Table I: The definitions of variables and their statistics (median/mean) among different project groups. For each variable, the *negative group* is the group of projects where LIME generates negative local explanations for this variable and the *positive group* is the group of projects where LIME generates positive local explanations for this variable. (t=3, m=3, k=1)

Variable	Definition	Negative Group	Positive Group	1
#cmt_c	The average number of commits	17.00/20.87	93.00/127.39*	0.75
#pr_c	The average number of pull requests	0.00/0.02	0.00/0.13*	0.06
#issue_c	The average number of reported issues	4.00/8.33	0.00/0.04*	0.84
ے #iss_comment_c	The average number of issue comments	0.00/0.63	8.00/18.52*	0.64
#cmt_comment_c #iss_event_c	The average number of commit comments The average number of issue events	0.00/0.18 4.50/21.71	0.00/0.29* 0.00/5.90*	0.03
#following_c	The average number of followed developers	18.00/61.13	0.00/3.90	0.77
#star_pro_c	The average number of starred projects	80.00/188.57	4.00/8.09*	0.80
#cmt_p	The average number of commits	0.00/0.04	2.33/4.78*	0.84
#pr_p	The average number of pull requests	0.00/0.00	0.00/0.33*	0.18
11.	The average number of reported issues	0.75/2.10	0.00/0.03*	0.49
#issue_p #iss_comment_p #cd_dem_comment_p #cd_dem_comment_p #cd_dem_comment_p #cd_dem_comment_p #following_p #star_pro_p #issue_n #iss_comment_n #iss_comment_n #iss_event_n #iss_event_n #iss_event_n	The average number of issue comments	0.00/0.03	1.50/4.80*	0.58
#iss_comment_p	The average number of commit comments	0.00/0.14	0.00/0.02*	0.06
#iss_event_p	The average number of issue events	0.00/4.37	0.00/0.34*	0.36
₹ [™] #following_p	The average number of followed developers	0.00/0.10	12.00/40.93*	0.76
= #star_pro_p	The average number of starred projects	29.50/100.17	0.00/0.28*	0.77
a #issue_n	The average number of reported issues	0.50/1.45	1.50/7.27*	0.25
#iss_comment_n	The average number of issue comments	0.00/0.12	1.40/2.99*	0.74
#cmt_comment_n #cmt_comment_n #iss_event_n #following_n	The average number of commit comments	0.00/0.13	0.00/0.02*	0.15
#iss_event_n	The average number of issue events	1.90/5.39	0.00/0.16*	0.74
~ · · · · · · · · · · · · · · · · · · ·	The average number of followed developers	1.00/10.80	6.40/44.19*	0.23
#star_pro_n	The average number of starred projects	59.50/138.99	1.50/12.49*	0.38
#cmt_actday	The number of days with commit activity The median number of commits per day	6.00/6.00	23.00/27.00*	0.87
#cmt_median #cmt_front	The number of commits in the first half of observation period	0.00/0.01 49.00/78.00	1.00/1.50* 10.00/28.00*	0.30
#cmt_end	The number of commits in the second half of observation period	3.00/6.00	48.00/82.00*	0.63
cmt_day_std	The standard deviation of commits per day	2.82/3.74	0.85/0.85*	0.83
cmt_dev_std	The standard deviation of commits per code contributor	2.00/16.46	3.50/14.66*	0.01
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#cmt_all_c #pr_all_c	The average number of commits on all GitHub	162.0/204.4	1540.0/2046.9*	0.83
	The average number of pull requests on all GitHub	49.00/103.05	1.00/3.48*	0.79
#issue_all_c #pro_e	The average number of reported issues on all GitHub The average number of owned projects	44.00/49.95 20.00/19.43	3.00/14.85* 7.00/7.05*	0.56
#pro_c #pro_oneyear_c	The average number of owned projects The average number of one-year sustained owned projects	0.00/0.35	3.00/4.14*	0.80
