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To Whom It May Concern

Mr. David Frank was employed as a summer intern at the IBM Research – Zurich Laboratory, Switzerland (IBM Research GmbH) from 1 July to 30 September 2013. He was a member of the Business Optimization Group within the Mathematical and Computational Sciences department. The group bridges the theoretical and practical aspects of optimization in supply chains and transportation networks.

The IBM Research - Zurich Lab is part of IBM's research division, which employs 3000 individuals at twelve research laboratories worldwide. It is the largest industrial IT research organization in the world. Cutting-edge research and outstanding scientific achievements - most notably two Nobel Prizes - are associated with the Zurich Laboratory.

During his time at IBM Research, Mr. Frank worked on IBM Multi-Echelon Simulation and Optimization (IBM MESO), a professional Web-based tool to simulate and optimize large supply networks. His task was to revise and extend several features of IBM MESO in the context of a major new release. One key task was to create a high-performing table widget, which is able to display very large data sets using a lazy loading concept while offering a high level of user friendliness. Among the various features are hiding, moving, automatic resizing, and fixing columns, allowing multi-column sorting, as well as enabling arbitrary hierarchical headers. Moreover, Mr. Frank implemented a customized workflow management process including user authentication and authorization in the form of a rich GWT client. For the latter he designed and implemented the user interface and the architecture. His approach ensures type-safety and allows an easy transfer of complex model objects in RPCs. The technologies he applied included GWT, JPA, SQL and a CSS framework. The given development environment was IBM Rational Team Concert.

Besides his excellent design and development work, David Frank tested the code on all common Web browsers and a variety of different data sets. Ultimately, he ensured that his work could be integrated easily into the existing IBM MESO environment. The new release of IBM MESO has been a tremendous success and David Frank's components played a crucial role in achieving the extremely high customer satisfaction regarding performance, UI design and user friendliness.



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David Frank proved throughout his entire internship that he has highly advanced skills in theoretical and applied software engineering. He can elegantly apply, combine, and extend various (Web) technologies and produce very clean and efficient source code. Mr. Frank integrated perfectly into the team and exhibited a very friendly and cheerful personality. He was highly valued by all team members, colleagues, and management. In addition to his specific assignments, Mr. Frank also supported colleagues in other projects regarding various challenges and questions in the area of software engineering. Throughout his work Mr. Frank was highly motivated, showed excellent performance and fulfilled all tasks to our utmost satisfaction. He left IBM Research at the end of his contract.

We thank David Frank for his outstanding work and wish him all the best for his professional career and personal future.

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A handwritten signature in blue ink, appearing to read 'U. Schimpel'.

Dr. Ulrich Schimpel
Manager Business Optimization

A handwritten signature in blue ink, appearing to read 'Oliver W. Ottow'.

Oliver W. Ottow
Human Resources Manager

January 5, 2014