

Table 1: Summary of relevant paper

Proposed tool	Parser for AST or code	Similarity	Clustering	Supported Libraries	Provided recommendations
MAPO	JDT	Class name, Method name API call sequences	Data-driven	Java projects	API patterns
UP-Miner	Roselyn AST parser	SeqSim technique similar sequences	Two clustering on frequent sequences with BIDE	C#	Probabilistic graph of API that can be queried
CLAMS	JDT parser	Distance matrix	LCS,HDBSCAN techniques AP-TED for top rank snippet	6 popular Java libraries	Patterns for API
APIRec extension	GumTree AST parser	association-based model with fine-grained code changes	association-based change inference model	50 Java project randomly from Gtithub	Most frequent API call
Buse-Weimer algorithm	Symbolic execution for path enumeration	Distance matrix	K-medoids algorithm	Java SDK	Human readable documentation
APIMiner extension	slicing algorithm	Structural similarity among API	FP-growth with WEKA tool	Android projects	Enhance documentation
API patterns with object usages	Extract object usage	Object usages social network with co-existence relation	Co-existence relation with Modularity index method call similarity with Gamma index	Android project	API usage pattern
JIRA platform	JDT	Cosine similarity history and descriptor recommender	Integrator component based on previous weights	Apache projects	Top ranked methods
CodeBroker	Back-end search engine	Latent semantic analysis	Discourse model user model	Java core libraries	Three layered information relevant tasks, signature and JavaDoc
Usetec	JUnit	heuristic slicing algorithm	LCS technique	Four open source Java projects	API method invocations
PAM	JDT	Structured EM algorithm	Probabilistic model with inference and training set	Java core libraries	Ranked list of method invocations