

Philip Pesic

Week 6

February 26 2023

Week 6 Q14

1) What facts of reality give rise for the need of Loops ?

Programmers are lazy, and they don't want to write the same block of code many times.

2) What are the three parts governing a for loop ?

The variable declaration, the condition, and the modifier.

3) What is an Infinite Loop ?

A loop that never ends

4) Write a Condition that would result in an infinite loop.

```
Int i = 0;
```

```
While (i == 0) {};
```

5) What type of Sequence is a loop ?

A contiguous repeating sequence

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6) What does the flow chart for a for loop look like ?

A yellow diamond represents the loop. For a false condition, the loop continues down the sequence of events. For true, the sequence branches to the side, executes a block of code, and then continues to the top of the loop to repeat.

7) What is the differences between a pre-test and post-test loop ?

A pretest loop is a loop that checks its condition before running each loop. A posttest loop is once that executed once, then checks the condition for the next loop.

8) What is a nested for loop ? Give an example.

A for loop inside of a for loop. The nested for loop will run completely for each loop in the outer loop.

Ex: for (int i = 0; i < 3; i++) {

For (in x = 0; x < 5; x++) {}

}

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9) Which is better ?

- a. Write the same block of code 10 times
 - b. Write the same block of code 1 time and copy and paste 9 more times
 - c. Write the same block of code 1 time and place it in a loop structure that repeats it 10 times
- C. Writing one block of code and placing it inside a loop is the most efficient way to reuse code.

10) Research online, the three conditions in the for loop. Which do you need, which can you do without ?

No conditions are necessary to write a for loop, however the loop will be infinite by default because there is no condition.

11) Why do lazy programmers use loops ?

Lazy programmers use loops because they allow them to reuse one block of code many times without rewriting it

12) What does 'contiguous' mean ?

Contiguous means sequential or adjacent. For loops are contiguous because each loop comes after the last.

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13) How are a simple sequence and a loop different ?

A simple sequence has no branching paths and continues in a straight line, in contrast to a loop which creates a branch that cycles backward.

14) Why do you like or dislike loops ?

I like loops because they allow you to write impossible long programs with one block of code.

For example, instead of manually writing out a million numbers, loops just allow you to print a variable, and then increase the variable for each loop until 1000000.