

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: 69420

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Java, ByteCode, Parameter]	11202	16.136560
1	[Java, ByteCode, Member, Method]	10684	15.390377
2	[File, Git, Log]	8142	11.728608
3	[Git, Commit, Log]	7776	11.201383
4	[Java, ByteCode, Bound, ParameterizedType]	6542	9.423797
5	[Java, ByteCode, Bound]	6316	9.098243
6	[Java, ByteCode, Member, Field]	2841	4.092481
7	[Java, ByteCode, Bound, WildcardType]	2723	3.922501
8	[Java, Value, ByteCode, Annotation]	2225	3.205128
9	[Java, ByteCode, Member, Method, Constructor]	1647	2.372515
10	[Xml, Element]	1534	2.209738
11	[Xml, Text]	1016	1.463555
12	[Java, ByteCode, Bound, TypeVariable]	989	1.424661
13	[Java, ByteCode, Member, Method, Lambda]	769	1.107750
14	[Type, File, Java, ByteCode, Class]	699	1.006914
15	[Type, File, Java, ByteCode, JavaType]	597	0.859983
16	[Type, File, Java, ByteCode, ResolvedDuplicate...	542	0.780755
17	[Java, GenericDeclaration, ByteCode, Member, M...	525	0.756266
18	[Java, Value, ByteCode, Primitive]	467	0.672717
19	[Git, Author, Log]	269	0.387496
20	[Type, File, Java, GenericDeclaration, ByteCod...	215	0.309709
21	[Type, File, Java, ByteCode, ExternalType]	194	0.279458
22	[Type, File, Java, ByteCode, Interface]	167	0.240565
23	[Java, ByteCode, Bound, GenericArrayType]	145	0.208874
24	[Java, Value, ByteCode, Enum]	142	0.204552
25	[Maven, Dependency]	116	0.167099
26	[Value, Property]	109	0.157015
27	[Package, File, Directory, Java]	107	0.154134
28	[Value, Array]	104	0.149813
29	[Value, ManifestEntry]	91	0.131086

