

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: 68819

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Java, ByteCode, Parameter]	11184	16.251326
1	[Java, ByteCode, Member, Method]	10620	15.431785
2	[File, Git, Log]	7804	11.339892
3	[Git, Commit, Log]	7618	11.069617
4	[Java, ByteCode, Bound, ParameterizedType]	6537	9.498830
5	[Java, ByteCode, Bound]	6308	9.166073
6	[Java, ByteCode, Member, Field]	2846	4.135486
7	[Java, ByteCode, Bound, WildcardType]	2722	3.955303
8	[Java, Value, ByteCode, Annotation]	2225	3.233119
9	[Java, ByteCode, Member, Constructor, Method]	1649	2.396141
10	[Xml, Element]	1534	2.229036
11	[Xml, Text]	1016	1.476336
12	[Java, ByteCode, Bound, TypeVariable]	988	1.435650
13	[Java, ByteCode, Member, Method, Lambda]	767	1.114518
14	[Type, File, Java, ByteCode, Class]	699	1.015708
15	[Type, File, Java, ByteCode, JavaType]	596	0.866040
16	[Type, File, Java, ByteCode, ResolvedDuplicate...	542	0.787573
17	[Java, ByteCode, GenericDeclaration, Member, M...	525	0.762871
18	[Java, Value, ByteCode, Primitive]	467	0.678592
19	[Git, Author, Log]	260	0.377803
20	[Type, File, Java, ByteCode, Class, GenericDec...	215	0.312414
21	[Type, File, Java, ByteCode, ExternalType]	194	0.281899
22	[Type, File, Java, ByteCode, Interface]	166	0.241212
23	[Java, ByteCode, Bound, GenericArrayType]	144	0.209245
24	[Java, Value, ByteCode, Enum]	142	0.206338
25	[Maven, Dependency]	116	0.168558
26	[Value, Property]	109	0.158386
27	[Package, File, Directory, Java]	107	0.155480
28	[Value, Array]	104	0.151121
29	[Value, ManifestEntry]	91	0.132231

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)

