

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: 68835

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Java, ByteCode, Parameter]	11184	16.247548
1	[Java, ByteCode, Member, Method]	10636	15.451442
2	[File, Git, Log]	7804	11.337256
3	[Commit, Git, Log]	7618	11.067044
4	[Java, ByteCode, Bound, ParameterizedType]	6537	9.496622
5	[Java, ByteCode, Bound]	6308	9.163943
6	[Java, ByteCode, Member, Field]	2846	4.134525
7	[Java, ByteCode, Bound, WildcardType]	2722	3.954384
8	[Java, Value, ByteCode, Annotation]	2225	3.232367
9	[Java, ByteCode, Member, Constructor, Method]	1650	2.397036
10	[Xml, Element]	1534	2.228517
11	[Xml, Text]	1016	1.475993
12	[Java, ByteCode, Bound, TypeVariable]	988	1.435316
13	[Java, ByteCode, Member, Method, Lambda]	767	1.114259
14	[Type, File, Java, ByteCode, Class]	699	1.015472
15	[Type, File, Java, ByteCode, JavaType]	596	0.865839
16	[Type, File, Java, ByteCode, ResolvedDuplicate...	542	0.787390
17	[Java, ByteCode, GenericDeclaration, Member, M...	525	0.762693
18	[Java, Value, ByteCode, Primitive]	467	0.678434
19	[Author, Git, Log]	260	0.377715
20	[Type, File, Java, ByteCode, Class, GenericDec...	215	0.312341
21	[Type, File, Java, ByteCode, ExternalType]	194	0.281833
22	[Type, File, Java, ByteCode, Interface]	166	0.241156
23	[Java, ByteCode, Bound, GenericArrayType]	144	0.209196
24	[Java, Value, ByteCode, Enum]	142	0.206290
25	[Maven, Dependency]	116	0.168519
26	[Value, Property]	109	0.158350
27	[Package, File, Directory, Java]	107	0.155444
28	[Value, Array]	104	0.151086
29	[Value, ManifestEntry]	91	0.132200

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.

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Nodes per label combination (more than 0.5% overall)