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>

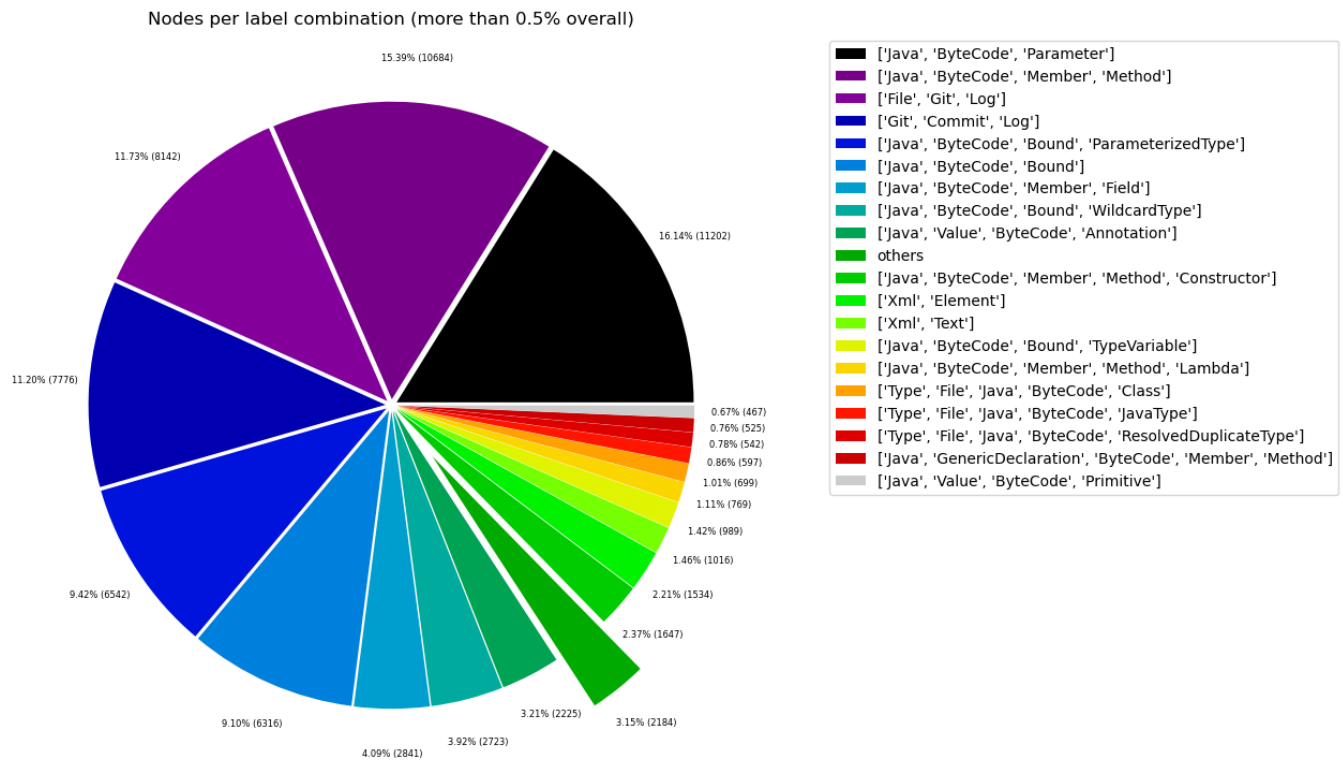


Table 1b - Lowest node count by label combination

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	[Repository, Git]	1	0.001441
1	[Analyze, Task, jQAssistant]	1	0.001441
2	[Maven, Exclusion]	1	0.001441
3	[Java, GenericDeclaration, ByteCode, Member, M...	3	0.004322
4	[Type, File, Java, ByteCode, Void]	6	0.008643
5	[File, Maven, Xml, Pom, Document]	6	0.008643
6	[Java, ManifestSection]	6	0.008643
7	[File, Java, Manifest]	6	0.008643
8	[Artifact, File, Jar, Archive, Zip, Java]	6	0.008643
9	[File, Java, Properties]	8	0.011524
10	[File, Java, ServiceLoader]	9	0.012965
11	[Xml, Attribute]	12	0.017286
12	[Maven, ExecutionGoal]	14	0.020167
13	[Maven, PluginExecution]	14	0.020167
14	[Maven, Plugin]	16	0.023048
15	[Maven, Configuration]	16	0.023048
16	[jQAssistant, Rule, Concept]	19	0.027370
17	[Type, File, Java, ByteCode, PrimitiveType]	21	0.030251
18	[Xml, Namespace]	24	0.034572
19	[Type, File, Java, ByteCode, Enum]	25	0.036013
20	[Java, Value, ByteCode, Class]	28	0.040334
21	[File, Directory]	29	0.041775
22	[Type, File, Java, ByteCode, Annotation]	40	0.057620
23	[Type, File, Java, ByteCode, ExternalType, Ext...	65	0.093633
24	[Artifact, Maven]	69	0.099395
25	[Type, File, Java, GenericDeclaration, ByteCod...	80	0.115241
26	[Value, ManifestEntry]	91	0.131086
27	[Value, Array]	104	0.149813
28	[Package, File, Directory, Java]	107	0.154134
29	[Value, Property]	109	0.157015

