Front End
Software Development

Introduction to JavaScript (weeks 1 - 6)

Week 02

Agenda

- Questions
- Boolean Operators
- Conditionals
  - If/Else
  - Switch
- Loops
- User Input

Questions


THE WORLD
BEFORE SOCIAL MEDIA
LinkedIn
Pinterest
YouTube
Instagram
foursquare
Imgur
Reddit
WordPress
Address
Skype
Twitter
Tumblr
Facebook
@successfulmotivational

Boolean Operators

- Boolean Values
  - true / false
  - Digital: 1 (true) / 0 (false)
- Equality Operators
  - ==, >, >=, <, <=, !=
  - <left value> <*operator*> <right value>

```
9 == 4 // false
4 == 4 // true
1 >= 6 // false
3 != 2 // true
```

- Logical Operators
  - &&, ||, ! *(AND, OR, NOT)*

```
(5 == 4) && (4 == 4) // false
(5 == 4) || (4 == 4) // true
!(5 == 4) // true
```

AND (&&)		
X	Y	XY
0	0	0
0	1	0
1	0	0
1	1	1

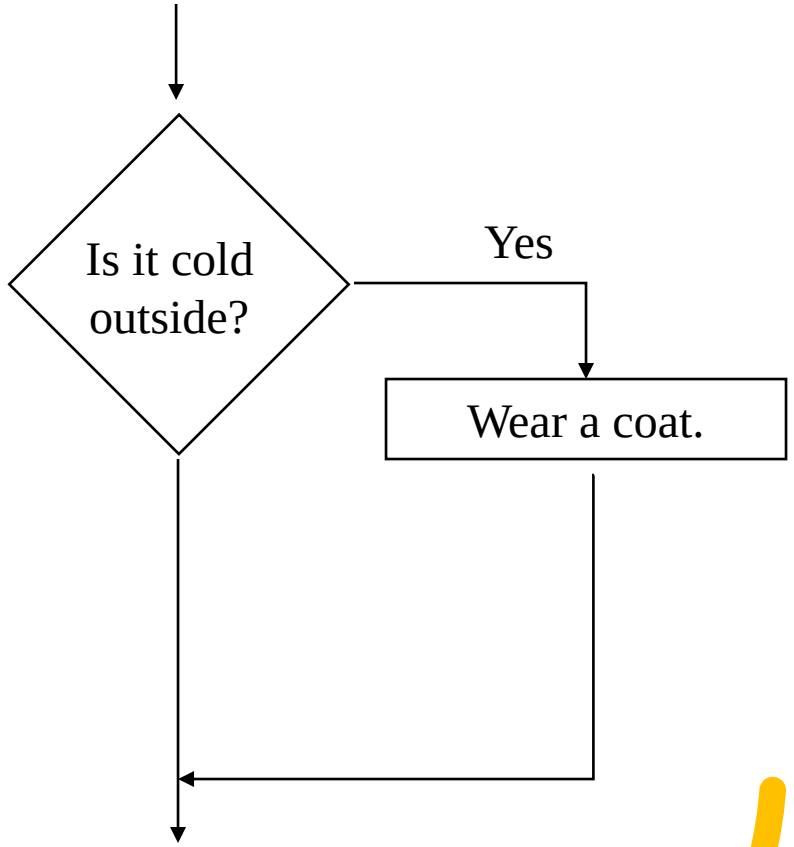
OR (||)		
X	Y	XY
0	0	0
0	1	1
1	0	1
1	1	1

NOT (!)	
X	X’
0	1
1	0

Conditionals
(if / else)

