



"Due to the lack of widely-accepted guidelines for database development best practices, it is exceedingly difficult for many IT organizations to construct highly optimized and maintainable software. Let's be clear: It is not enough to create applications that seem 'good enough for now.' Instead, we need to figure out how to build applications that will work well today, but also be maintainable ten years from now."

— Steven Feuerstein,
Oracle PL/SQL Expert and Author

Database Development Best Practices

Executive Summary

Industry experts estimate that software bugs cost the worldwide economy billions of dollars. These bugs pose tremendous financial burdens, due to the poor performance and logic errors they create. In addition, they also decrease productivity, increase frustration, and make it difficult for companies to meet changing business requirements.

In an age of outsourcing and multi-skilled developers -- whose focus may not be on database development -- there is a pressing need for a process to ensure the deployment of the highest quality code to production.

Currently organizations lack the ability to automate the process, thus inhibiting all development teams, regardless of skill set, from consistently producing the highest quality performing code. In addition, management has no way to effectively validate code before it's deployed into production.

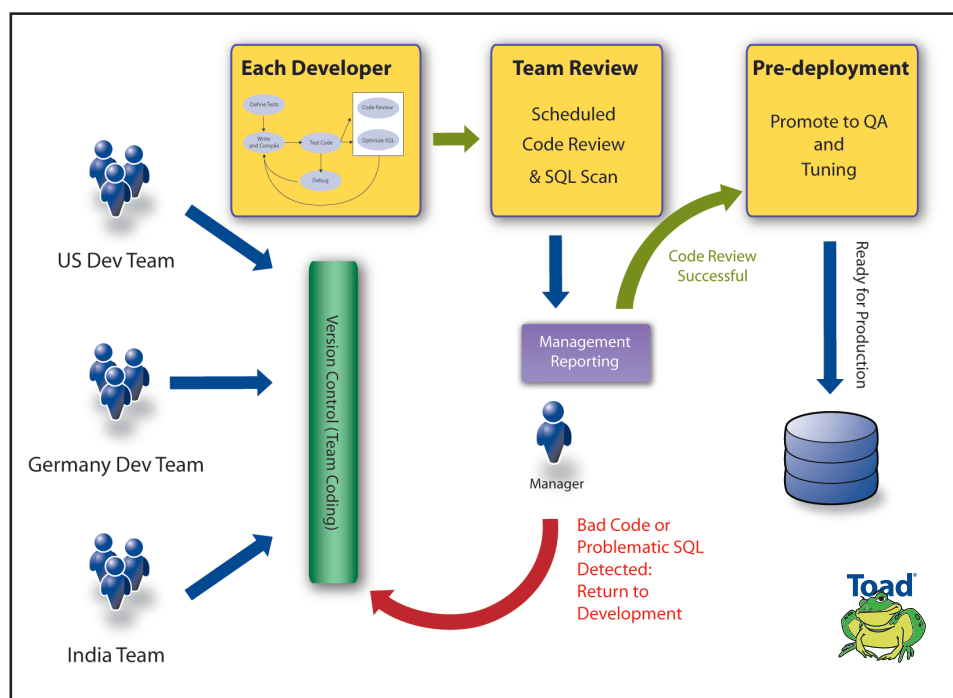
Building on the foundation of Toad® and leveraging a proactive automated methodology developed by industry experts, the Toad Development Suite provides an integrated toolset to ensure that the highest quality of code is delivered, optimized and scaled for better performance -- regardless of user skill set.

Following the development best practices workflow to developing, optimizing and validating code will result in top quality and easy-to-maintain SQL code as well as eliminate a bottleneck in the development process.

As individual developers assume responsibility for quality SQL production, the development cycle decreases and management's visibility into code quality increases.

By implementing development best practices, organizations can achieve these goals and measure which development teams or developers are producing the highest quality code.

Database Development Best Practices Workflow



Step One: Develop

Develop the highest quality code faster and receive better performing applications from day one.

- **Format:** Users can analyze and format their entire application or file to keep their program structure consistent, readable and maintainable
- **Debug:** Bugs and problematic logic in stored procedures are easily identified for quick resolution.
- **Build:** Toad is equipped with multiple features to help developers be more productive and efficient when building code.

Step Two: Optimize

Toad's SQL Optimizer maximizes SQL performance by automating the manual, tedious and uncertain process of ensuring the fastest possible performance of SQL statements.

Toad's SQL Optimizer:

- Scans application source code and identifies poorly under-performing SQL
- Generates every possible re-write and frees up the trial-and error process
- Benchmarks and compares the fastest alternate statement
- Automates the **optimization** process, guaranteeing semantic equivalency and discarding those of minimum benefits
- Ensures optimal performance and eliminates the current manual process

Step Three: Validate

Test critical SQL and stored procedure code for scalability and performance under various user loads in pre-production.

Conclusion:

Best practices can be too costly, skill-intensive and time-consuming to enforce, without the appropriate framework in place. Regardless of the environment's platform or an individual skill set, any developer can write code for functionality and performance with the Toad Development Suite. Their applications will meet coding standards and are optimized for performance, scalability and maintainability.

For more information on database development best practices, visit: <http://www.toadworld.com/>.

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