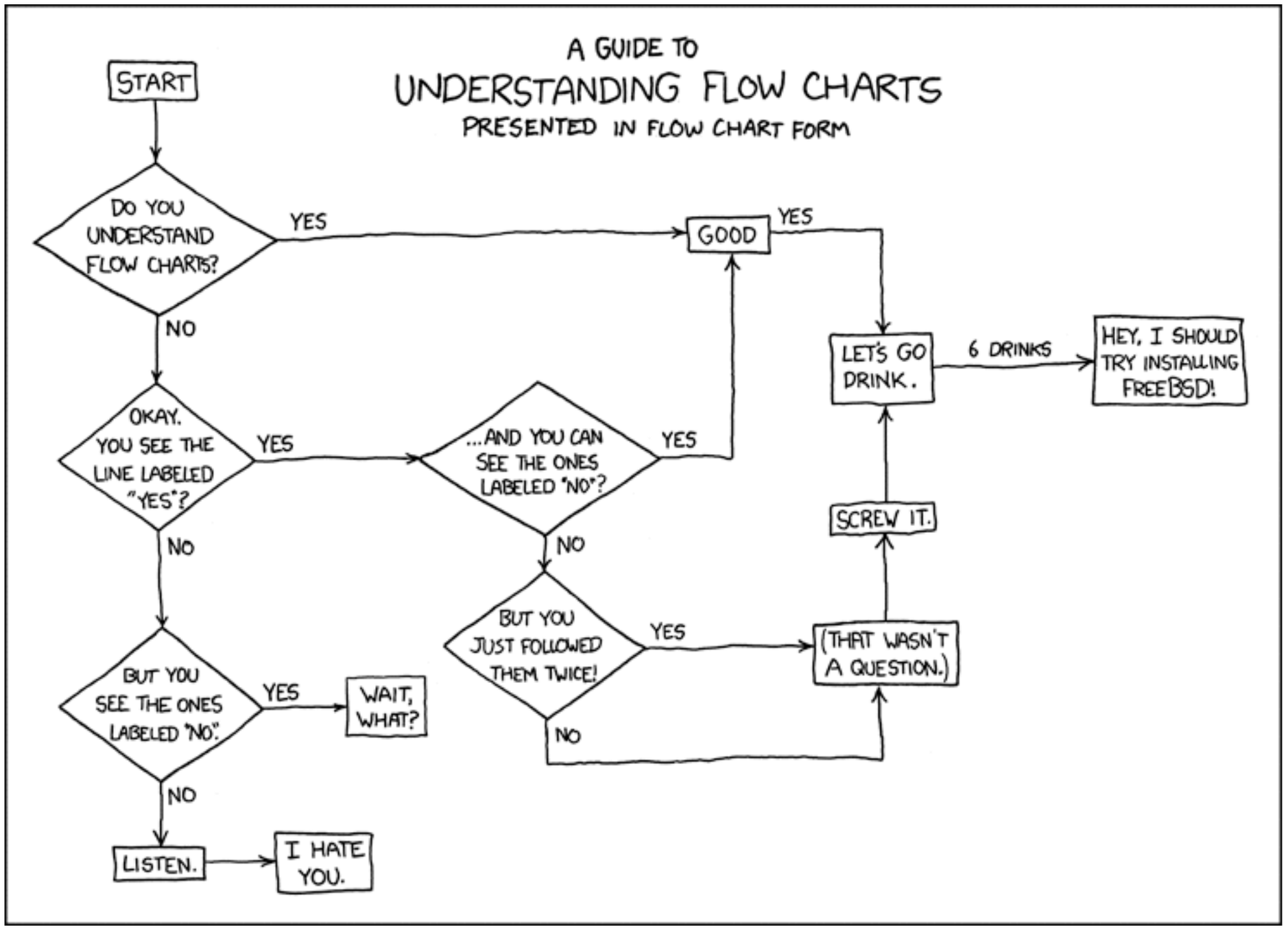
Conditional Statments

```
if

else

else if
```


A GUIDE TO
UNDERSTANDING FLOW CHARTS
PRESENTED IN FLOW CHART FORM
START
DO YOU UNDERSTAND FLOW CHARTS?
YES
NO
GOOD
YES
LET'S GO DRINK.
6 DRINKS
HEY, I SHOULD TRY INSTALLING FREEBSD!
OKAY. YOU SEE THE LINE LABELED "YES"?
YES
NO
...AND YOU CAN SEE THE ONES LABELED "NO"?
YES
NO
SCREW IT.
BUT YOU SEE THE ONES LABELED "NO".
YES
WAIT, WHAT?
NO
BUT YOU JUST FOLLOWED THEM TWICE!
YES
(THAT WASN'T A QUESTION.)
NO
LISTEN.
I HATE YOU.

```
if a person is over 18
    they can vote
else
    they cannot vote
```

```
if (person >= 18) {
    // they can vote
} else {
    // they cannot vote
}
```

