Inspiring innovations that change the world.

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SCPP CS Project

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Lecture 3

Review
Quiz
Administrivia
Functions
Control structures
Activity: Morse Finch

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1. Describe an object

2. What are methods?

3. Give an example of a setter method on the Finch

Lecture 2

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Lecture 4

Review
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Activity: Morse Finch

Mobile
5039-1337
Have a problem? Confused? You call me.

Email
mouse@cmu.edu

The Critters:

boolean – true/false
byte - 8 bits
char – single character
color - … a color
double - 64 bits, can be a decimal number
    3.40282347E+38 to -3.40282347E+38
float – light double (32 bits)
int - 32 bits, no decimal.
    2,147,483,647 to -2,147,483,648
long - supersize int
    9,223,372,036,854,775,808 to
        -9,223,372,036,854,775,808

Making them useful:

boolean isSleepy; // declaration
isSleepy = true;   // assignment

int numStudents;
numStudents = 13;

double temp;
temp = 25.7;

color red;
red = color(255,0,0);
 - or -
red = #ff0000;

Pro Tip: You can init in the same line as you declare!
boolean isSleepy = true;

Let's find out what temperature it is!

```
Finch abe = new Finch();
double temp = abe.getTemperature();
println(temp);
```

Why a double?

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```
import blah.blah.blah.*

Finch amna = new Finch();

void setup() {
    sing();
}


void sing() {
    amna.playTone(5000,2000);
}
```

Better Coding Through Functions

What are they?

How are they different from methods?

What is a return type?

How do you make one?

This is special:

void setup() {

}

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Recap:
- Main function (setup)
- Function definition
- Calling the function
- Function return type
- Order of operations

```
void setup() {
  lightUpNose();
}

void lightUpNose() {
  Finch abe = new Finch();
  abe.setLED(255,0,0);
}
```

What about a return type other than void?

```
void setup() {
  int x;
  int y;
  int numStudents;

  x = numGirls();
  y = numBoys();
  numStudents = x + y;
  println(numStudents);
}

int numGirls() {
  return 4;
}

int numBoys() {
  return 9;
}
```

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What if we want our function to have input?
   – Parameters

```
void setup() {
  int x = 4;
  int y = 6;
  int sum;


  sum = addNumbers( x, y);
  println(sum);
}


int addNumbers( int firstNum, int secondNum) {
  int total;
  total = firstNum + secondNum;
  return total;
}
```

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Why can't we use the variables x & y
from setup in the addNumbers function?

```
void setup() {
  int x = 4;
  int y = 6;
  int sum;

      sum = addNumbers( x, y);
      println(sum);
}


int addNumbers( int firstNum, int secondNum) {
  int total;
  total = firstNum + secondNum;
  return total;
}
```