Software Construction

pythagoras.pl
compute Pythagoras' Theorem

```perl
print "Enter x: ";
$x = <STDIN>;
chomp $x;
print "Enter y: ";
$y = <STDIN>;
chomp $y;
$pythagoras = sqrt $x * $x + $y * $y;
print "The square root of $x squared + $y squared is $pythagoras\n";
```

sum_stdin.pl

Read numbers until end of input (or a non-number) is reached then print the sum of the numbers

```perl
$sum = 0;
while ($line = <STDIN>) {
    $line =~ s/^\s*//; # remove leading white space
    $line =~ s/\s*$//; # remove leading trailing white space
    # Test if string looks like an integer or real (scientific notation not handled!)
    if ($line !~ /^\d[.\d]*$/) {
        last;
    }
    $sum += $line;
}
print "Sum of the numbers is $sum\n";
```

line_chars.pl

Simple example reading a line of input and examining characters

```perl
printf "Enter some input: ";
$line = <STDIN>;

if (!defined $line) {
    die "$0: could not read any characters\n";
}

chomp $line;
$n_chars = length $line;
print "That line contained $n_chars characters\n";

if ($n_chars > 0) {
    $first_char = substr($line, 0, 1);
    $last_char = substr($line, $n_chars - 1, 1);
    print "The first character was '$first_char'\n";
    print "The last character was '$last_char'\n";
}
```

snap_consecutive.pl

Reads lines of input until end-of-input

Print snap! if two consecutive lines are identical

```perl
print "Enter line: ";
$last_line = <STDIN>;
print "Enter line: ";
while ($line = <STDIN>) {
    if ($line eq $last_line) {
        print "Snap!\n";
    }
    $last_line = $line;
    print "Enter line: ";
}
```

exponential_concatenation.pl

create a string of size 2^n by concatenation

```perl
die "Usage: $0 <n>\n" if @ARGV != 1;
$n = 0;
$string = '@';
while ($n < $ARGV[0]) {
    $string = "$string$string";
    $n++;
}
printf "String of 2^%d = %d characters created\n", $n, length $string;
```

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