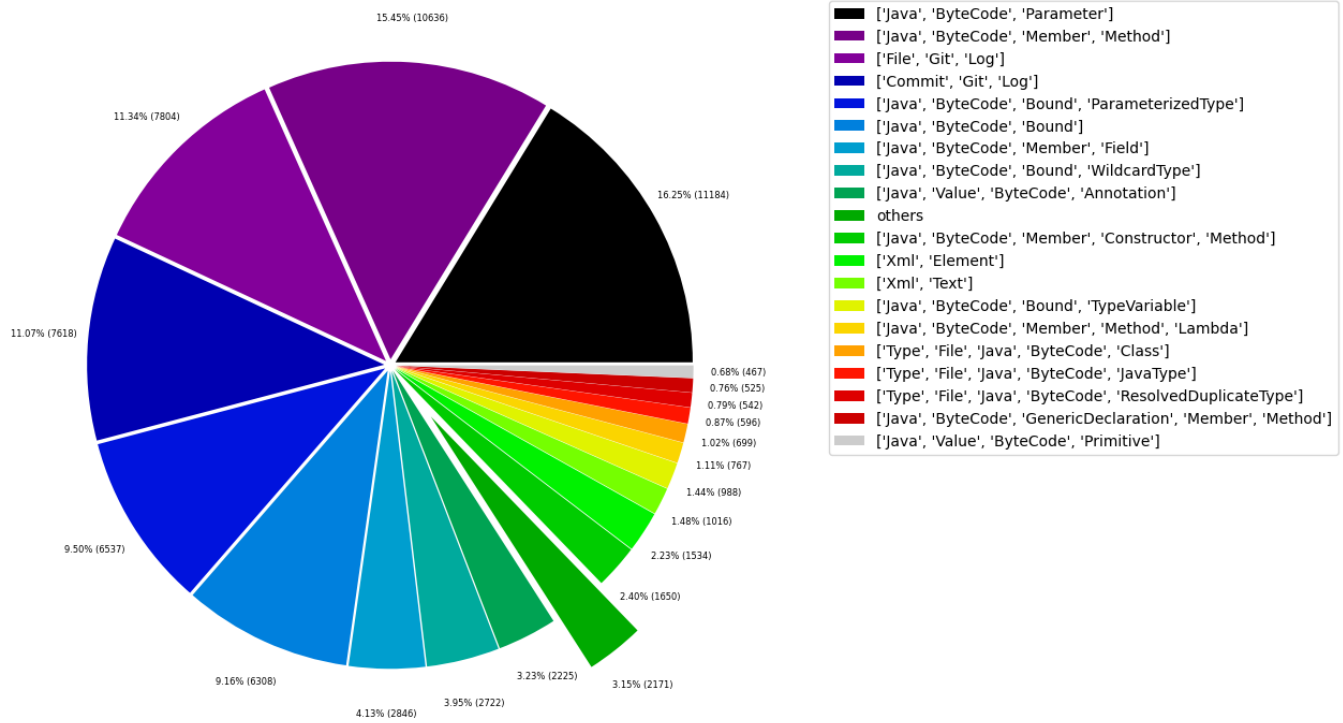


Table 1b - Lowest node count by label combination

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	0.001453
1	[Maven, Exclusion]	1	0.001453
2	[Java, ByteCode, GenericDeclaration, Member, C...	3	0.004358
3	[Type, File, Java, ByteCode, Void]	6	0.008716
4	[File, Maven, Xml, Pom, Document]	6	0.008716
5	[Java, ManifestSection]	6	0.008716
6	[File, Java, Manifest]	6	0.008716
7	[Artifact, File, Jar, Archive, Zip, Java]	6	0.008716
8	[File, Java, Properties]	8	0.011622
9	[File, Java, ServiceLoader]	9	0.013075
10	[Xml, Attribute]	12	0.017433
11	[Maven, ExecutionGoal]	14	0.020338
12	[Maven, PluginExecution]	14	0.020338
13	[Maven, Plugin]	16	0.023244
14	[Maven, Configuration]	16	0.023244
15	[JQAssistant, Rule, Concept]	19	0.027602
16	[Type, File, Java, ByteCode, PrimitiveType]	21	0.030508
17	[Xml, Namespace]	24	0.034866
18	[Type, File, Java, ByteCode, Enum]	25	0.036319
19	[Java, Value, ByteCode, Class]	28	0.040677
20	[File, Directory]	29	0.042130
21	[Type, File, Java, ByteCode, Annotation]	40	0.058110
22	[Type, File, Java, ByteCode, ExternalAnnotatio...	65	0.094429
23	[Artifact, Maven]	69	0.100240
24	[Type, File, Java, ByteCode, GenericDeclaratio...	79	0.114767
25	[Value, ManifestEntry]	91	0.132200
26	[Value, Array]	104	0.151086
27	[Package, File, Directory, Java]	107	0.155444
28	[Value, Property]	109	0.158350
29	[Maven, Dependency]	116	0.168519

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)

