

GitHub analysis

Self-admitted UX-debt

	Issues resolution time (#days / #LOC)			
Solved	Min	Max	SD	Mean
52%	0	27.83	6.61	2.7

Limitations

The main limitation of the presented analysis is that the keywords-based search of issue categories can be prone to misclassifications, specially because the keywords can be present in different forms, and there may be other words that we did not contemplate in our keyword list. In order to mitigate this, we used word tokenization provided by the nltk¹ python library to divide the issues' text into different words, and then each word was lemmatized using WordNetLemmatizer, which converts a word into its base form. For instance, the words "confused" and "confuses" are both reduced to "confuse". In this way, we minimized issues misclassifications because of the different forms that words can have. With respect to the keywords used to classify the issues, as we mentioned before, we iteratively refined the accepted words by manually analyzing a set of issues of each project in order to included as many terms as possible.

UX-related issue keywords

"ui", "ux", "usability", "window", "view", "layout", "button", "menu", "toolbar", "sidebar", "field", "textarea", "dropdown", "link", "keyboard", "click", "scroll", "zoom", "sort", "filter", "resize", "display", "box", "section", "appear", "overlap", "input", "navbar", "render", "visible", "hover", "press", "scrollbar", "text", "color", "small", "margin", "screen", "top", "show", "search".

UX smell keywords

"undescriptive", "misleading", "feedback", "intuitive", "useless", "responsive", "localize", "hide", "hidden", "confusing", "confuse", "fit", "freeze", "overlap", "overlapping", "overflow", "hard", "remember", "annoying", "difficult", "friendly", "unfriendly", "confusion", "visible", "frustrating", "frustrated", "contrast", "accessibility", "non-responsive", "helpful", "improve", "easy", "simplify", "simple", "unreadable", "consistent", "clear", "obvious", "frustration", "understand", "recognize", "find out", "slow", "lose", "clean", "quick", "handy", "force", "distraction", "clarification", "interesting", "affordance", "consistency", "discovery",

¹ <https://www.nltk.org>.

"efficiency", "error-prevention", "error-recovery", "interruption", "jargon", "minimalism", "mode-error", "natural-mapping", "tone", "undo", "userfeedback", "visual-hierarchy".