

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]	235897	72.780760
1	[Java, ByteCode, Member, Method]	13177	4.065470
2	[Java, ByteCode, Parameter]	13000	4.010860
3	[Git, Commit]	11787	3.636616
4	[File, Git]	10598	3.269777
5	[Java, ByteCode, Bound, ParameterizedType]	7166	2.210910
6	[Java, ByteCode, Bound]	7112	2.194249
7	[Java, ByteCode, Member, Field]	3488	1.076145
8	[Java, ByteCode, Bound, WildcardType]	2906	0.896582
9	[Java, Value, ByteCode, Annotation]	2821	0.870357
10	[Xml, Element]	2144	0.661483
11	[Java, ByteCode, Member, Constructor, Method]	2039	0.629088
12	[Xml, Text]	1436	0.443046
13	[Java, ByteCode, Bound, TypeVariable]	1096	0.338146
14	[Java, ByteCode, Member, Method, Lambda]	936	0.288782
15	[Type, File, Java, ByteCode, ResolvedDuplicate...	900	0.277675
16	[Type, File, Java, ByteCode, Class]	861	0.265642
17	[Type, File, Java, ByteCode, JavaType]	746	0.230162
18	[Java, Value, ByteCode, Primitive]	650	0.200543
19	[Java, ByteCode, GenericDeclaration, Member, M...	569	0.175552
20	[Json, Key]	555	0.171233
21	[Value, Json, Scalar]	539	0.166296
22	[Type, File, Java, ByteCode, ExternalType]	396	0.122177
23	[Author, Git, Person]	289	0.089165
24	[Value, Array]	267	0.082377
25	[Committer, Git, Person]	243	0.074972
26	[Type, File, Java, ByteCode, Class, GenericDec...	236	0.072813
27	[Value, Property]	202	0.062323
28	[Type, File, Java, ByteCode, Interface]	187	0.057695
29	[Java, Value, ByteCode, Class]	172	0.053067

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)

