

CSCI-2230 Programming in Perl

Final Exam Review Questions

The final exam will cover everything we have done in the 2nd half of the class, beginning with Regular Expressions. This includes: RegExps, Subroutines, Objects, Modules, "Random Bits of Perl" (eval, quoting operators, backticks, map, grep, each, \$!, list assignment), References, and CGI programming.

The exam will be open-book, open-note. You may use the Camel, the Llama, another Perl text, your own notes, and/or class notes. You may not use Calculators, PDAs, Laptops, or any other student.

Following are some sample questions for the final exam:

Regular Expressions

1) Write a Regular expression that matches the following:

a) at least one a followed by any number of b's

b) three consecutive copies of the value stored in \$foo

c) any five characters, including the newline

d) any 'word' (as defined by perl) two times, separated by any other different word (with any amount of whitespace in between the words). For example:

```
Hello world5 Hello
```

2) Write one line of code that will search a string \$email for an email address, and store the user name in \$user, and the domain in \$domain. For example, if \$email contains lallip@cs.rpi.edu, after your one line, \$user will contain lallip and \$domain will contain cs.rpi.edu

3) What is printed in the following example?

```
$string = "Name=Paul;RIN=660066466;email=lallip@cs.rpi.edu";  
$string =~ /Name=(.+)/;  
print "Name: $1\n";
```

4) What about this one?

```
$phrase = "Do not go gently into that dark night\nRage, Rage\nAgainst the  
dying of the light";  
@firsts = $phrase =~ /^(\w+)/gm;  
print "@firsts\n";  
@lasts = $phrase =~ /(\w+)$/g;  
print "@lasts\n";
```

User subroutines

5) What is the output of this code?

```
sub fun1{
    $i=0;
    foreach (@_){
        print "$i: $_\n";
        $i++;
    }
}
$name = Paul;
fun1 "hello", "world", "and $name!";
```

6) Write a function that will accept a string and a list. The function will return a string consisting of each member of the array prepended by the string. For example, if the function is called by

```
prepend("good", ("morning", "evening", "boy"));
```

it will return the string

```
"good morning good evening good boy"
```

Perl should give an error if incorrect arguments are passed (ie, first argument is not a scalar, second is not a list, or incorrect number of arguments)).

7) What is the difference between the following two styles of calling a function?

```
my_func("Hello", 3);
```

```
my_func "Hello", 3;
```

Objects

8) Write a constructor for a class `Person` that has data-members `Name` and `Age`. Your constructor should set `Name` to the null string, and `Age` to 0.

9) Below are the entire contents of a file called MyClass.pm Why won't the Perl interpreter accept it? (ie, it won't compile. Why?)

```
package MyClass;

sub new {
    my @students = ();
    my $MyObj = {Day => "Wednesday", Room => "DCC330", Time => "4pm-6pm",
Enrollment=>0, students => \@students};
    bless $MyObj, MyClass;

    return $MyObj;
}

sub register{
    my ($ref, $new_student) = @_;
    $ref->{Enrollment} ++;
    push @{$ref->{students}}, $new_student;
}

sub print{
    my $ref = shift;
    print "Students in this class are: @{$ref->{students}} \n";
    print "And the Enrollment is $ref->{Enrollment}\n";
}
```

Random Bits of Perl

10) Re-write the following statement without using any \ characters. Note that the statement you write must be functionally equivalent to this statement:

```
print "$name said, \"What do you mean?\", and I answered, \"Well, $father told me, 'Do it!'\";
```

11a) Give the values of each of the following variables at the end of this code: \$a, \$b, \$c, \$d, \$e

```
$a = 5;
```

```
$b = 10;
```

```
$c = "foo";
```

```
($d, $a) = ($a, $b);
```

```
($e, $b, $c) = (5.1, "hello");
```

11b) Write one statement of code that does the equivalent of the following three statements (the value of \$temp is irrelevant at the end of your statement):

```
$temp = $a;
```

```
$a = $b;
```

```
$b = $temp;
```

CGI Programming

12) What should be the first two lines of every single CGI script you write?

13) If more than one form element has the name “foo”, what does param(‘foo’) return in list context? In scalar context?

14) Give the CGI ‘shortcut’ for the following piece of HTML:
`<input type="text" name="Age" value=18>`

15) Write a small CGI program that will create a field for the user to enter the name of a file on the user's machine. When the user presses submit, the program will print the contents of that file to the screen in reverse order (ie, last line first, second-to-last line second, ..., first line last)