Perl Short Course: Introduction

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- There are two good books describing Perl: Randal Schwartz's excellent introduction **Learning Perl** and Larry Wall and Randal Schwartz's rather more advanced **Programming Perl.**

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- Perl is an immensely pragmatic language, borrowing the best features from many other languages - forming a coherent whole, more powerful than the sum of its parts.
- Perl is known as the **Swiss Army Chainsaw** of programming; it makes *the easy tasks easy, the hard tasks possible*.

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- Most crucially, Perl does all **storage management** for us - just like **awk,** and **Java**, unlike **C**.
- Plus: threads, portable graphics, OOP, functional programming, network programming and more modules than you can count.

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- To do anything more complex, eg. multi-dimensional arrays, Perl provides **references** - an ability for one variable to refer to another variable. Rather like pointers.

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- What can we see immediately about Perl from this example?
  - Lines beginning with # are comments, ignored by Perl.
  - Statement are terminated with semi-colons.
  - A string is placed in double quotes, and can contain C-style special characters such as `\n`.

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my $name = <STDIN>;
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Personalising the Message (eg2)

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- Once again, we syntax check eg2 and then run it.
- Was there anything that surprised you when the program ran?

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- How long would that have taken to write in C *and know it's bug-free*?

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- Embed the final print inside the else part of the following new if statement:

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- Syntax check, run it again a few times. Check it works.
- You may wish to try this with your own name instead..

- Let's just refresh our memories - the complete program is now:

```
#
# eg4: special case greeting
#
print "Please enter your name: ";
my $name = <STDIN>;
chomp $name;
$name = ucfirst(lc($name));
if( $name eq "Duncan" )
{
        print "\nwotcha Dunc mate!\n";
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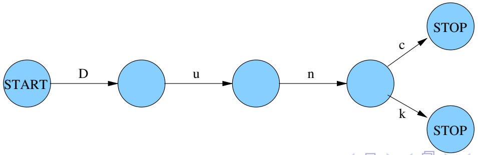
- This is an example of matching a string against a *regular expression* - known as a *regex* - as found in the Unix filters **sed, grep** and **awk**.
- **regexes** are explained in more detail later, so for now let's just say that it succeeds if `$name` starts with the string `"Dun"`, immediately followed by *either* `"c"` or `"k"`. Graphically:



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  print "What is the secret word: ";
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          chomp $guess;
  last if $guess eq $secretword;
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- This is an infinite **while** loop. Inside, we obtain a line of input, store it in $guess and chomp it as usual.
- We break out of the loop (**last**) if the guess is exactly the same as the secret word. If the guess is wrong, we continue round the loop. (Notice the **last if** alternative syntax).

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- Once you've got used to hashes, you never want to be without them! Many data structures you would build using pointers etc in C can be done with the combination of lists and hashes.

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- Replace the initialisation of the `$issecretword` elements with:

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    - When we have read the last line from the file, quit the **while** loop and close the file.

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- Now, for the first time, we need two programs: one to initialise the DBM file, and our existing program (modified a bit) to read the DBM file:
- First, the creation program **mksecret** is as follows:

```
#
#       mksecret: create the secret words DBM file
#
dbmopen( my %secret, "secretwords", 0666 ) || die;
$secret{"Romulan"} = 1;
$secret{"Klingon"} = 1;
$secret{"Vulcan"} = 1;
dbmclose( %secret );
```

- Back in the main program - now called **eg10** - remove all the file reading code (up to `CLOSE(IN)`) and replace it with:

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- By using this highly efficient system, we get *persistent storage* for Perl programs, for free!
- This is an example of what I meant by leverage.

- Let's close by showing the final version **eg10**:

```
#
# eg10: secret words from a dbm file
#
dbmopen( my %issecretword, "secretwords", 0666 ) || die;

print "Please enter your name: ";
my $name = <STDIN>;
chomp $name;
$name = ucfirst(lc($name));
if( $name =~ /^Dun[ck]/ )
{
        print "\nwotcha Dunc mate!\n";
} else
{
        print "\nhello $name!\n";
        print "Please enter one of the secret words: ";
        while(1)
        {
                my $guess = <STDIN>;
                chomp $guess;
        last if $issecretword{$guess};
                print "Wrong - guess again: ";
        }
}

dbmclose( %issecretword );
```