

What software enhancement proposal features are correlated with acceptance and implementation?

An exploratory analysis of software enhancement proposals

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JEP 237:
Linux/AArch64 Port



NEP 17:
Split out masked arrays

1 What is a SEP?

A software enhancement proposal (SEP) is an initiative started by a developer to make a change to a software utility, such as a programming language or a library. The maintainers of the utility manage SEPs systematically. Well-defined steps are taken on the road to implementation.

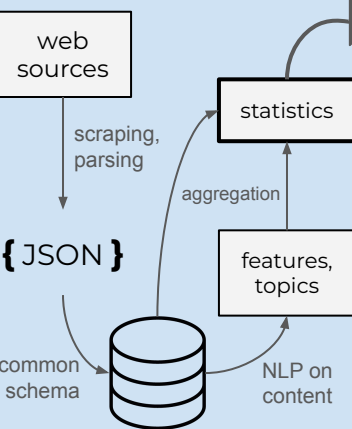
2 Background

General studies have been conducted on mining software repositories, but most only take a broad look at different types of software artifacts, not SEPs in particular. One group of researchers studied Python enhancement proposals. They found remarkable complexity in the decision-making process, which was not readily apparent from the official documentation.

3 Research questions

1. What SEP topics can be inferred from content?
To enrich the lackluster sets of feature types which are present as metadata
2. How do SEP traits correlate with acceptance?
Including topics found in the first question
3. What changes in SEP acceptance trends can be observed over time?

4 Method



5 Results

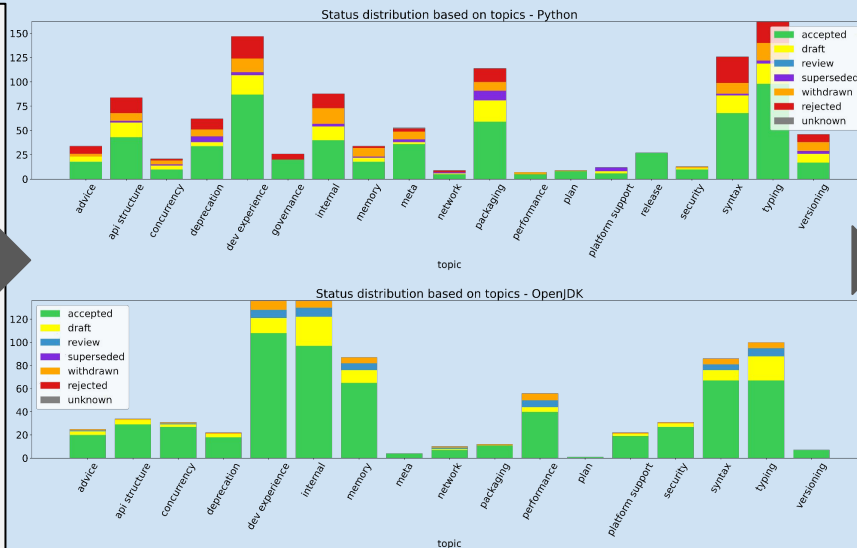
Scraped 502 OpenJDK and 56 NumPy SEPs.

Accepted SEPs outnumber rejected, possibly due to uneven maintenance.

Common categories: meta, syntax, API structure, typing, security etc.

Time generally does not cause changes in acceptance trends.

Some topics seem to have slightly higher acceptance rates in some projects, such as security.



6 Contribution

Research into SEPs may uncover unknown facts or unwritten rules about their handling process. This would help developers understand the process better and be more confident about launching proposals, thus boosting software evolution.

My findings do not show great irregularities, let alone biases. They show some small patterns (a few topics that may be more favored for acceptance) and suggest courses of action to possibly uncover more meaningful results.