EECE.2160: ECE Application Programming

Fall 2018

Lecture 17: Key Questions October 15, 2018

QUESTIONS:

- 1. Explain what a pointer is, and how we can use them in C.
- 2. Explain the use of passing function arguments by address.

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EXAMPLES:

- 1. Write a function to do each of the following. Note that only the function name is listed—you must determine the return type and argument list.
- a. printLine(): Takes an integer, length, as an argument and prints "length" dashes on a single line

b. checkEvenOdd(): Reads an integer value from the console input (i.e., an integer typed by the user as input) and returns 1 if the value is even, 0 if it's odd

c. avgFour (): Takes four double-precision numbers as arguments and returns their average

2. What does the following program print?

```
#include <stdio.h>
#include <math.h>
void get r theta(double a, double b,
     double *adr r, double *adr th);
void main()
{
 double x, y, h, r, th;
 printf("Enter x, y components of vector: ");
 scanf("%lf %lf",&x,&y);
 get r theta(x,y,&r,&th);
 printf("Vector with x=%lf and y=%lf
      has r=%lf, theta=%lf\n",x,y,r,th);
}
void get r theta(double a, double b,
          double *adr r, double *adr th) {
 double sum;
 sum = pow(a, 2) + pow(b, 2); //or a*a+b*b;
 *adr r = sqrt(sum);
 *adr th = atan2(y, x);
}
```