**Pradeep Kumar**

**Sr. C++ Developer**

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PROFESSIONAL SUMMARY:



* Around 8 years of hands on experience in designing and developing high performant client, server and multi-threaded applications using C, C++ and Python.
* Extensive experience in design, development, enhancements and maintenance of the industrial automation applications.
* Strong hands-on fundamentals in Boost, STL Data Structures, Templates and algorithms.
* Sound Proficiency in Object oriented concepts (Virtual functions, UML, Abstraction, Encapsulation, Inheritance, Polymorphism etc.).
* Hands on Experience in C Programming (Pointers, DMA and Data Structures, Bit operations) etc.
* Expert knowledge in C++, STL, Design Patterns and Multi-threading.
* Developed Python, Shell Scripts, PL/SQL, T-SQL; created subprograms, procedures and functions, DB triggers, cursors and optimization techniques for SQL.
* Developed C++ SOAP web services on UNIX and Linux platforms using gSOAP.
* Developed Desktop Applications and Mobile Applications and improve application

performance using android, Qt.

* Good understanding of android Framework, Android Native and Web-based Application

Development.

* Expertise in the OOPS, Multi-threading, String pool, C++ Packages, Exception-Handling & Collections.
* Development experience with XML, JSON, TCP/IP, UDP/IP, SSL/TLS, HTTP and

multithreaded application using IPC mechanism.

* Experience working on a wide range of microcontrollers/microprocessors such as 8051, 8086, ARM, PIC on embedded devices.
* Good understanding of SDLC processes, AGILE-SCRUM and waterfall methodologies.
* Led the migration of historical data to client; fine-tuned SQL &amp; database, generated reports for management, etc.
* Design and develop solutions using C, C++, Multi-Threaded, Shell Scripting.
* Using PVCS Version Manager as code repository and PVCS Tracker as Defect management

system. Using Oracle SQL Developer for Database Activities.

* Peer reviews of the Design and Source Code (C, C++, and Shell Scripts).
* Worked extensively on multi-threaded codes using embedded RTOS environments.
* Experience with serial communications including RS232, RS485, I2C, SPI and I2S.
* Strong experience in automating system test and production tasks using Shell Scripting and Python.
* OOPS & Design Architecture: Knowledge of patterns. Came across some patterns like Factory, Singleton pattern while working with the project architecture.
* Expert knowledge in development and debugging tools using Visual Studio & GCC.
* Experience with working on Databases, SQL Server.
* Experience in using IDEs – Eclipse, Pycharm, Visual Studio, GNAT programming studio and Code Composer Studio.
* Proficient in developing user level requirement collection, coding, bug fixing, and Unit testing.
* Proficient in using Debugging tools like gdb, dbx, pdb and other code analysis tools Coverity, cppCheck, Valgrind, gprof.
* Strong understanding of Data Structures, IPC, Multithreading, Socket Programming and Memory management.
* Hands on experience in developing using Linux (Internals of Linux, debugging tools, mutex, semaphore, make files, Libraries).
* Hands in Project using Concepts (Storage classes, Preprocessor, String handling, Arrays, Functions, structures, Data structure, Function pointer, Dynamic memory allocation. Etc.).
* Strong understanding of the Linux networking stack and the communication mechanisms and interfaces between the different components in the system.

TECHNICAL SKILLS:



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| --- | --- |
| **Programming Languages & Scripts** | C, C++, Python, Shell scripting, Core Java |
| **Operating Systems** | Windows, Sun Solaris, RHEL, IBM AIX. |
| **Protocols** | TCP/IP, UDP, RTP, CAN, I2C, SPI, 802.11 Standards, SNMP, KWP2000, LIN, RS 232, GMLAN, KWP. |
| **Databases** | Oracle, MySQL, Microsoft SQL Server, MongoDB. |
| **Tools** | GNU emacs, Code Compare, eclipse, UML tools, MS-Office, splunk, Jira, OpenGrok, Valgrind, gprof, Coverity, cppCheck, gdb, pdb, dbx, Jenkins, WireShark and Charles debugging. |
| **Libraries & Frameworks** | STL, Boost, BDE, IPC, multithreading, sockets, SOAP webservices, Software Design OOP/OOD, Design Patterns, Apache Active MQ. |
| **Version Controls** | GIT/github, SVN, CVS. |
| **Build** | Jenkins, cppCheck, Coverity. |
| **Simulation Tools** | Labview, Matlab, Pspice |

PROFESSIONAL EXPERIENCE:

**Client: General Motors, Warren, Michigan. Mar 2016-Present**

**Sr.Embedded/C/C++ Developer**

**Roles & Responsibilities:**

* Designed, developed and supported multiple C++ SOAP webservices.
* Cross Functional Role: Responsible for improving the productivity, efficiency and cost improvement for entire group. Successful results in 2016 benefitted the organization.
* Develop a test system using Freescale evaluation board using embedded C, C++ to provide synchronization and start up node emulation to the Engine module test system.
* Manage to deliver the multiple Vehicle platform / variants projects for the customer on time with a high quality.
* Ensure the all the set quality standards by performing exhaustive Hardware In

Loop Testing as the project team is responsible to deliver the work products

directly to OEM.

