

B. Test Subjects

Our tests suites have a mean of 441.766 test cases (with standard deviation 920.385). There are 158 programs, of which 90 have more than 100 tests. Our mean LOC was 7061 (sd 14519), with a mean mutation score 31.081% (sd 27.511).

Namin et al. [24] has test suites with mean 3115 test cases (sd 3115.286), but uses a total of 7 subjects with an average LOC 312, and a mean mutation score of 32.242% (sd 0.318).

Zhang et al. [13] has test suites with mean 3115 test cases (sd 3115.286), but uses a total of 7 subjects with an average LOC 312, and a mean mutation score of 83.144% (sd 0.055).

Zhang et al. [14] has test suites with mean 748 test cases (sd 748.636), but uses a total of 11 subjects with an average LOC 15083, and a mean mutation score of 44.881% (sd 0.251).

Zhang et al. [15] has test suites with mean 81 test cases (sd 81), but uses a total of 12 subjects with an average LOC 6209, and a mean mutation score of 52.895%. (sd 0.256).

	total	detected	tests	cloc	muscore
aclm	2724	1487	102	2237	54.59
AirReceiver	4040	392	28	4214	9.70
akela	2525	307	66	2338	12.16
Alphabot	2555	0	4	1903	0.00
AntiCheat	9881	20	4	5890	0.20
artifactory-cli	1296	0	56	1257	0.00
asterisk-java	15530	3206	720	30552	20.64
bcel	33021	3672	173	34012	11.12
beanutils	12017	6823	1819	11640	56.78
beanutils2	2071	1281	872	2251	61.85
betwixt	7213	4271	1462	8898	59.21
bsf	6142	437	83	5715	7.11
cache	2445	337	35	2372	13.78
clazz	5242	1583	280	5681	30.20
cli2	3759	3145	538	4013	83.67
cli	2705	2330	261	2667	86.14
clj-ds	14007	1667	52	10800	11.90
clyde	111087	315	20	111533	0.28
collections	24681	8561	2629	25400	34.69
command-me	1030	708	408	1309	68.74
commons-codec	9983	8252	733	6603	82.66
commons-inject	1399	812	37	1857	58.04
commons-jcs-jcache	2837	381	40	3917	13.43
commons-lang3	32323	26741	2828	23894	82.73
commons-math1	122484	90681	6743	94253	74.03
commons-math_110n	6067	2980	167	5645	49.12
compress	4172	2244	84	3167	53.79
com.zwiterloot.cmdreader	1883	927	52	829	49.23
config-magic	1188	721	494	1251	60.69
configuration	18198	13766	5216	26643	75.65
consumer-dispatcher	1491	0	4	1761	0.00
convert	1581	275	162	1621	17.39
crawler4j	3067	362	82	2809	11.80
csv	1831	1459	257	1384	79.68
daoDemo	1627	0	50	2535	0.00
dbutils	2030	961	321	2596	47.34
discovery	1810	596	23	2320	32.93
DynamicRecruiter	1904	0	2	2489	0.00
el	10458	944	25	7401	9.03
elasticsearch-jetty	1695	786	206	1656	46.37
events	1171	702	101	1256	59.95
exec	1824	828	115	1757	45.39
faunus	9801	4809	446	9000	49.07
FilmeUtils	1885	103	34	2204	5.46
flatfile	1470	42	12	1943	2.86
fongo	1461	1209	240	1446	82.75
geohash-java	1589	1193	160	895	75.08
geo-scheduling	1621	697	74	1530	43.00
github-api	2240	33	80	2187	1.47
git-like-cli	2795	1480	146	2557	52.95
git-plugin	6401	1526	296	4846	23.84
grails-maven	2323	30	60	1789	1.29
greplin-lucene-utils	1935	83	16	2710	4.29
hadoop-test	1061	0	4	1071	0.00
haivvero	1143	707	138	1079	61.85
hank	26622	7109	657	27465	26.70
heapaudit	2331	0	126	2426	0.00
Hive-JSON-Serde	4529	200	28	3465	4.42
id	1949	1456	180	1873	74.70
jackson-module-afterburner	2366	1424	506	2273	60.19
jade4j	3618	2765	298	3725	76.42
jalgorithm	2611	1011	62	1956	38.72
jandex	3922	1482	12	2993	37.79
java-api-wrapper	1715	1304	464	2066	76.03
java-classmate	2566	2316	648	2402	90.26
java-cloudfiles	5678	17	216	4601	0.30
javaflow	2194	6	72	1768	0.27
java-simplegeo	1421	161	120	1451	11.33
chronic	4096	2685	164	3214	65.55
JCloisterZone	19748	898	86	17633	4.55
jcommander	2770	0	406	2132	0.00
jdbi	7754	4362	1596	9656	56.25
jeasywebframework	4878	2	62	6865	0.04
jedis	6868	357	774	8321	5.20
jelly	5489	1336	186	6762	24.34
jesque	4587	608	122	5272	13.25
jfreechart	99657	32456	2588	94084	32.57
jitescript	1301	217	12	1236	16.68
jjar	1747	112	20	1668	6.41

