

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]	245365	73.479515
1	[Java, ByteCode, Method, Member]	13200	3.953007
2	[Java, ByteCode, Parameter]	13000	3.893113
3	[Git, Commit]	12005	3.595140
4	[File, Git]	10675	3.196845
5	[Java, ByteCode, Bound, ParameterizedType]	7166	2.146004
6	[Java, ByteCode, Bound]	7112	2.129832
7	[Java, ByteCode, Member, Field]	3494	1.046349
8	[Java, ByteCode, Bound, WildcardType]	2906	0.870261
9	[Java, Value, ByteCode, Annotation]	2821	0.844806
10	[Xml, Element]	2144	0.642064
11	[Java, ByteCode, Constructor, Method, Member]	2040	0.610919
12	[Xml, Text]	1436	0.430039
13	[Java, ByteCode, Bound, TypeVariable]	1096	0.328219
14	[Java, ByteCode, Method, Member, Lambda]	936	0.280304
15	[Type, File, Java, ByteCode, ResolvedDuplicate...	900	0.269523
16	[Type, File, Java, ByteCode, Class]	861	0.257844
17	[Type, File, Java, ByteCode, JavaType]	746	0.223405
18	[Java, Value, ByteCode, Primitive]	650	0.194656
19	[Java, ByteCode, Method, Member, GenericDeclar...	569	0.170399
20	[Json, Key]	555	0.166206
21	[Value, Json, Scalar]	539	0.161414
22	[Type, File, Java, ByteCode, ExternalType]	396	0.118590
23	[Author, Git, Person]	292	0.087445
24	[Value, Array]	267	0.079959
25	[Committer, Git, Person]	247	0.073969
26	[Type, File, Java, ByteCode, Class, GenericDec...	236	0.070675
27	[Value, Property]	202	0.060493
28	[Type, File, Java, ByteCode, Interface]	187	0.056001
29	[Java, Value, ByteCode, Class]	172	0.051509

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)