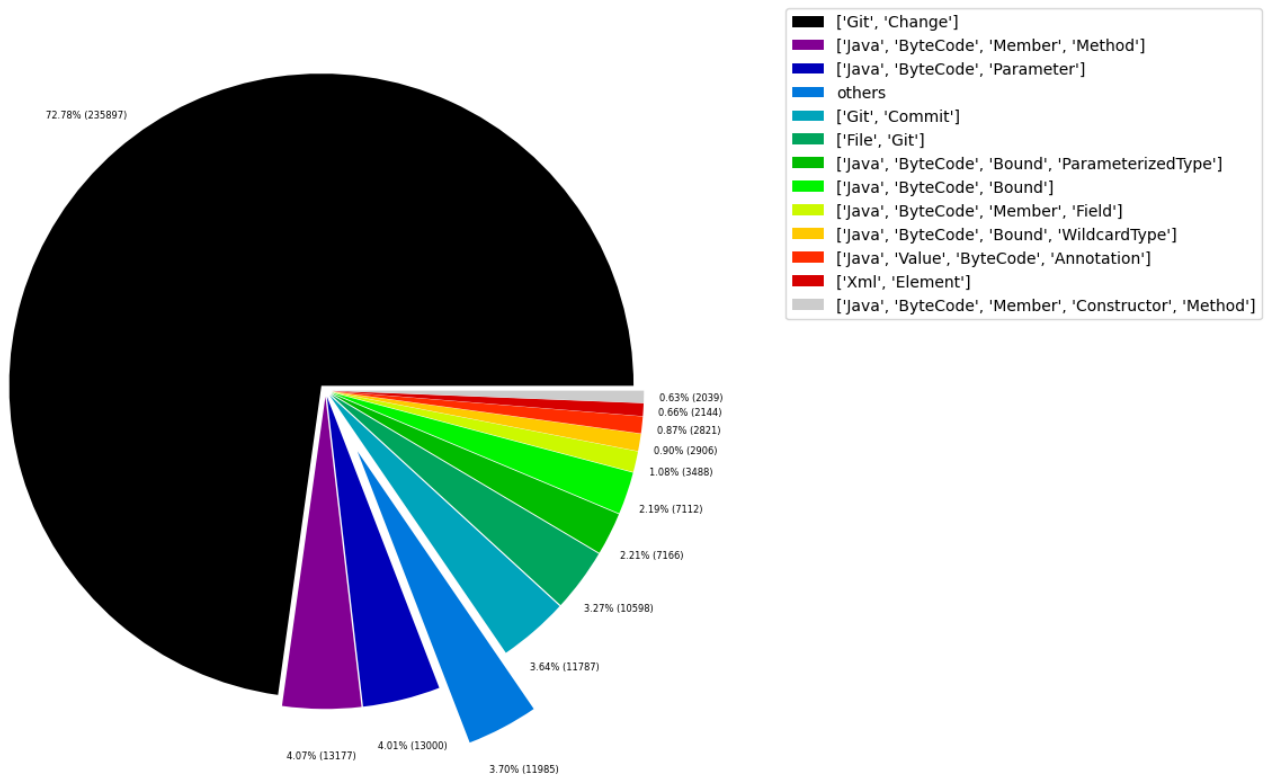


Table 1b - Lowest node count by label combination

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	0.000309
1	[File, TS, Scan]	1	0.000309
2	[File, Json]	2	0.000617
3	[File]	3	0.000926
4	[Java, ByteCode, GenericDeclaration, Member, C...	4	0.001234
5	[Maven, Exclusion]	5	0.001543
6	[Value, Array, Json]	6	0.001851
7	[Type, File, Java, ByteCode, Void]	9	0.002777
8	[File, Maven, Xml, Pom, Document]	9	0.002777
9	[Java, ManifestSection]	9	0.002777
10	[File, Java, Manifest]	9	0.002777
11	[Artifact, File, Jar, Archive, Zip, Java]	9	0.002777
12	[File, Java, ServiceLoader]	10	0.003085
13	[File, Java, Properties]	12	0.003702
14	[Maven, ExecutionGoal]	16	0.004936
15	[Maven, PluginExecution]	16	0.004936
16	[Xml, Attribute]	18	0.005553
17	[JQAssistant, Rule, Concept]	19	0.005862
18	[Maven, Plugin]	21	0.006479
19	[Maven, Configuration]	21	0.006479
20	[Git, Branch]	26	0.008022
21	[Type, File, Java, ByteCode, Enum]	28	0.008639
22	[Type, File, Java, ByteCode, PrimitiveType]	29	0.008947
23	[Xml, Namespace]	36	0.011107
24	[Type, File, Java, ByteCode, Annotation]	43	0.013267
25	[File, Directory]	44	0.013575
26	[Type, File, Java, ByteCode, GenericDeclaratio...	85	0.026225
27	[Artifact, Maven]	92	0.028385
28	[Type, File, Java, ByteCode, ExternalAnnotatio...	93	0.028693
29	[Value, ManifestEntry]	120	0.037023

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.

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Nodes per label combination (less than 0.5% overall)

