot breaks down the "others" slice of the pie chart above. Values under 0.01% will be grouped into "others" to get a cleaner plot.

<Figure size 640x480 with 0 Axes>

Relationship types (less than 0.5% overall)



Node labels with their relationships

Table 3a - Highest relationship count by node labels and relationship type

Lists the 30 node labels and their relationship types with the highest number of occurrences.

	sourceLabels	relationType	targetLabels	numberOfRelationships	numberOfNodesWithSameLabelsAsSource	numberOfNodesWithS
0	[Git, Commit]	CONTAINS_CHANGE	[Git, Change]	241021		11872
1	[Git, Change]	MODIFIES	[File, Git]	241021		241021
2	[Git, Change]	UPDATES	[File, Git]	155532		241021
3	[Git, Change]	CREATES	[File, Git]	58919		241021
4	[Git, Change]	DELETES	[File, Git]	36725		241021
5	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	21570		13069
6	[Git, Commit]	HAS_PARENT	[Git, Commit]	14426		11872
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	11872		290
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	11872		244
9	[Git, Change]	RENAMES	[File, Git]	10155		241021
10	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	8315		13069
11	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	8132		13069
12	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	6360		13000
13	[File, Git]	HAS_NEW_NAME	[File, Git]	6190		10647
14	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3569		7112
15	[Java, ByteCode, Bound, ParameterizedType]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3043		7166
16	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2906		7166
17	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound, ParameterizedType]	2655		13000
18	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2454		7166
19	[Java, ByteCode, Member, Constructor, Method]	WRITES	[Java, ByteCode, Member, Field]	2426		2042
20	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalAnnotatio...	2340		2821
21	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	2126		2144
22	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	2111		2042
23	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	2087		13069
24	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	2031		13069
25	[Java, ByteCode, Member, Constructor, Method]	HAS	[Java, ByteCode, Parameter]	2023		2042
26	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	2023		13000
27	[Java, ByteCode, Member, Method, Lambda]	INVOKES	[Java, ByteCode, Member, Method]	1882		936
28	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1802		7166
29	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Method]	1796		2042

Graph Density

```
total_number_of_nodes (vertices): 329392
total_number_of_relationships (edges): 998742
-> total directed graph density: 9.205100569778057e-06
-> total directed graph density in percent: 0.0009205100569778056
```