

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]	245291	73.477158
1	[Java, ByteCode, Method, Member]	13202	3.954672
2	[Java, ByteCode, Parameter]	13000	3.894163
3	[Git, Commit]	11993	3.592515
4	[File, Git]	10671	3.196508
5	[Java, ByteCode, Bound, ParameterizedType]	7166	2.146582
6	[Java, ByteCode, Bound]	7112	2.130407
7	[Java, ByteCode, Member, Field]	3494	1.046631
8	[Java, ByteCode, Bound, WildcardType]	2906	0.870495
9	[Java, Value, ByteCode, Annotation]	2821	0.845033
10	[Xml, Element]	2144	0.642237
11	[Java, ByteCode, Constructor, Method, Member]	2040	0.611084
12	[Xml, Text]	1436	0.430155
13	[Java, ByteCode, Bound, TypeVariable]	1096	0.328308
14	[Java, ByteCode, Method, Member, Lambda]	936	0.280380
15	[Type, File, Java, ByteCode, ResolvedDuplicate...	900	0.269596
16	[Type, File, Java, ByteCode, Class]	861	0.257913
17	[Type, File, Java, ByteCode, JavaType]	746	0.223465
18	[Java, Value, ByteCode, Primitive]	650	0.194708
19	[Java, ByteCode, Method, Member, GenericDeclar...	569	0.170445
20	[Json, Key]	555	0.166251
21	[Value, Json, Scalar]	539	0.161458
22	[Type, File, Java, ByteCode, ExternalType]	396	0.118622
23	[Author, Git, Person]	292	0.087469
24	[Value, Array]	267	0.079980
25	[Committer, Git, Person]	247	0.073989
26	[Type, File, Java, ByteCode, Class, GenericDec...	236	0.070694
27	[Value, Property]	202	0.060509
28	[Type, File, Java, ByteCode, Interface]	187	0.056016
29	[Java, Value, ByteCode, Class]	172	0.051523

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)