* Responsible for quality control, improving efficiency, technical competency and overall development of the team members.
* Wrote C++ programs for end of day operations (EOD) to close or roll the orders.
* Used STL extensively to store data on Order history, accounts, securities, etc. for fast

retrieval/update.

* Worked with users, business and exchanges to gather new requirements/enhancements, testing and final delivery of sub systems.
* Used various data structures and design patterns in applications like Singleton, Observer, Factory methods etc.
* Handled corporate action events to reflect the order price and currently implementing the tick size changes.
* Used C/C++ interface to retrieve/update info from/to the DB.
* Developed/enhanced as part of team to compute commission calculations based on commission rules and generate pdf reports.
* Involved in writing optimization techniques for more accuracy of Macros in C/C++, C and C++ routines and Oracle SQL, PL/SQL.
* Worked with google proto bufs for message parsing and handling.
* Worked on Embedded environment using QT-QNX interfaces.
* Modified C++ programs to support compliance rule automation for many compliance rules for client accounts for both pre-and post-trade compliance purposes and manage leverage using many metrics like industry exposure, security type, long/short positions, currency / securities / options / futures, credit ratings etc.
* Wrote various SQL stored procedures to compute several metrics like realized/unrealized

gain/loss, forex rate effect etc and other data manipulation.

* Used Python scripts to generate various reports like OATS, transaction history, user privileges, limit rules and commission schedule reports.
* Used SVN and git/github for source code control.
* Followed Agile and Scrum Methodologies

**Environment**: C, C++, Design Patterns, SQL, Python, bash, ksh, Linux, POSIX Threads, SVN, git, github, OOAD, BOOST libraries,gdb, pdb, dbx, OpenGrok, Jira.

**Project: Swift, Manassas,VA Jan 2015 – Feb 2016**

**Role: Sr. C/C++ Developer**

**Roles & Responsibilities:**

* Analysis of the Functional Specifications and Business Requirements.
* Revamped most of the existing C, Fortran legacy code into C++11 with multi threading.
* Ported code onto different platforms (Sun Solaris, IBM AIX and Red Hat Enterprise Linux).
* Prepare Design and Development Deliverables.
* Work on the Low Level and High Level Design Documents.
* Design and develop solutions using C, C++, Multi-Threaded, Shell Scripting and Python.
* Using git as code repository and JIRA Tracker as Defect management system.
* Using Oracle SQL Developer for Database Activities.
* Peer reviews of the Design and Source Code (C, C++, and Shell Scripts).
* Develop and Execute the Module Test Cases on Unit and Integration Testing environments using Google Test, Python Unit testing.
* Support System Testing, Acceptance (UAT) Testing and Production changes.
* Debugging and Troubleshooting production issues, enforced, documented and implemented C++ standards guidelines. Through code-reviews I assured a high

quality architectural design and implementation standard.

* I developed a remote thread monitoring tool for a production environment with critical security requirements.
* Developed communication protocols such as FIX over TCP/IP, SSL/TLS, HTTP for Financial Applications.
* Implemented inter-process synchronization using unix domain sockets to synchronize various tasks.
* Worked with an alert system that generated alerts for customers based on specific events
* happening in the market using C++,
* Designed and developed various scripts for enablement or disablement of data using C, Shell
* and proprietary SQL database.
* Utilized various object oriented techniques and implemented new logic for processing
* ICELINK events and CLEARING messages.
* Developed new C++ encapsulation wrapper classes for OCCI classes.
* Refactored existing code by introducing inheritance based design.
* Improved the code efficiency by optimizing the code and caching frequently used data.
* Utilized STL and C++ algorithms to achieve optimal design efficiency.
* Designed, developed and deployed new oracle PL/SQL stored procedures.
* Utilized OCCI to access the stored procedures from code.
* To accomplish all these I used C++, Shell, PL/SQL, Cppcheck, Clearcase, Rational Rose.
* Provided support for internal business process and responsible for communicating detailed technical information and providing technical assistance to customers, systems, and management and external sources.

**Environment**: C/C++, Shell, PL/SQL, Cppcheck, Clearcase, Rational Rose, LINUX.

**Project: UPS, NJ Oct 2013 – Dec 2014**

**Role: C++ Developer**

**Roles & Responsibilities:**

* Involved in requirement analysis, design, coding and implementation.
* Design and software coding using C, C++, multi-threading, data structure and
* Algorithms in different OS environments like WINDOWS, LINUX and HP-UX.
* Lead the 2-member team to develop the features and helped team members in

resolving technical issues.

* Participate in the scrum meetings give status of tasks, schedule and update the

status.