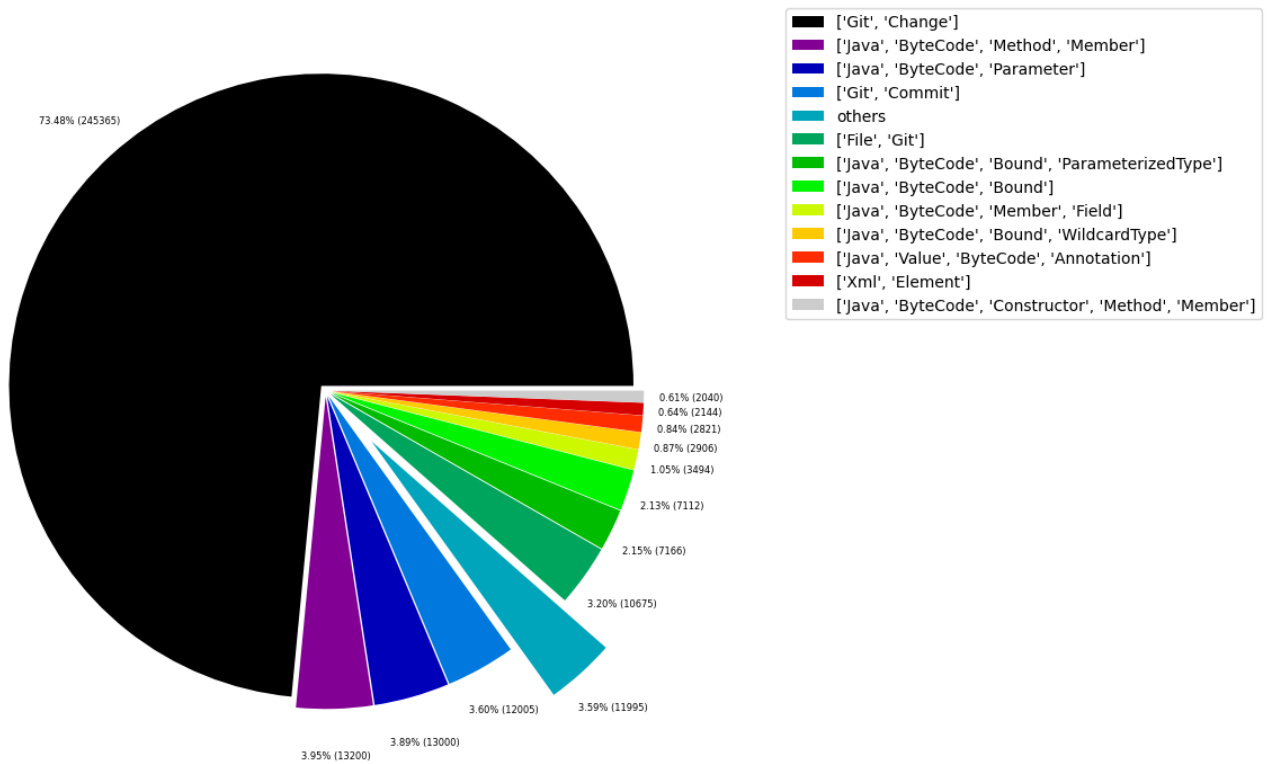


Table 1b - Lowest node count by label combination

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	0.000299
1	[File, Json]	2	0.000599
2	[File]	3	0.000898
3	[Java, ByteCode, Constructor, Method, Member, ...]	4	0.001198
4	[Maven, Exclusion]	5	0.001497
5	[Value, Array, Json]	6	0.001797
6	[File, Maven, Xml, Pom, Document]	9	0.002695
7	[Type, File, Java, ByteCode, Void]	9	0.002695
8	[Java, ManifestSection]	9	0.002695
9	[File, Java, Manifest]	9	0.002695
10	[Artifact, File, Jar, Archive, Zip, Java]	9	0.002695
11	[File, Java, ServiceLoader]	10	0.002995
12	[File, Java, Properties]	12	0.003594
13	[Maven, ExecutionGoal]	16	0.004792
14	[Maven, PluginExecution]	16	0.004792
15	[Xml, Attribute]	18	0.005390
16	[jQAssistant, Rule, Concept]	19	0.005690
17	[Maven, Plugin]	21	0.006289
18	[Maven, Configuration]	21	0.006289
19	[Type, File, Java, ByteCode, Enum]	28	0.008385
20	[Type, File, Java, ByteCode, PrimitiveType]	29	0.008685
21	[Git, Branch]	30	0.008984
22	[Xml, Namespace]	36	0.010781
23	[Type, File, Java, ByteCode, Annotation]	43	0.012877
24	[File, Directory]	44	0.013177
25	[Type, File, Java, ByteCode, GenericDeclaratio...	85	0.025455
26	[Artifact, Maven]	92	0.027551
27	[Type, File, Java, ByteCode, ExternalType, Ext...	93	0.027851
28	[Value, ManifestEntry]	120	0.035936
29	[Value, Json, Object]	132	0.039530

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)