	total	detected	tests	cloc	muscore
jmeter-maven-plugin	1477	483	72	1152	32.70
jmimemagic	1587	653	36	1471	41.15
jmxterm	2543	930	192	3663	36.57
jndi	1769	423	30	1370	23.91
jobConfigHistory-plugin	1584	836	158	2230	52.78
joda-money	2512	1272	2042	2107	50.64
jodatime	32293	23796	5120	27324	73.69
johm	2453	160	212	1928	6.52
jongo	1197	404	678	1756	33.75
jopt-simple	1818	1718	1008	1617	94.50
jots	1745	567	162	2435	32.49
jreversepro	8200	930	16	8403	11.34
KeptCollections	1506	108	56	1787	7.17
khs-report-writer	1366	239	26	1104	17.50
Lambdava	1293	231	106	1322	17.87
latka	2132	74	6	3021	3.47
lettuce	2989	343	512	2894	11.48
lexevs-service	4040	281	972	5635	6.96
linq4j	8836	2782	228	11378	31.48
LittleProxy	2168	604	160	3172	27.86
low-gc-memuffers	2577	1473	242	2515	57.16
MagicSigns	2976	213	24	2905	7.16
maven-yamlpom-plugin	1201	593	50	1062	49.38
mcMMO	7773	0	6	20753	0.00
menagerie	4767	39	746	4498	0.82
mercurial-plugin	2069	401	220	1802	19.38
messenger	4612	31	38	6064	0.67
MeteorMiner	3143	0	166	3541	0.00
mgwt	12030	1065	606	16250	8.85
MineBans	6522	147	10	5335	2.25
mirror	1908	1440	818	2590	75.47
modeler	4987	482	80	5277	9.67
mongo-java-server	3906	2	376	3084	0.05
moonjava-flight-web	3101	250	152	5011	8.06
mp3agic	7344	4003	492	4842	54.51
murdock	1007	133	30	1323	13.21
MyPet	29067	4	8	22628	0.01
nabla	3415	2185	243	2742	63.98
nash	1754	0	12	1729	0.00
nettyrider	1397	0	4	2135	0.00
ognl	21852	12308	537	13791	56.32
once	3391	1396	344	2884	41.17
options-util	1605	1064	452	1479	66.29
patricia-trie	2930	1367	60	2782	46.66
performance	2052	418	40	2090	20.37
PermissionsEx	8848	136	18	6369	1.54
pignproc	1908	1157	44	1639	60.64
pipeline	3188	1050	134	3765	32.94
pipes	3216	2176	410	3513	67.66
primitives	11553	4125	1966	11965	35.71
resources	1033	0	122	1465	0.00
Rythm	23281	342	554	18028	1.47
sandbox-convert	1527	1131	30	1787	74.07
sandbox-primitives	11553	4125	1966	11965	35.71
sandbox-resources	1015	377	107	1422	37.14
scala-maven-plugin	3836	112	16	3030	2.92
scribe-java	1619	592	304	2679	36.57
Service-Location-Service	2412	429	18	2086	17.79
sorting	1308	1003	71	802	76.68
spark	1177	625	322	1433	53.10
spring-integration-aws	1616	210	130	2205	13.00
spring-rest-api-docs-maven-plugin	2680	45	208	2240	1.68
stevia	3595	0	18	3093	0.00
stripe-java	1221	58	176	2805	4.75
tenpinj	1226	809	82	704	65.99
ToHPluginUtils	2213	550	72	1955	24.85
treemachine	8540	73	8	6329	0.85
Tudu-Lists	2151	30	60	2620	1.39
twilio-java	2935	623	50	4269	21.23
validator2	4989	288	463	4844	5.77
validator	5967	4070	2286	5978	68.21
violations-plugin	5999	1159	78	6584	19.32
webbit	3780	1981	540	5018	52.41
workflow	3575	713	143	4234	19.94
ws	1189	3	8	1716	0.25
xmemcached	7154	2168	1520	20398	30.30
xmlio	1427	877	46	1265	61.46
xstream	18030	9163	1716	19926	50.82
ZombieLink	1069	230	100	1796	21.52