- Flow chart

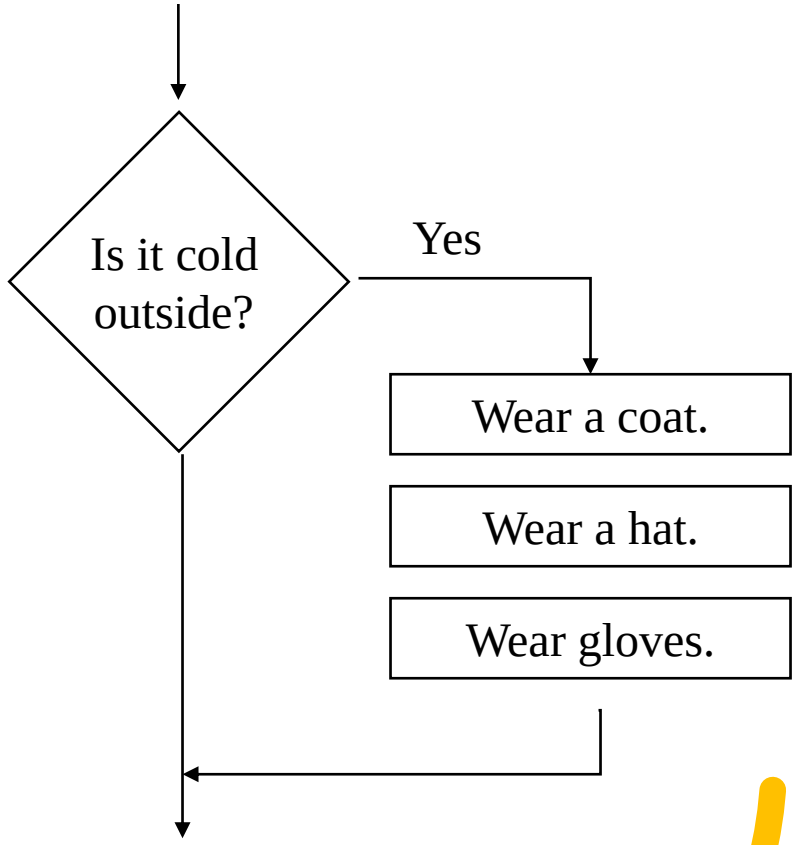
```
if (isColdOutside){
    wearCoat();
}
```



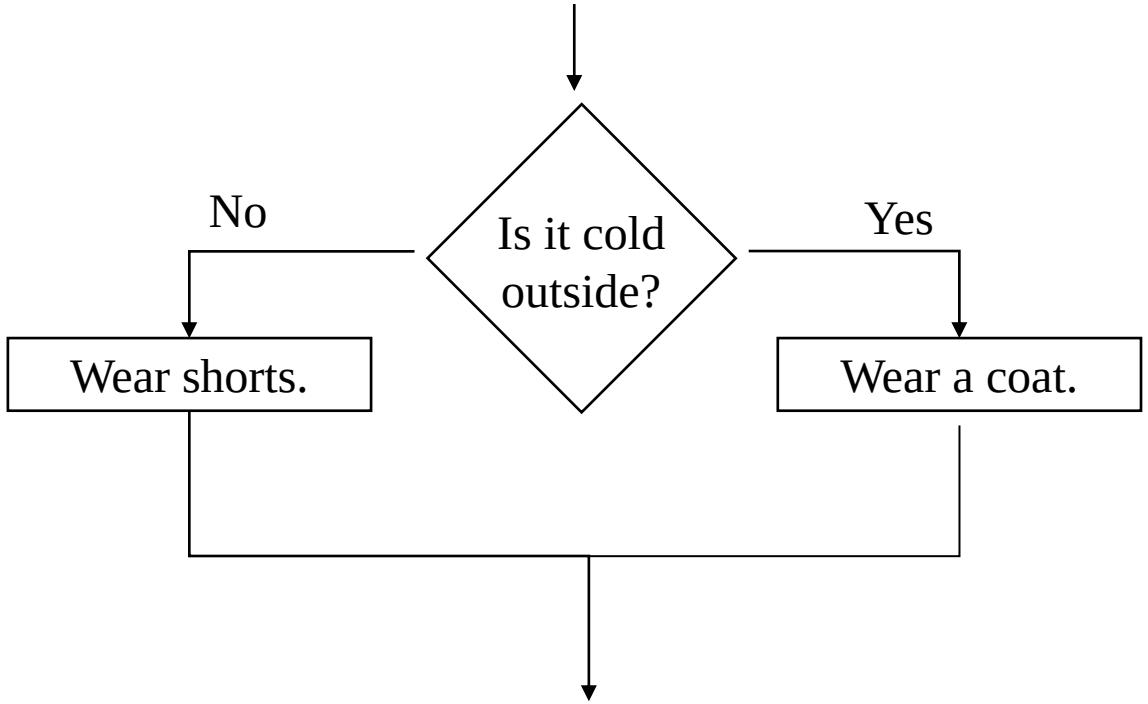
Conditionals
(if / else)

