

# **16.216: ECE Application Programming**

Fall 2015

## Lecture 9: Key Questions September 23, 2015

1. Explain the usage and basic structure of a `while` loop.

2. **Example:** What does each of the following short programs print?

a. `x = 7;`  
    `while ( x < 10 )`  
    `{`  
        `printf("%d ", x);`  
        `x = x + 1;`  
    `}`

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

```
int main() {
    int i;                // Number to square
    int iSquared;         // Square of the number
    printf(" i          i^2\n"); // Column headings

    // Compute and display the squares of numbers 0 to 10
    // Use a field width of 2 to print i and 10 to print i^2
    //   with no extra space between the fields

    return 0;
}
```

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5. What is the difference between a `while` loop and a `do-while` loop?

6. 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;
}
```

7. 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.