

HW04

Deblina Mukherjee

April 23, 2019

What a for loops look like conceptually

1. Pre-allocating space specifying data type of vector and it's length
2. Call for loop and specify element in list to iterate on
3. Specify function and output
4. Create output

What a for loop looks like practically

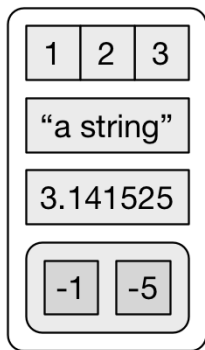
```
output <- vector("numeric", ncol(mtcars))

for(i in seq_along(mtcars)){
  output[[i]] <- length(unique(mtcars[[i]]))
}

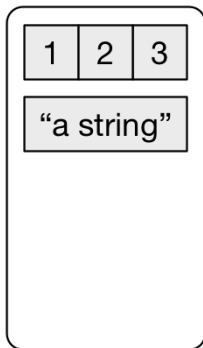
output
```

Subsetting Lists

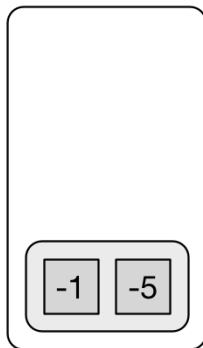
a



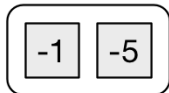
a[1:2]



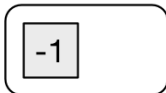
a[4]



a[[4]]



a[[4]][1]



a[[4]][[1]]



Subsetting Lists (cont.)

- ▶ `[[]]` extracts a single element by name or position
- ▶ `[]` extracts multiple elements by name or position
- ▶ `row,column`

Anonymous Functions

```
map_int(mtcars, function(x) length(unique(x)))
```

Pythagorean Problem

- ▶ Conceptual Roadmap:
 - ▶ Inputs: too many? too few? all numeric?
 - ▶ Sort the inputs: what sides of the triangle do we have?
 - ▶ Perform the operation (depending on what sides you have)

Pythagorean Problem (cont.)

- ▶ Functions you may find helpful:
 - ▶ `sort()`
 - ▶ `if()`
 - ▶ `length()`
 - ▶ `unique()`
 - ▶ `stop()`
 - ▶ `else if()`

An example of the stop() function

```
if(!is.numeric(x)){  
  stop("At least one argument is not numeric.  
       Only provide numbers.")  
}
```