- Code Block

```
if (isColdOutside){
   wearCoat();
   wearHat();
   wearGloves();
}
```



Conditionals
(if / else)



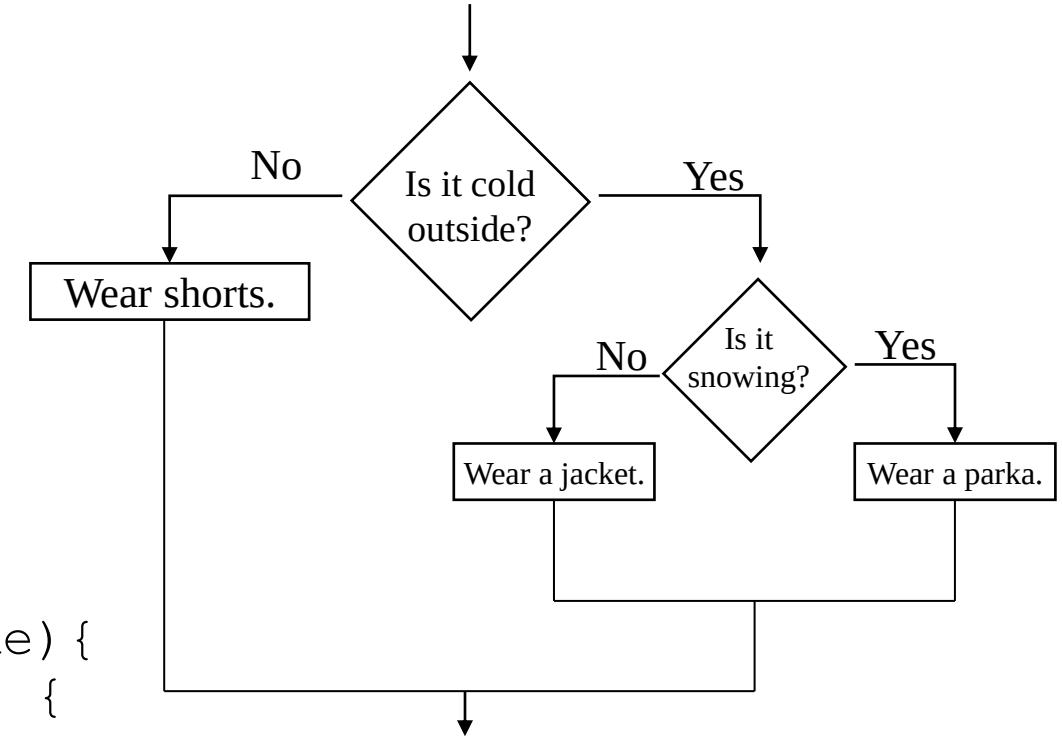
- if / else

```
if (isColdOutside){
   wearCoat();
}
else {
   wearShorts();
}
```

Conditionals
(if / else)

- Nested

```
if (isColdOutside){
   if (isSnowing) {
      wearParka();
   }
   else {
      wearJacket();
   }
}
else {
   wearShorts();
}
```