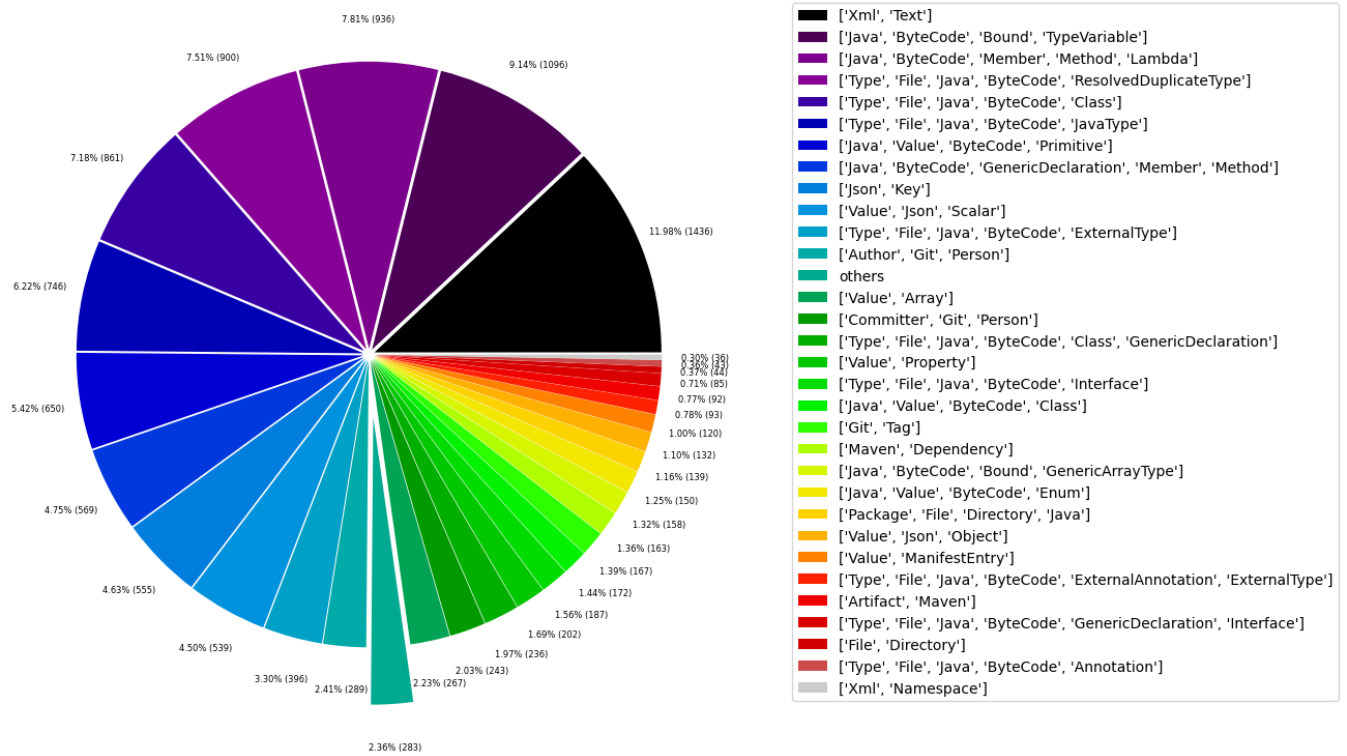


Table 1c - Highest node count by single label

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.

