

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	r
Willingness of Participants	Core	#cmt_c	17.00/20.87	93.00/127.39*	0.75↑
		#pr_c	0.00/0.02	0.00/0.13*	0.06-
		#issue_c	4.00/8.33	0.00/0.04*	0.84↓
		#iss_comment_c	0.00/0.63	8.00/18.52*	0.64↑
		#cmt_comment_c	0.00/0.18	0.00/0.29*	0.03-
		#iss_event_c	4.50/21.71	0.00/5.90*	0.51↓
	Peripheral	#following_c	18.00/61.13	0.00/2.58*	0.77↓
		#star_pro_c	80.00/188.57	4.00/8.09*	0.80↓
		#cmt_p	0.00/0.04	2.33/4.78*	0.84↑
		#pr_p	0.00/0.00	0.00/0.33*	0.18↑
		#issue_p	0.75/2.10	0.00/0.03*	0.49↓
		#iss_comment_p	0.00/0.03	1.50/4.80*	0.58↑
	Non-code	#cmt_comment_p	0.00/0.14	0.00/0.02*	0.06-
		#iss_event_p	0.00/4.37	0.00/0.34*	0.36↓
		#following_p	0.00/0.10	12.00/40.93*	0.76↑
		#star_pro_p	29.50/100.17	0.00/0.28*	0.77↓
		#issue_n	0.50/1.45	1.50/7.27*	0.25↑
		#iss_comment_n	0.00/0.12	1.40/2.99*	0.74↑
Capacity of Participants	Core	#cmt_comment_n	0.00/0.13	0.00/0.02*	0.15↓
		#iss_event_n	1.90/5.39	0.00/0.16*	0.74↓
		#following_n	1.00/10.80	6.40/44.19*	0.23↑
		#star_pro_n	59.50/138.99	1.50/12.49*	0.38↓
		#cmt_actday	6.00/6.00	23.00/27.00*	0.87↑
		#cmt_median	0.00/0.01	1.00/1.50*	0.30↑
	Peripheral	#cmt_front	49.00/78.00	10.00/28.00*	0.58↓
		#cmt_end	3.00/6.00	48.00/82.00*	0.63↑
		cmt_day_std	2.82/3.74	0.85/0.85*	0.87↓
		cmt_dev_std	2.00/16.46	3.50/14.66*	0.01-
		#cmt_all_c	162.0/204.4	1540.0/2046.9*	0.85↑
		#pr_all_c	49.00/103.05	1.00/3.48*	0.79↓
	Non-code	#issue_all_c	44.00/49.95	3.00/14.85*	0.56↓
		#pro_c	20.00/19.43	7.00/7.05*	0.85↑
		#pro_oneyear_c	0.00/0.35	3.00/4.14*	0.80↑
		#pro_twoyear_c	0.00/0.30	1.90/2.31*	0.52↑
		#follower_c	6.00/7.33	80.00/185.65*	0.87↑
		#cmt_all_p	0.0/22.8	547.0/1134.9*	0.67↑
Oppo.	Core	#pr_all_p	15.50/65.15	0.00/7.00*	0.66↓
		#issue_all_p	0.00/0.30	26.00/36.82*	0.76↑
		#pro_p	12.50/12.19	0.00/0.09*	0.84↓
		#pro_oneyear_p	0.00/0.01	1.33/2.08*	0.70↑
		#pro_twoyear_p	0.00/0.53	0.00/0.10*	0.22↓
		#follower_p	0.00/0.05	18.00/69.14*	0.84↑
	Peripheral	#cmt_all_n	280.0/741.2	0.0/636.6*	0.25↓
		#pr_all_n	48.50/94.21	0.00/3.12*	0.79↓
		#issue_all_n	3.00/17.87	26.20/38.53*	0.28↑
		#pro_n	18.30/16.81	0.00/1.38*	0.86↓
		#pro_oneyear_n	1.00/1.96	0.00/0.19*	0.59↓
		#pro_twoyear_n	0.10/0.87	0.00/0.30*	0.27↓
	Non-code	#follower_n	0.00/0.82	44.00/112.36*	0.86↑
		#iss_open	1.00/7.00	0.00/2.00*	0.21↓
		iss_open_ratio	0.00/0.07	0.70/0.68*	0.78↑
		#GFI	1.00/3.00	0.00/0.00*	0.24↓
		#line_readme	0.00/39.00	50.00/98.00*	0.43↑
		#line_contributing	0.00/1.00	0.00/25.00*	0.16↑
Control Variables	Core	show_comp_c	0.00/0.38	1.00/0.60*	0.22↑
		#org_c	2.00/2.97	0.00/0.13*	0.78↓
		show_comp_p	0.00/0.01	0.75/0.72*	0.74↑
		#org_p	0.00/0.78	0.00/0.17*	0.26↓
		show_comp_n	0.00/0.10	0.70/0.63*	0.63↑
	Peripheral	#org_n	0.00/0.64	0.00/0.94*	0.12↑
		type	1.00/1.00	0.00/0.00*	0.87↓
		#star	5.00/59.00	0.00/0.00*	0.77↓
		#fork	1.00/0.00	5.00/17.00*	0.42↑
		#member	0.00/0.00	1.00/3.00*	0.66↑