#pro_twoyear_c	The average number of one-year sustained owned projects The average number of owned two-year sustained projects	0.00/0.33	1.90/2.31*	0.52
#follower_c	The average number of followers	6.00/7.33	80.00/185.65*	0.87
#cmt_all_p	The average number of commits on all GitHub	0.0/22.8	547.0/1134.9*	0.67
#follower_c #cmt_all_p#pr_all_p = #issue_all_p = #pro_oneyear_p #follower_p #cmt_all_n	The average number of pull requests on all GitHub	15.50/65.15	0.00/7.00*	0.66
#issue_all_p	The average number of reported issues on all GitHub	0.00/0.30	26.00/36.82*	0.76
#issue_all_p #pro_p #pro_oneyear_p	The average number of owned projects	12.50/12.19	0.00/0.09*	0.84
#pro_oneyear_p	The average number of owned one-year sustained projects	0.00/0.01	1.33/2.08*	0.70
#pro_twoyear_p	The average number of owned two-year sustained projects	0.00/0.53	0.00/0.10*	0.22
#follower_p	The average number of followers	0.00/0.05	18.00/69.14*	0.84
#cmt_all_n	The average number of commits on all GitHub	280.0/741.2	0.0/636.6*	0.25
#pr all n	The average number of pull requests on all GitHub	48.50/94.21	0.00/3.12*	0.79
#issue_all_n pro_n	The average number of reported issues on all GitHub	3.00/17.87	26.20/38.53*	0.28
	The average number of owned projects	18.30/16.81	0.00/1.38*	0.86
#pro_oneyear_n	The average number of owned one-year sustained projects	1.00/1.96	0.00/0.19*	0.59
#pro_twoyear_n	The average number of owned two-year sustained projects	0.10/0.87	0.00/0.30*	0.27
#follower_n	The average number of followers	0.00/0.82	44.00/112.36*	0.86
#iss_open	The number of open issues three months after project creation	1.00/7.00	0.00/2.00*	0.21
	The ratio of open issues three months after project creation	0.00/0.07	0.70/0.68*	0.78
#GFI #line readme	The number of "good first issues" three months after project creation	1.00/3.00	0.00/0.00*	0.24
#line_readme	The number of README.md lines	0.00/39.00	50.00/98.00*	0.43
#line_contributing	The number of CONTRIBUTING.md lines	0.00/1.00	0.00/25.00*	0.10
show_comp_c #org_c	The ratio of core developers showing their affiliated companies/institutions	0.00/0.38	1.00/0.60*	0.22
	The average number of GitHub organizations core developers belong to	2.00/2.97	0.00/0.13*	0.7
show_comp_p	The ratio of peripheral developers showing their affiliated companies/institutions	0.00/0.01	0.75/0.72*	0.7
#org_p	The average number of GitHub organizations peripheral developers belong to	0.00/0.78	0.00/0.17*	0.2
show_comp_n	The ratio of non-code contributors showing their affiliated companies/institutions	0.00/0.10	0.70/0.63*	0.6
#org_n	The average number of GitHub organizations non-code contributors belong to	0.00/0.64	0.00/0.94*	0.1
type	The type of project owner account (0: organization, 1: user)	1.00/1.00	0.00/0.00*	0.8
#star	The number of stars three months after project creation	5.00/59.00	0.00/0.00*	0.77
#fork	The number of forks three months after project creation	1.00/0.00	5.00/17.00*	0.42
	The number of project members three months after project creation	0.00/0.00	1.00/3.00*	0.66

^{*} p-value<0.00078; r represents the effect size $(r=z/\sqrt{N}); \uparrow, \uparrow, \uparrow$ means the positive group has higher median for this variable and the effect size is small, medium, and large, respectively $(\downarrow, \downarrow, \downarrow, \downarrow)$ vice versa).

