# CRT - CH5 (#1-#9)

1. The purpose of a loop structure is to execute certain code while a certain condition is true, until the wanted outcome happens/doesn't happen.
2. A while statement checks for a certain condition is true before it runs, the do part runs in a do-while loop, while the while loop part runs only if a certain condition is met.
3. In GuessingGame (mastery) we used the while loop which checked if the information was correct, and until it matched the computer number, it kept running.
4. a) A loop that never ends.
   b) Syntax and logical errors
   c) Overflow is a condition which occurs if a number becomes too large to store within a specific number of bits. An overflow changes the sign of the stored number.
5. The do-while loop will execute 61 times.
6. The initial value of x being 0 would cause the loop to be infinite.
7. Counters are used to keep track of loop iterations, for example when the application wants to track the number of guesses or values entered. Accumulators are usually used when the program wants to sum values and collect them over time.
8. Int sum = 0;
   For (int i=3; i<=10;i++)
   { sum += i;
   }
9. **Knowing how long or how many times** the loop will run is important. Using a for loop is usually better when there is a specific number of iterations, or accept a variable to determine how many iterations. A do-while loop or a while loop is usually better when the number of loops is dependent on a certain condition. The while loop will loop the program until the condition is met or not met.
   Along with that, it is also important to know **whether the loop will execute only under certain conditions.** This is seen in for loops.