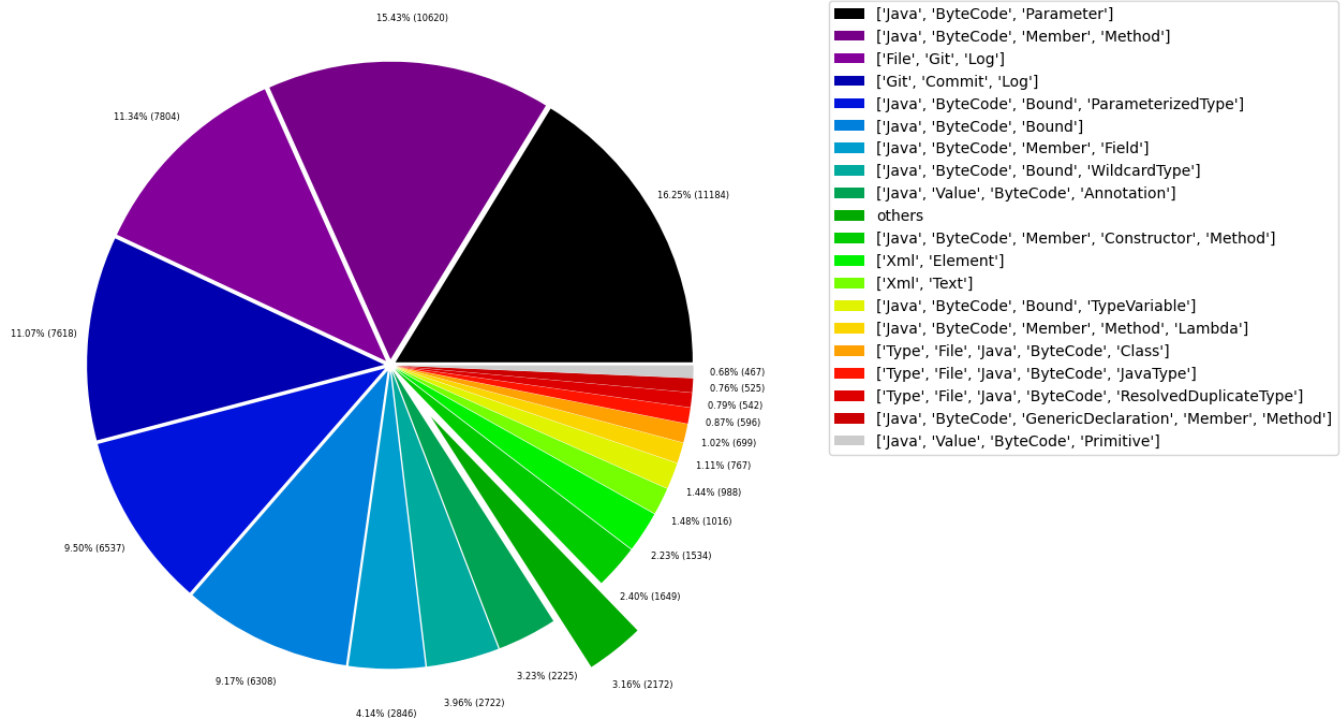


Table 1b - Lowest node count by label combination

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	[Repository, Git]	1	0.001453
1	[Analyze, Task, JQAssistant]	1	0.001453
2	[Maven, Exclusion]	1	0.001453
3	[Java, ByteCode, GenericDeclaration, Member, C...	3	0.004359
4	[Type, File, Java, ByteCode, Void]	6	0.008719
5	[File, Maven, Xml, Pom, Document]	6	0.008719
6	[Java, ManifestSection]	6	0.008719
7	[File, Java, Manifest]	6	0.008719
8	[Artifact, File, Jar, Archive, Zip, Java]	6	0.008719
9	[File, Java, Properties]	8	0.011625
10	[File, Java, ServiceLoader]	9	0.013078
11	[Xml, Attribute]	12	0.017437
12	[Maven, ExecutionGoal]	14	0.020343
13	[Maven, PluginExecution]	14	0.020343
14	[Maven, Plugin]	16	0.023249
15	[Maven, Configuration]	16	0.023249
16	[JQAssistant, Rule, Concept]	19	0.027609
17	[Type, File, Java, ByteCode, PrimitiveType]	21	0.030515
18	[Xml, Namespace]	24	0.034874
19	[Type, File, Java, ByteCode, Enum]	25	0.036327
20	[Java, Value, ByteCode, Class]	28	0.040686
21	[File, Directory]	29	0.042140
22	[Type, File, Java, ByteCode, Annotation]	40	0.058123
23	[Type, File, Java, ByteCode, ExternalAnnotatio...	65	0.094451
24	[Artifact, Maven]	69	0.100263
25	[Type, File, Java, ByteCode, GenericDeclaratio...	79	0.114794
26	[Value, ManifestEntry]	91	0.132231
27	[Value, Array]	104	0.151121
28	[Package, File, Directory, Java]	107	0.155480
29	[Value, Property]	109	0.158386

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)