Table II: The definitions of variables and their statistics (median/mean) among different project groups. For each variable, the *negative group* is the group of projects where LIME generates negative local explanations for this variable and the *positive group* is the group of projects where LIME generates positive local explanations for this variable. (t=4, m=3, k=1)

Variable	Definition	Negative Group	Positive Group	r
#cmt_c	The average number of commits	12.00/13.68	66.00/96.25*	0.84
#pr_c	The average number of pull requests	0.00/0.00	0.50/1.11*	0.33
#issue_c	The average number of reported issues	2.00/6.73	0.00/1.27*	0.62
e #iss_comment_c	The average number of issue comments	0.00/5.13	0.50/8.40*	0.09-
#cmt_comment_c #iss_event_c	The average number of commit comments The average number of issue events	0.00/0.01 6.00/24.63	1.00/1.82* 0.00/2.17*	0.39
#following_c	The average number of followed developers	2.67/7.91	26.00/72.91*	0.47
#star_pro_c	The average number of starred projects	87.50/199.50	4.00/8.49*	0.82
#cmt_p	The average number of commits	0.00/0.01	2.25/4.71*	0.85
#pr_p	The average number of pull requests	0.00/0.00	0.00/0.37*	0.19
11.	The average number of reported issues	0.50/1.87	0.00/0.05*	0.44
#issue_p #isse_p #iss_comment_p #iss_event_p #following_p #star_pro_p #issue_n #iss_comment_n #iss_comment_n #iss_comment_n #iss_comment_n #iss_comment_n #iss_comment_n #iss_comment_n #iss_comment_n #iss_comment_n #iss_comment_n	The average number of issue comments	0.00/0.20	0.10/2.74*	0.36
#cmt_comment_p	The average number of commit comments	0.00/0.04	0.00/0.08*	0.02-
#iss_event_p	The average number of issue events	2.00/7.80	0.00/0.04*	0.59
#following_p	The average number of followed developers	0.00/0.11	12.00/40.54*	0.75
= #star_pro_p	The average number of starred projects	34.00/106.91	0.00/0.38*	0.72
a #issue_n	The average number of reported issues	1.00/2.33	0.33/5.86*	0.01-
#iss_comment_n	The average number of issue comments	0.00/0.14	1.70/3.42*	0.73
#cmt_comment_n	The average number of commit comments	0.00/0.05	0.00/0.06*	0.01-
#cmt_comment_n #cmt_comment_n #fiss_event_n #fiss_event_n	The average number of issue events	1.20/4.16	0.00/0.31*	0.67
7	The average number of followed developers	1.90/6.92	4.00/47.10*	0.19
#star_pro_n	The average number of starred projects The number of days with commit activity	72.00/161.35	0.00/5.01*	0.77
#cmt_actday #cmt_median	The number of days with commit activity The median number of commits per day	6.00/6.00 0.00/0.18	23.00/27.00* 0.00/0.16*	0.86
#cmt_front	The number of commits in the first half of observation period	73.00/105.00	14.00/18.00*	0.00
#cmt_from	The number of commits in the first half of observation period The number of commits in the second half of observation period	37.00/67.00	2.00/6.00*	0.73
cmt_day_std	The standard deviation of commits per day	2.70/3.59	0.80/0.82*	0.84
cmt_dev_std	The standard deviation of commits per code contributor	0.00/3.10	30.51/44.16*	0.72
#cmt_all_c	The average number of commits on all GitHub	175.0/266.0	1640.0/2078.0*	0.79
#pr_all_c	The average number of pull requests on all GitHub	54.00/108.74	2.00/4.07*	0.81
#issue_all_c #pro_c #pro_c	The average number of reported issues on all GitHub The average number of owned projects	42.00/49.01	1.00/6.96* 3.00/3.43*	0.70
#pro_c #pro_oneyear_c	The average number of owned projects The average number of one-year sustained owned projects	20.00/17.09 0.00/0.32	3.00/3.43	0.76