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>

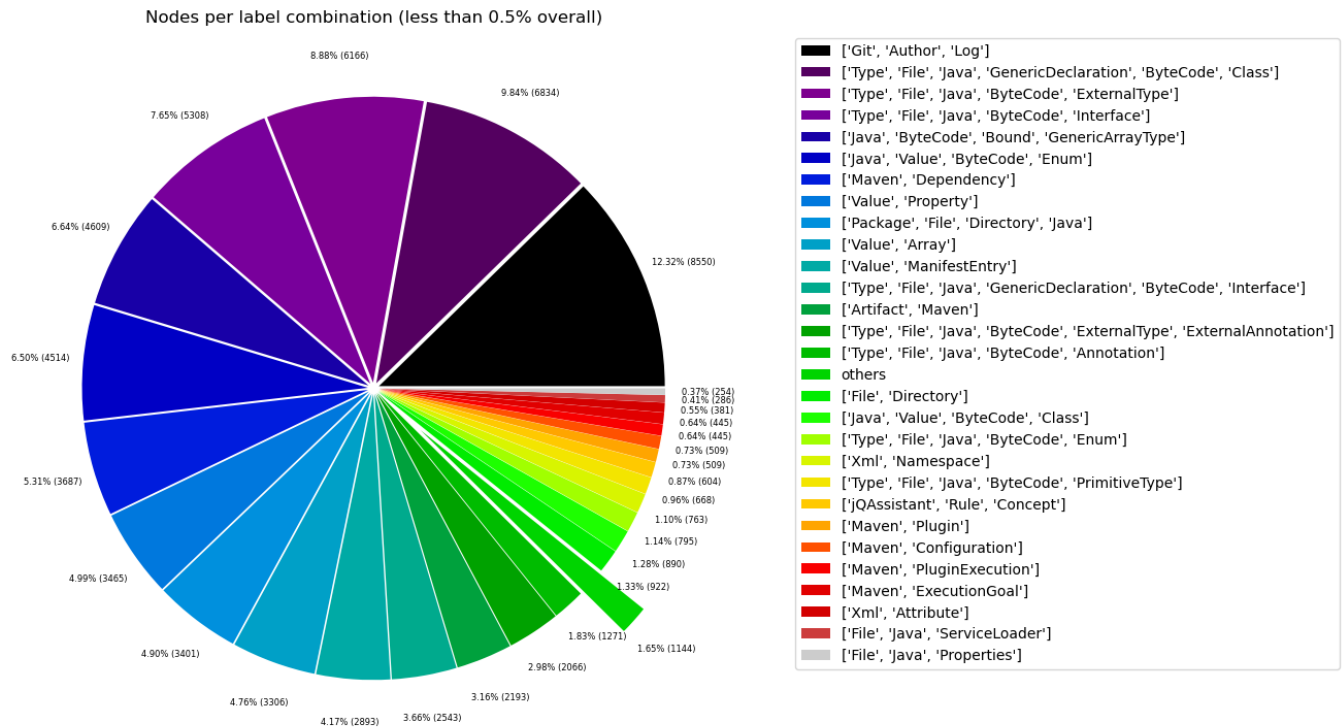


Table 1c - Highest node count by single label

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.

