Advanced Perl Programming

Course Duration: 32 Hours **Course code: APPC**

1. Course Overview

The Advanced Perl Programming course is designed for professionals who already have a basic understanding of Perl and want to deepen their expertise in advanced scripting, automation, performance optimization, and enterprise-level development. This course focuses on writing efficient, scalable, and maintainable Perl applications, covering advanced language features, object-oriented programming, complex data handling, and real-world use cases.

2. What you'll learn?

By the end of this course, learners will be able to:

- Master advanced Perl syntax and best practices
- Implement object-oriented programming (OOP) in Perl
- Work with advanced data structures and references
- Create and manage Perl modules and packages
- Apply advanced regular expressions for complex pattern matching
- Handle exceptions, debugging, and performance tuning
- Use Perl for automation, system programming, and backend tasks
- Integrate Perl with databases, files, and external systems
- Write secure and optimized Perl code for production environments

3. Target Audience

This course is ideal for:

- Perl developers looking to advance their skillset
- System administrators and DevOps engineers
- Automation and scripting professionals
- Backend developers working with legacy or enterprise systems

- Software engineers maintaining Perl-based applications
- IT professionals involved in large-scale scripting solutions

4. Pre-Requisites

To get the most out of this course, learners should have:

- Strong understanding of core Perl programming
- Experience with basic scripting and control structures
- Familiarity with files, arrays, hashes, and subroutines
- Basic knowledge of Linux/Unix command-line environment

5. Course content

Module 1: Advanced Perl Concepts

- Review of core Perl fundamentals
- Advanced syntax and context (scalar, list, void)
- Perl references and complex data structures

Module 2: Working with References

- Scalar, array, and hash references
- Anonymous data structures
- Dereferencing techniques
- Nested data structures

Module 3: Object-Oriented Programming in Perl

- Perl OOP concepts and architecture
- Creating classes and objects
- Constructors and destructors
- Inheritance and polymorphism
- Method overriding and encapsulation

Module 4: Perl Modules and Packages

- Creating and using modules
- Namespaces and package management
- CPAN overview and usage
- Writing reusable and distributable modules

Module 5: Advanced Regular Expressions

- Regex modifiers and assertions
- Look-ahead and look-behind patterns
- Substitution techniques
- Optimizing regex performance

Module 6: Exception Handling and Debugging

- Error handling techniques
- Using eval, die, and warn
- Debugging tools and practices
- Logging and tracing

Module 7: File Systems and Process Management

- Advanced file handling techniques
- Directory and file system traversal
- Process creation and management
- Inter-process communication

Module 8: Database Programming with Perl

- DBI and database connectivity
- Executing SQL queries
- Handling transactions
- Performance and security considerations

Module 9: Performance Optimization and Security

- Code optimization techniques
- Memory management and profiling
- Writing secure Perl scripts
- Preventing common vulnerabilities

Module 10: Automation and Real-World Applications

- System automation scripts
- Log analysis and reporting
- Integration with external tools and APIs
- Enterprise use cases and best practices