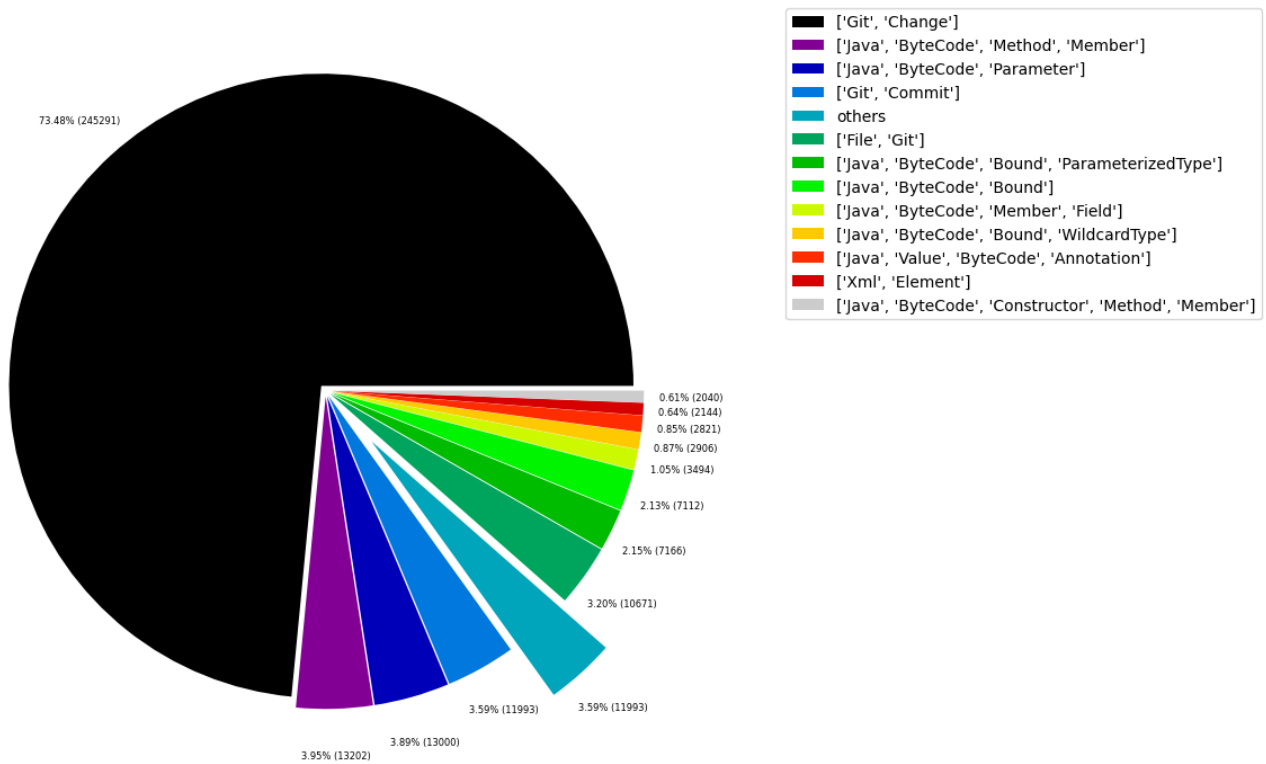


Table 1b - Lowest node count by label combination

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	0.000300
1	[File, Json]	2	0.000599
2	[File]	3	0.000899
3	[Java, ByteCode, Constructor, Method, Member, ...]	4	0.001198
4	[Maven, Exclusion]	5	0.001498
5	[Value, Array, Json]	6	0.001797
6	[File, Xml, Maven, Pom, Document]	9	0.002696
7	[Type, File, Java, ByteCode, Void]	9	0.002696
8	[Java, ManifestSection]	9	0.002696
9	[File, Java, Manifest]	9	0.002696
10	[Artifact, File, Jar, Archive, Zip, Java]	9	0.002696
11	[File, Java, ServiceLoader]	10	0.002996
12	[File, Java, Properties]	12	0.003595
13	[Maven, ExecutionGoal]	16	0.004793
14	[Maven, PluginExecution]	16	0.004793
15	[Xml, Attribute]	18	0.005392
16	[jQAssistant, Rule, Concept]	19	0.005691
17	[Maven, Plugin]	21	0.006291
18	[Maven, Configuration]	21	0.006291
19	[Git, Branch]	28	0.008387
20	[Type, File, Java, ByteCode, Enum]	28	0.008387
21	[Type, File, Java, ByteCode, PrimitiveType]	29	0.008687
22	[Xml, Namespace]	36	0.010784
23	[Type, File, Java, ByteCode, Annotation]	43	0.012881
24	[File, Directory]	44	0.013180
25	[Type, File, Java, ByteCode, GenericDeclaratio...	85	0.025462
26	[Artifact, Maven]	92	0.027559
27	[Type, File, Java, ByteCode, ExternalType, Ext...	93	0.027858
28	[Value, ManifestEntry]	120	0.035946
29	[Value, Json, Object]	132	0.039541

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)

