Experis™ Software

Advanced **SOFTWARE** Developer Workshop

Experis Software
Leading the software development domain

Experis Software (established in 2004) providing software development, consulting and training services.

Experis Software's training program – is a unique, fully free program, designed to locate, train and place the future generation of proficient developers.

The training is delivered by leading experts and fills the gap between the acquired academic knowledge and the knowledge required in the "real world" – the Hi-Tech industry

Experis™ Software

Advanced Software Developer Workshop

Participants are heavily exposed to the underlying mechanisms of various Software Development environments and tools, as well as the critical issues that face real-world developers. Participants learn what types of solutions work as well as what to avoid. More importantly, they learn how to properly analyze, design and implement solutions to unfamiliar problems. Furthermore, as work-place independence is a crucial real-world requirement, self-study subjects play an integral role in this Workshop.

Workshop Outline

LINUX FROM SCRATCH
- Installation & Configuration
- User Environment
- Shell Programming
- Development Environment & Tools

BASIC PROGRAMMING
- C-Programming
- C Traps & Pitfalls
- Pointer Techniques

DATA STRUCTURES & ALGORITHMS
- Vector/List/Queue/Stack
- Binary Search Tree/Heap/
- RB-Tree/Radix Tree
- Hash Table / Hash Map
- Sorting Algorithms (Quick/Merge/Heap/Radix sort)
- BFS/DFS/ Dijkstra

SYSTEM PROGRAMMING
- Memory Management
- Process Management
- Process Structure
- IPC (Message Queues, Shared Memory, etc)
- Multi-Threading & Synchronization
- Multi Core Consideration

THE BUILD PROCESS & ITS PRODUCTS
- Preprocessor, Linker, Symbol Tables, etc
- Shared Objects/DLLs & Libraries
- Debugging The Build Process

NETWORK PROGRAMMING
- TCP/ UDP/IP
- Application Protocols
- Network Debugging
- Multithreaded & Async Client/Server

ADVANCED C++
- C++ Internals
- C++ Traps & Pitfalls
- Advanced Polymorphic strategies
- Advanced Template Programming
- STL

OBJECT ORIENTED PROGRAMMING
- SOLID Principles
- UML
- Design Patterns
- State Machines

TRADITIONAL PROJECT WORKFLOWS
- The Development Process
- Development Process Artifacts

AGILE SOFTWARE DEVELOPMENT
- Agile Ceremonies
- TDD Best Practices
- Code Reviews
- Zero Bug approach
- Done Means Done

ADVANCED DEBUGGING TOOLS & TECHNIQUES
- Memory Overruns, Leaks, etc.
- Stack Structure
- Enough Assembly to Survive
- Debug vs Release Mode
- Debugging Multi-threaded Systems
- Optimization Issues
- Tools : Strace/Valgrind/Sonarqube

SCM
- SVN
- Jira

EMBEDDED SOFTWARE DEVELOPMENT
- Introduction To Linux Kernel
- IoT with Arduino/ARM

WINDOWS SYSTEM PROGRAMMING
- Porting Multithreaded App to Win API
- Registry
- DLL's
- Enough SQL to Survive

INTRODUCTION TO C++14/17
- New Features
- Move Semantics
- Unique and shared pointers
- Enhanced Algorithms

MOBILE - OPTIONAL
- iOS
- Android

ADDITIONAL LANGUAGES
- Java – optional
- C# - optional
- PHP – optional
- Python – optional

Project's

i. IPC – Cyclical Message Queue Over Shared Memory
ii. Multi User Chat (Client/Server) Over TCP&UDP
iii. Multi User Game (MUD) using best OOD practices with C++
iv. Mobile Autonomous Arduino Car Controlled By Mobile Application

Additional subjects are covered per customer request.
We have done successful training for: Java, C#/.Net, Mobile and Web.

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