

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]	249183	73.715366
1	[Java, ByteCode, Member, Method]	13205	3.906412
2	[Java, ByteCode, Parameter]	13016	3.850500
3	[Git, Commit]	12217	3.614133
4	[File, Git]	10696	3.164179
5	[Java, ByteCode, ParameterizedType, Bound]	7172	2.121680
6	[Java, ByteCode, Bound]	7113	2.104226
7	[Java, ByteCode, Member, Field]	3503	1.036286
8	[Java, ByteCode, Bound, WildcardType]	2908	0.860268
9	[Java, Value, ByteCode, Annotation]	2822	0.834827
10	[Xml, Element]	2144	0.634256
11	[Java, ByteCode, Member, Constructor, Method]	2037	0.602602
12	[Xml, Text]	1436	0.424809
13	[Java, ByteCode, Bound, TypeVariable]	1096	0.324228
14	[Java, ByteCode, Member, Method, Lambda]	938	0.277487
15	[Type, File, Java, ByteCode, ResolvedDuplicate...	900	0.266245
16	[Type, File, Java, ByteCode, Class]	861	0.254708
17	[Type, File, Java, ByteCode, JavaType]	748	0.221280
18	[Java, Value, ByteCode, Primitive]	650	0.192288
19	[Java, ByteCode, Member, Method, GenericDeclar...	569	0.168326
20	[Json, Key]	560	0.165664
21	[Value, Json, Scalar]	544	0.160931
22	[Type, File, Java, ByteCode, ExternalType]	396	0.117148
23	[Author, Git, Person]	295	0.087269
24	[Value, Array]	267	0.078986
25	[Committer, Git, Person]	250	0.073957
26	[Type, File, Java, ByteCode, Class, GenericDec...	236	0.069815
27	[Value, Property]	202	0.059757
28	[Type, File, Java, ByteCode, Interface]	187	0.055320
29	[Java, Value, ByteCode, Class]	172	0.050882

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)