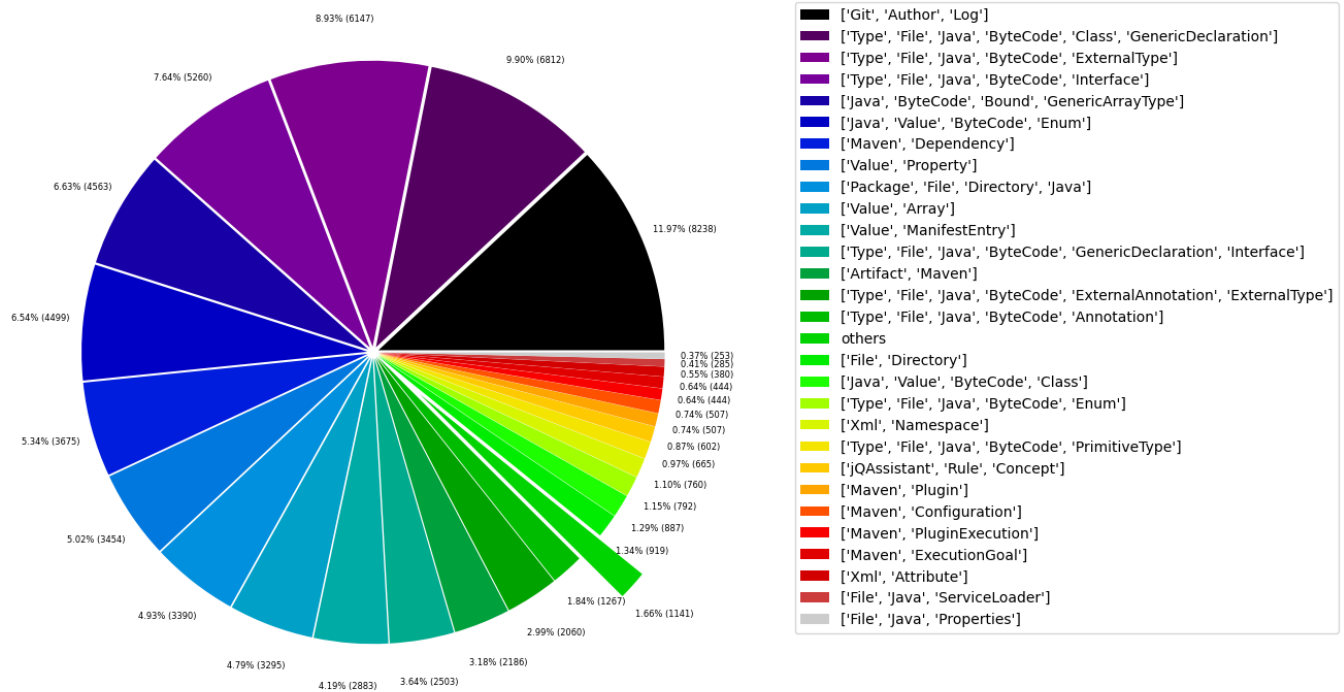


Table 1c - Highest node count by single label

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.