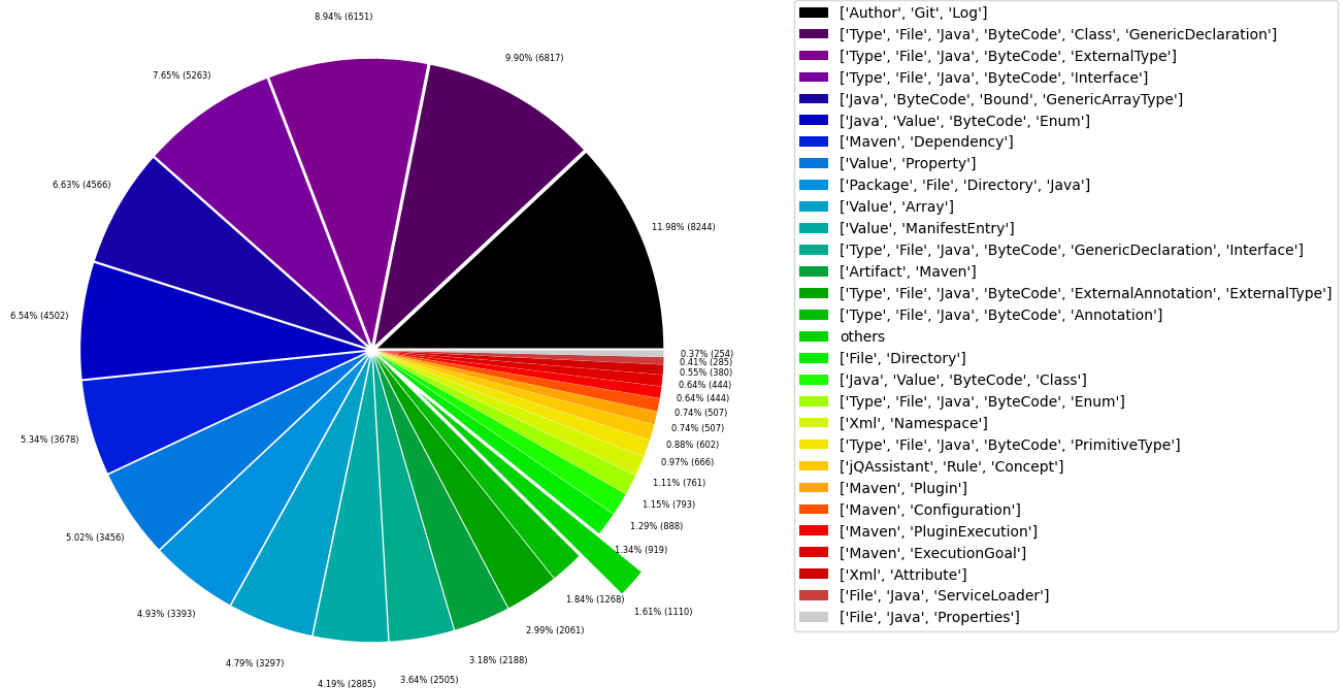


Table 1c - Highest node count by single label

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.

