CSE 105, Lab 5, Summer 2006
cse.unl.edu/~cstrope/csce105su06/lab/lab5

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1. Repetition: Conditional - while loop

    - General format

    ```
    while ( check condition )
    {
        executable1;
        executable2;
        change variable in conditional statement
    }
    ```

    - Condition is tested before loop is entered.
    - Loop is repeated as long as condition holds.
    - Must make a change in conditional variable within the loop, or loop will never end.
    - Compile sam3.c and run. Examine code to see the use of the while loop.

2. Repetition: At least once - do while loop

    - General format

    ```
    do
    {
        executable1;
        executable2;
        change variable in conditional statement
    ```

```
}while ( check condition );
```

- Loop is entered the first cycle.
- Loop is executed.
- Condition is tested after each loop is completed.
- Loop is repeated as long as condition holds.
- Must make a change in conditional variable within the loop, or loop will never end.

3. Repetition: For a fixed number of times - for loop

- General format

```
for ( x = 0; x < maxValue; x++)
{
    executable1;
    executable2;
}
```

- Counter initialized
- Condition is tested and loop repeated if condition holds
- Counter is incremented (or decremented)
- Compile sample6.c and run. Open source code and examine the two types of for loops.

4. Practice problem:

(a) Write a program that will find the smallest, largest, and average values in a collection of N numbers. The number N will be given to the program by the user. Also compute and display the range of values in the data collection (the minimum and maximum numbers entered), and the standard deviation of the data collection. To compute the standard deviation, accumulate the sum of the squares of the data values (sum_squares) in the main loop. After loop exit, use the formula
$$standard deviation = \sqrt{\frac{\texttt{sum\_squares}}{N} - average^2}$$

Email programming problem by midnight tonight!!