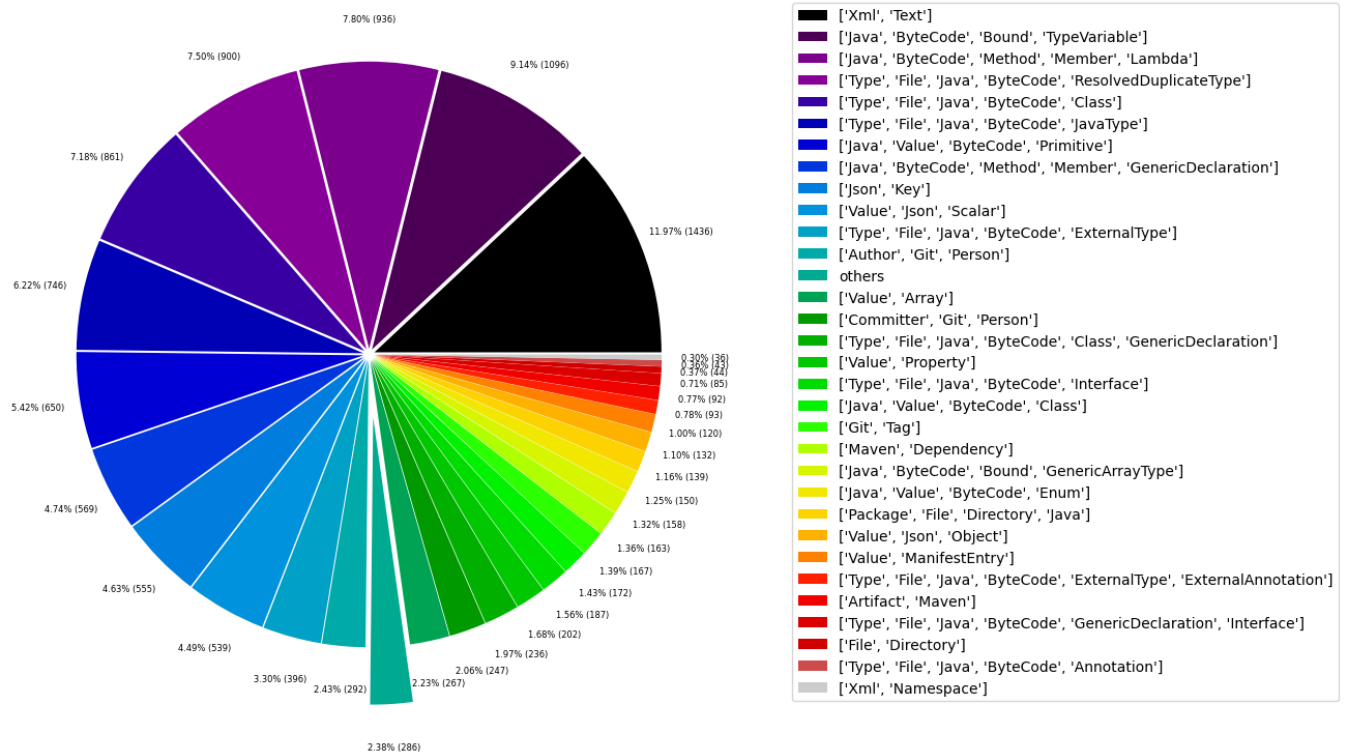


Table 1c - Highest node count by single label

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.