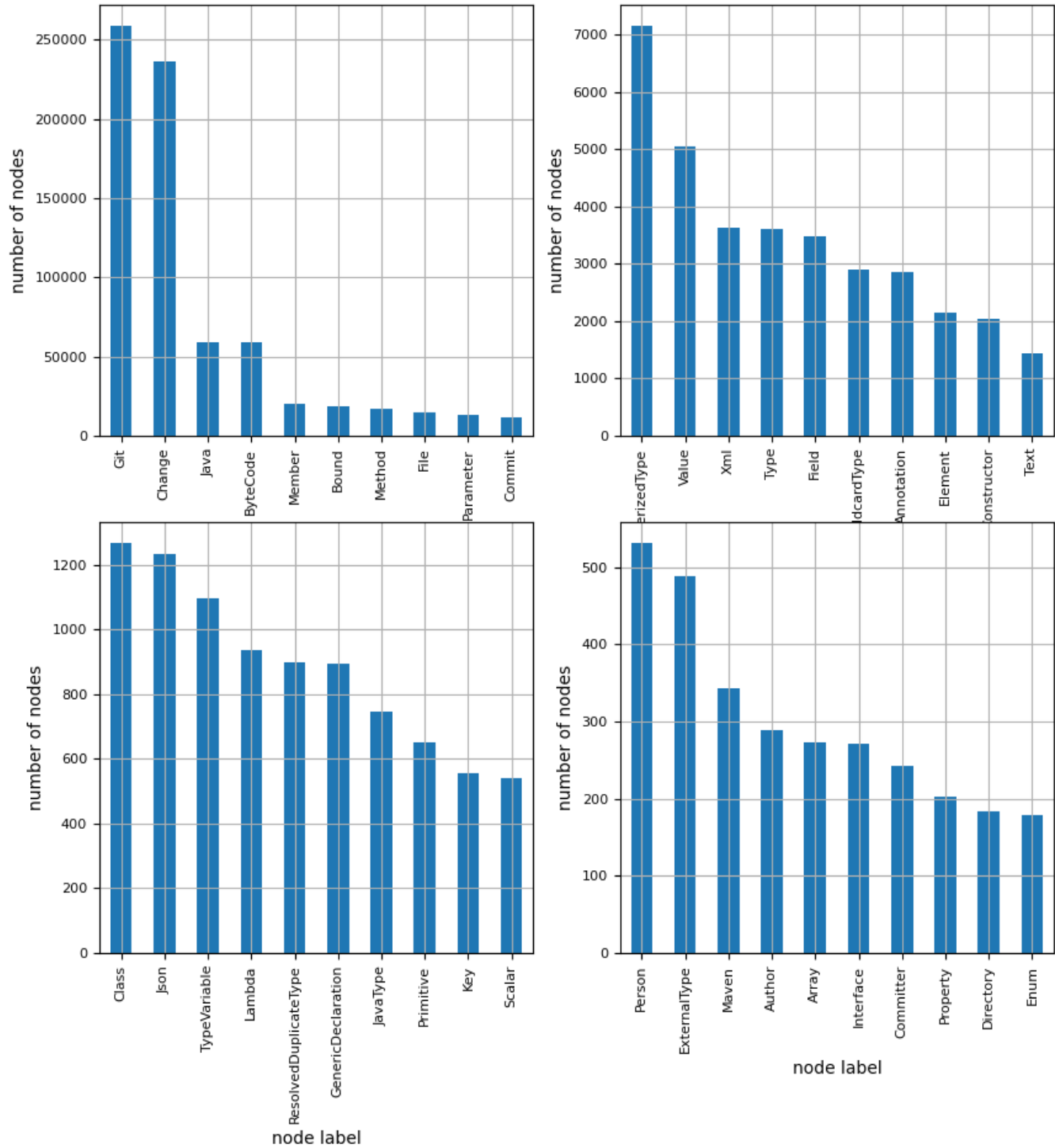
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	259007	79.910835
1	Change	235897	72.780760
2	Java	59245	18.278724
3	ByteCode	59057	18.220721
4	Member	20213	6.236271
5	Bound	18438	5.688634
6	Method	16725	5.160126
7	File	14449	4.457917
8	Parameter	13000	4.010860
9	Commit	11787	3.636616
10	ParameterizedType	7166	2.210910
11	Value	5059	1.560842
12	Xml	3643	1.123966
13	Type	3613	1.114711
14	Field	3488	1.076145
15	WildcardType	2906	0.896582
16	Annotation	2864	0.883623
17	Element	2144	0.661483
18	Constructor	2043	0.630322
19	Text	1436	0.443046
20	Class	1269	0.391522
21	Json	1234	0.380723
22	TypeVariable	1096	0.338146
23	Lambda	936	0.288782
24	ResolvedDuplicateType	900	0.277675
25	GenericDeclaration	894	0.275824
26	JavaType	746	0.230162
27	Primitive	650	0.200543
28	Key	555	0.171233
29	Scalar	539	0.166296
30	Person	532	0.164137
31	ExternalType	489	0.150870
32	Maven	343	0.105825
33	Author	289	0.089165
34	Array	273	0.084228
35	Interface	272	0.083920
36	Committer	243	0.074972
37	Property	202	0.062323
38	Directory	183	0.056461
39	Enum	178	0.054918

Chart 1c - Highest node count by label

Shows the 40 labels with the highest number of nodes.

