Stephen Early – C++ Software Developer

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Profile / Summary:

An experienced **C++ Software Developer**, an expert at designing software for the Investment Banking sector particularly within Market Risk and VaR calculations – typically delivering cost effective software solutions that analyse and reduce business risk. Key strengths include: developing a wide range of market risk applications based on the unix operating systems to satisfy compliance and industry regulators; refactoring legacy code to improve performance and provide additional enhancement; meeting with product owners and business analysts to gather technical requirements, prioritise current issues and provide solutions within fixed deadlines; and mentoring junior developers to share knowledge and improve competencies.

Key Skills:

- C++ Software Development
- Market Risk & Value at Risk (VaR)
- Multi-Threading Unix Applications
- Market Data Processing
- Refactoring Legacy Code
- Foreign Exchange (FX)
- Mentoring Junior Developers
- Object Oriented Analysis & Design
- Systems Analysis & Requirements Capture
- Assess Risk & Improve Business Processes
- Tick Data Processing
- Share Price Movement Applications
- Fidessa Trading Platform
- Real-Time Design
- Air Traffic Control Systems

Recent Role:

April 2014 to March 2018: Deutsche Bank (DB): C++ Software Developer

Working as a Software Developer designing market risk and VaR calculation systems to support investment banking operations. Below is a list of example projects from contract positions (in no particular order and not all projects are listed).

Key Projects / Assignments:

Deutsche Bank: Optimisation of Results Output (VaR): Software Developer (2 Months)

- Deutsche Bank's VaR (Value at Risk) application took excessive time storing calculation results, which put regulatory reporting deadlines at risk. Engaged as Software Developer to speed up results storage phase. Profiled representative workloads; identified bottlenecks in generic code that could be optimised for specific use cases; and identified / selected options for reducing execution time by a factor of 10. Successfully improved runtime by several minutes and reduced risk of missing regulatory reporting deadlines.

Deutsche Bank: Created Debugging Tool (VaR): Software Developer (4 Months)

- DB Market Risk Development Team spent disproportionate time analysing significant changes in VaR, or why runs had failed. As Software Developer created debugging tool for bespoke scripting language that managed execution of each VaR run. Analysed scripting language interpretation process; implemented mechanism for adding breakpoints into script; provided solid framework for developers to extend; proposed future list of improvements; and trained development team. Successfully reduced developer resources needed for root cause analysis.

Deutsche Bank: Upgraded from Suse to Red Hat: Software Developer (2 Months)

- After DB's VaR application was migrated to Red Hat, the identical code took 2 minutes longer to execute. Selected as Software Developer to analyse slowdown and determine solutions. Traced root cause to implementation differences of certain mathematical functions; researched known issues with maths libraries and noted concerns over specific linux implementation; discarded unnecessary precision which eliminated differential; and performed additional refactoring. Successfully resolved concerns over migration roadmap and project back on track.

Deutsche Bank: Optimisation of Non-Normal Distributions: Software Developer (5 Months)

- The Quant Team wrote an in-house software library to process Non-Normal Distributions which took too long to execute. As Software Developer increased performance of library, without changing calculated outputs. Profiled library to determine where time was being spent; re-organised code to deliver equivalent output in fraction of time; evaluated trade-offs between precision and execution time; and reduced library execution time by a factor of 5. Successfully enabled quicker response to changes to risk profile without loss of precision.

Royal Bank of Scotland: Implemented Stressed VaR: Software Developer (6 Months)

- RBS were required to add Stressed VaR to the daily Capital Charge calculation. As Software Developer implemented new methodology in corporate VaR calculation engine. Analysed architecture of existing software; added layer of abstraction that maximised re-use of existing infrastructure; fed new inputs into abstracted layer; transformed outputs of abstracted layer to suit requirements of new report; and prioritised functionality over raw performance, allowing faster time to market. Successfully deployed Stressed VaR into production.

Royal Bank of Scotland: Implemented New Report Types: Software Developer (6 Months)

- Business users at RBS required a number of new report types that were subtle variations on the normal VaR reports already in use. As Software Developer implemented reports into corporate VaR calculation engine. Analysed control flow in existing VaR reports; identified points in control flow, where intermediate results could be saved to satisfy input requirements for multiple report types; and diverted and massaged intermediate results to satisfy individual reports. Successfully implemented new report types with minimal duplication of computational effort.

Royal Bank of Scotland: Idiosyncratic Risk Granularity: Software Developer (3 Months)

- Part of the RBS VaR calculation engine was Idiosyncratic Risk, which was calculated by another Market Risk system which gave insufficient granularity for certain use cases. As Software Developer initiated resolution of key aggregation anomalies. Analysed data; invented mechanism for tracking idiosyncratic contributions from lower level organisational units; and correctly applied appropriate contributions during aggregation. Successfully made aggregation process more accurate typically reducing the Capital Charge Requirement.