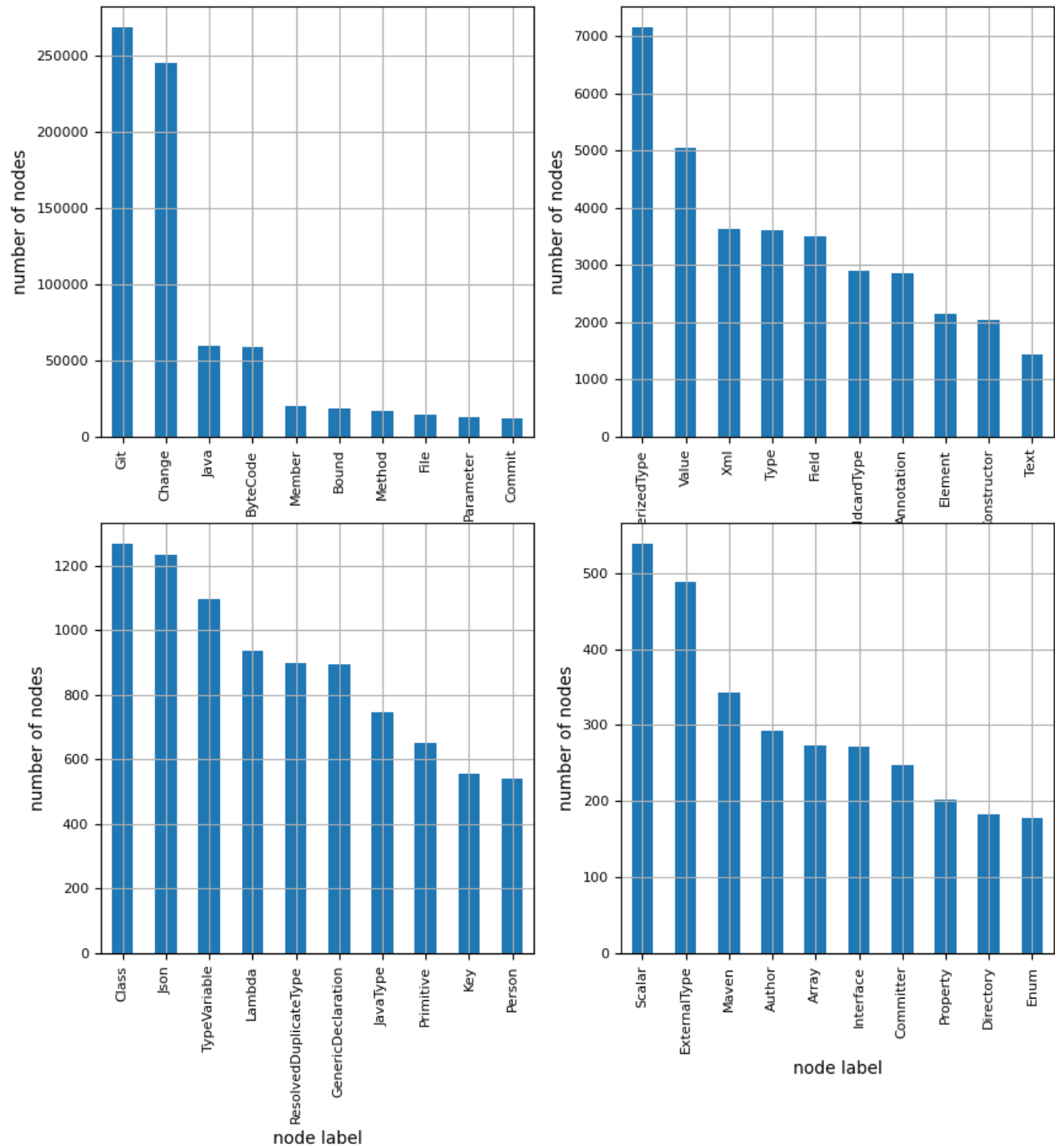
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	268781	80.491910
1	Change	245365	73.479515
2	Java	59275	17.751098
3	ByteCode	59087	17.694798
4	Member	20243	6.062176
5	Bound	18438	5.521632
6	Method	16749	5.015827
7	File	14525	4.349805
8	Parameter	13000	3.893113
9	Commit	12005	3.595140
10	ParameterizedType	7166	2.146004
11	Value	5059	1.515020
12	Xml	3643	1.090970
13	Type	3613	1.081986
14	Field	3494	1.046349
15	WildcardType	2906	0.870261
16	Annotation	2864	0.857683
17	Element	2144	0.642064
18	Constructor	2044	0.612117
19	Text	1436	0.430039
20	Class	1269	0.380028
21	Json	1234	0.369546
22	TypeVariable	1096	0.328219
23	Lambda	936	0.280304
24	ResolvedDuplicateType	900	0.269523
25	GenericDeclaration	894	0.267726
26	JavaType	746	0.223405
27	Primitive	650	0.194656
28	Key	555	0.166206
29	Person	539	0.161414
30	Scalar	539	0.161414
31	ExternalType	489	0.146441
32	Maven	343	0.102718
33	Author	292	0.087445
34	Array	273	0.081755
35	Interface	272	0.081456
36	Committer	247	0.073969
37	Property	202	0.060493
38	Directory	183	0.054803
39	Enum	178	0.053306

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: 1012476

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	245365	24.234155
1	MODIFIES	245365	24.234155
2	UPDATES	158745	15.678890
3	CREATES	59716	5.898016
4	DELETES	37193	3.673470
5	INVOKES	35574	3.513565
6	COMMITTED	24010	2.371414
7	DEPENDS_ON	21873	2.160348
8	OF_TYPE	21347	2.108396
9	DECLARES	20684	2.042913
10	OF_RAW_TYPE	17077	1.686657
11	HAS_PARENT	14598	1.441812
12	HAS	14094	1.392033
13	RETURNS	12547	1.239239
14	RENAMES	10289	1.016222
15	READS	9076	0.896416
16	HAS_ACTUAL_TYPE_ARGUMENT	8276	0.817402
17	HAS_NEW_NAME	6198	0.612163
18	OF_GENERIC_TYPE	5902	0.582927
19	RESOLVES_TO	5225	0.516062
20	SIMILAR	3968	0.391911
21	CONTAINS	3805	0.375811
22	WRITES	3803	0.375614
23	RETURNS_GENERIC	3543	0.349934
24	ANNOTATED_BY	2809	0.277439
25	REQUIRES	2173	0.214622
26	HAS_FIRST_CHILD	2144	0.211758
27	HAS_LAST_CHILD	2144	0.211758
28	HAS_ELEMENT	2126	0.209980
29	HAS_UPPER_BOUND	1521	0.150226