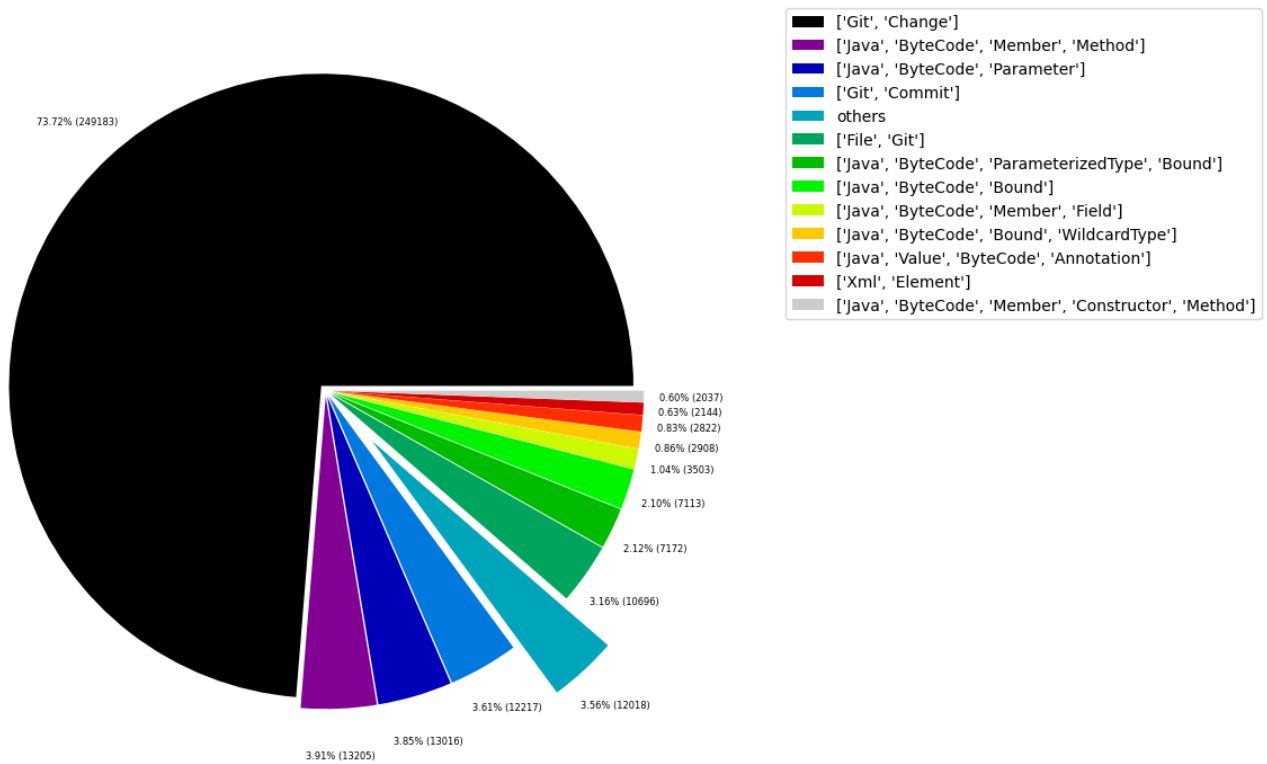


Table 1b - Lowest node count by label combination

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	0.000296
1	[Repository, File, Git]	1	0.000296
2	[File, Json]	2	0.000592
3	[File]	3	0.000887
4	[Java, ByteCode, Member, Constructor, Method, ...]	4	0.001183
5	[Maven, Exclusion]	5	0.001479
6	[Value, Json, Array]	6	0.001775
7	[File, Maven, Xml, Pom, Document]	9	0.002662
8	[Type, File, Java, ByteCode, Void]	9	0.002662
9	[Java, ManifestSection]	9	0.002662
10	[File, Java, Manifest]	9	0.002662
11	[Artifact, File, Jar, Archive, Zip, Java]	9	0.002662
12	[File, Java, ServiceLoader]	10	0.002958
13	[File, Java, Properties]	12	0.003550
14	[Maven, ExecutionGoal]	16	0.004733
15	[Maven, PluginExecution]	16	0.004733
16	[Xml, Attribute]	18	0.005325
17	[jQAssistant, Rule, Concept]	19	0.005621
18	[Maven, Plugin]	21	0.006212
19	[Maven, Configuration]	21	0.006212
20	[Type, File, Java, ByteCode, Enum]	28	0.008283
21	[Git, Branch]	29	0.008579
22	[Type, File, Java, ByteCode, PrimitiveType]	29	0.008579
23	[Xml, Namespace]	36	0.010650
24	[Type, File, Java, ByteCode, Annotation]	43	0.012721
25	[File, Directory]	44	0.013016
26	[Type, File, Java, ByteCode, GenericDeclaratio...	85	0.025145
27	[Artifact, Maven]	92	0.027216
28	[Type, File, Java, ByteCode, ExternalAnnotatio...	93	0.027512
29	[Value, ManifestEntry]	120	0.035499

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)

