



Software Engineering Seminar

Automated Test Data Generation

Description

Software applications often rely on databases to manage their data. Consequently, such applications heavily use database queries (e.g., expressed in SQL) that should be tested thoroughly in the testing process of the software. Testing queries requires test data or test databases to exercise the queries. Instead of the creating these manually, automated techniques have been proposed that are based on constraint solving [2] or search heuristics [1] to generate test data or test databases.

The student should explore and discuss the current state of the art in automated test data generation by investigating, discussing, and comparing different automated techniques.

References

- [1] Jeroen Castelein, Maurício Aniche, Mozhan Soltani, Annibale Panichella, and Arie van Deursen. Search-based test data generation for sql queries. In *Proceedings of the 40th International Conference on Software Engineering, ICSE '18*, pages 1220–1230, New York, NY, USA, 2018. ACM.
- [2] María José Suárez-Cabal, Claudio de la Riva, Javier Tuya, and Raquel Blanco. Incremental test data generation for database queries. *Automated Software Engineering*, 24(4):719–755, Dec 2017.

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