

Perl

A language for Systems and Network
Administration and Management

What is Perl?

- Perl is a programming language
- The best language for processing text
- Cross platform, free, open
- Microsoft have invested heavily in ActiveState to improve support for Windows in Perl
- Has excellent connection to the operating system
- Has enormous range of modules for thousands of application types

What is Perl?

2

- Robust and reliable (has very few bugs)
- Supports object oriented programming
- Good for big projects as well as small
- Java 1.4 has borrowed one of Perl's best features: regular expressions
- Perl has garbage collection
- The "duct tape of the Internet"
- Easy to use, since it usually "does the right thing"
- Based on freedom of choice: "There is more than one way to do it!"
- TIMTOWTDI

Compiled and run each time

- Perl is interpreted, but runs about as fast as a Java program
- Software development is very fast
- The Apache web server provides mod_perl, allows Perl applications to run very fast
- Used on some very large Internet sites:
 - The Internet Move Database
 - Macromedia, Adobe, <http://slashdot.org/>

Perl is Evolving

- Perl 6 will introduce many great features to make Perl
 - easier to use
 - Even more widely usable for more purposes
 - Even better for bigger projects

Eclectic

- Borrows ideas from many languages, including:
 - C, C++
 - Shell
 - Lisp
 - BASIC
 - ...even Fortran
 - Many others...

Regular Expressions

- One of the best features of Perl
- A new concept for most of you
- ...But very useful!
- Used to:
 - extract information from text
 - transform information
- You will spend much time in this topic learning about regular expressions

Why should I learn it?

- It will be in the final exam!
 - Okay, that's to get your attention, but...
- **Consider a real-life sys-admin problem:**
 - You must make student accounts for 1500 students
 - TEACHING BEGINS TOMORROW!!!
 - The Computing Division has a multi-million dollar application to give you student enrollment data
 - ...but it can only give you PDF files with a strange and irregular format for now (But Oh, it will be infinitely better in the future! Just wait a year or two...)

But I can use any other language!

- I will give you HK\$200 if you are the first person to write a solution in another language in fewer keystrokes
- Note: the Perl solution given has:
 - comments
 - Plenty of space to show structure
 - ...and handles exceptional situations (i.e., it is robust)
- To claim your \$200 from Nick, your solution must have
 - similar space for comments
 - Similar readability and robustness
 - Be written in a general purpose language using ordinary libraries

Any other solution may take longer to write

- This program took a very short time to write
- It is very robust
- For problems like this, Perl is second to no other programming language.

The hello world program

- print "hello world\n"

Variables

- There are three basic types of variable:
- Scalar (can be a number or string or...)
- Array (an ordered array of scalars)
- Hash (an unordered array of scalars indexed by strings instead of numbers)
- Each type distinguished with a "funny character"

\$Scalars:

- Start with a dollar sign
- Hold a single value, not a collection
- A string is a scalar, so is a number
- Examples:
- `$apple = 2;`
- `$banana = "curly yellow fruit";`

@Array

- Starts with a @
- Indexes start at 0, like in C

%Hashes

- Unfamiliar concept to many of you
- Like an array, but indexed by a string
- A data structure like a database

Conclusion

- Perl is optimised for text and systems administration programming
- Has great portability
- Is strongly supported by Microsoft
- Has three main built-in data types:
 - Scalar: starts with \$
 - Array: starts with @
 - Hash: starts with %