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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: 982651

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	235897	24.006183
1	MODIFIES	235897	24.006183
2	UPDATES	151660	15.433760
3	CREATES	58219	5.924687
4	DELETES	35985	3.662033
5	INVOKES	35571	3.619902
6	COMMITTED	23574	2.399021
7	DEPENDS_ON	21873	2.225917
8	OF_TYPE	21347	2.172389
9	DECLARES	20654	2.101865
10	OF_RAW_TYPE	17077	1.737850
11	HAS_PARENT	14327	1.457995
12	HAS	14094	1.434283
13	RETURNS	12547	1.276852
14	RENAMES	9967	1.014297
15	READS	9078	0.923827
16	HAS_ACTUAL_TYPE_ARGUMENT	8276	0.842212
17	HAS_NEW_NAME	6165	0.627384
18	OF_GENERIC_TYPE	5902	0.600620
19	RESOLVES_TO	5227	0.531928
20	SIMILAR	3968	0.403806
21	CONTAINS	3805	0.387218
22	WRITES	3803	0.387014
23	RETURNS_GENERIC	3543	0.360555
24	ANNOTATED_BY	2809	0.285859
25	REQUIRES	2173	0.221136
26	HAS_FIRST_CHILD	2144	0.218185
27	HAS_LAST_CHILD	2144	0.218185
28	HAS_ELEMENT	2126	0.216354
29	HAS_UPPER_BOUND	1521	0.154785

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.

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Relationship types (more than 0.5% overall)

