

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`.

Total number of nodes: 321717

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Git, Change]	233596	72.609156
1	[Java, ByteCode, Member, Method]	13195	4.101431
2	[Java, ByteCode, Parameter]	12968	4.030872
3	[Git, Commit]	11761	3.655697
4	[File, Git]	10593	3.292645
5	[Java, ByteCode, Bound, ParameterizedType]	7154	2.223693
6	[Java, ByteCode, Bound]	7094	2.205044
7	[Java, ByteCode, Member, Field]	3490	1.084804
8	[Java, ByteCode, Bound, WildcardType]	2902	0.902035
9	[Java, Value, ByteCode, Annotation]	2813	0.874371
10	[Xml, Element]	2144	0.666424
11	[Java, ByteCode, Member, Constructor, Method]	2045	0.635652
12	[Xml, Text]	1436	0.446355
13	[Java, ByteCode, Bound, TypeVariable]	1094	0.340050
14	[Java, ByteCode, Member, Method, Lambda]	931	0.289385
15	[Type, File, Java, ByteCode, ResolvedDuplicate...	899	0.279438
16	[Type, File, Java, Class, ByteCode]	858	0.266694
17	[Type, File, Java, ByteCode, JavaType]	746	0.231881
18	[Java, Value, ByteCode, Primitive]	647	0.201108
19	[Java, ByteCode, Member, Method, GenericDeclar...	567	0.176242
20	[Json, Key]	555	0.172512
21	[Value, Json, Scalar]	539	0.167539
22	[Type, File, Java, ByteCode, ExternalType]	396	0.123090
23	[Author, Git, Person]	289	0.089831
24	[Value, Array]	267	0.082992
25	[Committer, Git, Person]	243	0.075532
26	[Type, File, Java, Class, ByteCode, GenericDec...	236	0.073356
27	[Value, Property]	202	0.062788
28	[Type, File, Java, ByteCode, Interface]	186	0.057815
29	[Java, Value, Class, ByteCode]	170	0.052841

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)

