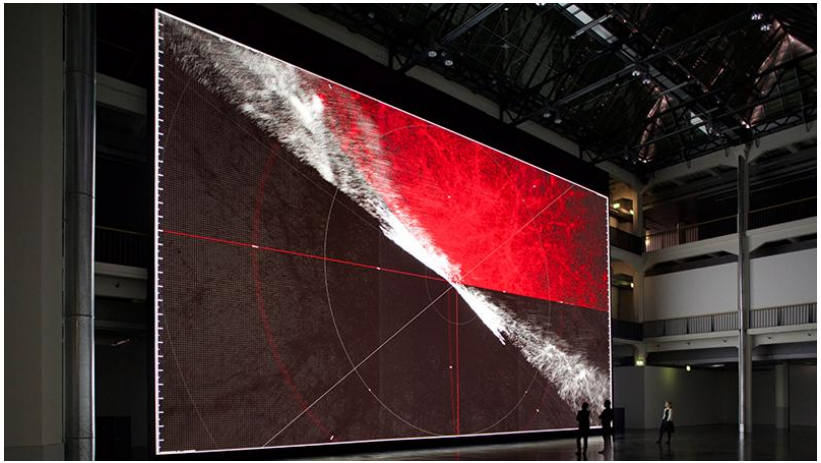
Conditionals & Booleans

Day 2

Ryoji Ikeda



Boolean Expression

True/False

Evaluates to either of them

15 is greater than 20 -> false

15 is greater than 20 -> false

5 equals 5 -> true

15 is greater than 20 -> false

5 equals 5 -> true

10 is less than or equal than 11 -> true

Relational Operators

<	“less than”
<=	“less than or equal to”
>	“greater than”
>=	“greater than or equal to”
!=	“not equal to”
==	“equal to”

== vs. =

== (Relational Operators/Test)

compares two values and returns true if they are equal

```
if (x == 10) {
  do something;
}
```

"Is x equal to ten?"

= (Assign)

Single equal sign sets a variable equal to a value.

```
x = 32;
```

"Set x equal to 32."

If Statement

if I am hungry, then I want to eat food.

Otherwise, I don’t.

if I am hungry, then I want to eat food.

Otherwise, (then) I don’t.

if

I am hungry

then

I want to eat food

otherwise (else)

I don’t

```
if (hungry) {
    want food;
} else {
    don’t want food;
}
```

if I am hungry **and** I have money, then I will buy food.

have money but not hungry —> won’t buy food

hungry but don’t have money —> won’t buy food

hungry and have money —> will buy food

```
if (I am hungry and I have money){
    I will buy food;
} else {
    I won't buy food;
}
```

```
if (hungry && have money){
    will buy food;
} else {
    won't buy food;
}
```

If I am tired **or** it is late, I will go to sleep.

tired —> go to sleep

late —> go to sleep

tired & late —> go to sleep

```
if (tired || late){

        //if “tired” is true or “late” is true, then do the following:

        GO TO SLEEP;

}
```

If Statement

```
if ( condition ) {
   Do something;
}
```

```
if ( condition ) {
   Do something;
} else {
   Do something else;
}
```

```
if ( condition) {
   Do something;
} else if ( condition2 ){
   Do something else;
} else if ( condition3 ){
   .......
}
```

If Statement

```
if ( condition1 && condition2 ) {
   Do something;
}
```

```
if ( condition1 || condition2 ) {
   Do something;
}
```

CODE!

```
boolean b = true;
b = !b;

if(b == true){
   println("b is true");
} else {
   println("b is false");
}
```

CODE!

```
int x = 0;
println("x is now: " + x);

if (x == 0) {
   x = 1;
} else if (x == 1) {
   x = 0;
}
println("x is now: " + x);
```

Let’s code!

```
//setup() runs first one time
void setup(){
    ...
}

//draw() loops again and again
void draw(){
    ...
}
```

```
//setup() runs first one time
void setup(){
    //size(): set the size of the window (width, height)
    size(500,500);
}

//draw() loops again and again
void draw(){
    ...
}
```

```
//setup() runs first one time
void setup(){
    //size(): set the size of the window (width, height)
    size(500,500);
}

//draw() loops again and again
void draw(){
    //background(): draw a colored background (r,g,b)
    background(0,0,255);  //blue
}
```

Basic Graphics

How to draw a rectangle?

position, size(width and height), color ...

draw a 100 * 100 yellow rectangle at the center position

```
rectMode(CENTER);

noStroke();

fill(255,255,0);

rect(width/2, height/2, 100, 100);
```

rect(), ellipse(), triangle(), quad(), curve() ….

https://processing.org/reference/

Order matters!

```
rectMode(CENTER);

noStroke();

fill(255,255,0);

rect(width/2, height/2, 100, 100);

fill(255,255);

ellipse(width/2,height/2, 100, 150);
```

Assignment

create a mouse-interactive graphic work with code (must include *if statement*)