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)

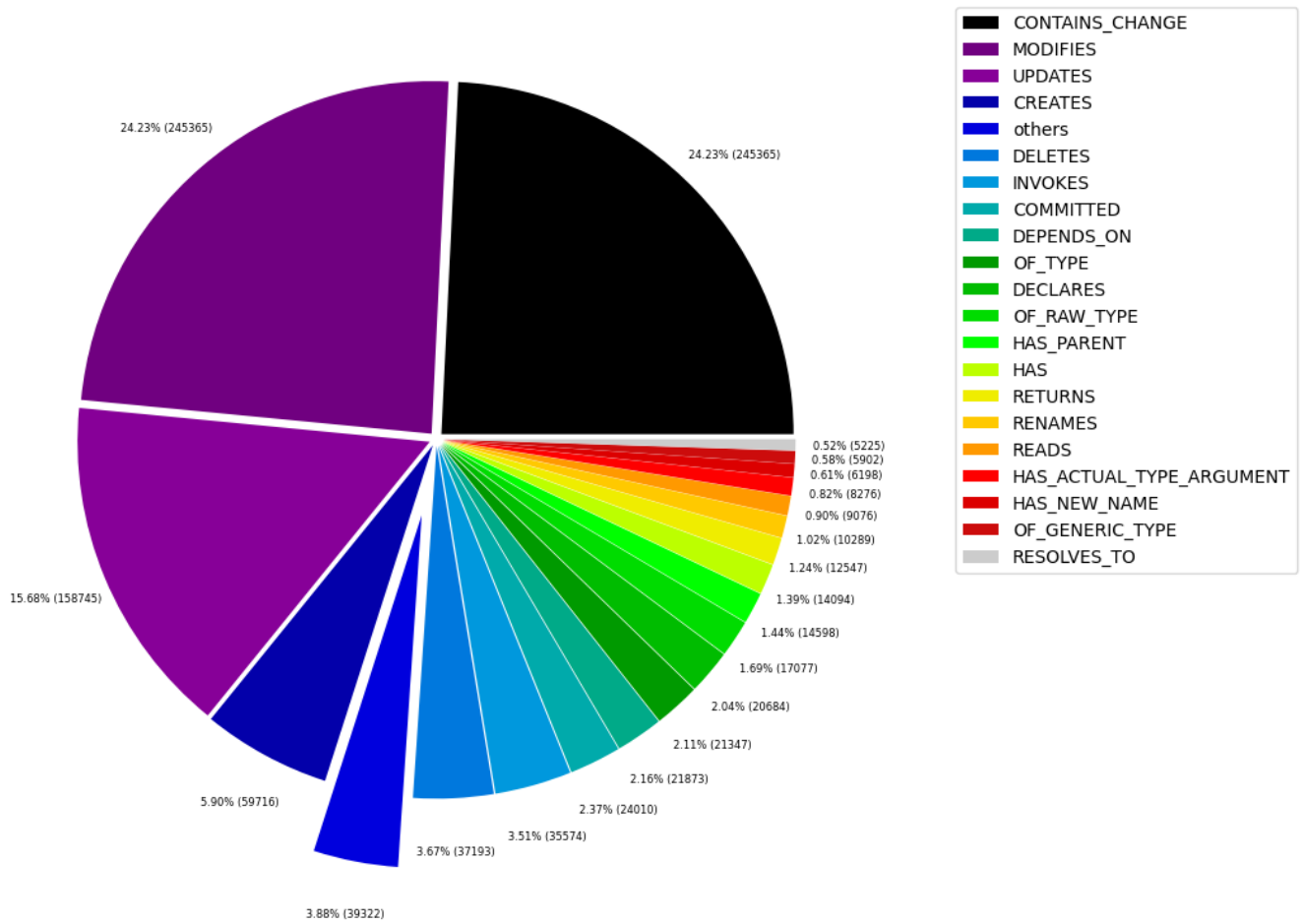


Table 2b - Lowest relationship count by type

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.

