

# About Lab 2

Lab 2 calls for you to write 10 programs!

- One prints the old "99 bottles of beer on the wall" song.

A typical verse is

90 bottles of beer on the wall

90 bottles of beer!

Take one down, pass it around

89 bottles of beer on the wall.

Clicker Q: Will you do this with a FOR-loop or a WHILE-loop?

A) FOR

B) WHILE

C) Either

- One program asks the user to enter a number  $n$ , and then prints the perfect squares from  $n^2$  to 1, separated by commas.

For example, if  $n$  is 4 it prints 16, 9, 4, 1

The commas are the tricky part.

- One asks for the number  $n$  and then prints the  $n$ th Fibonacci number.
- One asks the user for an initial bank balance, the interest rate, a monthly deposit amount, and a number of months; the program prints the value of the account after each month.

Finally, the lab has 6 patterns that you are asked to code. Each pattern asks the user for a size. For example, Pattern C has this for size 3:

```
1 2 3
```

```
2 3
```

```
3
```

and this for size 4:

```
1 2 3 4
```

```
2 3 4
```

```
3 4
```

```
4
```

1 2 3 4

2 3 4

3 4

4

For the size  $n$  figure, number  
the rows from 1 to  $n$ .

How would you describe row  $i$ ?

- A) Row  $i$  has the numbers from 1 to  $n$
- B) Row  $i$  has the numbers from 1 to  $i$
- C) Row  $i$  has the numbers from  $i$  to  $n$
- D) Row  $i$  has the numbers from  $i$  to 1

Here is the code for pattern C:

```
n = eval(input( "Size? "))
for i in range(1, n+1):
    # print row number i
    for j in range(i, n+1):
        print( j, end = " " )
    print()
```

Pattern B with size 4 is

1 1 1 1

2 2 2 2

3 3 3 3

4 4 4 4

How would you describe row  $i$  for this pattern with size  $n$ ?

- A) Row  $i$  has the numbers from 1 to  $n$
- B) Row  $i$  has the number  $i$   $n$  times
- C) Row  $i$  has the number  $n$   $i$  times
- D) Row  $i$  has the number  $n$   $n$  times