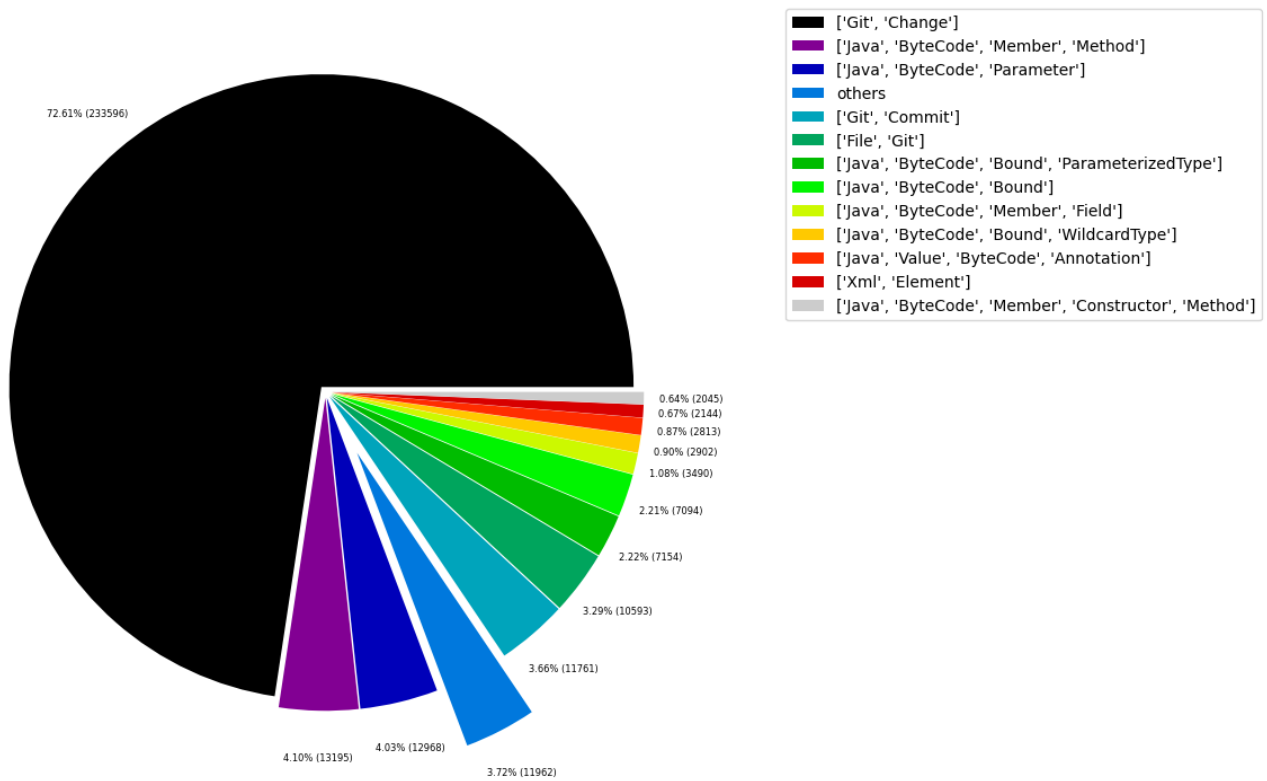


Table 1b - Lowest node count by label combination

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	0.000311
1	[File, TS, Scan]	1	0.000311
2	[File, Json]	2	0.000622
3	[File]	3	0.000932
4	[Java, ByteCode, Member, Constructor, Method, ...]	4	0.001243
5	[Maven, Exclusion]	5	0.001554
6	[Value, Array, Json]	6	0.001865
7	[Type, File, Java, ByteCode, Void]	9	0.002797
8	[File, Maven, Xml, Pom, Document]	9	0.002797
9	[Java, ManifestSection]	9	0.002797
10	[File, Java, Manifest]	9	0.002797
11	[Artifact, File, Jar, Archive, Zip, Java]	9	0.002797
12	[File, Java, ServiceLoader]	10	0.003108
13	[File, Java, Properties]	12	0.003730
14	[Maven, ExecutionGoal]	16	0.004973
15	[Maven, PluginExecution]	16	0.004973
16	[Xml, Attribute]	18	0.005595
17	[jQAssistant, Rule, Concept]	19	0.005906
18	[Maven, Plugin]	21	0.006527
19	[Maven, Configuration]	21	0.006527
20	[Git, Branch]	24	0.007460
21	[Type, File, Java, ByteCode, Enum]	28	0.008703
22	[Type, File, Java, ByteCode, PrimitiveType]	29	0.009014
23	[Xml, Namespace]	36	0.011190
24	[Type, File, Java, ByteCode, Annotation]	43	0.013366
25	[File, Directory]	44	0.013677
26	[Type, File, Java, ByteCode, GenericDeclaratio...	85	0.026421
27	[Artifact, Maven]	92	0.028597
28	[Type, File, Java, ByteCode, ExternalAnnotatio...	93	0.028907
29	[Value, ManifestEntry]	120	0.037300

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)

