

# Coverage-Aware Test Database Reduction

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**Abstract.** Functional testing of applications that process the information stored in databases often requires a careful design of the test database. The larger the test database, the more difficult it is to develop and maintain tests as well as to load and reset the test data. This paper presents an approach to reduce a database with respect to a set of SQL queries and a coverage criterion. The reduction procedures search the rows in the initial database that contribute to the coverage in order to find a representative subset that satisfies the same coverage as the initial database. The approach is automated and efficiently executed against large databases and complex queries. The evaluation is carried out over two real life applications and a well-known database benchmark. The results show a very large degree of reduction as well as scalability in relation to the size of the initial database and the time needed to perform the reduction.

**Keywords:** Test database reduction, Test coverage of code, Test design, Testing tools

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