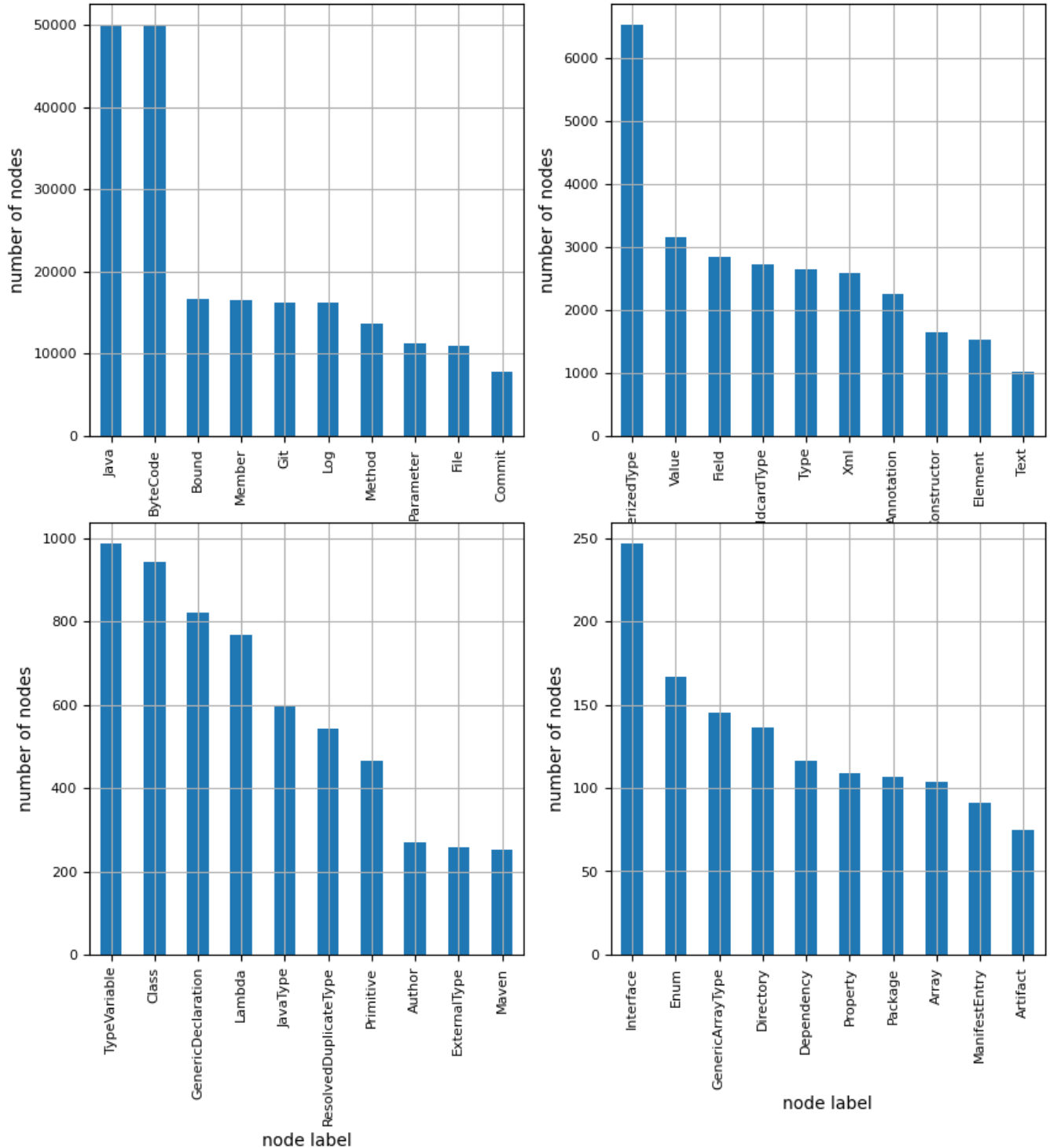
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Java	50041	72.084414
1	ByteCode	49899	71.879862
2	Bound	16715	24.078075
3	Member	16469	23.723711
4	Git	16188	23.318928
5	Log	16187	23.317488
6	Method	13628	19.631230
7	Parameter	11202	16.136560
8	File	10964	15.793719
9	Commit	7776	11.201383
10	ParameterizedType	6542	9.423797
11	Value	3166	4.560645
12	Field	2841	4.092481
13	WildcardType	2723	3.922501
14	Type	2651	3.818784
15	Xml	2592	3.733794
16	Annotation	2265	3.262748
17	Constructor	1650	2.376837
18	Element	1534	2.209738
19	Text	1016	1.463555
20	TypeVariable	989	1.424661
21	Class	942	1.356958
22	GenericDeclaration	823	1.185537
23	Lambda	769	1.107750
24	JavaType	597	0.859983
25	ResolvedDuplicateType	542	0.780755
26	Primitive	467	0.672717
27	Author	269	0.387496
28	ExternalType	259	0.373091
29	Maven	252	0.363008
30	Interface	247	0.355805
31	Enum	167	0.240565
32	GenericArrayType	145	0.208874
33	Directory	136	0.195909
34	Dependency	116	0.167099
35	Property	109	0.157015
36	Package	107	0.154134
37	Array	104	0.149813
38	ManifestEntry	91	0.131086
39	Artifact	75	0.108038

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: 249809

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGED	46599	18.653852
1	INVOKES	29841	11.945526
2	OF_TYPE	17636	7.059794
3	DEPENDS_ON	17445	6.983335
4	DECLARES	16831	6.737547
5	OF_RAW_TYPE	15200	6.084649
6	HAS	11902	4.764440
7	RETURNS	10643	4.260455
8	HAS_FILE	8142	3.259290
9	AUTHORED	7776	3.112778
10	HAS_COMMIT	7776	3.112778
11	READS	7695	3.080353
12	HAS_ACTUAL_TYPE_ARGUMENT	7501	3.002694
13	HAS_PARENT	6288	2.517123
14	OF_GENERIC_TYPE	5349	2.141236
15	SIMILAR	3419	1.368646
16	RETURNS_GENERIC	3253	1.302195
17	WRITES	3066	1.227338
18	CONTAINS	3031	1.213327
19	RESOLVES_TO	2943	1.178100
20	ANNOTATED_BY	2213	0.885877
21	HAS_FIRST_CHILD	1534	0.614069
22	HAS_LAST_CHILD	1534	0.614069
23	HAS_ELEMENT	1522	0.609265
24	REQUIRES	1425	0.570436
25	HAS_UPPER_BOUND	1406	0.562830
26	EXTENDS	1269	0.507988
27	HAS_TEXT	1016	0.406711
28	HAS_SIBLING	1004	0.401907
29	DECLARES_TYPE_PARAMETER	972	0.389097