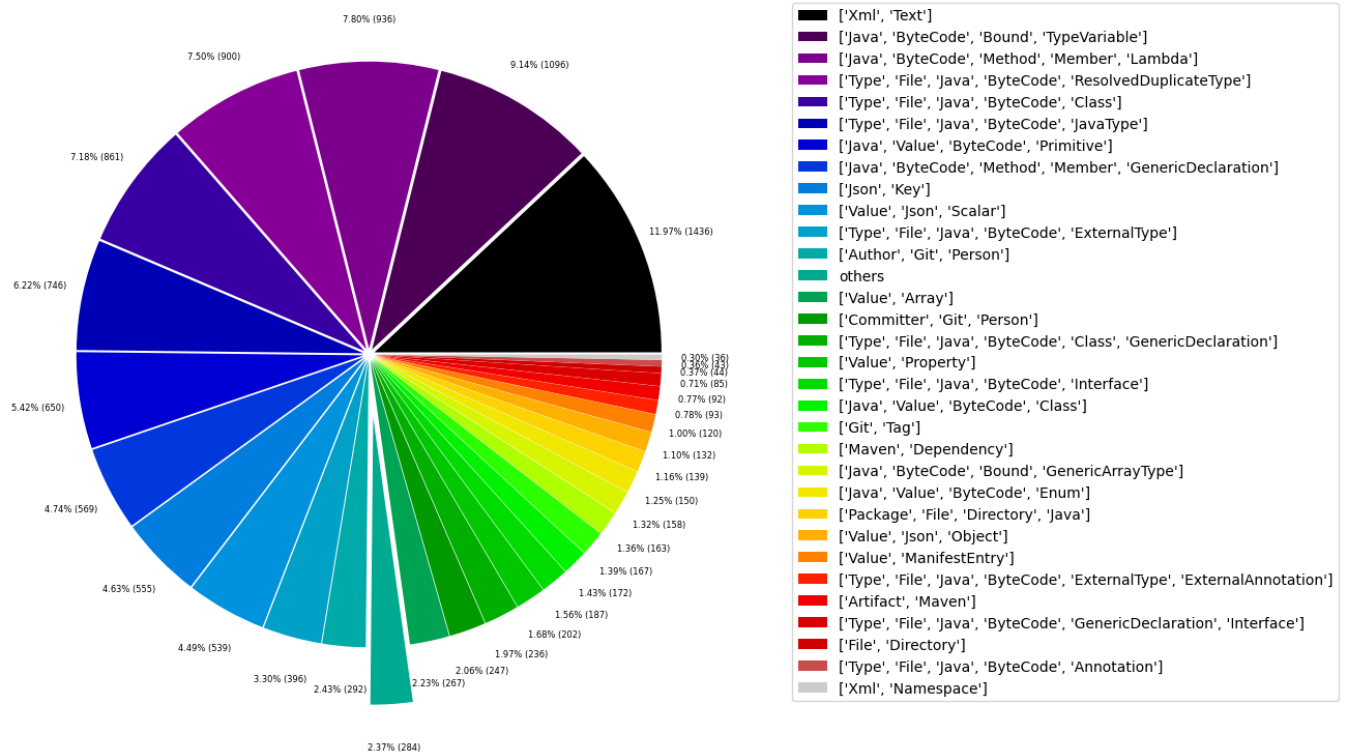


Table 1c - Highest node count by single label

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.