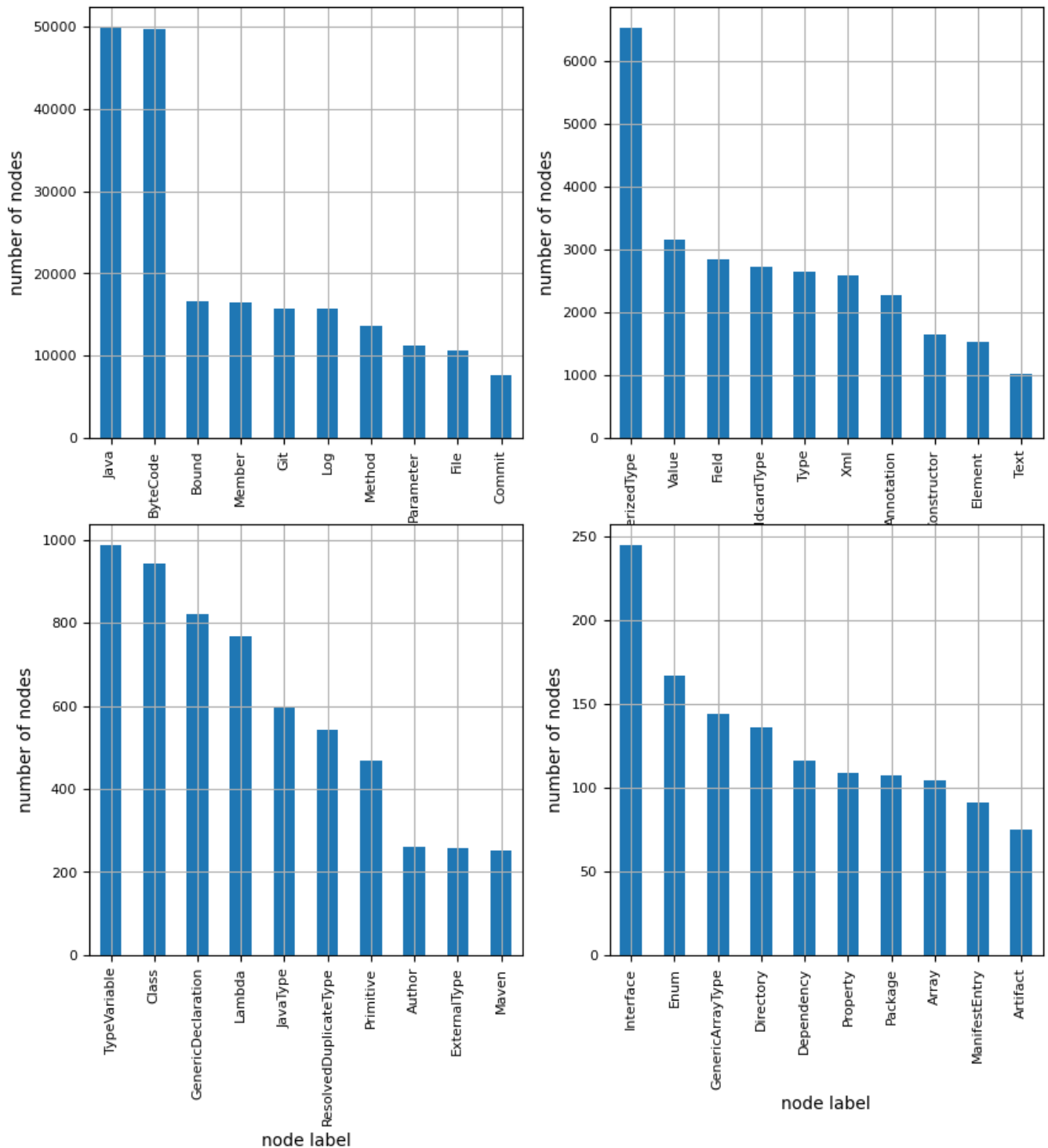
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Java	49945	72.574434
1	ByteCode	49803	72.368096
2	Bound	16699	24.265101
3	Member	16410	23.845159
4	Git	15683	22.788765
5	Log	15682	22.787312
6	Method	13564	19.709673
7	Parameter	11184	16.251326
8	File	10623	15.436144
9	Commit	7618	11.069617
10	ParameterizedType	6537	9.498830
11	Value	3166	4.600474
12	Field	2846	4.135486
13	WildcardType	2722	3.955303
14	Type	2648	3.847775
15	Xml	2592	3.766402
16	Annotation	2265	3.291242
17	Constructor	1652	2.400500
18	Element	1534	2.229036
19	Text	1016	1.476336
20	TypeVariable	988	1.435650
21	Class	942	1.368808
22	GenericDeclaration	822	1.194438
23	Lambda	767	1.114518
24	JavaType	596	0.866040
25	ResolvedDuplicateType	542	0.787573
26	Primitive	467	0.678592
27	Author	260	0.377803
28	ExternalType	259	0.376350
29	Maven	252	0.366178
30	Interface	245	0.356006
31	Enum	167	0.242666
32	GenericArrayType	144	0.209245
33	Directory	136	0.197620
34	Dependency	116	0.168558
35	Property	109	0.158386
36	Package	107	0.155480
37	Array	104	0.151121
38	ManifestEntry	91	0.132231
39	Artifact	75	0.108982

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: 247775

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGED	45786	18.478862
1	INVOKES	29631	11.958834
2	OF_TYPE	17618	7.110483
3	DEPENDS_ON	17426	7.032994
4	DECLARES	16772	6.769044
5	OF_RAW_TYPE	15183	6.127737
6	HAS	11884	4.796287
7	RETURNS	10623	4.287357
8	HAS_FILE	7804	3.149632
9	READS	7684	3.101201
10	AUTHORED	7618	3.074564
11	HAS_COMMIT	7618	3.074564
12	HAS_ACTUAL_TYPE_ARGUMENT	7495	3.024922
13	HAS_PARENT	6162	2.486934
14	OF_GENERIC_TYPE	5346	2.157603
15	SIMILAR	3416	1.378670
16	RETURNS_GENERIC	3250	1.311674
17	WRITES	3065	1.237009
18	CONTAINS	3027	1.221673
19	RESOLVES_TO	2914	1.176067
20	ANNOTATED_BY	2213	0.893149
21	HAS_FIRST_CHILD	1534	0.619110
22	HAS_LAST_CHILD	1534	0.619110
23	HAS_ELEMENT	1522	0.614267
24	REQUIRES	1424	0.574715
25	HAS_UPPER_BOUND	1405	0.567047
26	EXTENDS	1267	0.511351
27	HAS_TEXT	1016	0.410049
28	HAS_SIBLING	1004	0.405206
29	DECLARES_TYPE_PARAMETER	971	0.391888