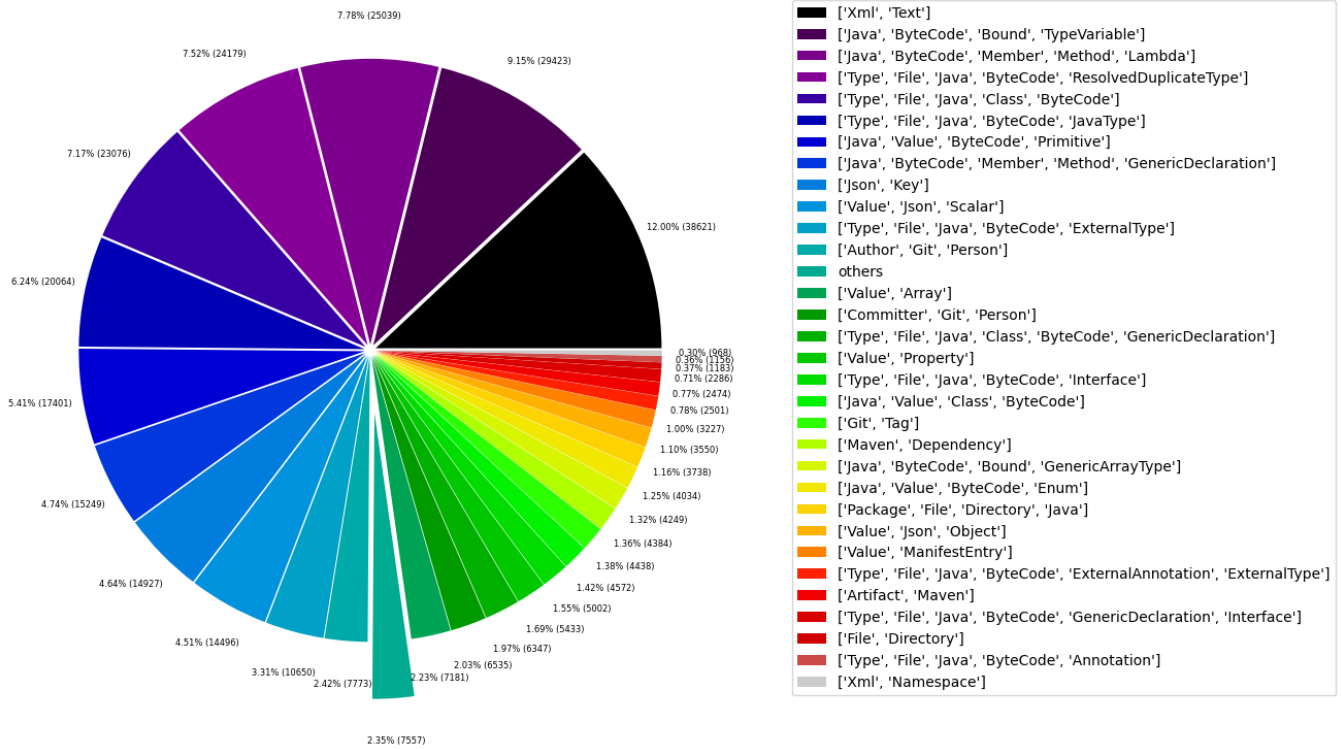


Table 1c - Highest node count by single label

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.