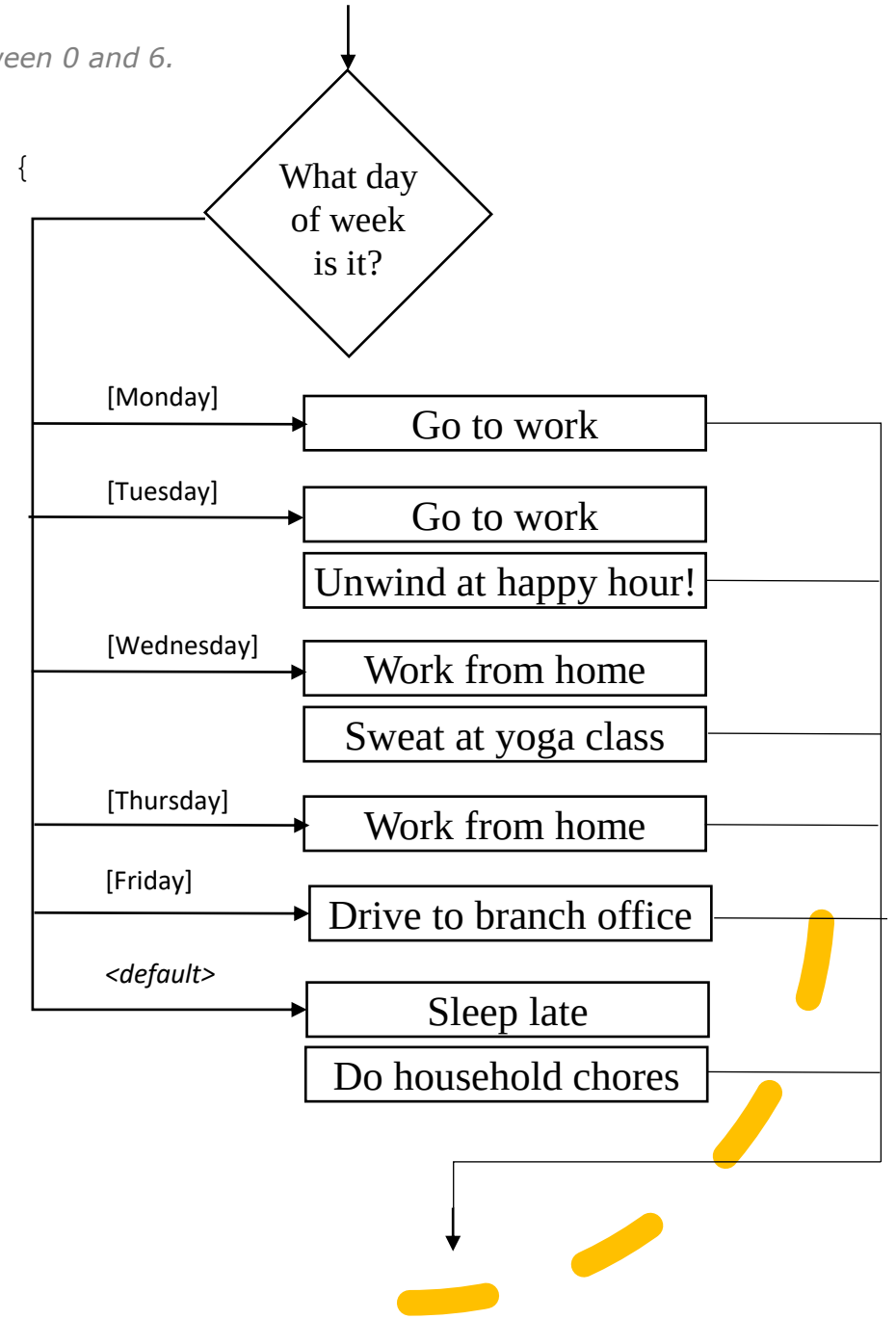
OR

```
if ((isColdOutside) && (isSnowing)) {
   wearParka();
}
else if (isColdOutside) {
   wearJacket();
}
else {
   wearShorts();
}
```

Conditionals
(switch)

The getDay() method returns the weekday as a number between 0 and 6. (Sunday=0, Monday=1, Tuesday=2 ..)

```
switch (new Date().getDay()) {
  case 1: // Monday
    goToWork();
    break;
  case 2: // Tuesday
    goToWork();
    unwindAtHappyHour();
    break;
  case 3: // Wednesday
    workFromHome();
    sweatAtYoga();
    break;
  case 4: // Thursday
    workFromHome();
    break;
  case 5: // Friday
    driveToBranch();
    break;
  default: // Sat(0),Sun(6)
    sleepLate();
    doHouseholdChores();
}
```



DEMO

Conditional / Branching Logic

Putting It All Together: **BMI** Calculator

- Body Mass Index (BMI)
  - Formula: weight (lb) / [height (in)]^2 x 703
  - Calculate BMI by dividing weight in pounds (lbs) by height in inches (in) squared and multiplying by a conversion factor of 703.