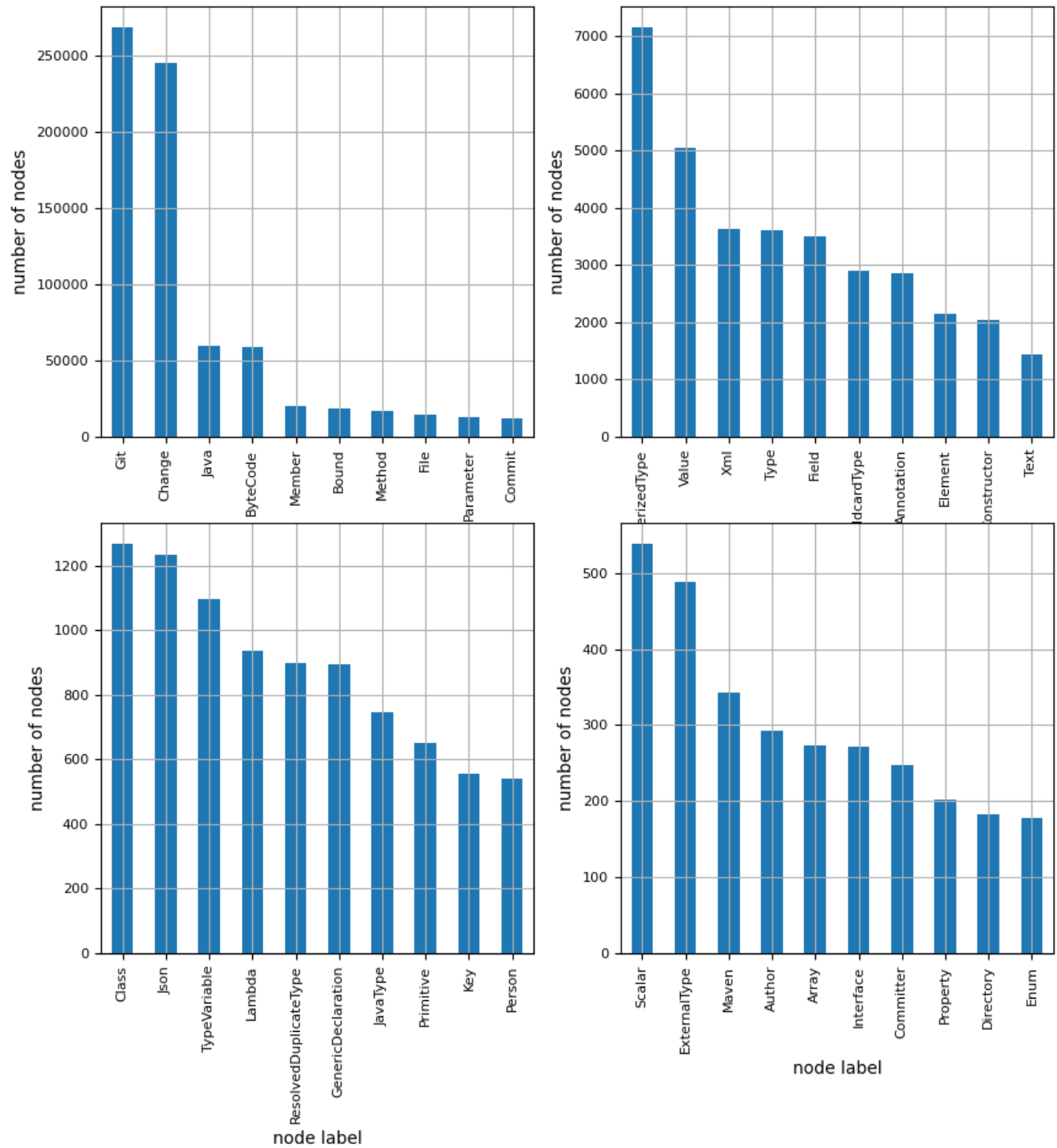
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	268689	80.486051
1	Change	245291	73.477158
2	Java	59277	17.756483
3	ByteCode	59089	17.700167
4	Member	20245	6.064409
5	Bound	18438	5.523121
6	Method	16751	5.017778
7	File	14521	4.349780
8	Parameter	13000	3.894163
9	Commit	11993	3.592515
10	ParameterizedType	7166	2.146582
11	Value	5059	1.515428
12	Xml	3643	1.091264
13	Type	3613	1.082278
14	Field	3494	1.046631
15	WildcardType	2906	0.870495
16	Annotation	2864	0.857914
17	Element	2144	0.642237
18	Constructor	2044	0.612282
19	Text	1436	0.430155
20	Class	1269	0.380130
21	Json	1234	0.369646
22	TypeVariable	1096	0.328308
23	Lambda	936	0.280380
24	ResolvedDuplicateType	900	0.269596
25	GenericDeclaration	894	0.267799
26	JavaType	746	0.223465
27	Primitive	650	0.194708
28	Key	555	0.166251
29	Person	539	0.161458
30	Scalar	539	0.161458
31	ExternalType	489	0.146480
32	Maven	343	0.102746
33	Author	292	0.087469
34	Array	273	0.081777
35	Interface	272	0.081478
36	Committer	247	0.073989
37	Property	202	0.060509
38	Directory	183	0.054818
39	Enum	178	0.053320

