Perl program examples from Tisdall, James, *Beginning Perl for Bioinformatics*, O'Reilly 2001

Simple sequential program:

```perl
#!/usr/bin/perl -w
# Example 4-1 Storing DNA in a variable, and printing it out

# First we store the DNA in a variable called $DNA
$DNA = 'ACGGGAGGACGGGAAAATTACTACGCGATTAGC';

# Next, we print the DNA onto the screen
print $DNA;

# Finally, we'll specifically tell the program to exit.
exit;
```

Demonstration of 3 string concatenation methods:

```perl
#!/usr/bin/perl -w
# Example 4-2 Concatenating DNA

# Store two DNA fragments into two variables called $DNA1 and $DNA2
$DNA1 = 'ACGGGAGGACGGGAAAATTACTACGCGATTAGC';
$DNA2 = 'ATAGTGCGGTGAGTAGTGATGTA';

# Print the DNA onto the screen
print "Here are the original two DNA fragments:

print $DNA1, "

print $DNA2, "

# Concatenate the DNA fragments into a third variable and print them
# Using "string interpolation"
$DNA3 = "$DNA1$DNA2";

print "Here is the concatenation of the first two fragments (version 1):

print "$DNA3"

# An alternative way using the "dot operator":
# Concatenate the DNA fragments into a third variable and print them
$DNA3 = $DNA1 . $DNA2;

print "Here is the concatenation of the first two fragments (version 2):

print "$DNA3"

# Print the same thing without using the variable $DNA3
print "Here is the concatenation of the first two fragments (version 3):

print $DNA1, $DNA2, "

exit;
```
First example from text (with errors, downloaded from text web site):

```perl
# Chapter 1 - Exercise 1
print "Enter single DNA strand: ";
$dnaseq = <STDIN>;
chomp $dnaseq;
print "\n\nOpposite strand: ";
for ($i=-1;$i<length($dnaseq);$i++) {
    $nucleo = substr($dnaseq, $i, 1);
    if ($nucleo eq "A") {print "T";}
    elsif ($nucleo eq "C") {print "G";}
    elsif ($nucleo eq "G") {print "C";}
    else {print "A";}
}
```

Transcription example from O'Reilly (simpler, uses built-in Perl functionality):

```perl
#!/usr/bin/perl -w
# Example 4-3   Transcribing DNA into RNA
# The DNA
$DNA = 'ACGGGAGGACGGGAAAATTACTACGGCATTAGC';

# Print the DNA onto the screen
print "Here is the starting DNA:\n\n";
print "$DNA\n\n";

# Transcribe the DNA to RNA by substituting all T's with U's.
$RNA = $DNA;
$RNA =~ s/T/U/g;

# Print the RNA onto the screen
print "Here is the result of transcribing the DNA to RNA:\n\n";
print "$RNA\n\n";

# Exit the program.
exit;
```