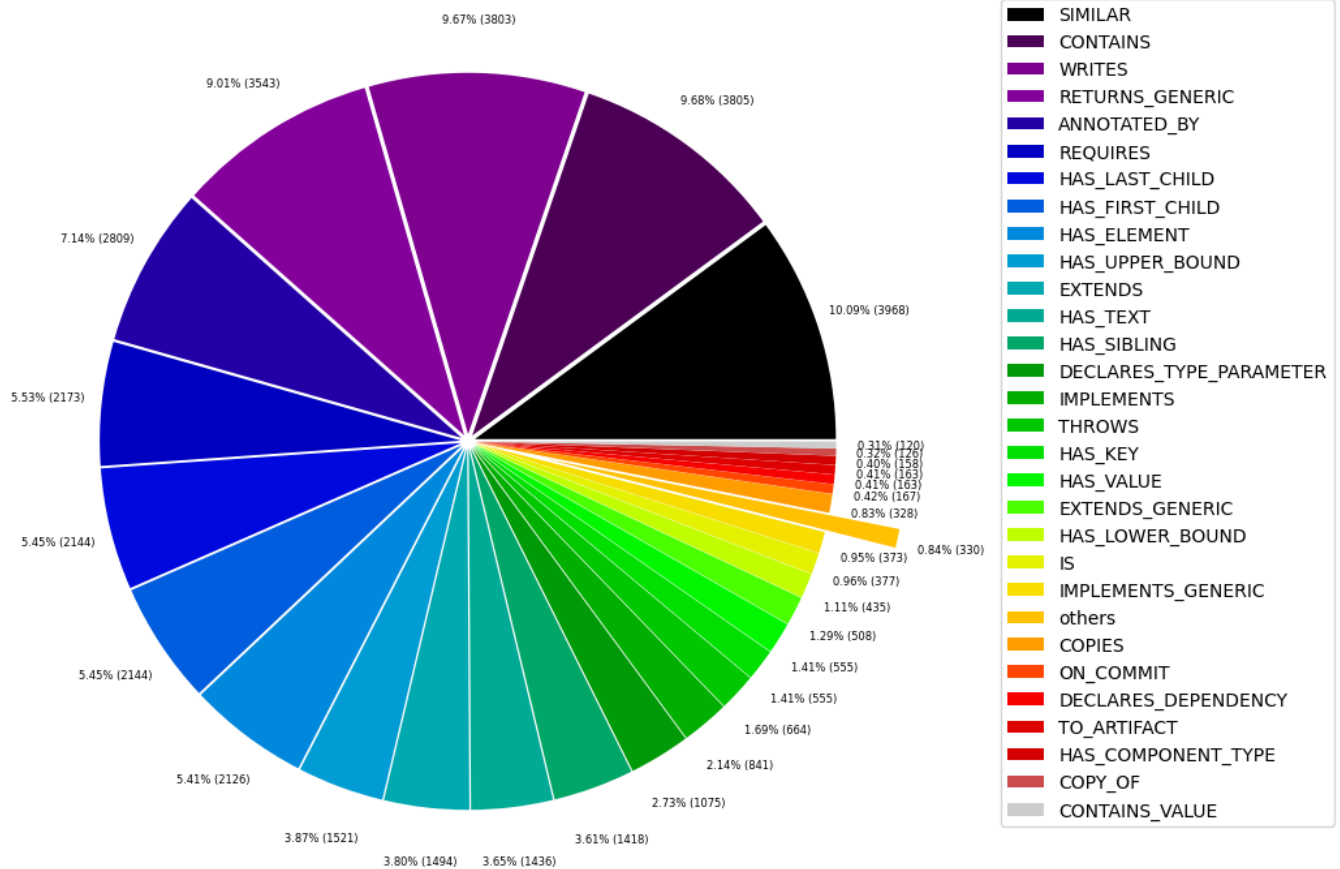
	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	HAS_PROPERTY	1	0.000099
1	THROWS_GENERIC	5	0.000494
2	EXCLUDES	5	0.000494
3	HAS_ROOT_ELEMENT	9	0.000889
4	DESCRIBES	9	0.000889
5	HAS_GOAL	16	0.001580
6	HAS_EXECUTION	16	0.001580
7	OF_NAMESPACE	18	0.001778
8	HAS_ATTRIBUTE	18	0.001778
9	INCLUDES_CONCEPT	19	0.001877
10	USES_PLUGIN	21	0.002074
11	REQUIRES_TYPE_PARAMETER	21	0.002074
12	IS_ARTIFACT	21	0.002074
13	HAS_CONFIGURATION	21	0.002074
14	REQUIRES_CONCEPT	28	0.002765
15	HAS_HEAD	30	0.002963
16	DECLARES_NAMESPACE	36	0.003556
17	HAS_DEFAULT	36	0.003556
18	CONTAINS_VALUE	120	0.011852
19	COPY_OF	126	0.012445
20	HAS_COMPONENT_TYPE	158	0.015605
21	TO_ARTIFACT	163	0.016099
22	DECLARES_DEPENDENCY	163	0.016099
23	ON_COMMIT	167	0.016494
24	COPIES	328	0.032396
25	IMPLEMENTS_GENERIC	373	0.036840
26	IS	377	0.037235
27	HAS_LOWER_BOUND	435	0.042964
28	EXTENDS_GENERIC	508	0.050174
29	HAS_VALUE	555	0.054816

