

EECE.2160: ECE Application Programming

Key Questions

While and do-while loops (Lectures 10-11)

QUESTIONS:

1. Explain how `while` loops can be used:
 - a. When number of iterations is dependent on a variable (flexible limit)
 - b. When you want to repeat an operation until a given value (sentinel) is entered (`while3.c`)
2. What is the difference between a `while` loop and a `do-while` loop?
3. Show the difference between the outputs of the loops below

```
x = 7;
do {
    printf("%d",x);
    x = x + 1;
} while ( x < 3 );
```

```
x = 7;
while ( x < 3 )
{
    printf("%d",x);
    x = x + 1;
}
```

4. Recall the example for using a `while` loop with a sentinel value in the grade average program and show that loop written as a `do-while` loop.

EXAMPLES:

1. Write a while or do-while loop for each of the following tasks:
 - a. Print all multiples of 3 between 0 and 100 (including 0)
 - b. Given two variables, x and y, repeatedly increment x by 1 and decrement y by 1 until x is greater than y. Print the initial values of x and y before the loop starts. Also, count the number of iterations this loop takes and print that number when the loop is done
 - c. Repeatedly prompt for and read a single non-space character into a variable, cmd, until the user enters either 'X' or 'x'.