

Outline

- Introduction to computer programming and scripting
- Exercise 4: bash scripting

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Programs and algorithms

- **Programming language**
 - A language designed to provide instructions to a computer.
 - Each language has specific syntax and semantics.
- **Program**
 - A set of instructions telling a computer exactly what to do.
- **Script**
 - A program, often relatively short and usually written in an interpreted language.
- **Algorithm**
 - A sequence of operations to be followed to solve a problem (independent of a specific programming language).

Introduction to bash scripting

Bash: a Unix shell and command processor. Can execute commands directly from terminal or from a text file.

Script: A series of commands or instructions to automate a task. The commands are written in a text file that is then executed by a program without being first compiled (converted into the binary machine code).

Scripting language: A computer programming language that supports scripts. The scripts are typically interpreted by the program and do not have to be compiled.

Writing scripts in text editors

```

1 #!/usr/bin/perl
2 use strict;
3 use warnings;
4 use Function qw(main);
5 use Lib qw(Perl);
6 use Carp;
7 use Cwd;
8 use Getopt::Std;
9
10 #
11 # Start Variable Declaration
12 #
13
14 my $i = 0;
15 my ($input, $output, $library, $name, $smallRNA, $seq, $output_full, $prompt,);
16 my ($name, $result);
17 my $url = cwd;
18 use vars qw( $opt_l $opt_o $opt_s $opt_a );
19 getopts('l:os:a');
20 $var_check();
21
22 #
23 # End Variable Declaration
24 # Start Main Body
25 #

```

Common GUI text editors

Mac Users: TextWrangler



PC Users: Notepad++



Linux users: gedit

Exercise 4:

- Interactive exercise: open a terminal and follow along with instructor.
- Independent exercise: see instructions on course docuwiki page.
