

• Why Expression Categories (252)

Categories	Subcategories	Number.	Proportion
Describe Issue	Describe error scenario	50=46+4	19.84%
	Introduce issue report	11	4.37%
	Describe shortcoming	9	3.57%
Illustrate Requirement	Usage need	11=10+1	4.37%
	Out of date	24=23+1	9.52%
	Runtime or development environment change	11	4.37%
Describe Objective	To solve the defects	9=8+1	3.57%
	For property promotion	13	5.16%
Imply Necessity	Conventions and standards	15=14+1	5.95%
	Relation to prior commits	9=6+3	3.57%
	Relation to an implemented feature	9	3.57%
	Improvements and benefits	39=37+2	15.48%
Missing Why	Test cases	4	1.59%
	Typographic fixes	7	2.78%
	Text file changes	13	5.16%
	Annotation changes	5	1.98%
	Code refactoring	15	5.95%
	Version management	5	1.98%

Note: There are parts of the commit messages that use multiple categories/subcategories to describe Why. The number to the right of the "+" sign represents the frequency of occurrence of this subcategory in multiple tags.

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Categories	Subcategories	Number.	Proportion
Summarize Code Object Change	Characteristics of changes	13=12+1	5.16%
	Object of change	143=133+10	56.75%
	Change list	6=5+1	2.38%
	Contrast before and after	16=12+4	6.35%
Describe Implementation Principle	\	6	2.38%
Illustrate Function	\	65=49+16	25.79%
Missing What	\	19	7.54%

Note: There are parts of the commit messages that use multiple categories/subcategories to describe What. The number to the right of the "+" sign represents the frequency of occurrence of this subcategory in multiple tags.