* p -value<0.00078; r represents the effect size ($r = z/\sqrt{N}$); ↑, ↓, ↑ means the positive group has higher median for this variable and the effect size is small, medium, and large, respectively (↓, ↓, ↓ 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
Willingness of Participants	Core	#cmt_c	12.00/13.68	66.00/96.25*	0.84↑
		#pr_c	0.00/0.00	0.50/1.11*	0.33↑
		#issue_c	2.00/6.73	0.00/1.27*	0.62↓
		#iss_comment_c	0.00/5.13	0.50/8.40*	0.09-
		#cmt_comment_c	0.00/0.01	1.00/1.82*	0.39↑
		#iss_event_c	6.00/24.63	0.00/2.17*	0.80↓
	Peripheral	#following_c	2.67/7.91	26.00/72.91*	0.47↑
		#star_pro_c	87.50/199.50	4.00/8.49*	0.82↓
		#cmt_p	0.00/0.01	2.25/4.71*	0.85↑
		#pr_p	0.00/0.00	0.00/0.37*	0.19↑
		#issue_p	0.50/1.87	0.00/0.05*	0.44↓
		#iss_comment_p	0.00/0.20	0.10/2.74*	0.36↑
	Non-code	#cmt_comment_p	0.00/0.04	0.00/0.08*	0.02-
		#iss_event_p	2.00/7.80	0.00/0.04*	0.59↓
		#following_p	0.00/0.11	12.00/40.54*	0.75↑
		#star_pro_p	34.00/106.91	0.00/0.38*	0.72↓
		#issue_n	1.00/2.33	0.33/5.86*	0.01-
		#iss_comment_n	0.00/0.14	1.70/3.42*	0.73↑
Capacity of Participants	Core	#cmt_comment_n	0.00/0.05	0.00/0.06*	0.01-
		#iss_event_n	1.20/4.16	0.00/0.31*	0.67↓
		#following_n	1.90/6.92	4.00/47.10*	0.19↑
		#star_pro_n	72.00/161.35	0.00/5.01*	0.77↓
		#cmt_actday	6.00/6.00	23.00/27.00*	0.86↑
		#cmt_median	0.00/0.18	0.00/0.16*	0.00-
	Peripheral	#cmt_front	73.00/105.00	14.00/18.00*	0.73↓
		#cmt_end	37.00/67.00	2.00/6.00*	0.61↓
		cmt_day_std	2.70/3.59	0.80/0.82*	0.84↓
		cmt_dev_std	0.00/3.10	30.51/44.16*	0.72↑
		#cmt_all_c	175.0/266.0	1640.0/2078.0*	0.79↑
		#pr_all_c	54.00/108.74	2.00/4.07*	0.81↓
	Non-code	#issue_all_c	42.00/49.01	1.00/6.96*	0.70↓
		#pro_c	20.00/17.09	3.00/3.43*	0.76↓
		#pro_oneyear_c	0.00/0.32	3.00/3.99*	0.80↑
		#pro_twoyear_c	0.00/0.24	2.00/2.43*	0.67↑
		#follower_c	6.00/7.34	80.00/185.74*	0.87↑
		#cmt_all_p	19.0/405.4	0.0/405.3*	0.19↓
Oppo.	Core	#pr_all_p	20.00/71.68	0.00/3.28*	0.78↓
		#issue_all_p	4.67/20.96	0.00/4.98*	0.43↓
		#pro_p	12.20/12.10	0.00/0.06*	0.84↓
		#pro_oneyear_p	0.00/0.00	1.40/2.15*	0.72↑
		#pro_twoyear_p	0.00/0.13	0.00/0.44*	0.16↑
		#follower_p	0.00/0.56	33.00/92.42*	0.76↑
	Peripheral	#cmt_all_n	0.0/152.6	998.2/1374.5*	0.60↑
		#pr_all_n	36.40/82.99	0.00/8.99*	0.74↓
		#issue_all_n	18.90/31.98	3.40/23.69*	0.17↓
		#pro_n	18.30/16.89	0.00/1.32*	0.86↓
		#pro_oneyear_n	1.00/1.89	0.00/0.22*	0.61↓
		#pro_twoyear_n	0.00/0.81	0.00/0.33*	0.21↓
	Non-code	#follower_n	0.00/1.01	44.70/112.92*	0.86↑
		#iss_open	0.00/0.00	6.00/12.00*	0.65↑
		iss_open_ratio	0.00/0.14	0.66/0.54*	0.45↑
		#GFI	2.00/4.00	0.00/0.00*	0.27↓
		#line_readme	60.00/87.00	5.00/60.00*	0.39↓
		#line_contributing	0.00/6.00	0.00/8.00*	0.02-
Control Variables	Core	show_comp_c	0.00/0.18	1.00/0.81*	0.64↑
		#org_c	0.00/0.95	0.33/1.27*	0.11↑
		show_comp_p	0.00/0.05	0.50/0.46*	0.46↑
	Peripheral	#org_p	0.00/0.41	0.00/0.38*	0.01-
		show_comp_n	0.00/0.07	0.90/0.71*	0.74↑
		#org_n	0.00/0.64	0.00/0.95*	0.13↑
	Non-code	type	1.00/1.00	0.00/0.00*	0.87↓
		#star	5.00/57.00	0.00/1.00*	0.77↓
		#fork	0.00/0.00	7.00/22.00*	0.74↑
	Control	#member	0.00/0.00	1.00/3.00*	0.66↑

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