Intro to Programming

Foundations of Science and Mathematics

https://github.com/jtwool/FSM-Intro

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Recap of Lesson 2: Strings

Strings are how computers handle text

They are containers of numbers

Arrays are general purpose containers

Computers start counting at 0

Lesson 3: Logic (If and Else)

We use logic to make choices

We check a ***condition*** and then ***do*** something

We structure this with ***if*** and ***else*** statements

Conditions

We check conditions using comparison operators, e.g., >, <, ==, !==

All of these return **boolean** values (**true** or **false**)

```
// Comparison operators
// 5 is bigger than 3?
5 > 3
>> true
// 5 is smaller than 3?
5 < 3
>> false
// 5 is equal to 5?
5 == 5
>> true
// 5 is not equal 5?
5 !== 5
>> false
```

Conditions

We can compare strings in addition to integers

The strings have to be exactly the same to be true (e.g., same case, etc.)

Less than (<) and greater than (>) don’t make sense with strings

```
// Comparison with strings

“Banana” == “Banana”
>> true

“Banana” !== “banana”
>> false
```

All together

Let’s put it all together.

We build a function

Check if x is smaller than 0

If it is, return 0

Otherwise, return x

```
// If statement

my_f = function(x){
  if (x<0) {return(0)}
  else {return x}
}

my_f (-3)
>> 0
my_f(3)
>> 3
```

If … else if

We can also impose conditions on our else statement

We can extend our previous example, capping number size at 10

This is called an else-if

```
// If statement

my_f = function(x){
  if (x<0) {return(0)}
  else if (x>10)
    {return(10)}
  else {return(x)}
}

my_f (-3)
>> 0
my_f(3)
>> 3
my_f(13)
>>10
```

Choose your own adventure soon...

Pairs Programming

Complete the functions

Work in pairs.

Take turns writing (typing) the code.

Get through as many problems as you can.

~20-30 minutes.