Object-oriented Software Documentation

Ra'Fat Al-Msie'deen

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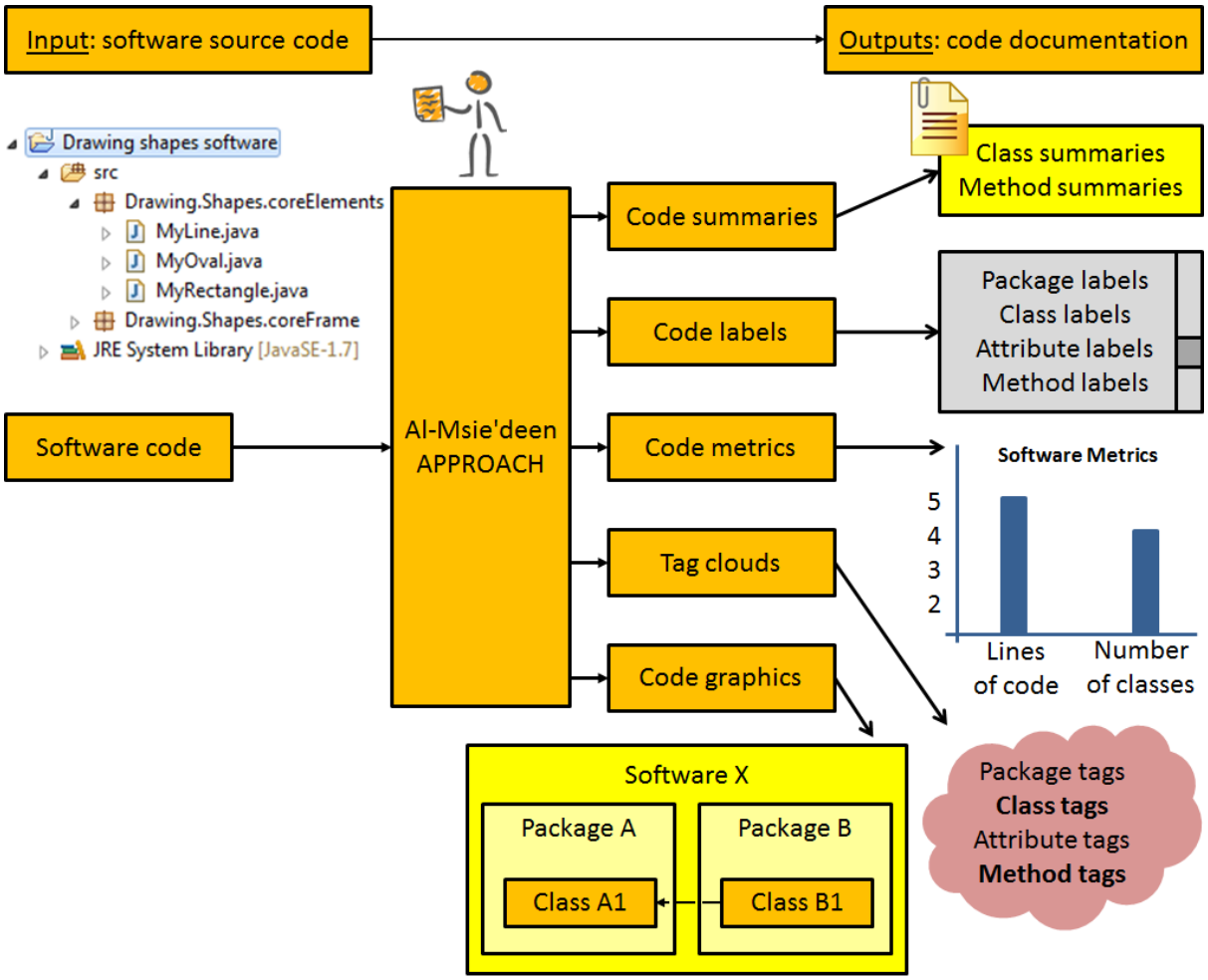
Abstract—Software documentation provides software developers and users with a useful description of what the software does, how it works, how it's built, and how it's supposed to be used. For instance, a user manual demonstrates how users should interact with a software product; while the design document helps developers during software evolution and maintenance. The main challenge is to construct automated tool that can produce, on-demand, a dynamic documentation of software source code. This book presents an automatic approach called Al-Msie'deen approach to generate on-demand software documentation for software code. The novelty of this approach lies in the production of dynamic software code documentation at package, class, attribute, and method levels. Code documentation is a written text or illustrated diagrams that present information about all levels of code granularity, from packages level down to methods level. Al-Msie'deen approach generates different kinds of code documentation such as code summaries, labels, metrics, tag clouds, and graphics documents. Code documents make information on software code more accessible to developers and cheaper to create. This book presents the results of experiments conducted on Drawing shapes software, Rhino, NanoXML, Mobile media and ArgoUML software systems.

Keywords—Software engineering, software documentation, software visualization, software comprehension, object-oriented software, source code summarization, code labels, software metrics, tag clouds.

Department of Computer Information Systems, Faculty of IT
Mutah University, Karak, Jordan
rafatalmsiedeen@mutah.edu.jo


Input: software source code
Outputs: code documentation
Drawing shapes software
src
Drawing.Shapes.coreElements
MyLine.java
MyOval.java
MyRectangle.java
Drawing.Shapes.coreFrame
JRE System Library [JavaSE-1.7]
Software code
Al-Msie'deen APPROACH
Code summaries
Code labels
Code metrics
Tag clouds
Code graphics
Class summaries
Method summaries
Package labels
Class labels
Attribute labels
Method labels
Software Metrics
5
4
3
2
Lines of code
Number of classes
Software X
Package A
Package B
Class A1
Class B1
Package tags
Class tags
Attribute tags
Method tags

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