

Topic 1

Introduction to Perl



Learning Perl 2nd edition
Chapter 1, pages 1-6
perlfaq manpage

1

To be covered today

- Introduction to Perl
- Introduction to subject
- Outline of topics
 - what's examinable
- Simple Perl programs
 - and how to run them

2

What Perl is

(Almost) everything to (almost) everybody

- Fairly simple
 - easy tasks have easy solutions
- Typically practical
 - commonest tasks are supported in language
- Relatively portable
 - available for Unix, MS Windows, Mac, ...
- Generally robust
 - difficult to crash or exploit security
- Completely free

3

Why use Perl?

When to take advantage of Perl's power

- For problems that are
 - too small to write in C
 - too complex for shell commands
 - write-once, throw-away
 - in continuous development
 - for wide distribution

4

Why not use Perl?

When to use (gasp!) something else

- For code clarity
 - Perl is often difficult to read
 - an evolved language
- For speed
 - Perl is fast, but C is faster
- For very large-scale projects
 - Perl is better suited to smaller tasks
- Because you have to
 - Perl may not be loved by your boss

5

How to get Perl

Version 5.6.0

- /usr/bin/perl
 - most Unix systems have it already
- CPAN
 - Comprehensive Perl Archive Network
 - <http://www.perl.com/CPAN>
- Source code
 - compilable on Unix and MS-DOS/Windows
- Precompiled binaries
 - MS-DOS/Windows/Mac



Llama2 page xxii, 2; *Camel3* page xxiii; *Camel2* page xvii

6

Subject overview

Assessment details

- Lectures
 - ▶ twelve lectures, one per week
- Labs
 - ▶ four labs, one every three weeks
 - ▶ start in week one of semester
 - ▶ two hours long
 - ▶ total 20% of final mark
 - ▶ lab questions available on subject web page
- Practical exam
 - ▶ held in computer laboratory
 - ▶ open book
 - ▶ three hours long
 - ▶ 80% of final mark

CSE2395/CSE3395

7

For Level 3 students only

Not examinable for second-year students

- Some material only examinable for CSE3395 students
 - ▶ marked in left margin of slides
 - ▶ CSE2395 students welcome to participate

CSE3395

8

For your information

Relevant material outside the subject's scope

- Some material not directly examinable
 - ▶ marked in left margin of slides
 - ▶ may be obliquely related to examinable material, so could still be on exam in some form!

9

Getting help

How to get assistance with Perl

- From the lecturer
 - ▶ Clayton campus
 - Deborah Pickett
 - debbiep@csse.monash.edu.au
 - <http://www.csse.monash.edu.au/~debbiep/>
 - room 125(26)
 - phone (990) 55885
 - ▶ Malaysia campus
 - Gordon Stegink
 - gordon.stegink@busit.monash.edu.my
- From your demonstrator
 - ▶ ask in your lab
- From each other
 - ▶ but no plagiarism

CSE2395/CSE3395

10

Getting help online

Reading the manual

- Manual pages (manpages)
 - ▶ `man perl`
 - ▶ `perldoc`
- CPAN
 - ▶ <http://www.perl.com/CPAN>
 - ▶ Online manual pages and many FAQ lists
- Subject web page
 - ▶ <http://www.csse.monash.edu.au/courseware/cse2395/>
 - ▶ these lecture notes
 - ▶ lab sheets
 - ▶ sample exam questions and past exams



Camel3 pages xxv-xxviii; `perl` toc manpage

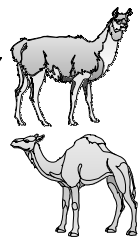
CSE2395/CSE3395

11

Texts

Recommended and prescribed

- *Learning Perl* ("Llama book")
 - ▶ R. Schwartz, T. Christiansen
 - ▶ O'Reilly & Associates, second edition, 1997
 - ▶ Prescribed text
- *Programming Perl* ("Camel book")
 - ▶ L. Wall, T. Christiansen, J. Orwant
 - ▶ O'Reilly & Associates, third edition, 2000
 - ▶ Second edition still relevant
 - ▶ More detailed reference
- These lecture notes
 - ▶ <http://www.csse.monash.edu.au/courseware/cse2395/>