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>

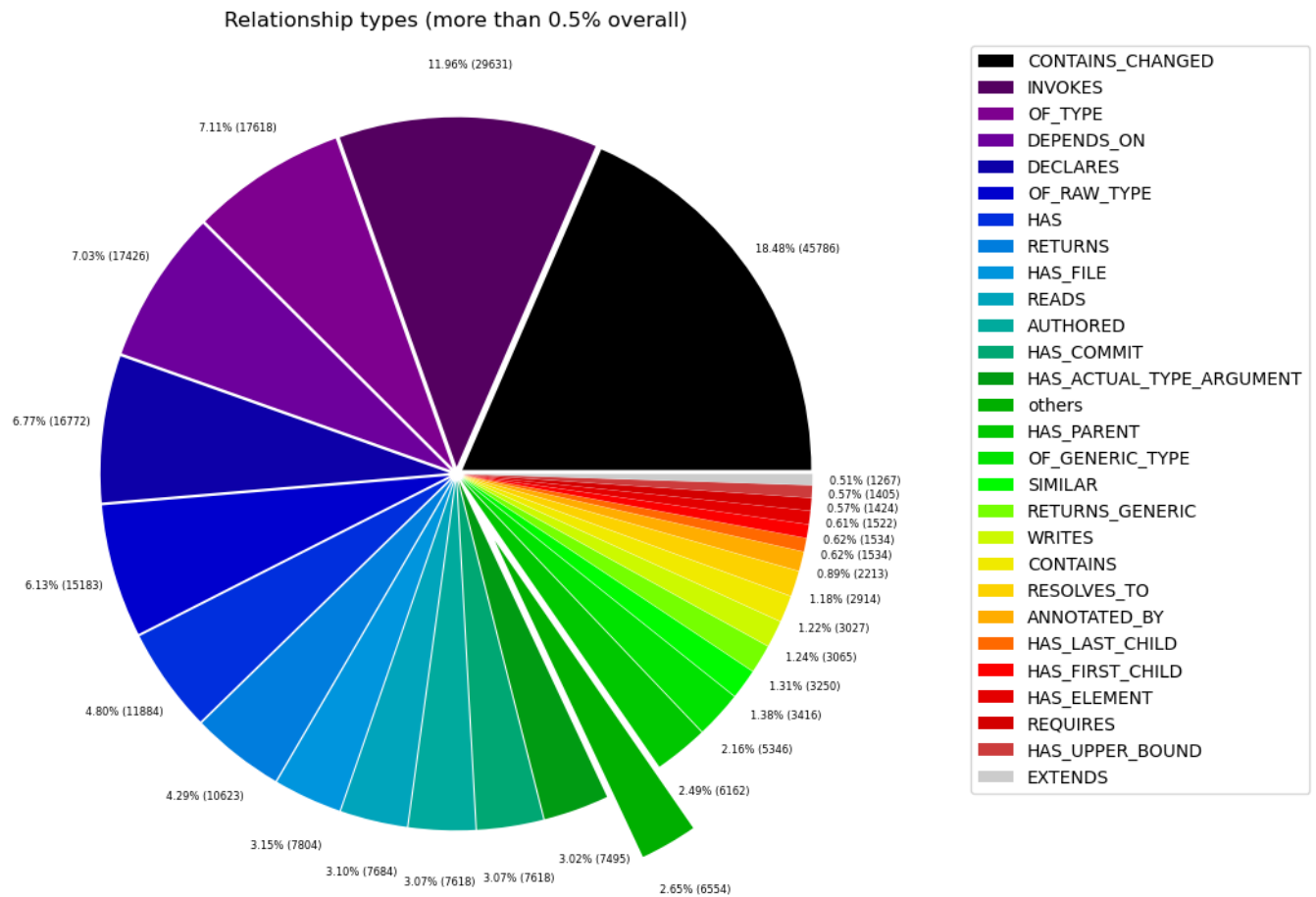


Table 2b - Lowest relationship count by type

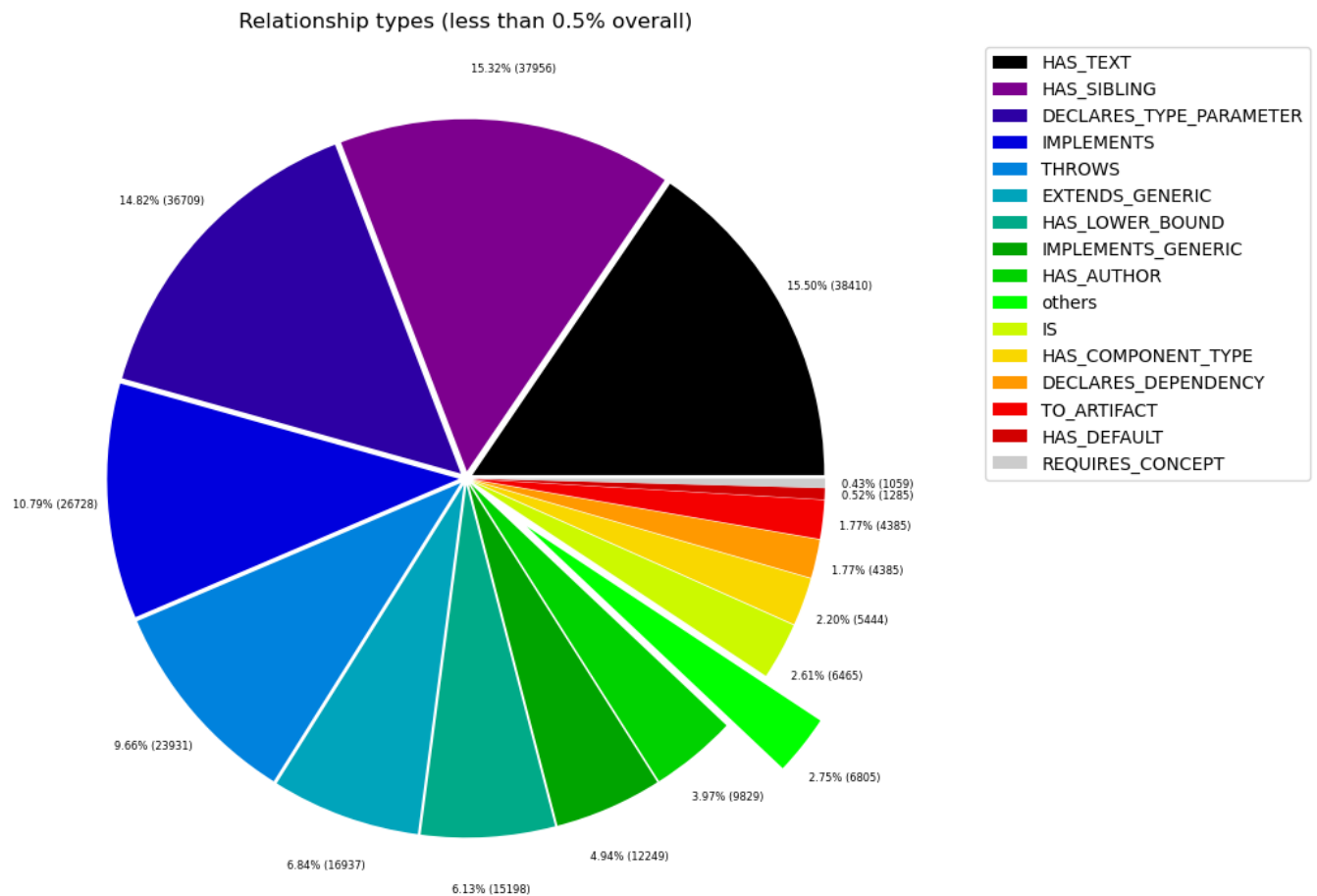
Lists the 30 relationships type with the lowest number of occurrences up to 0.5% of the total node count. This is essentially breaking down the "others" slice from the chart above.