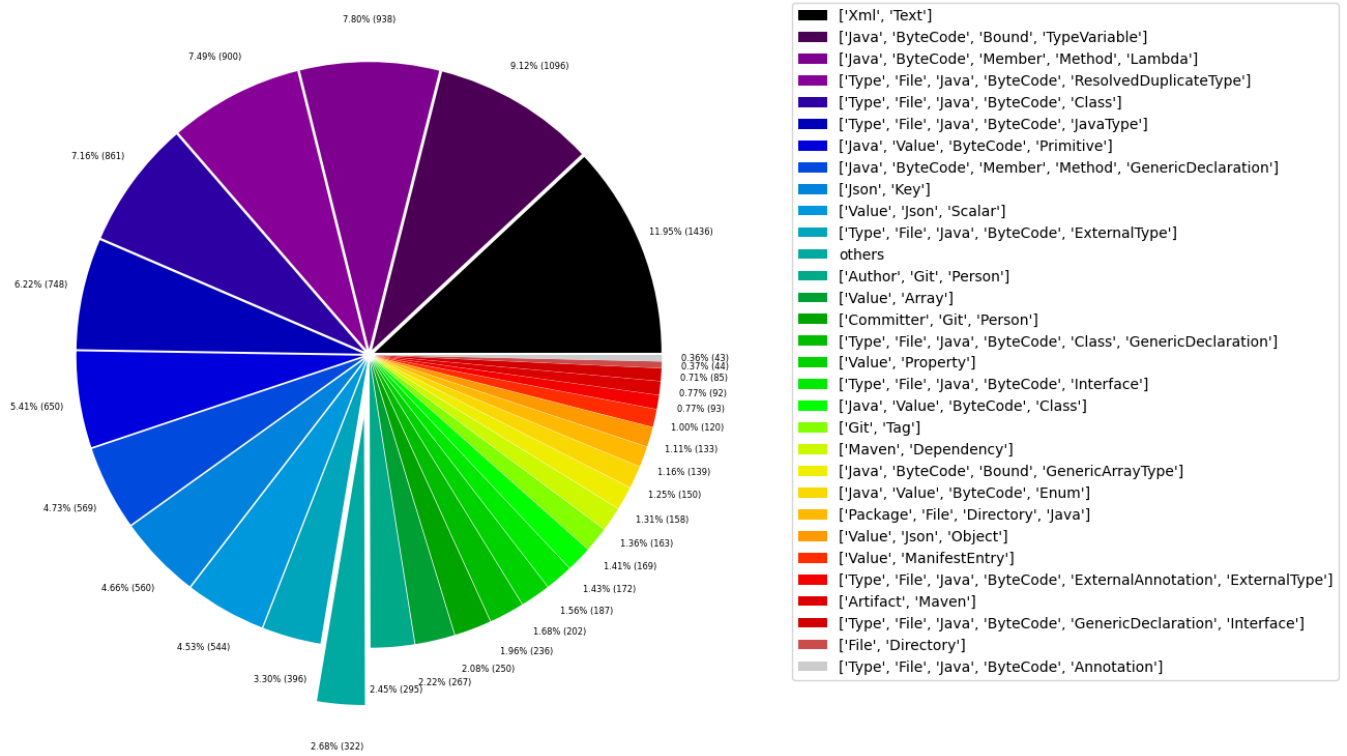


Table 1c - Highest node count by single label

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.