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]	245365		12005
1	[Git, Change]	MODIFIES	[File, Git]	245365		245365
2	[Git, Change]	UPDATES	[File, Git]	158745		245365
3	[Git, Change]	CREATES	[File, Git]	59716		245365
4	[Git, Change]	DELETES	[File, Git]	37193		245365
5	[Java, ByteCode, Method, Member]	INVOKES	[Java, ByteCode, Method, Member]	21521		13076
6	[Git, Commit]	HAS_PARENT	[Git, Commit]	14589		12005
7	[Author, Git, Person]	COMMITTED	[Git, Commit]	12005		292
8	[Committer, Git, Person]	COMMITTED	[Git, Commit]	12005		247
9	[Git, Change]	RENAMES	[File, Git]	10289		245365
10	[Java, ByteCode, Method, Member]	HAS	[Java, ByteCode, Parameter]	8297		13076
11	[Java, ByteCode, Method, Member]	READS	[Java, ByteCode, Member, Field]	8100		13076
12	[Java, ByteCode, Parameter]	OF_TYPE	[Type, File, Java, ByteCode, JavaType]	6360		13000
13	[File, Git]	HAS_NEW_NAME	[File, Git]	6198		10675
14	[Java, ByteCode, Bound]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3569		7112
15	[Java, ByteCode, Bound, ParameterizedType]	OF_RAW_TYPE	[Type, File, Java, ByteCode, JavaType]	3043		7166
16	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, WildcardType]	2906		7166
17	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound, ParameterizedType]	2655		13000
18	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound, TypeVariable]	2454		7166
19	[Java, ByteCode, Constructor, Method, Member]	WRITES	[Java, ByteCode, Member, Field]	2426		2040
20	[Java, Value, ByteCode, Annotation]	OF_TYPE	[Type, File, Java, ByteCode, ExternalType, Ext...	2340		2821
21	[Xml, Element]	HAS_ELEMENT	[Xml, Element]	2126		2144
22	[Java, ByteCode, Constructor, Method, Member]	INVOKES	[Java, ByteCode, Constructor, Method, Member]	2111		2040
23	[Java, ByteCode, Method, Member]	RETURNS	[Type, File, Java, ByteCode, JavaType]	2088		13076
24	[Java, ByteCode, Constructor, Method, Member]	HAS	[Java, ByteCode, Parameter]	2023		2040
25	[Java, ByteCode, Parameter]	OF_GENERIC_TYPE	[Java, ByteCode, Bound]	2023		13000
26	[Java, ByteCode, Method, Member]	INVOKES	[Java, ByteCode, Constructor, Method, Member]	2007		13076
27	[Java, ByteCode, Method, Member, Lambda]	INVOKES	[Java, ByteCode, Method, Member]	1883		936
28	[Java, ByteCode, Bound, ParameterizedType]	HAS_ACTUAL_TYPE_ARGUMENT	[Java, ByteCode, Bound]	1802		7166
29	[Java, ByteCode, Constructor, Method, Member]	INVOKES	[Java, ByteCode, Method, Member]	1796		2040

Graph Density

```
total_number_of_nodes (vertices): 333923
total_number_of_relationships (edges): 1012476
-> total directed graph density: 9.080157277123706e-06
-> total directed graph density in percent: 0.0009080157277123706
```