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## Reference: QSE:CIS Survey SE

### Topic: A Survey of Collective Intelligence Systems for Software Engineering

LVA-Type: Bachelor's Thesis, MSc Project, Seminar Work

Start: As soon as possible

End: By arrangement

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## Background

Collective Intelligence Systems (CIS) like Facebook, Wikipedia, YouTube, Yelp, and Twitter provide their users coordination and information sharing capabilities and thus supports the interactions between human users. The strength of these systems is to efficiently aggregate and distribute different kinds of information and content among their user base. Nowadays, CIS have experienced wide acceptance by people and thus have an increasing influence on knowledge creation and sharing processes.

CIS experience an adoption in a variety of application domains and in organizations, and has also a great potential to provide benefits for the domain of Software Engineering (SE). Popular CIS for SE are Stack Overflow and GitHub.

The goal of this work is to conduct a pilot survey to collect, categorize, and report features and capabilities of existing SE platforms from a perspective of CIS in order to identify common functionalities, formats, data models, metrics, workflows, application contexts and usage scenarios. In this work the student describes the survey process design under the guidance of the research team, systematically investigates a number of SE platforms with regard to interaction workflows from an end-user perspective, surveys their existing documentation (e.g., user guides, API/developer documentation, architectural documents), creates a structured collection and packages of data samples, and finally reports the data collection and results. Based on this survey, the current status should be described and limitations and future research directions should be derived and discussed.

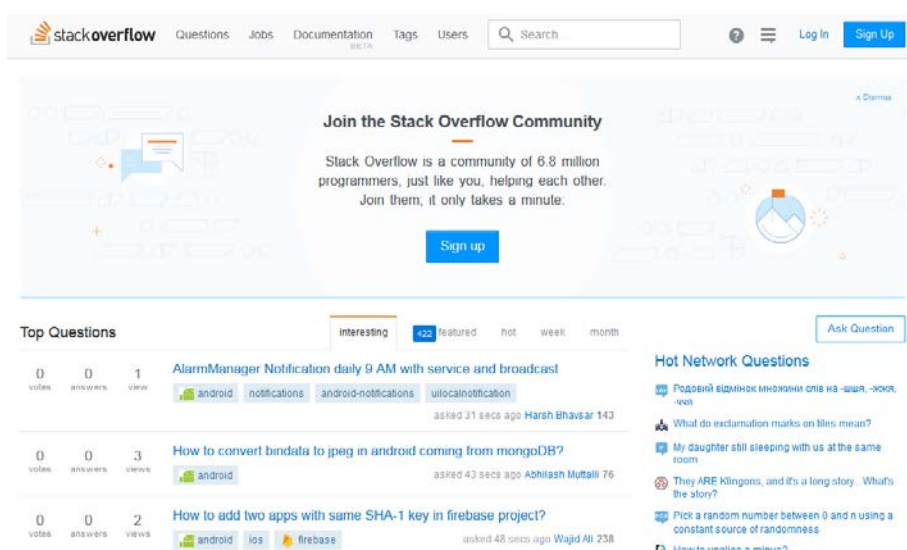


Fig 1: Stack Overflow Start Page

## Tasks

- Design of a survey using an approach from empirical software engineering.
- Collection of systems.
- Data Analysis.
- Reporting of study results.

## Experience and skills needed

- Good written and spoken English skills.
- Experience / interest in Social Web, Crowdsourcing, Collective Intelligence and software engineering tools & processes.

## Links

*All resources are accessible via TUNet or TU VPN.*

[1] L. Dabbish, C. Stuart, J. Tsay, and J. Herbsleb, “Social Coding in GitHub: Transparency and Collaboration in an Open Software Repository,” in Proc. of the ACM Conference on Computer Supported Cooperative Work (CSCW ’12), 2012, pp. 1277–1286.  
<http://dl.acm.org/citation.cfm?id=2145204.2145396>

[2] J. D. Herbsleb, “Global Software Engineering: The Future of Socio-technical Coordination,” in Future of Software Engineering (FOSE ’07), 2007, pp. 188–198.  
<http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=4221620>

[3] J. Musil, A. Musil, and S. Biffi, “Introduction and Challenges of Environment Architectures for Collective Intelligence Systems,” in Agent Environments for Multi-Agent Systems IV, vol. 9068, D. Weyns and F. Michel, Eds. Springer International Publishing, 2015, pp. 76–94.  
[http://link.springer.com/chapter/10.1007%2F978-3-319-23850-0\\_6](http://link.springer.com/chapter/10.1007%2F978-3-319-23850-0_6)

[4] M.-A. Storey, C. Treude, A. van Deursen, and L.-T. Cheng, “The impact of social media on software engineering practices and tools,” in Proceedings of the FSE/SDP Workshop on Future of Software Engineering Research (FoSER ’10), 2010, pp. 359–364.  
<http://dl.acm.org/citation.cfm?id=1882362.1882435>

[5] A. Begel, R. DeLine, and T. Zimmermann, “Social media for software engineering,” in Proc. of the FSE/SDP Workshop on Future of Software Engineering Research (FoSER ’10), 2010, pp. 33–38.  
<http://dl.acm.org/citation.cfm?id=1882362.1882370>