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>

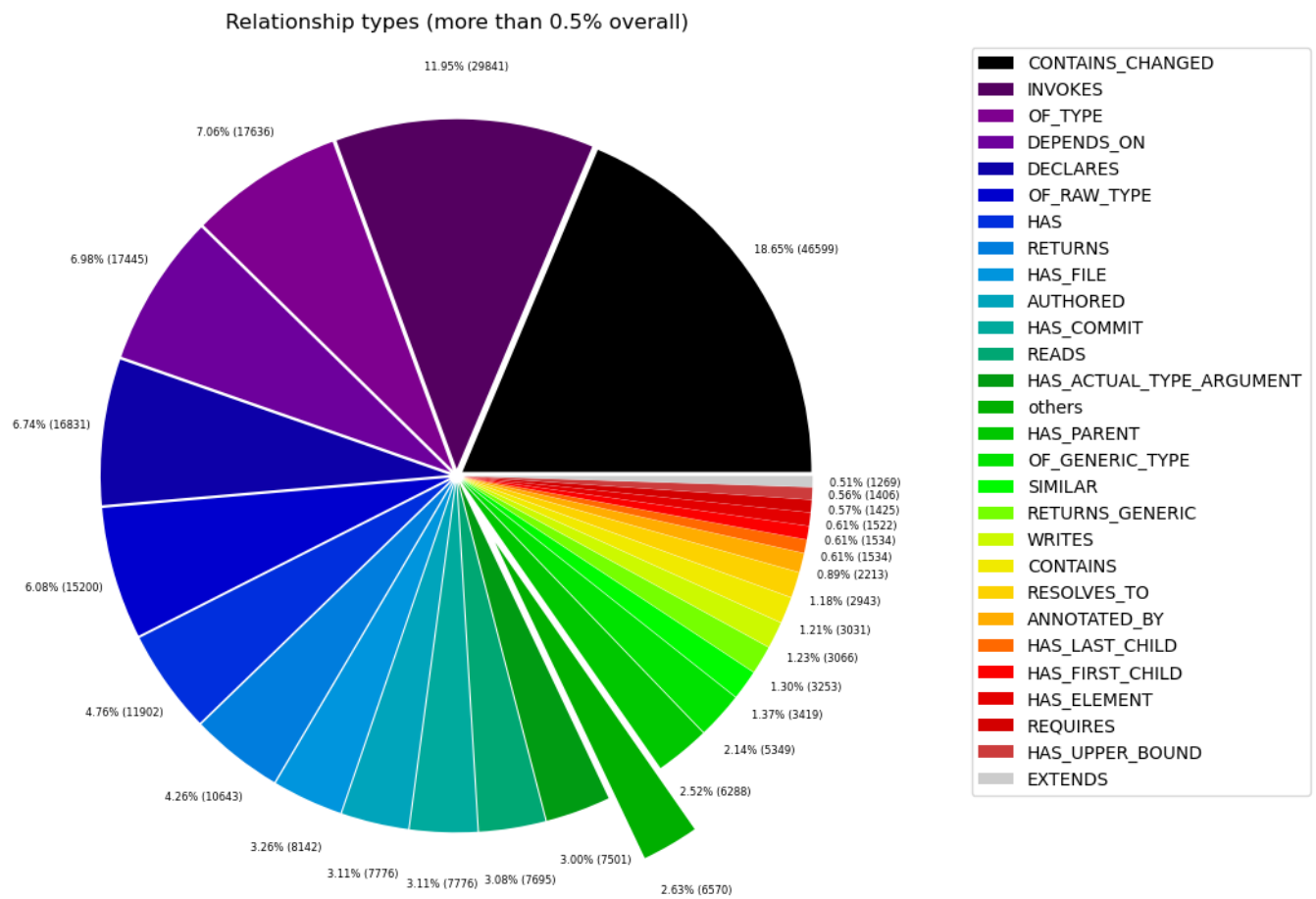


Table 2b - Lowest relationship count by type

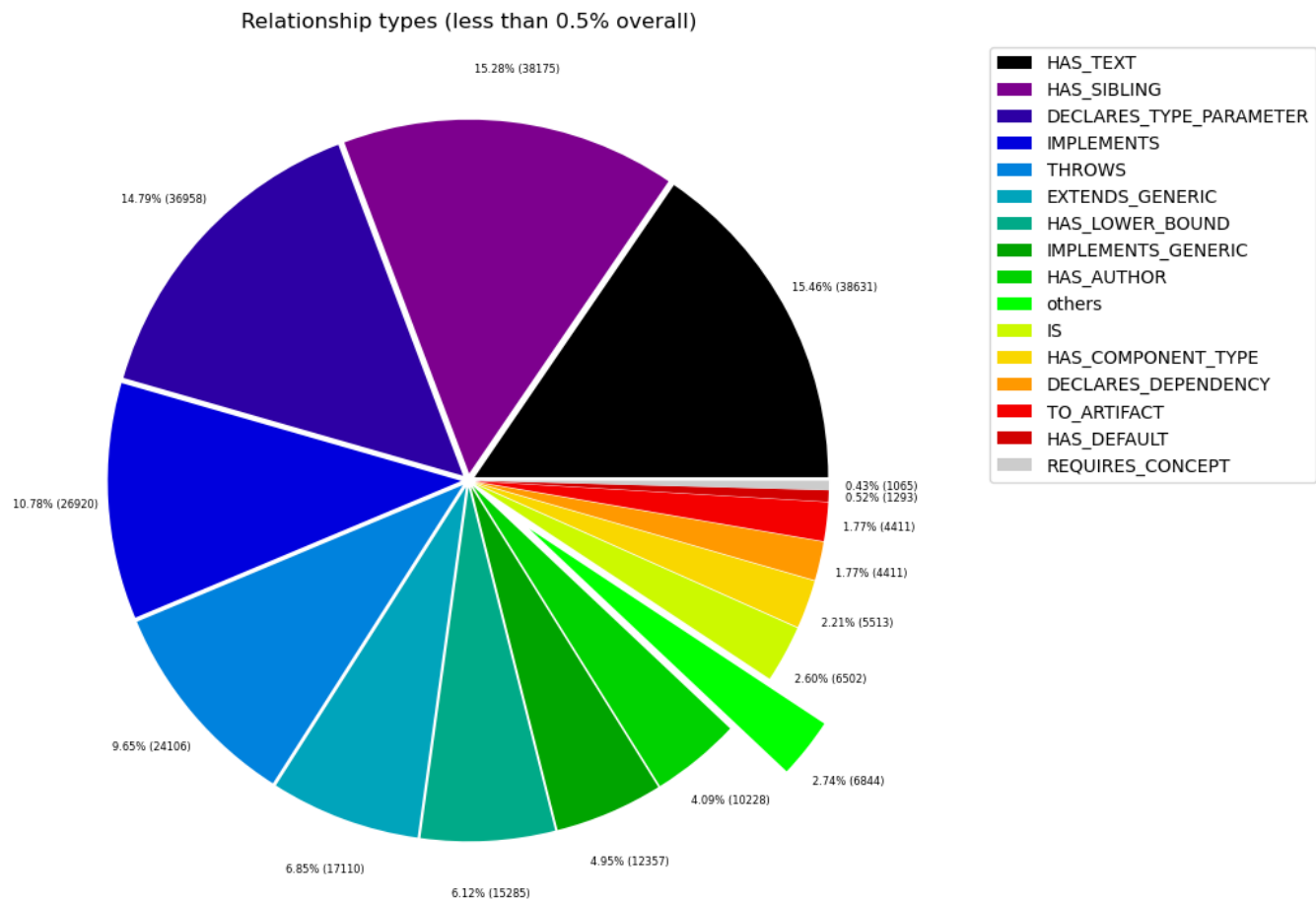
Lists the 30 relationships type with the lowest number of occurrences up to 0.5% of the total node count. This is essentially breaking down the "others" slice from the chart above.