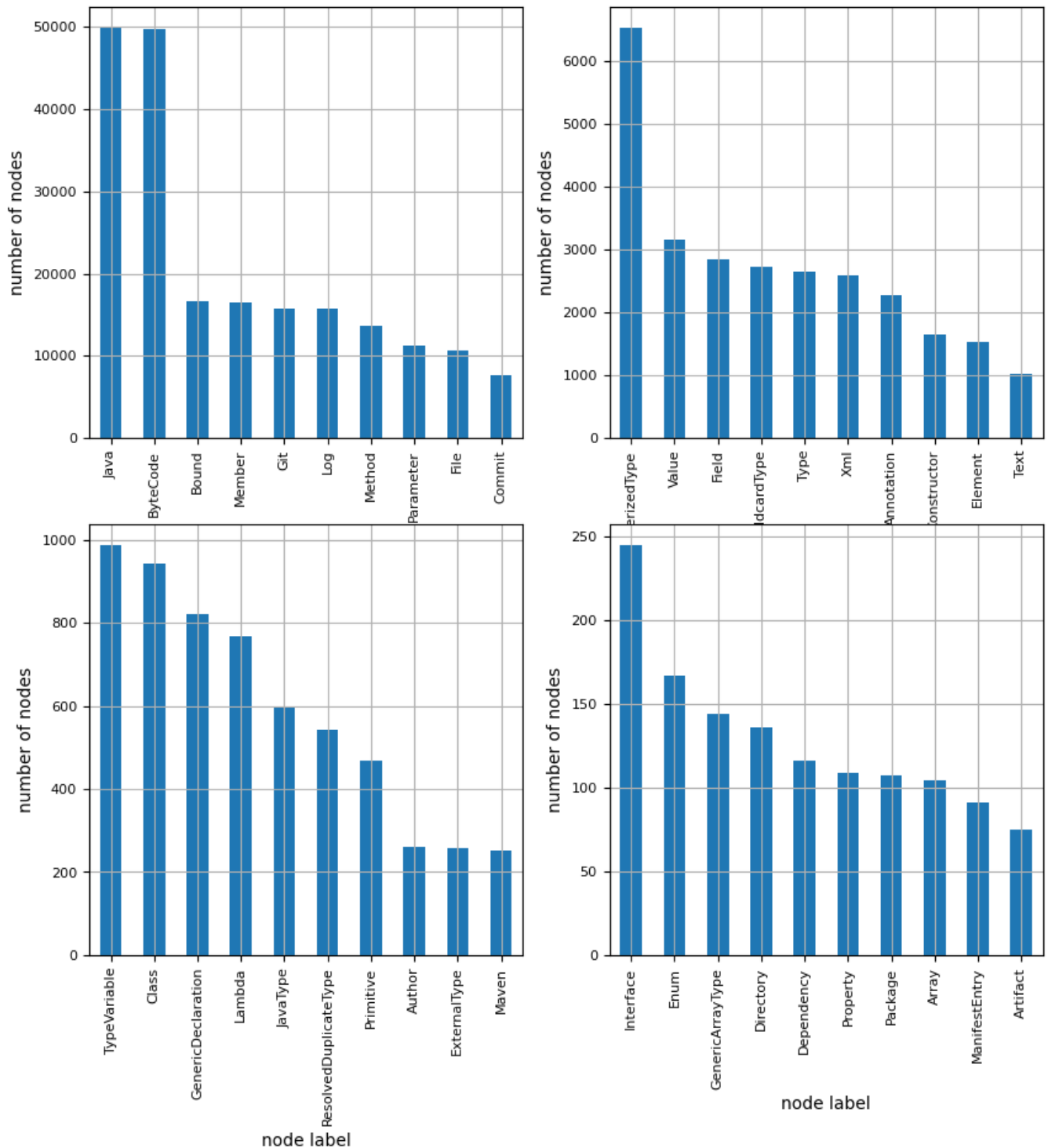
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Java	49962	72.582262
1	ByteCode	49820	72.375972
2	Bound	16699	24.259461
3	Member	16427	23.864313
4	Git	15682	22.782015
5	Log	15682	22.782015
6	Method	13581	19.729789
7	Parameter	11184	16.247548
8	File	10623	15.432556
9	Commit	7618	11.067044
10	ParameterizedType	6537	9.496622
11	Value	3166	4.599404
12	Field	2846	4.134525
13	WildcardType	2722	3.954384
14	Type	2648	3.846880
15	Xml	2592	3.765526
16	Annotation	2265	3.290477
17	Constructor	1653	2.401395
18	Element	1534	2.228517
19	Text	1016	1.475993
20	TypeVariable	988	1.435316
21	Class	942	1.368490
22	GenericDeclaration	822	1.194160
23	Lambda	767	1.114259
24	JavaType	596	0.865839
25	ResolvedDuplicateType	542	0.787390
26	Primitive	467	0.678434
27	Author	260	0.377715
28	ExternalType	259	0.376262
29	Maven	252	0.366093
30	Interface	245	0.355924
31	Enum	167	0.242609
32	GenericArrayType	144	0.209196
33	Directory	136	0.197574
34	Dependency	116	0.168519
35	Property	109	0.158350
36	Package	107	0.155444
37	Array	104	0.151086
38	ManifestEntry	91	0.132200
39	Artifact	75	0.108956

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: 232119

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGED	45786	19.725227
1	INVOKES	29636	12.767589
2	OF_TYPE	17618	7.590072
3	DEPENDS_ON	17426	7.507356
4	DECLARES	16789	7.232928
5	OF_RAW_TYPE	15183	6.541041
6	HAS	11884	5.119788
7	RETURNS	10623	4.576532
8	READS	7684	3.310371
9	AUTHORED	7618	3.281937
10	HAS_ACTUAL_TYPE_ARGUMENT	7495	3.228947
11	HAS_PARENT	6162	2.654673
12	OF_GENERIC_TYPE	5346	2.303129
13	SIMILAR	3416	1.471659
14	RETURNS_GENERIC	3250	1.400144
15	WRITES	3065	1.320443
16	CONTAINS	3027	1.304072
17	RESOLVES_TO	2918	1.257114
18	ANNOTATED_BY	2213	0.953390
19	HAS_FIRST_CHILD	1534	0.660868
20	HAS_LAST_CHILD	1534	0.660868
21	HAS_ELEMENT	1522	0.655698
22	REQUIRES	1424	0.613478
23	HAS_UPPER_BOUND	1405	0.605293
24	EXTENDS	1267	0.545841
25	HAS_TEXT	1016	0.437707
26	HAS_SIBLING	1004	0.432537
27	DECLARES_TYPE_PARAMETER	971	0.418320
28	IMPLEMENTS	707	0.304585
29	THROWS	633	0.272705

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.