This icon indicates a book/manual page reference

CSE2395/CSE3395

12

Topics covered

- Scalar values and variables
 - numbers and strings
- List values and variables
 - how Perl implements arrays
- Perl's control structures
 - if, while, for, etc.
- Hash tables (Hashes)
 - aka associative arrays
- Regular expressions
 - matching and substituting strings

CSE2395/CSE3395

13

Topics covered

Continued

- Functions
- File and directory manipulation
 - input/output and directory listing
- Formats and reporting
 - getting Perl to output according to a template
- References
 - Perl's answer to pointers
 - how Perl does nested data structures

CSE2395/CSE3395

14

Topics covered

Continued

- Libraries and packages
 - using software packages written by others
- CGI (Common Gateway Interface)
 - interactive World Wide Web documents
- Quick hacks
 - getting the job done with the least effort
- System administration
 - getting your hands dirty

CSE2395/CSE3395

15

Topics covered

Continued

- Object-oriented programming
 - Perl's approach to the favourite paradigm of the last 15 years

CSE3395

16

Perl conventions

Similarities with C

- Blocks of code grouped with { braces }
 - but braces are required with if or while constructs
- Statements end with ;
- White space is usually optional
 - but some situations require exact spacing
- All words are case sensitive
 - STDIN and stdin are different words

CSE2395/CSE3395

17

Perl conventions

Differences from C

- Comments start with # symbol
 - until end of line
- Parentheses on function calls are optional
 - sometimes needed to remove ambiguity
- Variables do not need to be declared
 - an undefined variable produces a reasonable "empty" value if it is used
- Variables start with a symbol
 - \$, @ or %
- No main function
 - Code is executed as it is met in the program

CSE2395/CSE3395

18

Example

A typical Perl script

CSE2395/CSE3395

```

# Read in lines until EOF.
while (defined($input = <STDIN>))
{
  chomp $input;
  push @lines, $input;
}

# Get a random number of the right size.
srand;
$pick = int(rand(scalar @lines));

# Print line indexed by $pick.
print $lines[$pick], "\n";

```

← comments

← keyword

← variables

← functions

19

Example

Running a simple Perl program

CSE2395/CSE3395

```

hello.pl
print "Hello, world!\n";

% perl hello.pl
Hello, world!

```

Llama2 page 5

20

Example

Making running easier on Unix

CSE2395/CSE3395

```

hello.pl
#!/usr/bin/perl -w
print "Hello, world!\n";

% chmod +x hello.pl
% hello.pl
Hello, world!

```

← "Magic code" (!)

← Interpreter (/usr/bin/perl -w)

← Make script executable

Converted to /usr/bin/perl -w hello.pl
Not supported on MS-DOS/Windows

Llama2 page 3; *Camel3* pages 18-20; *Camel2* page 10

21

Covered today

CSE2395/CSE3395

- Introduction to Perl
- Introduction to subject
- Outline of topics
 - What's examinable
- Simple Perl programs
 - and how to run them

22

Going further

More things related to today's topic

- CPAN
 - the place to start any Perl quest
 - <http://www.perl.com/CPAN>
- Command-line switches
 - writing dirty one-liner programs
 - *Camel3* pages 486-505; *Camel2* pages 327-337

23

Next time

To be covered in Topic 2

CSE2395/CSE3395

- Scalar values and operations
 - strings and numbers
- Scalar variables
- Scalar operations

Reading:
Learning Perl 2nd edition chapter 2
Programming Perl 3rd edition pages 6-8, 58-67
Programming Perl 2nd edition pages 4-6, 38-44
 perldata manpage

24

CSE2395/CSE3395 lecture notes copyright
© 2000-2001 Deborah Pickett.
Reproduction of this presentation for
nonprofit study use is permitted. All other
reproduction, including for other
educational courses, must be authorized in
writing by the author.