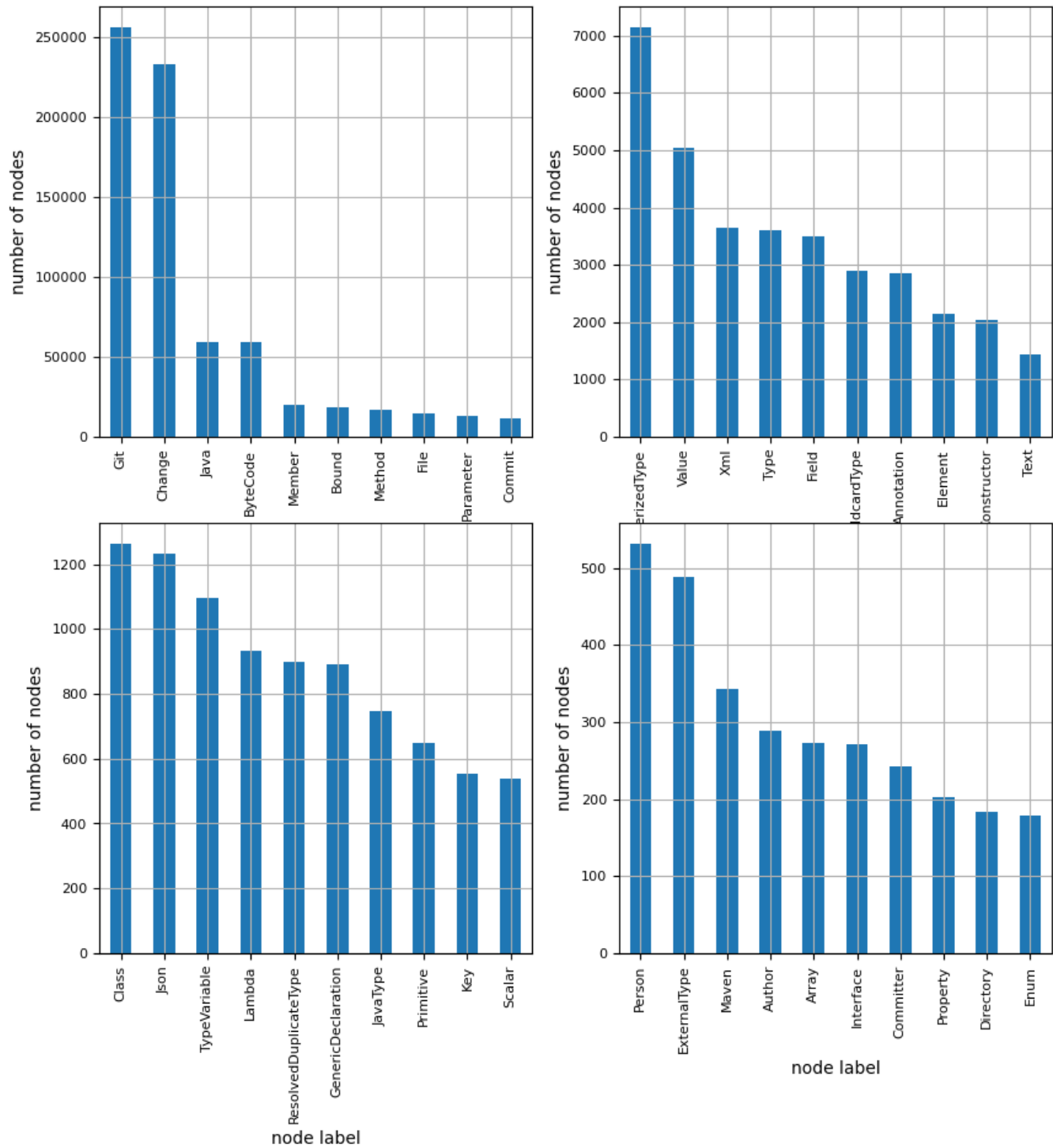
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	256671	79.781609
1	Change	233596	72.609156
2	Java	59178	18.394427
3	ByteCode	58990	18.335991
4	Member	20232	6.288757
5	Bound	18402	5.719934
6	Method	16742	5.203953
7	File	14439	4.488106
8	Parameter	12968	4.030872
9	Commit	11761	3.655697
10	ParameterizedType	7154	2.223693
11	Value	5046	1.568459
12	Xml	3643	1.132362
13	Type	3608	1.121483
14	Field	3490	1.084804
15	WildcardType	2902	0.902035
16	Annotation	2856	0.887737
17	Element	2144	0.666424
18	Constructor	2049	0.636895
19	Text	1436	0.446355
20	Class	1264	0.392892
21	Json	1234	0.383567
22	TypeVariable	1094	0.340050
23	Lambda	931	0.289385
24	ResolvedDuplicateType	899	0.279438
25	GenericDeclaration	892	0.277262
26	JavaType	746	0.231881
27	Primitive	647	0.201108
28	Key	555	0.172512
29	Scalar	539	0.167539
30	Person	532	0.165363
31	ExternalType	489	0.151997
32	Maven	343	0.106615
33	Author	289	0.089831
34	Array	273	0.084857
35	Interface	271	0.084236
36	Committer	243	0.075532
37	Property	202	0.062788
38	Directory	183	0.056882
39	Enum	178	0.055328

