Intelligent Development Environment and Software Knowledge Graph

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DOI 10.1007/s11390-017-1718-y
• **Background**
  – Recent years, *software intelligent development* has become one of the most important research trends in software engineering with the rapid development of *software big data* and artificial intelligence technology.

• **Motivation**
  – We aim to promote the intelligence level of software development technologies and platforms via software big data mining, analysis and understanding.

• **Our work**
  – In this paper, we put forward two key concepts: **IntelliDE** and **Software Knowledge Graph**. We present their architectures and discuss their key research issues and challenges.
Intelligent Development Environment (IntelliDE) is an ecosystem in which software big data is aggregated, mined and analyzed to provide intelligent assistance in the life cycle of software development.
Software knowledge graph is defined as a graph for representing relevant knowledge in software domains, projects, and systems.

- **Nodes** represent software knowledge entities;
- **Directed edges** represent various relationships between these entities;
- Different nodes and relationships have different properties to describe their inner features.

Software knowledge graph is constructed from software big data automatically.

An extensive software knowledge graph construction platform is proposed in this paper.

A software knowledge ecosystem could be formed based on this framework, and IntelliDE could leverage it to provide intelligent assistance for software development.
• We developed a software text semantic search engine based on IntelliDE. It is a good start of the intelligent utilization of software knowledge graph for improving the efficiency and quality of software development activities.

An example of software text semantic search