Relational Operators

`>`	Greater than
`>=`	Greater than or equal to
`<`	Less than
`<=`	Less than or equal to
`==`	Equal to
`!=`	Not equal to

```
if (this expression is true) {
    // run this code
} else {
    // run this code
}
```

```
int age = 68;

if (age >= 65) {
    println(“Retire!”);
} else {
    println(“Get to work!”);
}
```

```
int age = 68;
```

true

```
if (age >= 65) {
    println(“Retire!”);
} else {
    println(“Get to work!”);
}
```

```
int age = 68;
```

```
if (age >= 65) {
    println(“Retire!”);
} else {
    println(“Get to work!”);
}
```

```
int age = 22;

if (age >= 65) {
    println(“Retire!”);
} else {
    println(“Get to work!”);
}
```

```
int age = 22;
```

false

```
if (age >= 65) {
    println(“Retire!”);
} else {
    println(“Get to work!”);
}
```

```
int age = 22;
```

```
if (age >= 65) {
    println(“Retire!”);
} else {
    println(“Get to work!”);
}
```

Logical Operators

&&	AND
||	OR
!	NOT

```
float temp = 28.6;
boolean sunshine = true;
```

```
if (temp > 25 && sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 28.6;
boolean sunshine = true;
```


```
if (temp > 25 && sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 28.6;
boolean sunshine = true;
```

true

```
if (temp > 25 && sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 28.6;
boolean sunshine = true;
```

```
if (temp > 25 && sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 16.2;
boolean sunshine = true;
```

```
if (temp > 25 && sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 16.2;
boolean sunshine = true;
```

```
if (temp > 25 && sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 16.2;
boolean sunshine = true;
```

```
if (temp > 25 && sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 16.2;
boolean sunshine = true;
```

```
if (temp > 25 && sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 16.2;
boolean sunshine = true;
```

```
if (temp > 25 && sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 16.2;
boolean sunshine = true;
```

```
if (temp > 25 || sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 16.2;
boolean sunshine = true;
```

```
if (temp > 25 || sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 16.2;
boolean sunshine = true;
```

```
if (temp > 25 || sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

```
float temp = 16.2;
boolean sunshine = true;
```

```
if (temp > 25 || sunshine == true) {
    println(“Go to the beach”);
} else {
    println(“Go to the movies”);
}
```

Sketch_12_Conditionals_1 | Processing 3.0.2

Java

Sketch_12_Conditionals_1

```
float myXPosition = 250;
float myYPosition = 250;

float rectSize = 10;

void setup() {
  size(500, 500);
  background(255);

}

void draw() {
  rect(myXPosition, myYPosition, rectSize, rectSize);

  myXPosition = myXPosition + (round(random(-1, 1)) * rectSize);
  myYPosition = myYPosition + (round(random(-1, 1)) * rectSize);

  if (myXPosition < 0) {
    myXPosition = width;
  }

  if (myXPosition > width) {
    myXPosition = 0;
  }

  if (myYPosition < 0) {
    myYPosition = height;
  }

  if (myYPosition > height) {
    myYPosition = 0;
  }
}

```

Console Errors

Loops

```
int i=0;

while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

```
int i=0;

while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

```
int i=0;

while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

```
int i=0;

while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

```
int i=0;
        0
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

```
int i=0;
        0
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0

```
int i=0;
          i
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0

```
int i=0;
          i
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0

```
int i=0;
          i
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0

1

```
int i=0;
        2
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0

1

```
int i=0;
        2
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0

1

```
int i=0;
        0
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0

1

2

```
int i=0;
        3
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0

1

2

```
int i=0;
        3
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0

1

2

```
int i=0;
        3
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0
1
2
3

```
int i=0;
        4
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0
1
2
3

```
int i=0;
        4
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0
1
2
3

```
int i=0;
        4
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0
1
2
3
4

```
int i=0;
        5
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0
1
2
3
4

```
int i=0;
        5
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0
1
2
3
4

```
int i=0;
        5
while (i < 5) {
     println(i);
     i++;
}
println(“Done”);
```

Output:

```
0
1
2
3
4
```

```
int i=0;
        5
while (i < 5) {
      println(i);
      i++;
}
println(“Done”);
```

Output:

0
1
2
3
4
Done

```
int i=0;

while (i < 5) {
      println(i);
      // i++;
}
println(“Done”);
```

```
int i=0;

while (i < 5) {
    println(i);
    i++;
}
println(“Done”);
```

```
for (int i=0; i < 5; i++) {
    println(i);
}
println(“Done”);
```

```
int i=0;