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	EXCLUDES	1	0.000404
1	THROWS_GENERIC	5	0.002018
2	DESCRIBES	6	0.002422
3	HAS_ROOT_ELEMENT	8	0.003229
4	OF_NAMESPACE	12	0.004843
5	HAS_ATTRIBUTE	12	0.004843
6	HAS_GOAL	14	0.005650
7	HAS_EXECUTION	14	0.005650
8	USES_PLUGIN	16	0.006457
9	IS_ARTIFACT	16	0.006457
10	HAS_CONFIGURATION	16	0.006457
11	REQUIRES_TYPE_PARAMETER	17	0.006861
12	INCLUDES_CONCEPT	19	0.007668
13	DECLARES_NAMESPACE	24	0.009686
14	REQUIRES_CONCEPT	28	0.011301
15	HAS_DEFAULT	34	0.013722
16	TO_ARTIFACT	116	0.046817
17	DECLARES_DEPENDENCY	116	0.046817
18	HAS_COMPONENT_TYPE	144	0.058117
19	IS	171	0.069014
20	HAS_AUTHOR	260	0.104934
21	IMPLEMENTS_GENERIC	324	0.130764
22	HAS_LOWER_BOUND	402	0.162244
23	EXTENDS_GENERIC	448	0.180809
24	THROWS	633	0.255474
25	IMPLEMENTS	707	0.285340
26	DECLARES_TYPE_PARAMETER	971	0.391888
27	HAS_SIBLING	1004	0.405206
28	HAS_TEXT	1016	0.410049

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]	45786		7618
1	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	18184		10540
2	[Repository, Git]	HAS_FILE	[File, Git, Log]	7804		1
3	[Repository, Git]	HAS_COMMIT	[Git, Commit, Log]	7618		1
4	[Git, Author, Log]	AUTHORED	[Git, Commit, Log]	7618		260
5	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	7303		10540
6	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	6939		10540
7	[Git, Commit, Log]	HAS_PARENT	[Git, Commit, Log]	6156		7618
8	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	5720		11184
9	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3213		6308
10	[Java, ByteCode, Bound, ParameterizedType]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	2777		6537
11	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2722		6537
12	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound, ParameterizedType]	2434		11184
13	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2228		6537
14	[Java, ByteCode, Member, Constructor, Method]	WRITES	[Java, ByteCode, Member, Field]	1971		1649
15	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	1889		10540
16	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalAnnotatio...	1842		2225
17	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	1818		11184
18	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	1746		1649
19	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	1724		10540
20	[Java, ByteCode, Member, Constructor, Method]	HAS	[Java, ByteCode, Parameter]	1710		1649
21	[Java, ByteCode, Parameter]	ANNOTATED_BY	[Java, Value, ByteCode, Annotation]	1594		11184
22	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Method]	1535		1649
23	[Java, ByteCode, Member, Method, Lambda]	INVOKES	[Java, ByteCode, Member, Method]	1534		767
24	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1527		6537
25	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	1522		1534
26	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, Void]	1464		10540
27	[Type, File, Java, ByteCode, JavaType]	DECLARES	[Java, ByteCode, Member, Method]	1277		596
28	[Java, ByteCode, GenericDeclaration, Member, M...	INVOKES	[Java, ByteCode, Member, Method]	1276		510

	sourceLabels	relationType	targetLabels	numberOfRelationships	numberOfNodesWithSameLabelsAsSource	numberOfNodesWithS
29	[Java, ByteCode, Member, Constructor, Method]	RETURNS	[Type, File, Java, ByteCode, Void]	1221		1649

Graph Density

```

total_number_of_nodes (vertices): 68819
total_number_of_relationships (edges): 247775
-> total directed graph density: 5.231751171443828e-05
-> total directed graph density in percent: 0.005231751171443828

```