

Introduction to Programming

Class 10, 6 October 2016

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Partners

- Naz & Alaa
- Izzy & Kendall
- Matthew & Lorenzo
- Thomas C & Michael
- Nic & Lindsay
- Jack & Dom
- Chloe & Vikram
- Jake & Lauren & Reece
- Thomas B & Max

Goals

Goal 1: You will understand how computers make decisions.

Goal 2: You will know how to implement an if-else if-else statement in JavaScript.

Goal 3: You will know how to implement Boolean operators.

Vocabulary

If - else if - else statement

Boolean operators

Code

```
if () {  
} else if () {  
} else {}
```

&&

||

!

- **Would you rather watch videos or listen to music? Why?**

What is a synonym for
ALGORITHM?

```
if (age <=5) {  
    alert("You get to ride for free.");  
    totalPrice = totalPrice + 0;  
}
```

What is the area in braces
called?

code block

On your own:

- Write a program that prompts the user for a numerical grade AND THEN
- Displays whether or not that grade is an A (greater than or equal to a 90.0).

Swap your computers and verify the code.

Together with computers closed:

- How would you modify the following code to give a letter grade to any numerical grade.

```
if (grade >= 90) {  
    alert("You got an A.");  
} else {  
    alert("Better luck next time.");  
}
```


On one of your computers:

- Write a program that gives a letter grade to any numerical grade.

```
if (grade >= 90) {  
    alert("You got an A.");  
} else if (grade >= 80) {  
    alert("You got a B.");  
} else if (...  
...  
} else {  
    alert("Failing grade. Try again.");  
}
```

On the other computer:

- Write a program that determines if a given year is a leap year.

If a year is a multiple of 4,
it's a leap year.

Leap Years	Not Leap Years
• 1996	• 1997
• 2016	• 2014
• 1880	• 1878
• 104	• 101

If a year is a multiple of 4,
it's a leap year.

```
if (year % 4 == 0) {  
    alert("It's a leap year.");  
} else {  
    alert("Not a leap year.");  
}
```

If a year is a multiple of 4
AND
If a year is not a multiple
of 100
it's a leap year.

Leap Years	Not Leap Years
• 1996	• 1997
• 2016	• 1900
• 1880	• 1800
• 104	• 2100

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If a year is a multiple of 4

`year % 4 == 0`

AND

`& &`

If a year is not a multiple of 100

`year % 100 != 0`

If a year is a multiple of 4

AND

If a year is not a multiple of 100

Boolean AND.
True only if both operands are true

`year % 4 == 0 && year % 100 != 0`

Boolean operator will be LAST in the
order of operations (other than =)

Now modify your condition.

Does it work?

Leap Years

- 1996
- 2016
- 1880
- 104

Not Leap Years

- 1997
- 1900
- 1800
- 2100

If a year is a multiple of 4
AND

If a year is not a multiple
of 100
it's a leap year.

OR

A year is a multiple of 400
it's a leap year.

Leap Years

- 1996
- 2016
- 1600
- 2000

Not Leap Years

- 1997
- 2015
- 1800
- 2100

If a year is a multiple of 4

```
year % 4 == 0
```

AND

```
&&
```

If a year is not a multiple of 100

```
year % 100 != 0
```

OR

```
||
```

A year is a multiple of 400

```
year % 400 == 0
```

If a year is a multiple of 4


AND

If a year is not a multiple of 100

OR

A year is a multiple of 400

Boolean OR.
True only if either operands is true



```
(year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)
```

Now modify your condition.

Does it work?

Leap Years

- 1996
- 2016
- 1600
- 2000

Not Leap Years

- 1997
- 2015
- 1800
- 2100

```
if ((year%4 == 0 && year%100 != 0) || (year%400 == 0))  
{  
    alert("It's a leap year.");  
} else {  
    alert("Not a leap year.");  
}
```

Boolean Operators

&&	AND	A && B	True if A and B are true.
	OR	A B	True if A or B is true.
!	NOT	!A	True if A is false.

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