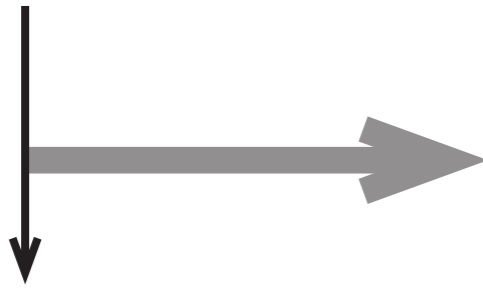


Leveraging Domain Vocabulary Across Artefacts by Tezcan Dilshener

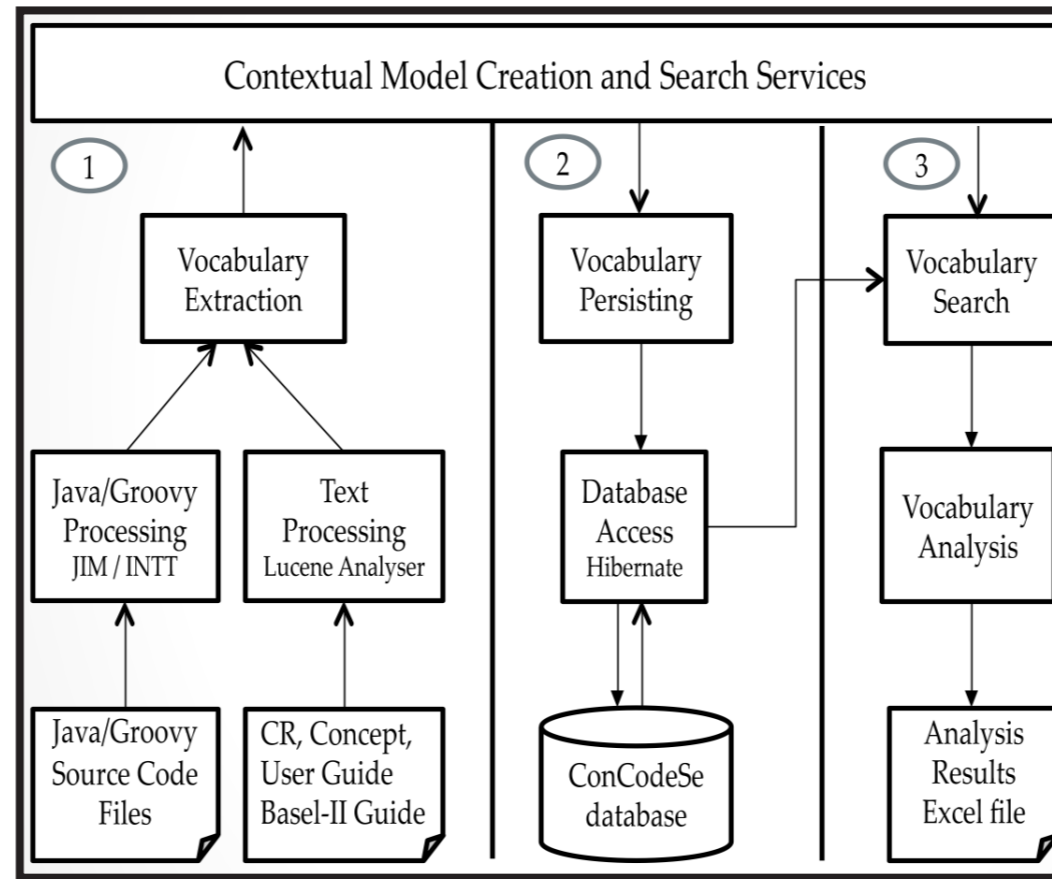


Software Requires Continued Maintenance

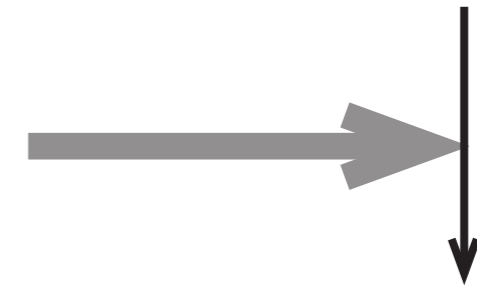
- Identification of high-level concepts in source code.
- Understanding concept context and relations to its domain.
- Effort required by developers without domain knowledge.
- Role of domain-specific concepts' vocabulary.



Research Approach - ConCodeSe Contextual Code Search and Analysis



Validation by empirical analysis:
comparing precision and recall against existing methods.



Results so far

- An efficient approach to relate artefact's vocabulary for maintenance.
- Application of approach to industrial code with good naming conventions.
- In many cases our approach outperformed state of the art tool.
- Illustrates how much it can be leveraged from the artefacts and domain vocabulary when they correlate.
- Demonstrates that bug localisation improves when domain vocabulary is used.

Research Aim Identify opportunities of using artefacts' vocabulary to reduce maintenance overhead

- RQ1: What is the adherence of conceptually related applications' vocabulary to the domain concepts?
- RQ2: How can the vocabulary be leveraged when searching for concepts to find the relevant-classes for implementing change requests?
- RQ3: How much can our tool leverage from artefact and domain vocabulary compared to another state-of-the-art tool?

Expected Contributions

- Contextual model providing consistent set of clues to aid program comprehension during maintenance.
- Combining domain ontologies with existing natural language and call-graph techniques.
- Navigating call-graph to discover additional programs.
- Utilising domain ontologies to evaluate their relevance.