

Review

- Loops
 - Condition
 - index

for Loop

- Pattern


```

      statement  logical expression
      ① / ②      ④
      for ( init; condition; update ) {
      ③ body
      }
      statement
      
```
- Each section can be blank.
- Sequence: ① ② ③ ④ ... ② ③ ④ ② (condition fails)

break Statements

- Exit from a loop
- Typically used with an `if` statement

```

while (cond) {
    break;
}
  
```

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Example

```

for(int i=1; i<=100; i++) {
    if (i > 50)
        break;
    println(i);
}
  
```

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continue Statements

- Continue to the beginning of a loop
 - i.e., the condition will be checked
- Typically used with an `if` statement

```

while (cond) {
    continue;
}
  
```

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Example

```

for(int i=1; i<=100; i++) {
    if (i >= 20 && i <= 30)
        continue;
    println(i);
}
  
```

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```

void mousePressed() {
  for (int i = 0; i < 10; i++) {
    print( i );
  }
  println();
}
void draw() { }

```

```

void mousePressed() {
  for (int i = 0; i < 10; i++) {
    if ( i % 2 == 1 ) continue;
    print( i );
  }
  println();
}
void draw() { }

```

Nested for

```

int i, j, end = 10;

for (i = 1; i <= end; i++) {
  for (j = 1; j <= i; j++) {
    print(" *");
  }
  println();
}

```

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Review

- Functions
 - Definition
 - Call
 - Parameters
 - Return value

Identify Similar Code

```

float x, y, w, h;
int totalShapeCount = 1000;

void setup () {
  int i = 0;
  //other setup code here ...
  stroke(255, 50);
  while (i<totalShapeCount) {
    fill(random(255), random(255), random(255), 50);
    x = random(width);
    y = random(height);
    w = random(5, 100);
    h = random(5, 100);
    rect(x, y, w, h);
    i += 1;
  }

  stroke(0, 50);
  for (i=0; i<totalShapeCount; i+=1) {
    fill(random(255), 50);
    x = random(width);
    y = random(height);
    w = random(5, 100);
    h = random(5, 100);
    ellipse(x, y, w, h);
  }
}

```

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Identify Similar Code

```

float x, y, w, h;
int totalShapeCount = 1000;

void setup () {
  int i = 0;
  // other setup code here ...
  stroke(255, 50);
  while (i<totalShapeCount) {
    drawRandomShape(1);
    i += 1;
  }
  stroke(0, 50);
  for (i=0; i<totalShapeCount; i++) {
    drawRandomShape(2);
  }
}

void drawRandomShape(int choice) {
  x = random(width); y = random(height);
  w = random(5, 100); h = random(5, 100);
  if (choice == 2) { // circle
    fill(random(255), 50);
    ellipse(x, y, w, h);
  }
  else {
    fill(random(255), random(255), random(255), 50);
    rect(x, y, w, h);
  }
}

```

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