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: 975214

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	233596	23.953307
1	MODIFIES	233596	23.953307
2	UPDATES	149927	15.373754
3	CREATES	57912	5.938389
4	DELETES	35673	3.657966
5	INVOKES	35504	3.640637
6	COMMITTED	23522	2.411983
7	DEPENDS_ON	21820	2.237458
8	OF_TYPE	21292	2.183316
9	DECLARES	20671	2.119637
10	OF_RAW_TYPE	17041	1.747411
11	HAS_PARENT	14293	1.465627
12	HAS	14057	1.441427
13	RETURNS	12524	1.284231
14	RENAMES	9916	1.016802
15	READS	9069	0.929950
16	HAS_ACTUAL_TYPE_ARGUMENT	8261	0.847096
17	HAS_NEW_NAME	6165	0.632169
18	OF_GENERIC_TYPE	5892	0.604175
19	RESOLVES_TO	5233	0.536600
20	SIMILAR	3955	0.405552
21	CONTAINS	3797	0.389350
22	WRITES	3796	0.389248
23	RETURNS_GENERIC	3538	0.362792
24	ANNOTATED_BY	2801	0.287219
25	REQUIRES	2172	0.222720
26	HAS_FIRST_CHILD	2144	0.219849
27	HAS_LAST_CHILD	2144	0.219849
28	HAS_ELEMENT	2126	0.218003
29	HAS_UPPER_BOUND	1519	0.155761

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)

