

TESSERACT: Interactive Environment for Exploring Socio-Technical Relationships

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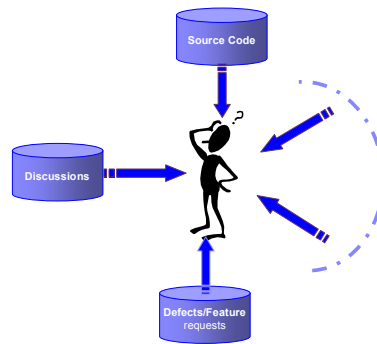
Example Scenario

Prospective Analysis

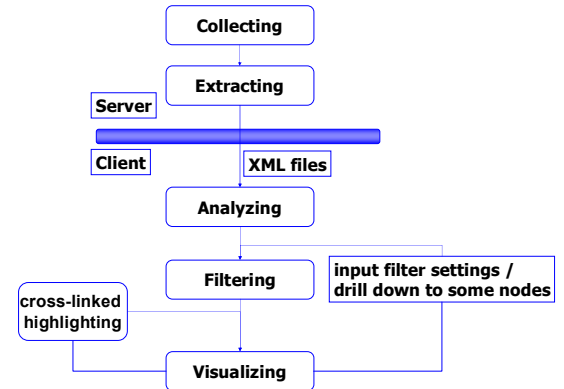
Dorothy has decided to fix a particular bug regarding the inappropriate filtering of particular file types in Rhythmbox. She vaguely remembers that Glenda Whyte, a core developer had worked on a feature to expand the allowed file types. Where would she start implementing the fix?

Retrospective Analysis

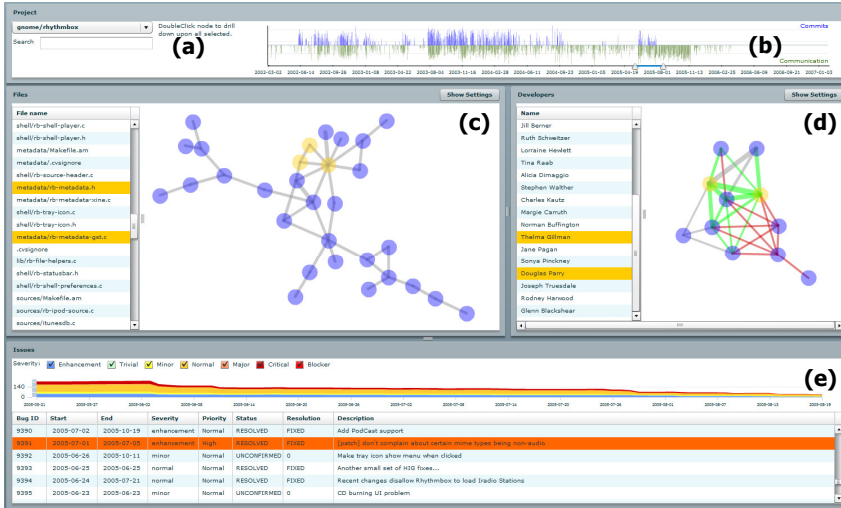
Oscar, a middle manager, wants to identify how and why Release 2 differed from the previous release, and if there is any underlying development practice that led to fewer unresolved bugs and code churn in the latter release. How would he investigate the project in these two time periods?



Approach

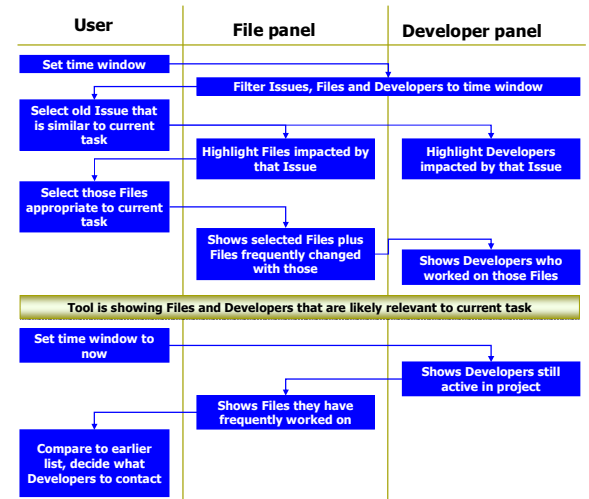


TESSERACT



(a) Project List & Text Search Bar, (b) Project Activity Pane where code commits are shown as blue bars at the top and communication records shown as green bars at the bottom, (c) File-File Network shows relationships among files which have been frequently co-committed, (d) Developer Network shows communication patterns (email, bug discussion, bug activities). green edges indicate that communication requirements have been satisfied, red edges indicate the lack thereof, and grey edges show extraneous communication, (e) Bug pane lists open bugs/issues and their descriptions

Prospective Analysis



Contributions

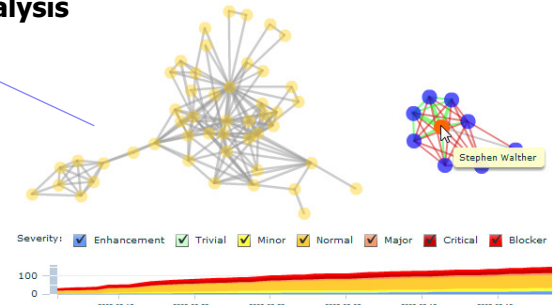
- Visualize socio-technical dependencies
 - treating social relationships as a first order entity
 - tracking evolution of these relationships
- Extract, analyze, and cross-link data across multiple repositories
- Interactive Exploratory environment to allow
 - Retrospective analysis
 - Prospective analysis

Future Work

- Explore different analyses techniques
- Investigate the effects of leadership on projects
- Perform user experiments

Retrospective Analysis

- Core contributor editing all files
- Many files with high interdependency
- Little cross communication
- Increasing number of issues



- Completely different pattern than above

