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How to develop the world's fastest low-code platform for advanced analytics

The global volume and complexity of data have been growing exponentially, creating increasing pressure on analytical systems to deliver high speed, reliability, and scalability. Traditional high-code approaches provide flexibility but suffer from long development cycles and high maintenance costs, while workflow orchestrators introduce architectural control but still require substantial coding effort. Low-code platforms offer rapid development and broad accessibility, yet they are often criticized for limited performance and scalability, with 32% of organizations doubting that low-code can meet their needs and 28% expressing concerns about its ability to scale. This paper addresses the research question of whether a low-code platform can achieve true enterprise-level analytical performance comparable to or exceeding coded systems. The study presents an engineering-driven approach to designing a high-performance low-code platform for advanced analytics. The methodology includes custom memory-management optimization, low-level system programming, SIMD-based string operations, full in-RAM data processing, multithreading, vectorization, and distributed execution. The system architecture incorporates client-server clustering, Kubernetes-based horizontal scaling, and a hybrid workflow model combining visual design with embedded Python/JavaScript logic. Benchmark results demonstrate processing of 108 GB in 3 minutes 30 seconds on a server and 58 GB in 2 minutes 35 seconds on a laptop, confirming substantial performance gains. The conclusion is that low-code platforms, when engineered with a systems-level focus, can overcome traditional limitations and operate as fully industrial analytical engines, enabling both accessibility and extreme performance at scale.

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Biography
Managing Director at Megaladata (Yerevan), formerly a lead technical specialist. Holds a degree in Computer Science and Mathematics. Experienced in building analytical platforms, integrating AI solutions, and leading technology teams.