* Handling Linux and Windows Server deployment issues alone. Implement features

like Firewall in Linux/windows, Command line support, heart beat mechanism and

Product optimization etc.

* Successfully collaborated with cross-functional teams in design and development of software features for enterprise satellite networks using C/C++, leading to senior role in the organization
* Developed spreadsheet model to estimate bandwidth of system data, allowing customers to better forecast bandwidth requirements
* Generated 10, 000+ time-series data points to study trend between temperature and frequency; to implement stability algorithm using C/C++for new product
* Implemented algorithm in C/C++ to calculate key system variable in MS Excel for Customer Support Department, allowing product release on time
* Spearheaded revamp of human-machine interface using Tcl, minimizing test cycle by 75% Analyzed 3 gigabytes of customer data; correctly diagnosed, managed and resolved issues while in Pointe Noire, Congo, helping to retain 2nd largest customer
* Environment: C, C++, Linux, GNU toolchain, Tcpdump, Shell Scripting, MS Excel, MS Visio, SVN, GIT, Agile, pstrace, gdb.
* Creation of unit testing environment to validate different deliverables.
* Supported C++ testing framework to improve automated testing.
* Worked with developers to design tests to test new functionality and replicate bugs to

improve automated test scripts.

* Documented testing framework and worked with international team to expand

framework to provide functionality which was not yet implemented.

* Code reviewed changes and created JIRA entries to track and resolve issues.
* Fixing Quick issues and tracking the Issue management tool.
* Training the offshore team members on new features.
* Preparing Unit test plan and execution plan for the same.
* Participating code review for offshore team.
* Handling the weekly conference calls held with stakeholders.

**Environment**: C, C++ (Version-11), Java, STL, SQL, Perl, Windows, REST, Shell

Script, Clear case, Linux, Clear Quest, KDevelop, Doors, Agile Scrum.

**Interglobe Technologies – India Jan 2012 – Sep 2013**

**Software Engineer**

**Responsibilities:**

* Responsibilities include user interaction, system feasibility study, requirement analysis, design, development, testing, configuration, client interaction and support.
* Used C and C++ for designing and developing POS GUI.
* Developed continuous testing environment using VC++.
* Designed and implemented enhancement related to Cashier, Admin.
* In this enhancement implemented object oriented design (oops concepts) and design patterns to implement following tasks.
* Added a new option for cashier, to collect cash from the collected agents.
* Added a new option for Admin to give permission for the collection agent, new image download, frequency check, re-printing the receipt, etc.
* Added option for admin to stop agent-collecting cash from the customer.
* Updating features in Employee checkout and clock out declaration sections and also added unit tests for these features.
* Updating all Front of House reports (custom checkout, Reprint checkout) and Back Of House Reports (Server sales report, Employee Trip duration and miles, Income report, and BOH Sales report), which are effected by the wage gratuities.
* Implemented unit tests for the production code present in libraries.
* Implemented Security key generation related enhancement to provide support under different networks in C++. These security keys are must for accessing Manager or Back of House, which serves as database to POS.
* Resolved defects using C++ related to Clean Pan application, which removes credit card information from Transaction log of POS.
* Solving issues by taking remote access.
* Worked on remote debugging for the issues raised in production using virtual machines and VM ware workstation.

**Client: Logictrix Technologies – India July 2009 – Dec 2011**

**Software Engineer**

**Responsibilities:**

* Used OOAD in the software development for HP servers.
* Used Linux device driver code in C\C++ on 32 bit to implement the device interaction code for application.
* Modified C\C++ code on 32 Bit/64bits environments to support enhancements, fixed bugs in the existing software in multithreaded, highly scalable, high throughput applications
* Used C++ STL containers, algorithms in the application.
* Designed, developed and implemented algorithm for network servers to expand the capacity of existing tool with new released hardware.
* Used SVN for code repository.
* Used TCP/IP and UDP for communication on Linux environment.
* Used concept of Design Pattern for design and implementation the code.
* Designed, developed and Implemented for Logical configuration command to configure the device for Linux OS for 0x86 and x86\_64 bit environments.
* Implemented Identify command in C\C++ on Linux 32 bit and 64-bit environment to identify the devices and hardware.
* HP ACU implemented for various family of HP server including Gen 6, Gen 7 and Gen 8 blade and ProLiant servers.
* Worked on Performance Improvement &amp; memory leakage.
* Provided support for production and development issues.
* Coordinate offshore team by assigning tasks, mentoring them for technical issues and updating the status to client on daily basis.

**Environment**: C, C++, STL, COM, Make file, Linux Driver interaction programming.

Integrated Development Environment and Debug Tools, GNU Debugger, POSIX threads, SVN, HP-UX and UNIX/Linux.

EDUCATION:

Bachelor’s Electrical and Electronics Engineering June 2009

B.N.M Institute of Technology (VTU), Bengaluru