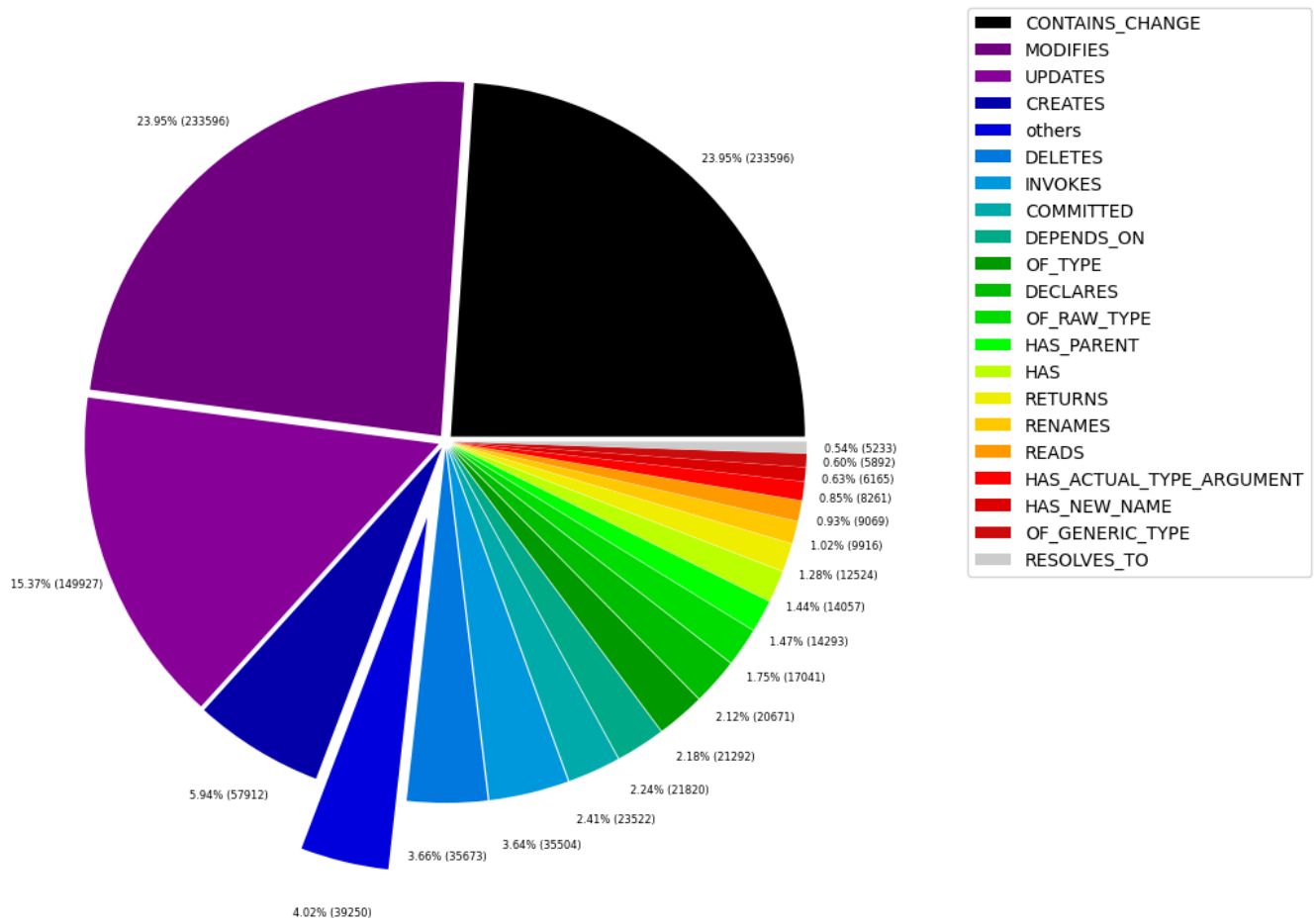


Table 2b - Lowest relationship count by type

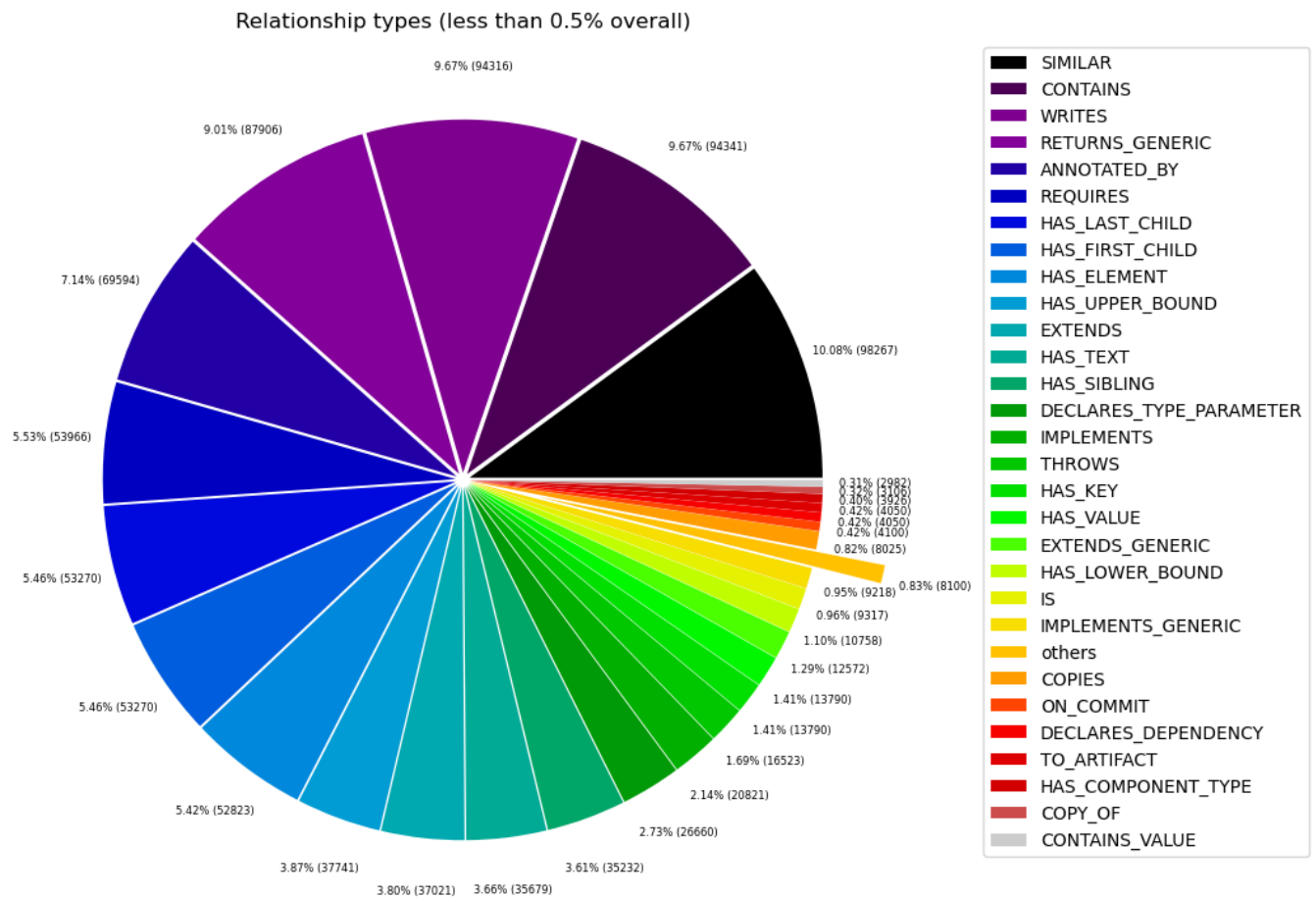
Lists the 30 relationships type with the lowest number of occurrences up to 0.5% of the total node count. This is essentially breaking down the "others" slice from the chart above.