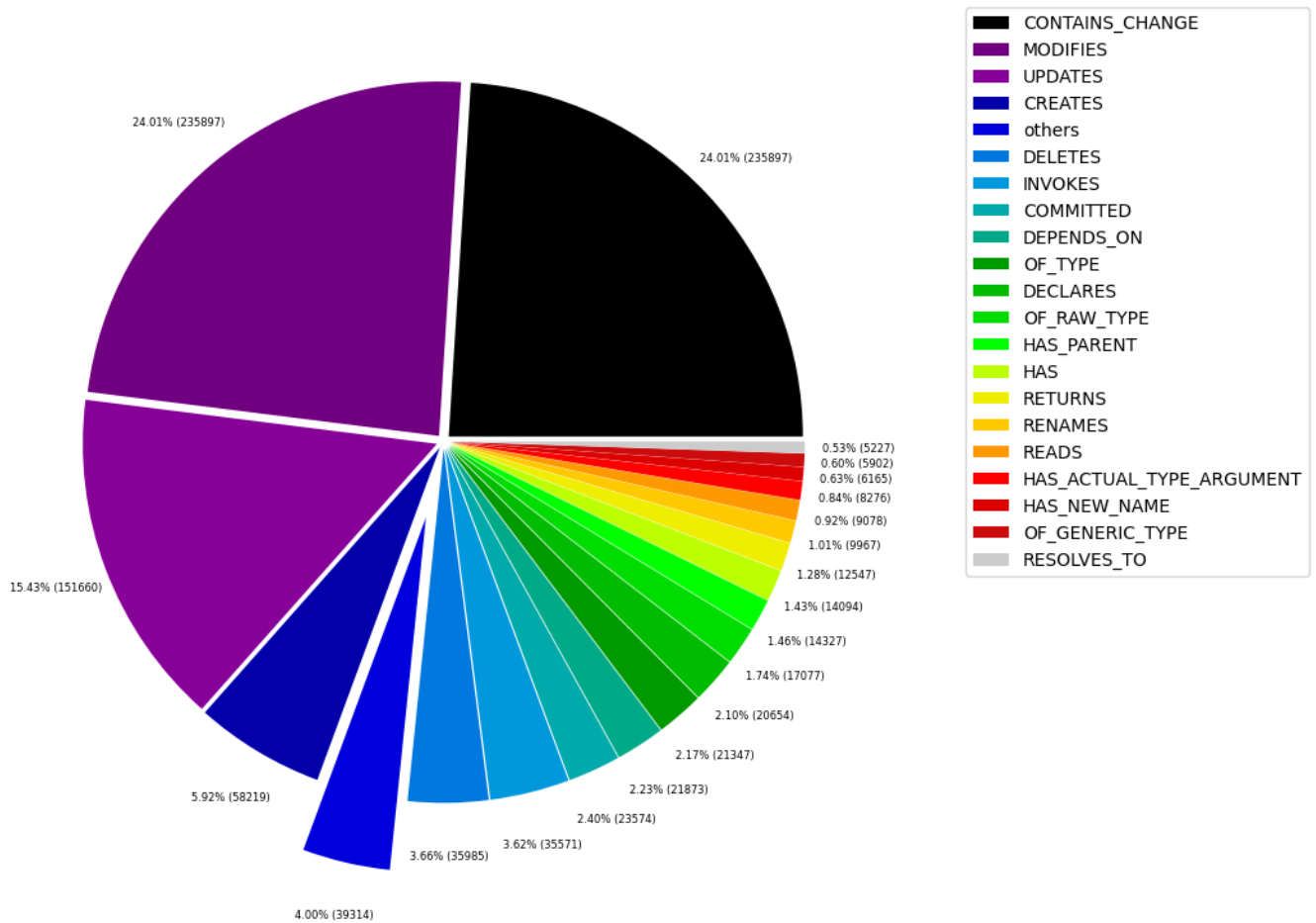


Table 2b - Lowest relationship count by type

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.

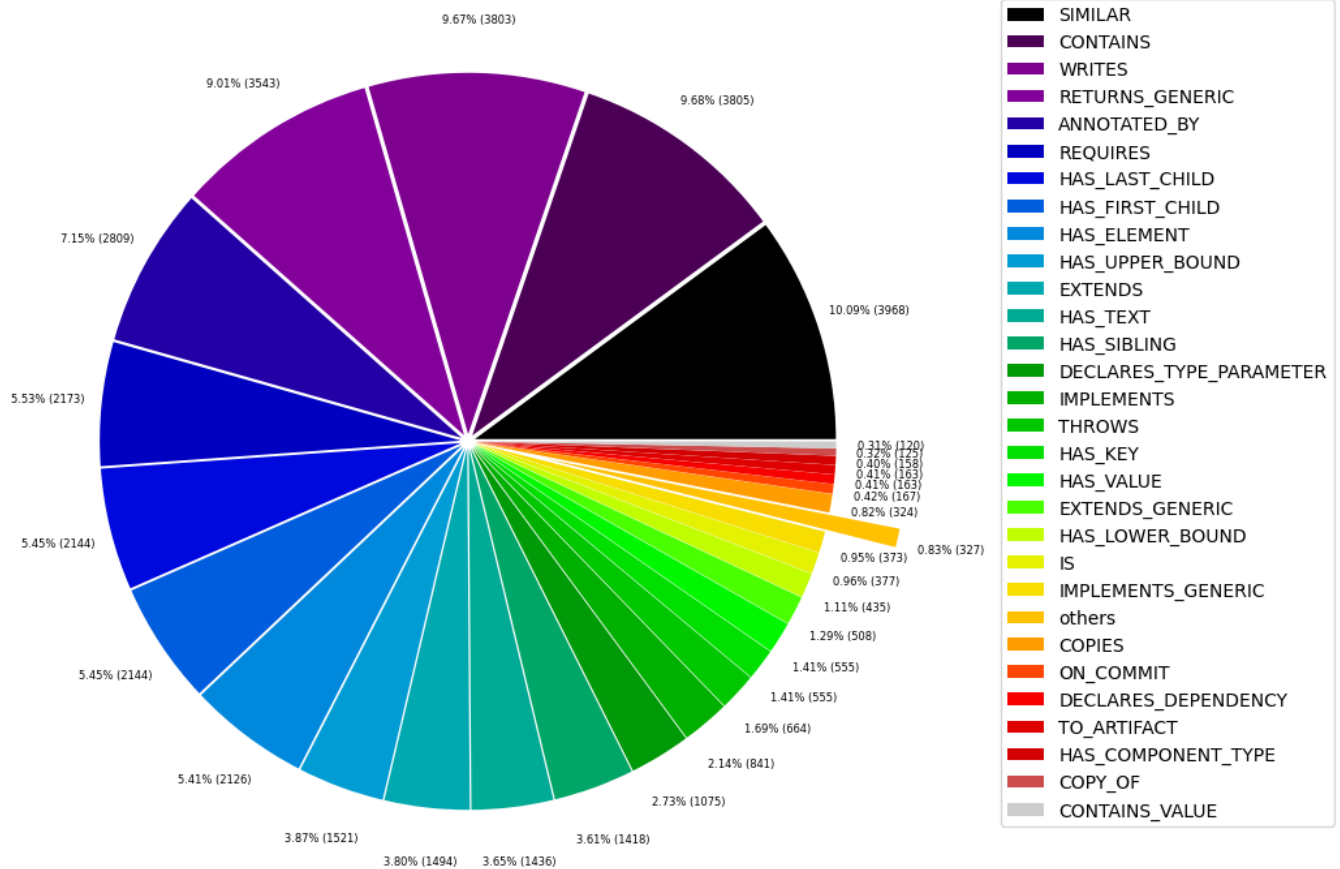
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS_PROPERTY	1	0.000102
1	THROWS_GENERIC	5	0.000509
2	EXCLUDES	5	0.000509
3	DESCRIBES	9	0.000916
4	HAS_ROOT_ELEMENT	10	0.001018
5	HAS_GOAL	16	0.001628
6	HAS_EXECUTION	16	0.001628
7	OF_NAMESPACE	18	0.001832
8	HAS_ATTRIBUTE	18	0.001832
9	INCLUDES_CONCEPT	19	0.001934
10	USES_PLUGIN	21	0.002137
11	REQUIRES_TYPE_PARAMETER	21	0.002137
12	IS_ARTIFACT	21	0.002137
13	HAS_CONFIGURATION	21	0.002137
14	HAS_HEAD	26	0.002646
15	REQUIRES_CONCEPT	28	0.002849
16	DECLARES_NAMESPACE	36	0.003664
17	HAS_DEFAULT	36	0.003664
18	CONTAINS_VALUE	120	0.012212
19	COPY_OF	125	0.012721
20	HAS_COMPONENT_TYPE	158	0.016079
21	TO_ARTIFACT	163	0.016588
22	DECLARES_DEPENDENCY	163	0.016588
23	ON_COMMIT	167	0.016995
24	COPIES	324	0.032972
25	IMPLEMENTS_GENERIC	373	0.037959
26	IS	377	0.038366
27	HAS_LOWER_BOUND	435	0.044268
28	EXTENDS_GENERIC	508	0.051697
29	HAS_VALUE	555	0.056480

