## Course duration

- 5 days

## Course Benefits

- Learn to work with variables, arrays and hashes in Perl
- Learn to write flow control statements in Perl
- Learn to manipulate files with Perl
- Learn to use Perl's Regular Expressions
- Learn to create complex data structures with Perl
- Learn to use Perl packages and modules
- Learn to work with Perl's object-oriented features
- Learn to write subroutines in Perl

## Course Outline

1. Overview of Perl
    1. What is Perl?
    2. Running Perl Programs
    3. Sample Program
    4. Another Sample Program
    5. Yet Another Example
2. Perl Variables
    1. Three Data Types
    2. Variable Names and Syntax
    3. Variable Naming
    4. Lists
    5. Scalar and List Contexts
    6. The Repetition Operator
3. Arrays and Hashes in Perl
    1. Arrays
    2. Array Functions
    3. The foreach Loop
    4. The @ARGV Array
    5. The grep Function
    6. Array Slices
    7. Hashes
    8. Hash Functions
    9. Scalar and List Contexts Revisited
4. Quoting and Interpolation in Perl
    1. String Literals



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    2. Interpolation
    3. Array Substitution and Join
    4. Backslashes and Single Quotes
    5. Quotation Operators
    6. Command Substitution
    7. Here Documents
5. Perl Operators
    1. Perl Operators
    2. Operators, Functions and Precedence
    3. File Test Operators
    4. Assignment Operator Notations
    5. The Range Operator
6. Flow Control in Perl
    1. Simple Statements
    2. Simple Statement Modifiers
    3. Compound Statements
    4. The next, last, and redo Statements
    5. The for Loop
    6. The foreach Loop
7. I/O: Input Operations and File I/O with Perl
    1. Overview of File I/O
    2. The open Function
    3. The Input Operator < >
    4. Default Input Operator
    5. The print Function
    6. Reading Directories
8. Regular Expressions in Perl
    1. Pattern Matching Overview
    2. The Substitution Operator
    3. Regular Expressions
    4. Special Characters
    5. Quantifiers (*, +, ?, )
    6. Assertions (^, $, \b, \B)
9. Advanced Regular Expressions in Perl
    1. Substrings
    2. Substrings in List Context
    3. RE Special Variables
    4. RE Options
    5. Multi-line REs
    6. Substituting with an Expression
    7. Perl RE Extensions
10. Subroutines in Perl
    1. Overview of Subroutines
    2. Passing Arguments
    3. Private Variables
    4. Returning Values
11. References




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    1. References
    2. Creating References
    3. Using References
    4. Passing References as Arguments to Subroutines
    5. Anonymous Composers
    6. The Symbol Table
12. Complex Data Structures in Perl
    1. Two-dimensional Arrays in Perl
    2. Anonymous Arrays and Anonymous Hashes
    3. Arrays of Arrays
    4. Arrays of References
    5. A Hash of Arrays
    6. A Hash of Hashes
    7. And So On...
13. Perl Packages and Modules
    1. Packages
    2. BEGIN and END Routines
    3. require vs. use
    4. Modules
    5. The bless Function
14. Introduction to Object-Oriented Programming in Perl
    1. What is Object-Oriented?
    2. Why Use Object-Oriented Programming?
    3. Classes, Objects, and Methods in Perl
    4. Inheritance, the "is-a" Relationship
    5. Containment, the "has-a" Relationship
    6. Overloaded Operators
    7. Destructors
15. Binary Data Structures in Perl
    1. Variable-Length (Delimited) Fields
    2. Variable vs. Fixed
    3. Handling Binary Data
    4. The pack Function
    5. The unpack Function
    6. The read Function
    7. C Data Structures
16. Multitasking with Perl
    1. What are Single and Multitasking?
    2. UNIX Multitasking Concepts
    3. Process Creation with fork
    4. Program Loading with exec
    5. File Descriptor Inheritance
    6. How UNIX Opens Files
    7. One-Way Data Flow - Pipes
    8. Example
    9. Final Result - Page Viewing
17. Sockets Programming in Perl




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1. Clients and Servers
2. Ports and Services
3. Berkeley Sockets
4. Data Structures of the Sockets API
5. Socket System Calls
6. Generic Client/Server Models
7. A Client/ServerExample
8. A Little Web Server

## Class Materials

Each student will receive a comprehensive set of materials, including course notes and all the class examples.

Class Prerequisites

Experience in the following *would be useful* for this Perl class:

- Basic Programming



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