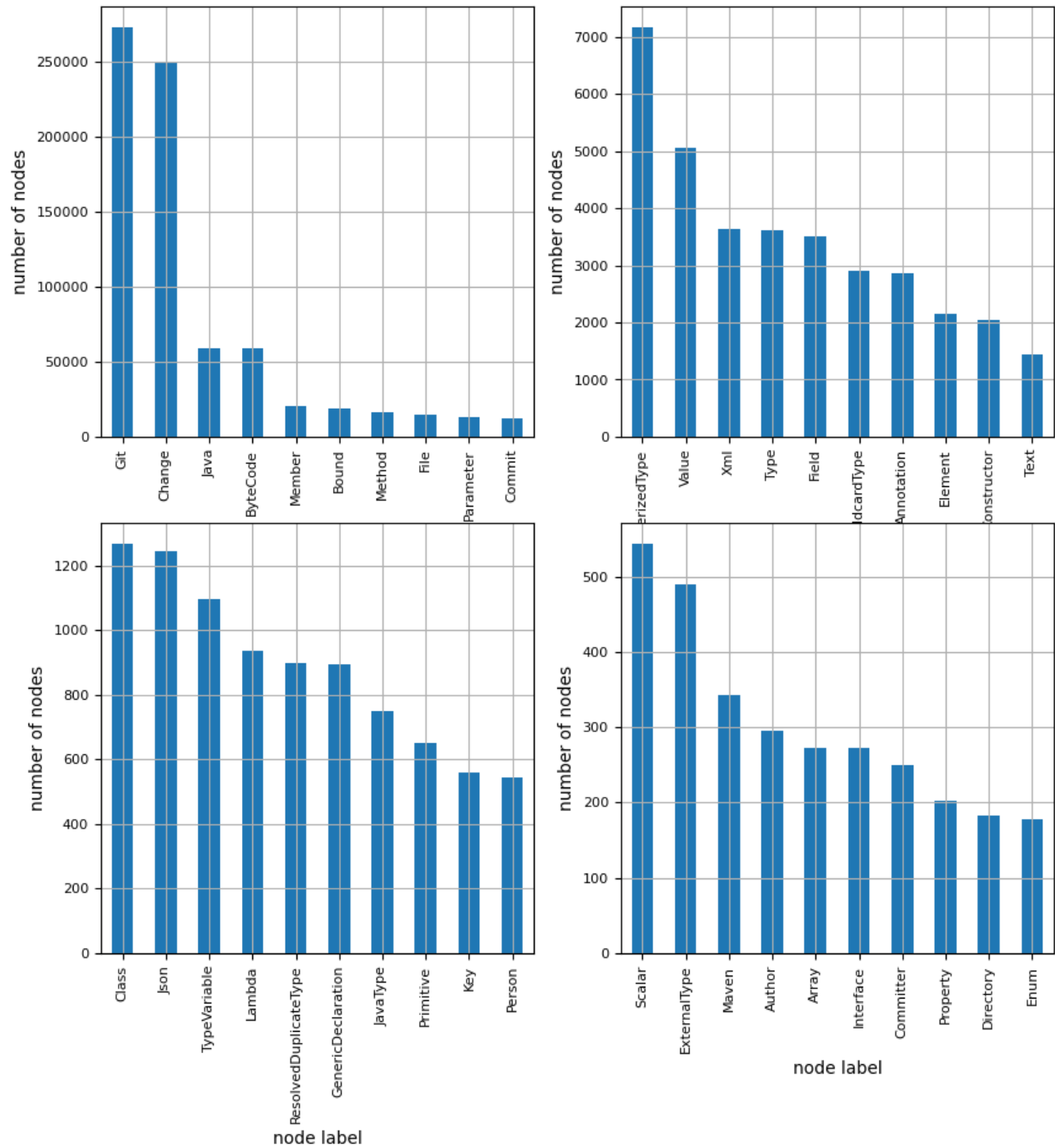
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	272840	80.713774
1	Change	249183	73.715366
2	Java	59316	17.547347
3	ByteCode	59128	17.491732
4	Member	20256	5.992297
5	Bound	18447	5.457143
6	Method	16753	4.956010
7	File	14549	4.304005
8	Parameter	13016	3.850500
9	Commit	12217	3.614133
10	ParameterizedType	7172	2.121680
11	Value	5066	1.498666
12	Xml	3643	1.077702
13	Type	3615	1.069419
14	Field	3503	1.036286
15	WildcardType	2908	0.860268
16	Annotation	2865	0.847548
17	Element	2144	0.634256
18	Constructor	2041	0.603785
19	Text	1436	0.424809
20	Class	1269	0.375406
21	Json	1245	0.368306
22	TypeVariable	1096	0.324228
23	Lambda	938	0.277487
24	ResolvedDuplicateType	900	0.266245
25	GenericDeclaration	894	0.264470
26	JavaType	748	0.221280
27	Primitive	650	0.192288
28	Key	560	0.165664
29	Person	545	0.161226
30	Scalar	544	0.160931
31	ExternalType	489	0.144660
32	Maven	343	0.101469
33	Author	295	0.087269
34	Array	273	0.080761
35	Interface	272	0.080465
36	Committer	250	0.073957
37	Property	202	0.059757
38	Directory	183	0.054137
39	Enum	178	0.052657