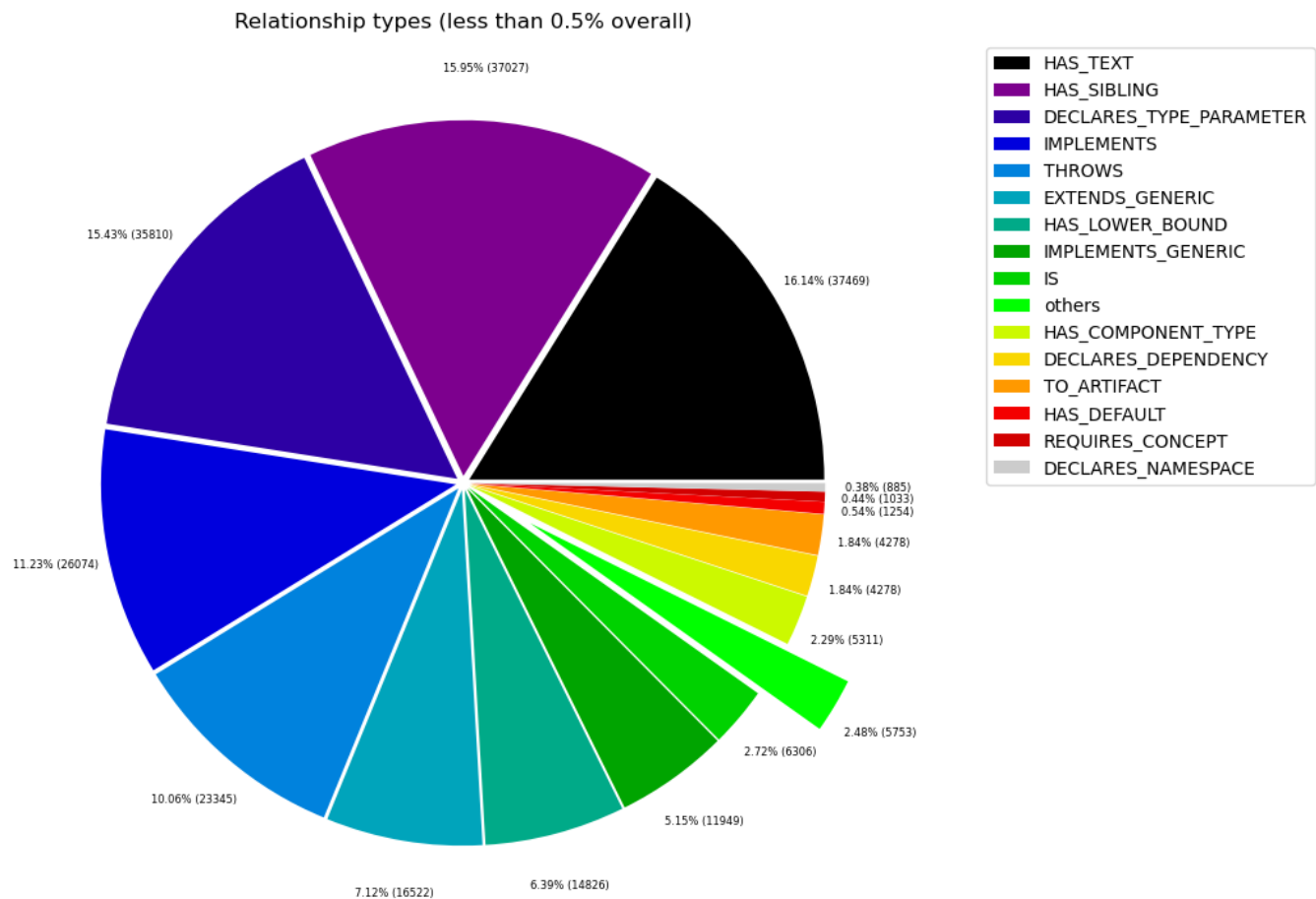
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	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	EXCLUDES	1	0.000431
1	THROWS_GENERIC	5	0.002154
2	DESCRIBES	6	0.002585
3	HAS_ROOT_ELEMENT	8	0.003447
4	OF_NAMESPACE	12	0.005170
5	HAS_ATTRIBUTE	12	0.005170
6	HAS_GOAL	14	0.006031
7	HAS_EXECUTION	14	0.006031
8	USES_PLUGIN	16	0.006893
9	IS_ARTIFACT	16	0.006893
10	HAS_CONFIGURATION	16	0.006893
11	REQUIRES_TYPE_PARAMETER	17	0.007324
12	INCLUDES_CONCEPT	19	0.008185
13	DECLARES_NAMESPACE	24	0.010340
14	REQUIRES_CONCEPT	28	0.012063
15	HAS_DEFAULT	34	0.014648
16	TO_ARTIFACT	116	0.049974
17	DECLARES_DEPENDENCY	116	0.049974
18	HAS_COMPONENT_TYPE	144	0.062037
19	IS	171	0.073669
20	IMPLEMENTS_GENERIC	324	0.139584
21	HAS_LOWER_BOUND	402	0.173187
22	EXTENDS_GENERIC	448	0.193004
23	THROWS	633	0.272705
24	IMPLEMENTS	707	0.304585
25	DECLARES_TYPE_PARAMETER	971	0.418320
26	HAS_SIBLING	1004	0.432537
27	HAS_TEXT	1016	0.437707

