

Testing Conditions

- “if”, “elseif”, and “else”

The Need for Testing

Often you will want a program to do different things depending on the condition of the input.

For example, in the calculator game a few lessons ago, the operation involved checking if the number was even or odd.

IF it was even, you divided by two

IF it was odd, you multiplied by 3 and added 1.

Test Conditions in Julia

In Julia, this is handled with a section of code whose basic structure goes

```
if  
else  
end
```

This structure applies when you only have one option to test. If you want to test more options the structure becomes:

```
if ... elseif ... elseif ... elseif ... else ... end
```

Test Conditions in Julia

The word **if** must be followed by a statement that can be either true or false. Some examples are:

$x < 5$ (the variable x is less than 5)

$y^2 \geq 2$ (the value of y^2 is ≥ 2)

$t == 0$ (the variable t is equal to 0)

$c != 5$ (the variable c is not equal to 5)

- All of these statements can be true or false.
- Note the `==` instead of just `=`. Remember `=` assigns a value; `==` is used to mean “is equal to”

A Two-Option Test

Here's an example of a simple (and pretty dumb) function using an if statement:

```
function even(x)
    if x%2 == 0
        println("$x is even.")
    else
        println("$x is odd.")
    end
end
```

Practice Problem 1

1. Julia has a built-in function for absolute value, `abs(x)`, but you're going to ignore that and write your own using an "if/else" sequence. Test it for -4, 8 and 0. Call it `Abs(x)` since `abs` is taken.

Your output should be in the form, "the absolute value is ____."

Be sure to test your code.

A Multi-Option Test

Here's another simple function.

```
function div(a, b)
  if b == 0
    println("Please stop trying to divide by
0")
  elseif a%b == 0
    println("$a divides evenly by $b")
  else
    println("$a does not divide evenly by
$b")
  end
end
```

Practice Problem 2

2. Write a function to determine a student's grade on an essay, given the number of points they scored out of 28 possible. The output should be:

- 90% or above: "Congratulations! You got an A, ____%!"
- 70-89%: "You passed your essay with ____%!"
- 69% or lower: "Please see Mrs. Crabapple for help raising your ____%."

Be sure to test your code.