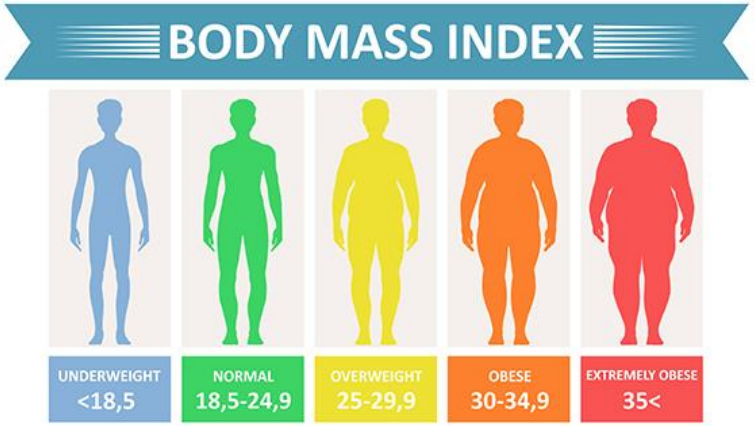
Example: Weight = 150 lbs, Height = 5’5" (65")
Calculation: [150 ÷ (65)^2] x 703 = 24.96

Putting It All Together: **BMI** Calculator

- If less than 18.5, then underweight
- If less than 24.9, but greater than or equal to 18.5 then normal or healthy
- If less than 29.9, but greater than or equal to 25.0 then overweight
- If less than 39.9, but greater than or equal to 30.0 then obese
- If greater than or equal to 40, then morbidly obese

BMI	
Below 18.5	Underweight
18.5 – 24.9	Normal or healthy weight
25.0 – 29.9	Overweight
30.0 – 39.9	Obese
40.0 and above	Morbidly obese

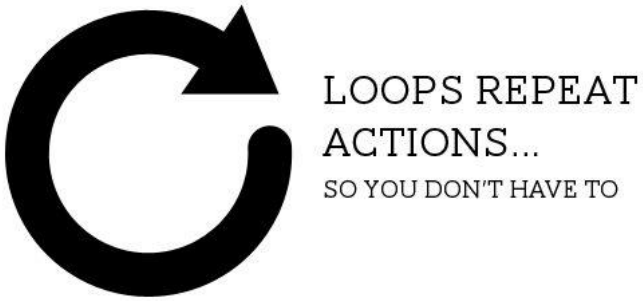
Putting It All Together: **BMI** Calculator

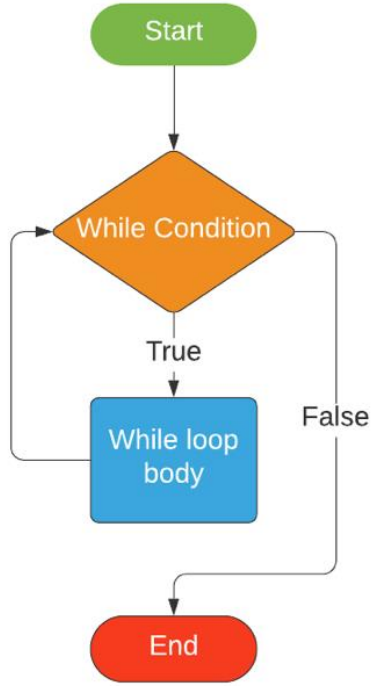


- Pseudo Code
  1. Get input
     - Get name
     - Get weight
     - Get height
  2. Perform calculation
  3. Evaluation results
     - If less than 18.5, then underweights
     - If less than 24.9, but greater than or equal to 18.5 then normal or healthy
     - If less than 29.9, but greater than or equal to 25.0 then overweight
     - If less than 39.9, but greater than or equal to 30.0 then obese
     - If greater than or equal to 40, then morbidly obese
  4. Display results

Loops
(standard)