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: 1048447

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	249183	23.766867
1	MODIFIES	249183	23.766867
2	UPDATES	162456	15.494918
3	CREATES	59784	5.702148
4	DELETES	37233	3.551252
5	INVOKES	35642	3.399504
6	COMMITTED	24434	2.330495
7	DEPENDS_ON	21887	2.087564
8	OF_TYPE	21373	2.038539
9	DECLARES	20697	1.974063
10	OF_RAW_TYPE	17084	1.629458
11	HAS_PARENT	14847	1.416094
12	HAS	14110	1.345800
13	RETURNS	12562	1.198153
14	HAS_COMMIT	12217	1.165247
15	HAS_FILE	10696	1.020176
16	RENAMES	10290	0.981452
17	READS	9097	0.867664
18	HAS_ACTUAL_TYPE_ARGUMENT	8284	0.790121
19	HAS_NEW_NAME	6199	0.591255
20	OF_GENERIC_TYPE	5903	0.563023
21	RESOLVES_TO	5193	0.495304
22	SIMILAR	3968	0.378465
23	WRITES	3812	0.363585
24	CONTAINS	3806	0.363013
25	RETURNS_GENERIC	3543	0.337928
26	ANNOTATED_BY	2810	0.268015
27	REQUIRES	2175	0.207450
28	HAS_FIRST_CHILD	2144	0.204493
29	HAS_LAST_CHILD	2144	0.204493

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)

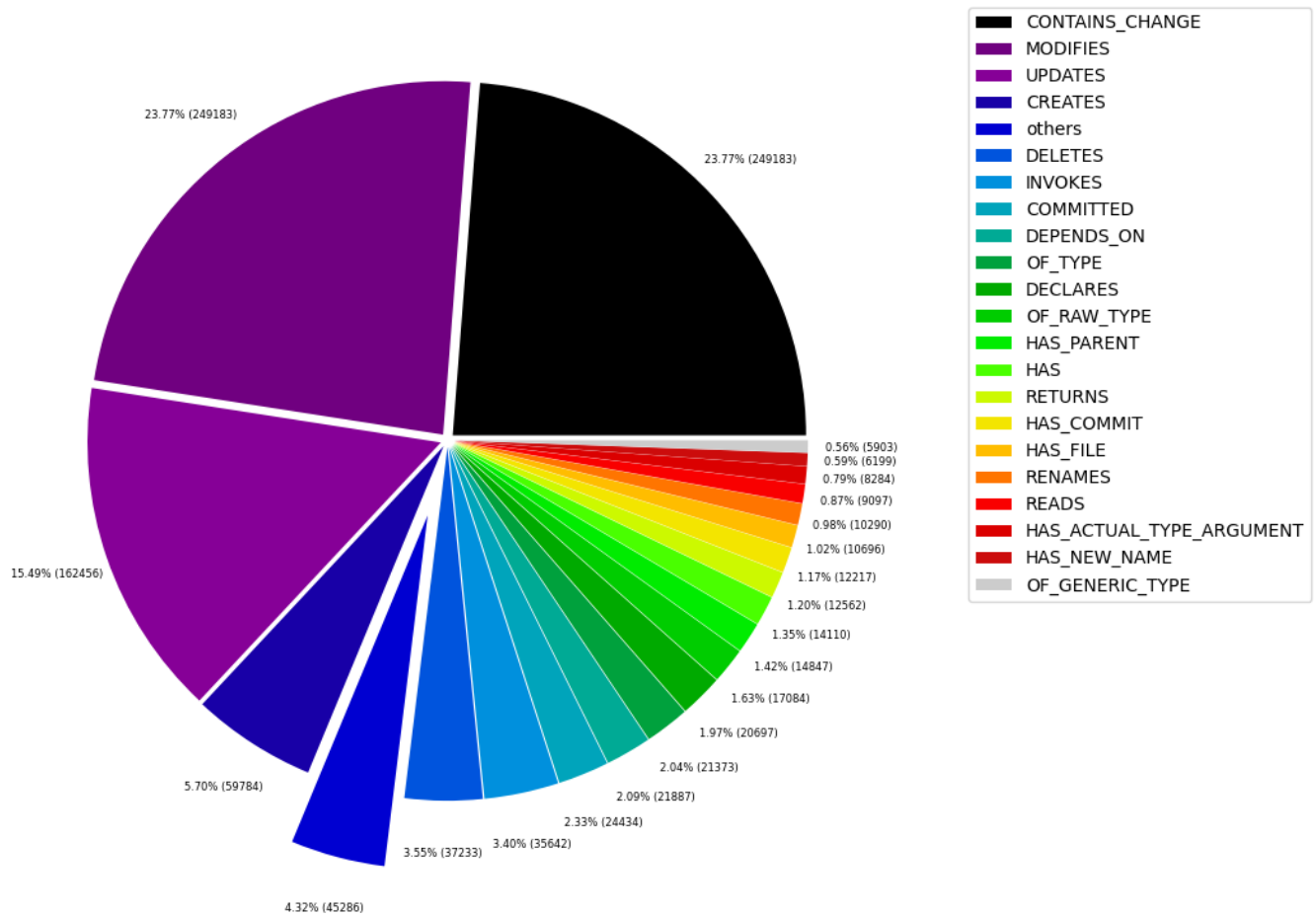


Table 2b - Lowest relationship count by type

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.