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: 1012216

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	245291	24.233069
1	MODIFIES	245291	24.233069
2	UPDATES	158714	15.679855
3	CREATES	59675	5.895481
4	DELETES	37191	3.674216
5	INVOKES	35574	3.514467
6	COMMITTED	23986	2.369652
7	DEPENDS_ON	21873	2.160902
8	OF_TYPE	21347	2.108937
9	DECLARES	20686	2.043635
10	OF_RAW_TYPE	17077	1.687091
11	HAS_PARENT	14584	1.440799
12	HAS	14094	1.392391
13	RETURNS	12547	1.239558
14	RENAMES	10289	1.016483
15	READS	9076	0.896647
16	HAS_ACTUAL_TYPE_ARGUMENT	8276	0.817612
17	HAS_NEW_NAME	6198	0.612320
18	OF_GENERIC_TYPE	5902	0.583077
19	RESOLVES_TO	5225	0.516194
20	SIMILAR	3968	0.392011
21	CONTAINS	3805	0.375908
22	WRITES	3803	0.375710
23	RETURNS_GENERIC	3543	0.350024
24	ANNOTATED_BY	2809	0.277510
25	REQUIRES	2173	0.214677
26	HAS_FIRST_CHILD	2144	0.211812
27	HAS_LAST_CHILD	2144	0.211812
28	HAS_ELEMENT	2126	0.210034
29	HAS_UPPER_BOUND	1521	0.150264

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)