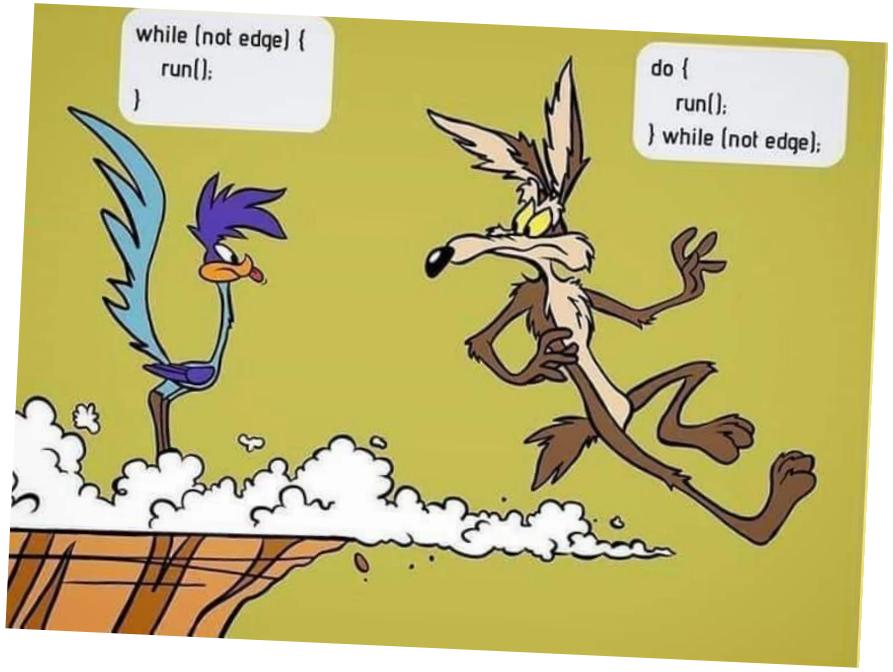
- Non-Deterministic
  Not predictable. Some type of "sentinel" or control value is needed to determine when to stop.
  - ```
    while (true){
      // code to repeat
    }
    ```
  - ```
    do {
      // code to repeat
    } while (true);
    ```
- Deterministic
  Number of loops are known in advance (i.e. 1 to 100)
  - ```
    for (...; ...; ...) {
      // code to repeat
    }
    ```




    ```

Loops
(enhanced)

- Enhanced Loops (foreach)
  - for/**in**
    Loops through the index
  - for/**of**
    Loops through the values




```
let names = [ "George", "Ava" ];

for(let index in names) {
  console.log(index); // To get value, use names[index]
} // 0, 1

for(let name of names) {
  console.log(name); // No way to get index or position
} // George, Ava
```

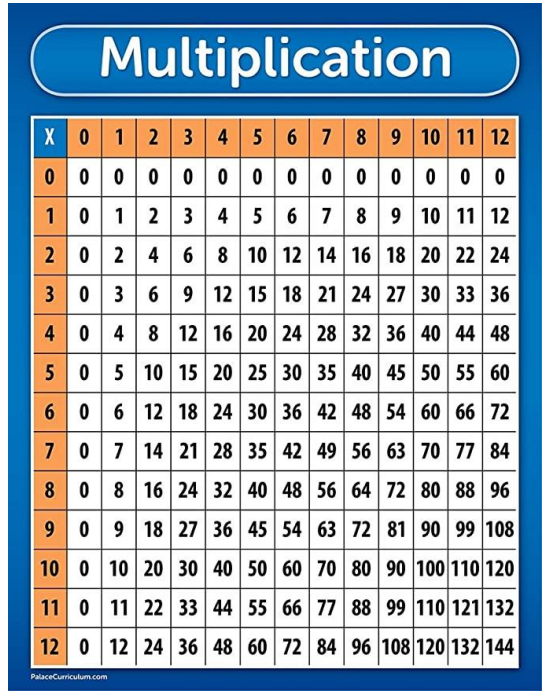
DEMO

Loops *(for / while / foreach)*

Putting It All Together: **Multiplication Tables**

- Anyone remember 3rd grade math?
  OH GOSH **NO**!?!?!?
  THE HORROR!
- Create a program that will output the multiplication table for 10x10.

X * **Y** = VALUE



X	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144

User Input

- Web Browser
  - Interaction with user

```
let count = prompt('How many?');
let index = 0;
while (index < count) {
  alert(++index); // This is annoying...
}
```

  - TEMPORARY!
    Better solutions exist, but we're not ready for them yet…

DEMO

User Input / Reading Input