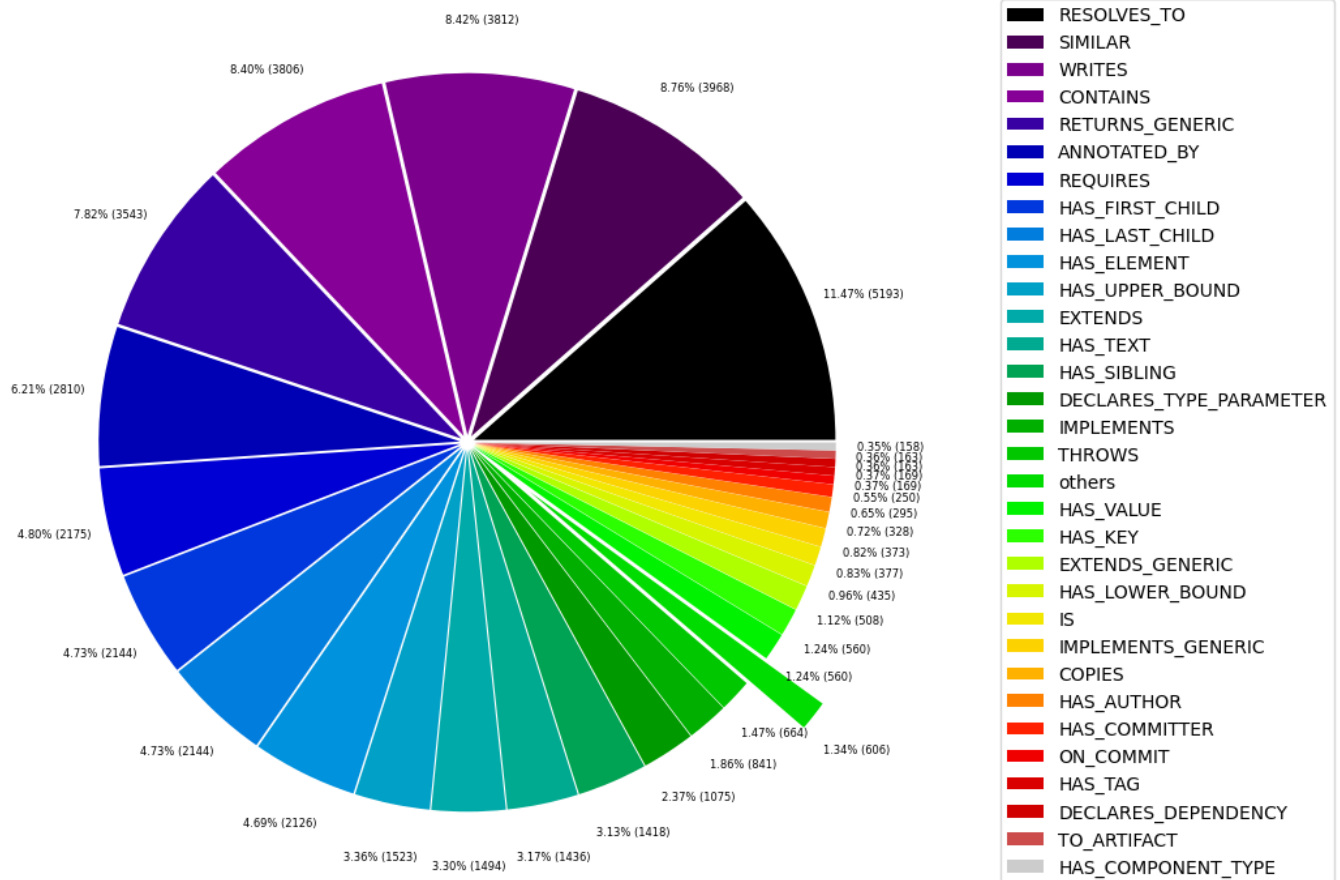
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS_PROPERTY	1	0.000095
1	THROWS_GENERIC	5	0.000477
2	EXCLUDES	5	0.000477
3	HAS_ROOT_ELEMENT	9	0.000858
4	DESCRIBES	9	0.000858
5	HAS_GOAL	16	0.001526
6	HAS_EXECUTION	16	0.001526
7	OF_NAMESPACE	18	0.001717
8	HAS_ATTRIBUTE	18	0.001717
9	INCLUDES_CONCEPT	19	0.001812
10	USES_PLUGIN	21	0.002003
11	REQUIRES_TYPE_PARAMETER	21	0.002003
12	IS_ARTIFACT	21	0.002003
13	HAS_CONFIGURATION	21	0.002003
14	REQUIRES_CONCEPT	28	0.002671
15	HAS_BRANCH	29	0.002766
16	HAS_HEAD	30	0.002861
17	DECLARES_NAMESPACE	36	0.003434
18	HAS_DEFAULT	36	0.003434
19	CONTAINS_VALUE	121	0.011541
20	COPY_OF	126	0.012018
21	HAS_COMPONENT_TYPE	158	0.015070
22	TO_ARTIFACT	163	0.015547
23	DECLARES_DEPENDENCY	163	0.015547
24	ON_COMMIT	169	0.016119
25	HAS_TAG	169	0.016119
26	HAS_COMMITTER	250	0.023845
27	HAS_AUTHOR	295	0.028137
28	COPIES	328	0.031284
29	IMPLEMENTS_GENERIC	373	0.035576