#pro_twoyear_c	The average number of one-year sustained owned projects The average number of owned two-year sustained projects	0.00/0.32	2.00/2.43*	0.67
#follower_c	The average number of followers	6.00/7.34	80.00/185.74*	0.87
#cmt_all_p	The average number of commits on all GitHub	19.0/405.4	0.0/405.3*	0.19
#pr_all_p	The average number of pull requests on all GitHub	20.00/71.68	0.00/3.28*	0.78
#issue_all_p = #pro_p = #pro_oneyear_p	The average number of reported issues on all GitHub	4.67/20.96	0.00/4.98*	0.43
#pro_p	The average number of owned projects	12.20/12.10	0.00/0.06*	0.84
5 \(\overline{0}\) #pro_oneyear_p	The average number of owned one-year sustained projects	0.00/0.00	1.40/2.15*	0.72
#pro_twoyear_p	The average number of owned two-year sustained projects	0.00/0.13	0.00/0.44*	0.16
#follower_c #cmt_all_p#pr_all_p = #issue_all_p = #pro_p = #pro_oneyear_p #follower_p #cmt_all_n	The average number of followers	0.00/0.56	33.00/92.42*	0.76
#cmt_all_n	The average number of commits on all GitHub	0.0/152.6	998.2/1374.5*	0.60
#prall n	The average number of pull requests on all GitHub	36.40/82.99	0.00/8.99*	0.74
#issue_all_n pro_n	The average number of reported issues on all GitHub	18.90/31.98	3.40/23.69*	0.17
	The average number of owned projects	18.30/16.89	0.00/1.32*	0.86
#pro_oneyear_n	The average number of owned one-year sustained projects	1.00/1.89	0.00/0.22*	0.61
#pro_twoyear_n	The average number of owned two-year sustained projects	0.00/0.81	0.00/0.33*	0.21
#follower_n	The average number of followers	0.00/1.01	44.70/112.92*	0.86
#iss_open	The number of open issues three months after project creation	0.00/0.00	6.00/12.00*	0.65
	The ratio of open issues three months after project creation	0.00/0.14	0.66/0.54*	0.45
#GFI #line readme	The number of "good first issues" three months after project creation	2.00/4.00	0.00/0.00*	0.27
#line_readme	The number of README.md lines	60.00/87.00	5.00/60.00*	0.39
#line_contributing	The number of CONTRIBUTING.md lines	0.00/6.00	0.00/8.00*	0.02-
show_comp_c	The ratio of core developers showing their affiliated companies/institutions	0.00/0.18	1.00/0.81*	0.64
Hora c	The average number of GitHub organizations core developers belong to	0.00/0.18	0.33/1.27*	0.04
show_comp_p	The ratio of peripheral developers showing their affiliated companies/institutions	0.00/0.05	0.50/0.46*	0.46
#org_p	The average number of GitHub organizations peripheral developers belong to	0.00/0.41	0.00/0.38*	0.01-
show_comp_n	The ratio of non-code contributors showing their affiliated companies/institutions	0.00/0.07	0.90/0.71*	0.74
#org_n	The average number of GitHub organizations non-code contributors belong to	0.00/0.64	0.00/0.95*	0.13
type	The type of project owner account (0: organization, 1: user)	1.00/1.00	0.00/0.00*	0.87
#star	The number of stars three months after project creation	5.00/57.00	0.00/1.00*	0.77
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show_comp_p show_comp_n show_comp_n show_comp_n type star star stog_c show_comp_p	The number of forks three months after project creation	0.00/0.00	7.00/22.00*	0.74

^{*} p-value<0.00078; r represents the effect size $(r=z/\sqrt{N})$; \uparrow , \uparrow means the positive group has higher median for this variable and the effect size is small, medium, and large, respectively $(\downarrow, \downarrow, \downarrow, \downarrow)$ vice versa).