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.

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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	[Commit, Git, Log]	CONTAINS_CHANGED	[File, Git, Log]	45786	7618	
1	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Method]	18186	10556	
2	[Author, Git, Log]	AUTHORED	[Commit, Git, Log]	7618	260	
3	[Java, ByteCode, Member, Method]	HAS	[Java, ByteCode, Parameter]	7303	10556	
4	[Java, ByteCode, Member, Method]	READS	[Java, ByteCode, Member, Field]	6939	10556	
5	[Commit, Git, Log]	HAS_PARENT	[Commit, Git, Log]	6156	7618	
6	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	5720	11184	
7	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3213	6308	
8	[Java, ByteCode, Bound, ParameterizedType]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	2777	6537	
9	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2722	6537	
10	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound, ParameterizedType]	2434	11184	
11	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2228	6537	
12	[Java, ByteCode, Member, Constructor, Method]	WRITES	[Java, ByteCode, Member, Field]	1971	1650	
13	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, JavaType]	1889	10556	
14	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalAnnotatio...	1842	2225	
15	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	1818	11184	
16	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	1746	1650	
17	[Java, ByteCode, Member, Method]	INVOKES	[Java, ByteCode, Member, Constructor, Method]	1724	10556	
18	[Java, ByteCode, Member, Constructor, Method]	HAS	[Java, ByteCode, Parameter]	1710	1650	
19	[Java, ByteCode, Parameter]	ANNOTATED_BY	[Java, Value, ByteCode, Annotation]	1594	11184	
20	[Java, ByteCode, Member, Constructor, Method]	INVOKES	[Java, ByteCode, Member, Method]	1535	1650	
21	[Java, ByteCode, Member, Method, Lambda]	INVOKES	[Java, ByteCode, Member, Method]	1535	767	
22	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1527	6537	
23	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	1522	1534	
24	[Java, ByteCode, Member, Method]	RETURNS	[Type, File, Java, ByteCode, Void]	1464	10556	
25	[Type, File, Java, ByteCode, JavaType]	DECLARES	[Java, ByteCode, Member, Method]	1277	596	
26	[Java, ByteCode, GenericDeclaration, Member, M...	INVOKES	[Java, ByteCode, Member, Method]	1276	510	
27	[Java, ByteCode, Member, Constructor, Method]	RETURNS	[Type, File, Java, ByteCode, Void]	1221	1650	

	sourceLabels	relationType	targetLabels	numberOfRelationships	numberOfNodesWithSameLabelsAsSource	numberOfNodesWithS
28	[Java, ByteCode, Member, Field]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	1170		2846
29	[Java, ByteCode, Member, Method]	RETURNS_GENERIC	[Java, ByteCode, Bound, ParameterizedType]	1159		10556

Graph Density

total_number_of_nodes (vertices): 68835

total_number_of_relationships (edges): 232119

-> total directed graph density: 4.8988976565366156e-05

-> total directed graph density in percent: 0.004898897656536616