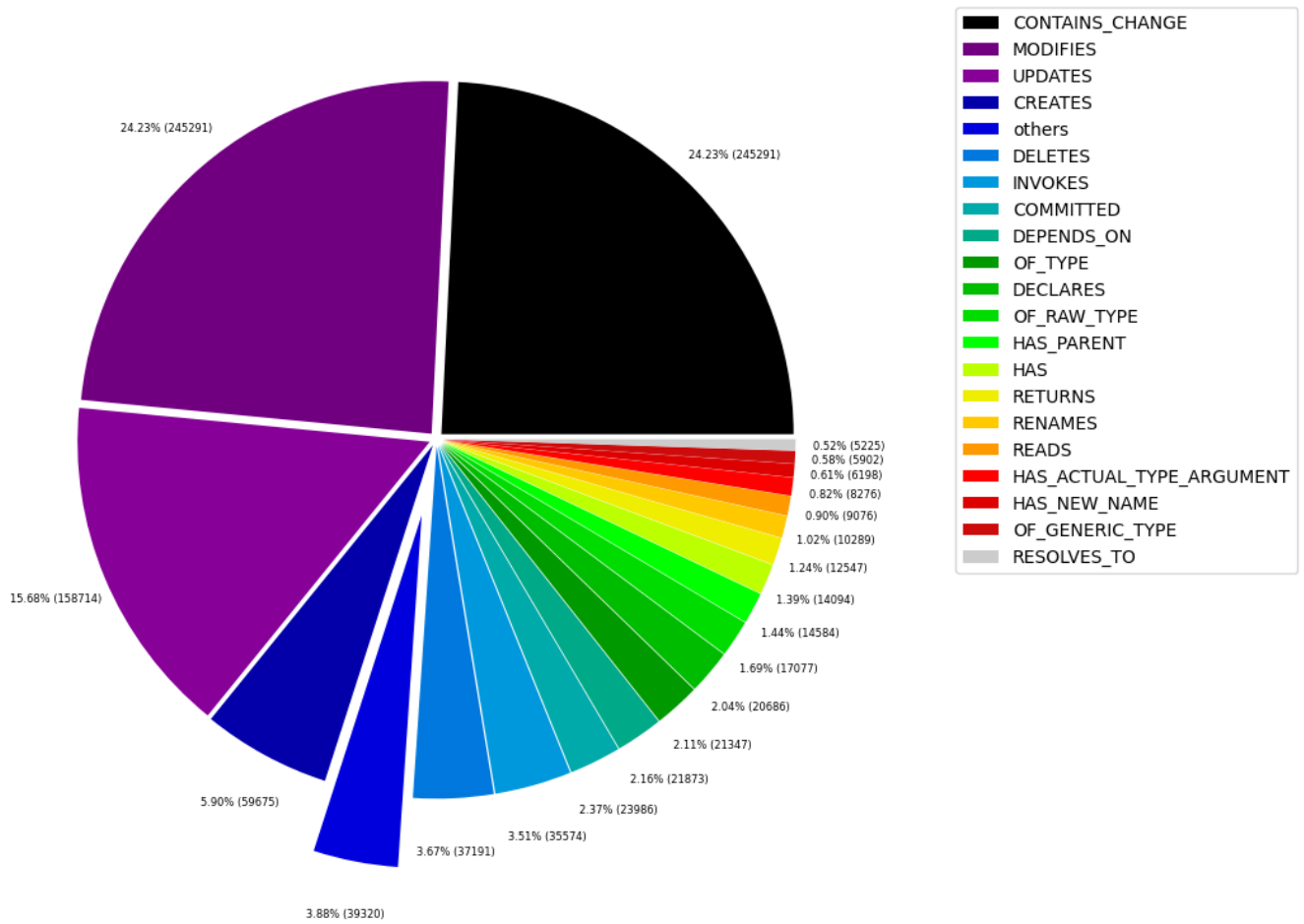


Table 2b - Lowest relationship count by type

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.

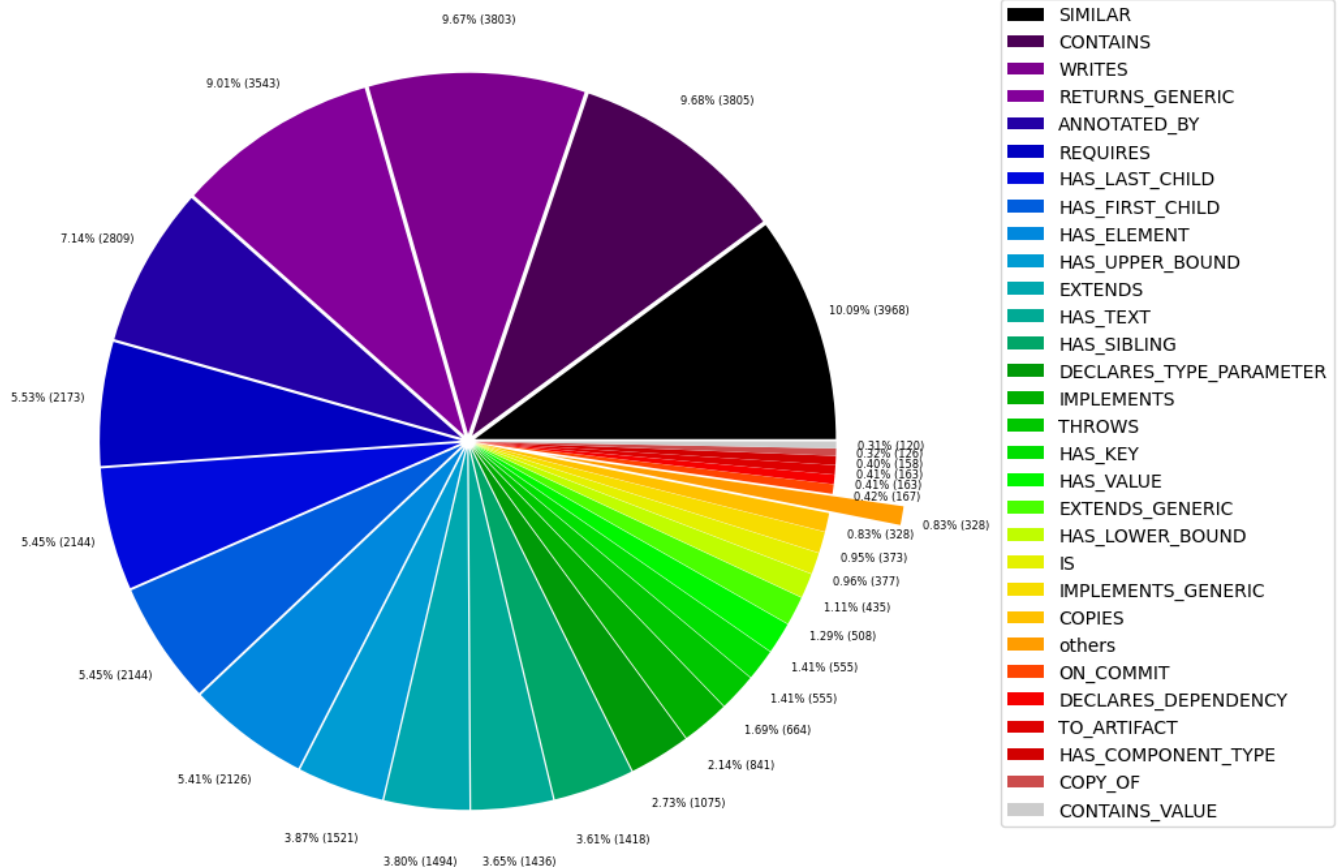
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS_PROPERTY	1	0.000099
1	THROWS_GENERIC	5	0.000494
2	EXCLUDES	5	0.000494
3	HAS_ROOT_ELEMENT	9	0.000889
4	DESCRIBES	9	0.000889
5	HAS_GOAL	16	0.001581
6	HAS_EXECUTION	16	0.001581
7	OF_NAMESPACE	18	0.001778
8	HAS_ATTRIBUTE	18	0.001778
9	INCLUDES_CONCEPT	19	0.001877
10	USES_PLUGIN	21	0.002075
11	REQUIRES_TYPE_PARAMETER	21	0.002075
12	IS_ARTIFACT	21	0.002075
13	HAS_CONFIGURATION	21	0.002075
14	REQUIRES_CONCEPT	28	0.002766
15	HAS_HEAD	28	0.002766
16	DECLARES_NAMESPACE	36	0.003557
17	HAS_DEFAULT	36	0.003557
18	CONTAINS_VALUE	120	0.011855
19	COPY_OF	126	0.012448
20	HAS_COMPONENT_TYPE	158	0.015609
21	TO_ARTIFACT	163	0.016103
22	DECLARES_DEPENDENCY	163	0.016103
23	ON_COMMIT	167	0.016498
24	COPIES	328	0.032404
25	IMPLEMENTS_GENERIC	373	0.036850
26	IS	377	0.037245
27	HAS_LOWER_BOUND	435	0.042975
28	EXTENDS_GENERIC	508	0.050187
29	HAS_VALUE	555	0.054830