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	EXCLUDES	1	0.000400
1	THROWS_GENERIC	5	0.002002
2	DESCRIBES	6	0.002402
3	HAS_ROOT_ELEMENT	8	0.003202
4	OF_NAMESPACE	12	0.004804
5	HAS_ATTRIBUTE	12	0.004804
6	HAS_GOAL	14	0.005604
7	HAS_EXECUTION	14	0.005604
8	USES_PLUGIN	16	0.006405
9	IS_ARTIFACT	16	0.006405
10	HAS_CONFIGURATION	16	0.006405
11	REQUIRES_TYPE_PARAMETER	17	0.006805
12	INCLUDES_CONCEPT	19	0.007606
13	DECLARES_NAMESPACE	24	0.009607
14	REQUIRES_CONCEPT	28	0.011209
15	HAS_DEFAULT	34	0.013610
16	TO_ARTIFACT	116	0.046435
17	DECLARES_DEPENDENCY	116	0.046435
18	HAS_COMPONENT_TYPE	145	0.058044
19	IS	171	0.068452
20	HAS_AUTHOR	269	0.107682
21	IMPLEMENTS_GENERIC	325	0.130099
22	HAS_LOWER_BOUND	402	0.160923
23	EXTENDS_GENERIC	450	0.180138
24	THROWS	634	0.253794
25	IMPLEMENTS	708	0.283417
26	DECLARES_TYPE_PARAMETER	972	0.389097
27	HAS_SIBLING	1004	0.401907
28	HAS_TEXT	1016	0.406711

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, Log]	CONTAINS_CHANGED	[File, Git, Log]	46599	7776	
1	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	18406	10598	
2	[Repository, Git]	HAS_FILE	[File, Git, Log]	8142	1	
3	[Repository, Git]	HAS_COMMIT	[Git, Commit, Log]	7776	1	
4	[Git, Author, Log]	AUTHORED	[Git, Commit, Log]	7776	269	
5	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	7317	10598	
6	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	6942	10598	
7	[Git, Commit, Log]	HAS_PARENT	[Git, Commit, Log]	6282	7776	
8	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	5730	11202	
9	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3218	6316	
10	[Java, ByteCode, Bound, ParameterizedType]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	2779	6542	
11	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2723	6542	
12	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound, ParameterizedType]	2435	11202	
13	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2230	6542	
14	[Java, ByteCode, Member, Method, Constructor]	WRITES	[Java, ByteCode, Member, Field]	1971	1647	
15	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	1891	10598	
16	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalType, Ext...	1842	2225	
17	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	1819	11202	
18	[Java, ByteCode, Member, Method, Constructor]	INVOKES	[Java, ByteCode, Member, Method, Constructor]	1744	1647	
19	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method, Constructor]	1715	10598	
20	[Java, ByteCode, Member, Method, Constructor]	HAS	[Java, ByteCode, Parameter]	1710	1647	
21	[Java, ByteCode, Parameter]	ANNOTATED_BY	[Java, Value, ByteCode, Annotation]	1594	11202	
22	[Java, ByteCode, Member, Method, Lambda]	INVOKES	[Java, ByteCode, Member, Method]	1566	769	
23	[Java, ByteCode, Member, Method, Constructor]	INVOKES	[Java, ByteCode, Member, Method]	1535	1647	
24	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1530	6542	
25	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	1522	1534	
26	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, Void]	1467	10598	
27	[Java, GenericDeclaration, ByteCode, Member, M...	INVOKES	[Java, ByteCode, Member, Method]	1293	510	
28	[Type, File, Java, ByteCode, JavaType]	DECLARES	[Java, ByteCode, Member, Method]	1279	597	
29	[Java, ByteCode, Member, Method, Constructor]	RETURNS	[Type, File, Java, ByteCode, Void]	1221	1647	

Graph Density

```
total_number_of_nodes (vertices): 69420
total_number_of_relationships (edges): 249809
-> total directed graph density: 5.183762770610007e-05
-> total directed graph density in percent: 0.005183762770610007
```