while (i < 5) {
    println(i);
    i++;
}
println(“Done”);
```

```
                Start   End
                  |       |
for (int i=0; i < 5; i++) {
    println(i);
}
println(“Done”);
```

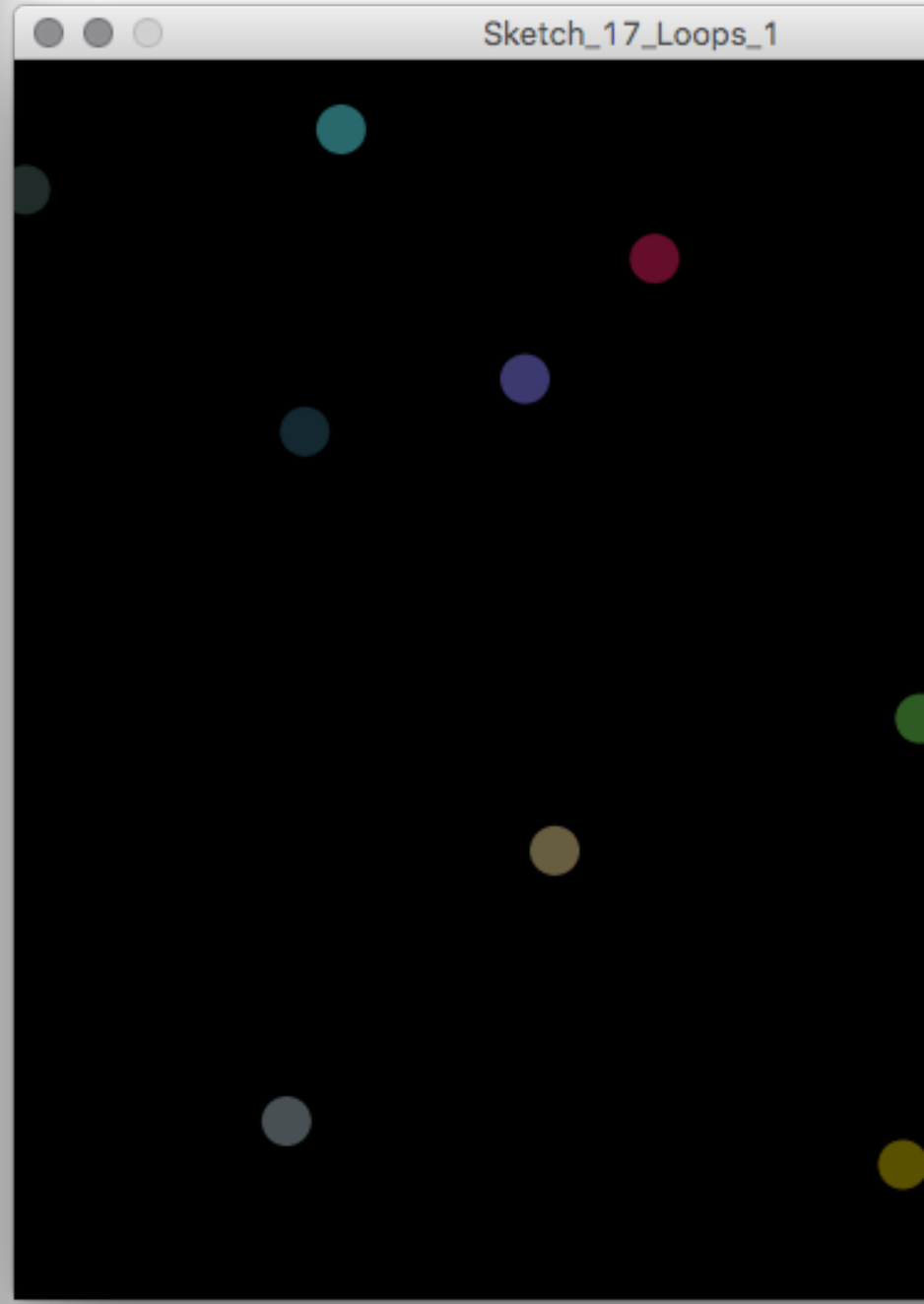
Sketch_17_Loops_1 | Processing 3.0.2

Java

Sketch_17_Loops_1

```
1  void setup() {
2    size(500, 500);
3    background(0);
4
5    // create a loop that executes 10 times
6    for (int i=0; i<10; i++) {
7
8      // each time the loop executes, draw an ellipse
9      noStroke();
10     fill(random(255), random(255), random(255), 120);
11     ellipse(random(width), random(height), 20, 20);
12   }
13 }
14
15
16
17
18
19
20
21
```

Console Errors



Sketch_17_Loops_1 | Processing 3.0.2

Java ▾

Sketch_17_Loops_1

```
1  void setup() {
2    size(500, 500);
3    background(0);
4
5    // create a loop that executes
6    for (int i=0; i<100; i++) {
7
8      // each time the loop execute
9      noStroke();
10     fill(random(255), random(255)
11     ellipse(random(width), rando
12   }
13 }
14
15
16
17
18
19
20
21
```

Console | Errors

Sketch_17_Loops_1 | Processing 3.0.2

Java ▾

Sketch_17_Loops_1

```
1  void setup() {
2    size(500, 500);
3    background(0);
4
5    // create a loop that executes 10 times
6    for (int i=0; i<1000; i++) {
7
8      // each time the loop executes, draw an ellipse
9      noStroke();
10     fill(random(255), random(255), random(255), 120);
11     ellipse(random(width), random(height), 20, 20);
12   }
13 }
14
15
16
17
18
19
20
21
```

Console | Errors