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]	245291	11993	
1	[Git, Change]	MODIFIES	[File, Git]	245291	245291	
2	[Git, Change]	UPDATES	[File, Git]	158714	245291	
3	[Git, Change]	CREATES	[File, Git]	59675	245291	
4	[Git, Change]	DELETES	[File, Git]	37191	245291	
5	[Java, ByteCode, Method, Member]	INVOKES	[Java, ByteCode, Method, Member]	21521	13078	
6	[Git, Commit]	HAS_PARENT	[Git, Commit]	14575	11993	
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	11993	292	
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	11993	247	
9	[Git, Change]	RENAMES	[File, Git]	10289	245291	
10	[Java, ByteCode, Method, Member]	HAS	[Java, ByteCode, Parameter]	8297	13078	
11	[Java, ByteCode, Method, Member]	READS	[Java, ByteCode, Member, Field]	8100	13078	
12	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	6360	13000	
13	[File, Git]	HAS_NEW_NAME	[File, Git]	6198	10671	
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, Constructor, Method, Member]	WRITES	[Java, ByteCode, Member, Field]	2426	2040	
20	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalType, Ext...	2340	2821	
21	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	2126	2144	
22	[Java, ByteCode, Constructor, Method, Member]	INVOKES	[Java, ByteCode, Constructor, Method, Member]	2111	2040	
23	[Java, ByteCode, Method, Member]	RETURNS	[Type, File, Java, ByteCode, JavaType]	2088	13078	
24	[Java, ByteCode, Constructor, Method, Member]	HAS	[Java, ByteCode, Parameter]	2023	2040	
25	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	2023	13000	
26	[Java, ByteCode, Method, Member]	INVOKES	[Java, ByteCode, Constructor, Method, Member]	2007	13078	
27	[Java, ByteCode, Method, Member, Lambda]	INVOKES	[Java, ByteCode, Method, Member]	1883	936	
28	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1802	7166	
29	[Java, ByteCode, Constructor, Method, Member]	INVOKES	[Java, ByteCode, Method, Member]	1796	2040	

Graph Density

```
total_number_of_nodes (vertices): 333833
total_number_of_relationships (edges): 1012216
-> total directed graph density: 9.08272088291775e-06
-> total directed graph density in percent: 0.000908272088291775
```