CS 1428
Lab 6 Section 06

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Topic

Today we learn about **for** loops. A **for** loop allows us to repeat a certain segment of code when we know ahead of time exactly how many repetitions we want to occur. There are three parts to a **for** loop. The declaration/initialization of the index variable, the limit, and the step.

```
// example of a for loop
cout << "I'm going to count to 10!" << endl;

for (int i = 1; i <= 10; ++i)
{
   cout << i << endl;
}

"""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
Output:

I'm going to count to 10!
1
2
3
4
5
6
7
8
9
10
```

Questions

1. Fill in the blanks so that the following code fragment prints out `0.2,0.4,0.6,0.8,1`:

```
for (int i = 2; i <= 10; i += 2)
{
   float value = _____________;
   cout << _________ << ",";
}
cout << endl;
```

2. What would the following code print out to the screen?

```
for (int i = 0; i < 5; ++i)
{
   for(int j = 0; j < 10; ++j)
   {
      cout << "*";
   }
   cout << endl;
}
```

(a)
```
**********
**********
**********
**********
**********
```

(b)
```
**********
**********
**********
**********
**********
**********
**********
**********
**********
**********
```

(c)
```
*****
*****
*****
*****
*****
*****
*****
*****
*****
*****
```

(d)
```
*
*
*
*
*
```

3. What is the output of the following code fragment?

```
for (int count = 0; count <= 9; ++count)
{
   cout << count << " ";
}
cout << endl;
```

(a) 0 1 2 3 4 5 6 7 8

(b) 0 1 2 3 4 5 6 7 8 9

(c) 0 1 2 3 4 5 6 7

(d) 1 2 3 4 5 6 7 8 9

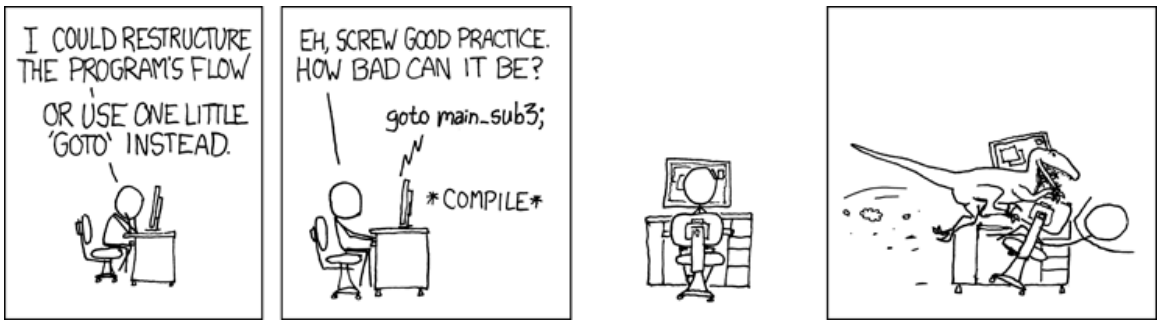
Programming Exercise

For this program you will need to use nested for loops to accomplish to goal. You will prompt the user for a number between 1 and 25. If the number entered is not acceptable then the program should print out a message informing the user and then exit. Once a valid input is accepted you will print out a triangle of numbers. For example, if the number entered was 9 then the triangle would look like this:

```
987654321
87654321
7654321
654321
54321
4321
321
21
1
```

When tackling the triangle think about which for loop is responsible for the lines and which one is responsible for the characters in a single line (in what order are they printed to the screen)

When you are done submit your source code via the online homework submission site. Then staple a printout of the source to the back of this handout (Don't forget to answer the questions above!) and turn the packet in, face down, on my desk.



Neal Stephenson thinks it's cute to name his labels 'dengo'