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS_PROPERTY	1	0.000103
1	THROWS_GENERIC	5	0.000513
2	EXCLUDES	5	0.000513
3	DESCRIBES	9	0.000923
4	HAS_ROOT_ELEMENT	11	0.001128
5	HAS_GOAL	16	0.001641
6	HAS_EXECUTION	16	0.001641
7	OF_NAMESPACE	18	0.001846
8	HAS_ATTRIBUTE	18	0.001846
9	INCLUDES_CONCEPT	19	0.001948
10	USES_PLUGIN	21	0.002153
11	REQUIRES_TYPE_PARAMETER	21	0.002153
12	IS_ARTIFACT	21	0.002153
13	HAS_CONFIGURATION	21	0.002153
14	HAS_HEAD	24	0.002461
15	REQUIRES_CONCEPT	28	0.002871
16	DECLARES_NAMESPACE	36	0.003691
17	HAS_DEFAULT	36	0.003691
18	CONTAINS_VALUE	120	0.012305
19	COPY_OF	125	0.012818
20	HAS_COMPONENT_TYPE	158	0.016202
21	TO_ARTIFACT	163	0.016714
22	DECLARES_DEPENDENCY	163	0.016714
23	ON_COMMIT	165	0.016919
24	COPIES	323	0.033121
25	IMPLEMENTS_GENERIC	371	0.038043
26	IS	375	0.038453
27	HAS_LOWER_BOUND	433	0.044401
28	EXTENDS_GENERIC	506	0.051886
29	HAS_VALUE	555	0.056911

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>



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]	233596		11761
1	[Git, Change]	MODIFIES	[File, Git]	233596		233596
2	[Git, Change]	UPDATES	[File, Git]	149927		233596
3	[Git, Change]	CREATES	[File, Git]	57912		233596
4	[Git, Change]	DELETES	[File, Git]	35673		233596
5	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	21574		13086
6	[Git, Commit]	HAS_PARENT	[Git, Commit]	14284		11761
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	11761		289
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	11761		243
9	[Git, Change]	RENAMES	[File, Git]	9916		233596
10	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	8298		13086
11	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	8146		13086
12	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	6335		12968
13	[File, Git]	HAS_NEW_NAME	[File, Git]	6165		10593
14	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3554		7094
15	[Java, ByteCode, Bound, ParameterizedType]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3034		7154
16	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2902		7154
17	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound, ParameterizedType]	2650		12968
18	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2453		7154
19	[Java, ByteCode, Member, Constructor, Method]	WRITES	[Java, ByteCode, Member, Field]	2423		2045
20	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalAnnotatio...	2336		2813
21	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	2126		2144
22	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	2109		2045
23	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	2087		13086
24	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	2033		13086
25	[Java, ByteCode, Member, Constructor, Method]	HAS	[Java, ByteCode, Parameter]	2021		2045
26	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	2020		12968
27	[Java, ByteCode, Member, Method, Lambda]	INVOKES	[Java, ByteCode, Member, Method]	1866		931
28	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1792		7154
29	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Method]	1789		2045

Graph Density

```
total_number_of_nodes (vertices): 321717
total_number_of_relationships (edges): 975214
-> total directed graph density: 9.422220353923488e-06
-> total directed graph density in percent: 0.0009422220353923488
```