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]	249183	12217	
1	[Git, Change]	MODIFIES	[File, Git]	249183	249183	
2	[Git, Change]	UPDATES	[File, Git]	162456	249183	
3	[Git, Change]	CREATES	[File, Git]	59784	249183	
4	[Git, Change]	DELETES	[File, Git]	37233	249183	
5	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	21558	13079	
6	[Git, Commit]	HAS_PARENT	[Git, Commit]	14838	12217	
7	[Repository, File, Git]	HAS_COMMIT	[Git, Commit]	12217	1	
8	[Author, Git, Person]	COMMITTED	[Git, Commit]	12217	295	
9	[Committer, Git, Person]	COMMITTED	[Git, Commit]	12217	250	
10	[Repository, File, Git]	HAS_FILE	[File, Git]	10696	1	
11	[Git, Change]	RENAMES	[File, Git]	10290	249183	
12	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	8320	13079	
13	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	8121	13079	
14	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	6368	13016	
15	[File, Git]	HAS_NEW_NAME	[File, Git]	6199	10696	
16	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3570	7113	
17	[Java, ByteCode, ParameterizedType, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3049	7172	
18	[Java, ByteCode, ParameterizedType, Bound]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2908	7172	
19	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, ParameterizedType, Bound]	2655	13016	
20	[Java, ByteCode, ParameterizedType, Bound]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2454	7172	
21	[Java, ByteCode, Member, Constructor, Method]	WRITES	[Java, ByteCode, Member, Field]	2432	2037	
22	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalAnnotatio...	2341	2822	
23	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	2126	2144	
24	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	2105	2037	
25	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	2088	13079	
26	[Java, ByteCode, Member, Constructor, Method]	HAS	[Java, ByteCode, Parameter]	2023	2037	
27	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	2023	13016	
28	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	2015	13079	
29	[Java, ByteCode, Member, Method, Lambda]	INVOKES	[Java, ByteCode, Member, Method]	1879	938	

Graph Density

```
total_number_of_nodes (vertices): 338034
total_number_of_relationships (edges): 1048447
-> total directed graph density: 9.175442059489118e-06
-> total directed graph density in percent: 0.0009175442059489117
```