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]	235897	11787	
1	[Git, Change]	MODIFIES	[File, Git]	235897	235897	
2	[Git, Change]	UPDATES	[File, Git]	151660	235897	
3	[Git, Change]	CREATES	[File, Git]	58219	235897	
4	[Git, Change]	DELETES	[File, Git]	35985	235897	
5	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	21549	13062	
6	[Git, Commit]	HAS_PARENT	[Git, Commit]	14318	11787	
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	11787	289	
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	11787	243	
9	[Git, Change]	RENAMES	[File, Git]	9967	235897	
10	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	8316	13062	
11	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	8129	13062	
12	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	6360	13000	
13	[File, Git]	HAS_NEW_NAME	[File, Git]	6165	10598	
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	2039	
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	2039	
23	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	2086	13062	
24	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	2030	13062	
25	[Java, ByteCode, Member, Constructor, Method]	HAS	[Java, ByteCode, Parameter]	2023	2039	
26	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	2023	13000	
27	[Java, ByteCode, Member, Method, Lambda]	INVOKES	[Java, ByteCode, Member, Method]	1885	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]	1790	2039	

Graph Density

```
total_number_of_nodes (vertices): 324120
total_number_of_relationships (edges): 982651
-> total directed graph density: 9.353819387948996e-06
-> total directed graph density in percent: 0.0009353819387948997
```