

Abstraction
IS 101Y/CMSC 104Y
First Year IT

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Processing Exercise

- **Return to your pair from the end of last class**
- **Pick a computer; download Processing**
- **If not done with Tutorial 1, complete it. If the concepts don't make sense, ask for help.**
- **Complete tutorial 2**
 - **When complete, raise your hand and demonstrate to course staff**
- **After finishing, try the following extensions**
 - **Build a second button; use the buttons to choose between a 4x4 matrix of squares and a 4x4 matrix of circles**
 - **Now change your buttons so that one increases the number of squares and the other decreases the number of squares**
 - **Turn each shape in the matrix a different color -- either in an ordered progression or randomly**

- **Questions**
- **Announcements**
- **Names**

For Loops (revisited)

- **Pseudocode:**
`for <I> from <MIN> to <MAX> do { ... }`
 - » Operations to be executed: { ... }
 - » Counter: <I>
 - » Initial condition: <I> == <MIN>
 - » Continuing condition: <I> <= <MAX>
- **Example: sum of numbers 1 to 10**
`sum = 0;
for (i from 1 to 10) do {
 sum = sum + i;
}`
- **Processing:**
`sum = 0;
for (i = 1; i <= 10; i+=1) {
 sum = sum + i;
}`

Loops (revisited)

- **More Loops**

```
for <ITEM> in <LIST> do { ... }  
while <CONDITION> do { ... }  
do { ... } until <CONDITION>
```

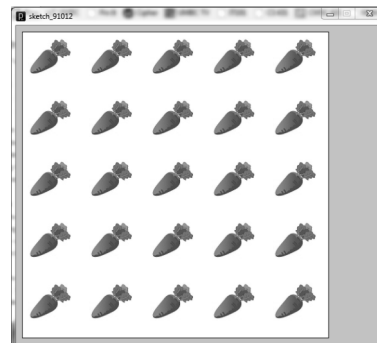
- **Examples**

```
- for student in class do {print student.name}  
- while (time < 11:15am) do {participate in class}  
- do {assigned reading} until (reading_todo == FALSE)
```

Assignment 3: Processing

- **Implement a program to help a user plan a garden, given**

- Layout shape
- Plant type
- Number of plants



- **Appropriate collaboration: discuss, but write your own code**

Libraries: What are they?

- Sometimes other developers have created a piece of code that you want to use.
- Instead of cutting and pasting code, developers package their code into a library that you can `import` into your project.
- **Example:**

```
import javax.swing.JOptionPane;
```

JOptionPane

- A specific class that you may want to use is **JOptionPane**. The code in this library creates a small popup window.



Code Template

```
import javax.swing.JOptionPane;
void draw() {
    String textInput = getInput();
    println(textInput);
    System.exit(0);
}
String getInput() {
    return
    JOptionPane.showInputDialog("Who's
    the most helpful TA?");
}
```

Code Template

```
import javax.swing.JOptionPane;
void draw() {
    String textInput = getInput();
    int number = parseInt(textInput);
    println(number);
    System.exit(0);
}
String getInput() {
    return
    JOptionPane.showInputDialog("How
    many dogs does Emily have?");
}
```