Royal Bank of Scotland: Idiosyncratic Risk Migration: Software Developer (6 Months)

- APAC regions of RBS could not finalise VaR reports until Idiosyncratic calculations had been performed for the whole organisation. Engaged as Software Developer to evaluate migrating the Idiosyncratic calculation from upstream system into the VaR calculation engine, and at a more granular level. Replicated relevant input feeds and algorithms; conducted parallel runs, comparing outputs of both systems; and flagged possible aggregation errors in the reference system. Successfully identified potential to reduce APAC reporting lag, and give finer detail company wide..

Career Chronology:

Contracting:

- 04/2014 to 03/2018: Deutsche Bank, City: C++ Software Developer (Market Risk)
- 08/2013 to 02/2014: BNP Paribas, Marylebone: C++ Software Developer (FX)
- 11/2009 to 03/2013: Royal Bank of Scotland: C++ Software Developer (Market Risk)
- 09/2008 to 11/2009: Deutsche Bank, City: C++ Software Developer (Market Risk)
- 06/2006 to 09/2008: Royal Bank of Scotland: C++ Software Developer (Market Risk)
- 11/2004 to 04/2006: Credit Suisse: C++ Software Developer (Tick Data Processing)
- 11/2003 to 10/2004: Personal Development
- 09/2003 to 10/2003: Royal Blue Financial: C++ Software Developer (Trading Systems)
- 11/2002 to 08/2003: Personal Development
- 09/2003 to 10/2003: Royal Blue Financial: C++ Software Developer (Trading Systems)
- 101998 to 09/2000: British Airways/ICL: C++ Software Developer (Crew Rostering)
- 05/1997 to 10/1998: EDS Defence: C++ Software Developer (Naval Command & Control)
- 10/1995 to 05/1997: Lockheed Martin UK: C Developer (Air Traffic Control)
- 07/1993 to 09/1995: National Air Traffic Services: IBM Assembler (Flight Data Processing)
- 12/1992 to 06/1993: General Dynamics UK: C Developer (Naval Command & Control)
- 06/1992 to 12/1992: British Telecom Research Labs: C++ Software Developer (Telecoms)

- 05/1991 to 03/1992: Joint Venture with Netsolve: C++ Software Developer (Email Application)
- 01/1990 to 05/1991: Ferranti Naval Systems: Coral 66 Developer (Naval Command & Control)

Permanent:

- 03/1983 to 12/1989: SD-Scicon (now EDS): Software Developer
- 09/1979 to 02/1983: Plessey Company (now Bae): S250 Assembler (Ptarmigan)

Education:

- 1976 to 1979: Imperial College, London University: BSc (2nd Class Hons) in Physics

Certification & Training:

- 3 Day Using Select Component Factory at Select Business Solutions
- 1-Week Technical Workshop on The MQ Series of Products At IBM, South Bank
- 4-Month Course on Air Traffic Control Systems at National Air Traffic Services (NATS)
- Conversion Course to SSADM V4.0
- Certificate of Proficiency in SSADM V3.0
- 1-Week Course on Structured Analysis Structured Design (Yourdon)
- 1-Week Course On 8051 Architecture at Intel, Swindon
- 6-Month Course at Control Data Institute, Southampton, Sponsored by Plessey

Other Skills:

- Languages: C++, Tcl, C, SQL, Ada, JOVIAL (US DOD Language), Coral 66 (MOD language)
- Methodologies: Universal Modelling Language (UML), Yourdon, OOD (Object Oriented Design), Agile, Waterfall
- Operating Systems / Software Products: Unix & Linux (Red Hat, Suse, Solaris, HP-UX,AIX), Visual Studio 2010, SAS Event Stream Processing; *fidessa* trading system, Reuters SFC class library, CDE, Motif & X-Windows, Rogue Wave/STL/Boost Class Libraries, Oracle, Sybase, Purify, VAX/VMS
- Hardware: Intel based servers, Sun Workstations and Servers, HP-UX Workstations & Servers, IBM RISC 6000 Workstation, IBM Mainframe, VAX & microVAX clusters, Ferranti computers

Memberships:

- Member of the British Computer Society, registered as a Chartered Engineer
- Member of the Association of C and C++ Users (ACCU)
- Member of Institute of Physics, registered as a Chartered Physicist
    - 2002: Attended ACCU spring conference at Oxford
    - 2001: Attended ACCU spring conference at Oxford
    - 2000: Attended Oracle iDevelop '2000' conference at Birmingham
    - 2000: Attended ACCU spring conference at Oxford
    - 1999: Attended Sun Developer conference at London
    - 1999: Attended ACCU spring conference at Oxford
    - 1997: Attended inaugural C and C++ European Developers Forum at Oxford

Personal Details:

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- Private Pilot's License