

Course Description: Perl is a scripting language which allows for rapid prototyping of projects formerly done with a programming language or a shell. It incorporates all the functionality of C (including a UNIX system interface), the Shells, grep, sed, and awk. The topics in the course will aid all computer users - from end user to programmer to administrator alike. Many in class labs support the course material.

Who Should Attend: This course is for programmers, end users, system administrators, network administrators, CGI script writers, or anybody who is interested in automating tasks but doesn't want to learn all the details of a full blown programming language.

Prerequisites: Students should have some experience with either a programming language (preferably C), or any of the UNIX shells.

Benefits of Attendance: Upon completion of this course, students will be able to:

- Manipulate files and directories
- Use arrays and array functions to solve a wide variety of problems
- Use the powerful regular expression capabilities of Perl
- Generate reports
- Use hashes to solve commonly encountered problems
- Take advantage of Perl's powerful system interface
- Write programs that solve many system administrator problems
- Use Perl to write CGI applications

Course Outline:

A Tutorial Introduction to Perl

What is Perl?
Where Can I Get Perl?
The First Perl Program
Simple I/O
Perl Variables
Numbers
Arrays
Array Functions
Arrays and STDIN
Control Flow Constructs
Altering Loop Control Flow - last
Altering Loop Control Flow - next
Altering Loop Control Flow - redo
Labeled Blocks For Long Breaks
Statement Modifiers
What Is True And What Is False?
Associative Arrays
The Special Built In Variable \$_
Pattern Matching with Regular Expressions
Writing Your Own Functions

I/O

Introduction
The print Function
The printf Function
The sprintf Function
Filehandles
Opening Disk Files
File Open Errors
Closing Files
Opening Pipe Files
Command Line Arguments
File Operators
The stat Operator
The _ filehandle

Operators

Introduction
Table Of Perl Operators
Assignment Operators
Special String Operators
Relational Operators
Logical Operators
Arithmetic Operators
The Conditional Expression
Range Operator
Regular Expression Operators
String Operators

Arrays and Array Functions

Introduction
Assigning Values To An Array
Subscripting An Array
Array Functions
push and pop

shift
sort, reverse, and chop
split and join
grep
splice
Associative Arrays
Associative Array Functions
Associative Array Example
Built-in Associative Arrays
Reading From A File Into An Associative Array

Subprograms

Subroutines
Passing Arguments to Subroutines
Returning Values from Subroutines
The require Function
@INC
Packages
Modules and use
Typeglobs
Predefined Subroutines

Data Structures

References
Syntactic Sugar
Anonymous Arrays
Higher Dimensional Arrays
References and Subroutines

Accessing System Resources

Introduction
File and Directory System Calls
mkdir, chdir, and chmod
opendir and readdir
link, unlink, and rename
Time Stamps for Disk Files - utime
Process Creation - fork
exec and wait
Signals
system

Odds and Ends

eval
warn
Quoting
Sorting With Custom Comparison Functions
here Strings
tr
pack and unpack
Regular Expressions
Command Line Options
Debugging
The strict.pm Module
The -w flag
The Perl Debugger

Generating Reports with Perl

Introduction
Formats
Multi-Line Format
Filled Field Format
Top-of Page Format
The select Operator
Special Format Variables - \$-, \$^
A Sample Report Generator
Sample Input File
Sample Output

A CGI Primer

Introduction
A Typical Form
Web Servers + Web Clients
HTML
HTML Form Tags
CGI Input
The GET Method
Browser's Rendering of "getmethod.html"
The CGI Script for "getmethod.html"
The Browser's Rendering of the CGI Output
CGI Output
Environment Variables
Decoding Form Data
The Perl Script to Process guestbook.html
Browsers Display of the CGI Output
CGI.pm

Appendix A: Additional Miscellaneous Information

Perl Command Line Options
The Perl Debugger
Perl Regular Expression Metacharacters
Formats for pack and unpack
Some Special Perl Variables
What is in the Advanced Perl Course
A Taste of Object Orientation
A Taste of Client/Server Network Programming
References