

CSCI 132 Practical Unix Programming

Homework 1

Solution

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PART 2

The Pascal triangle is the following:

```
      1
     1 1
    1 2 1
   1 3 3 1
  1 4 6 4 1
 1 5 10 10 5 1
1 6 15 20 15 6 1
.
.
.
```

Let $P_{i,j}$ refer to the entry of the Pascal triangle in the i^{th} row and the j^{th} column. Rows and columns are indexed starting at 0. For instance $P_{0,0} = 1$, $P_{4,2} = 6$, $P_{5,0} = 1$, and $P_{6,4} = 15$ (the second 15 on row 6).

You need to write a program that, given i and j , computes the entry $P_{i,j}$ of the Pascal triangle (I will use strict and my declarations).

```
use strict;

my $i=...; #initialize i
my $j=...; #initialize j

my $p=1; #initialize the product to 1
my $count=1;

if ($j>$i) {
    print ''j must be less or equal to i'';
} else {
    until ($count>$j) { # or use while and reverse condition
        #note that when j is 0 the loop exits immediately
        $p=$p*($i-$count+1)/$count; #update the product
        $count=$count+1; #update the counter
    }
    print $p;
}
```