HW04

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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

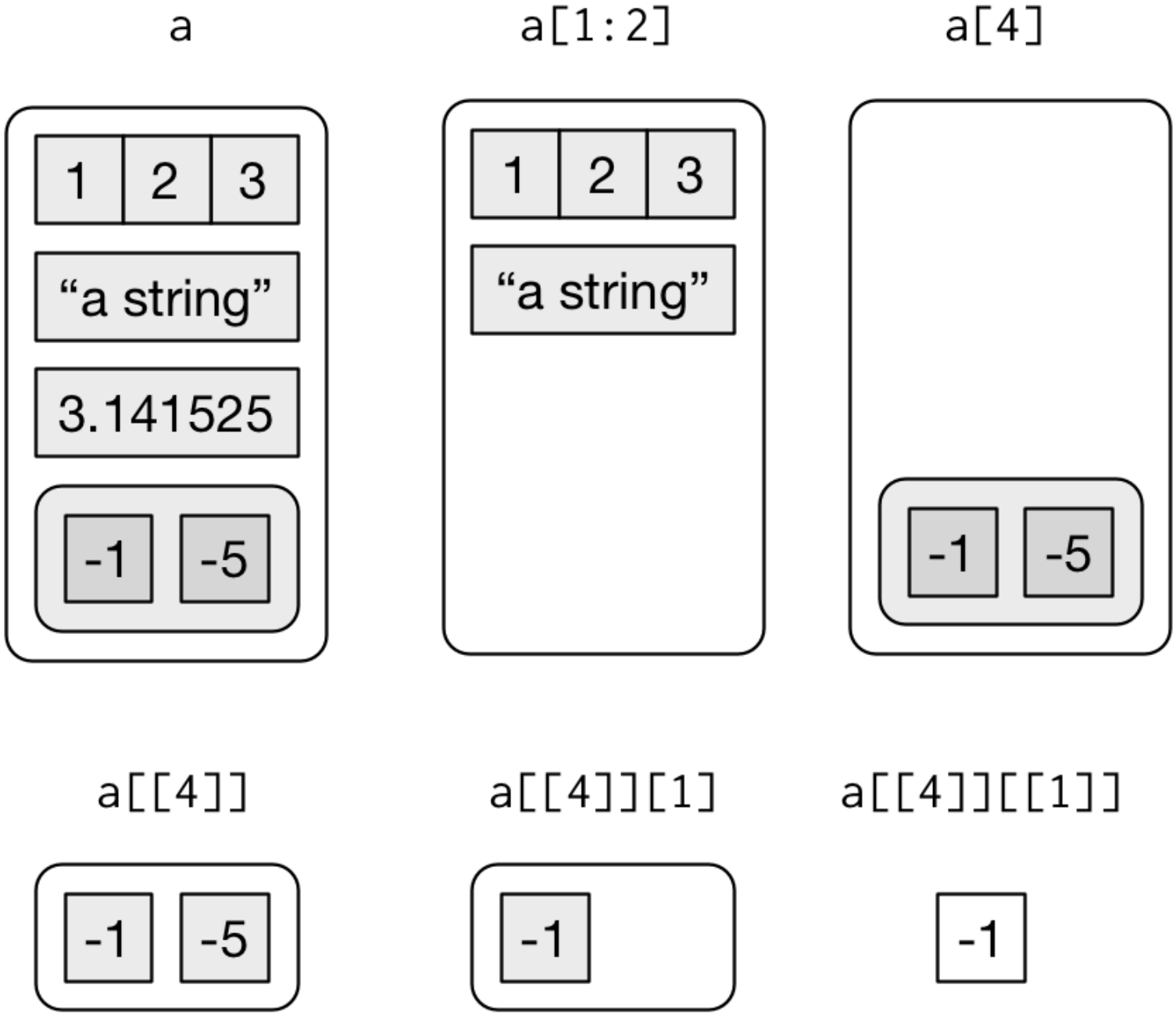
What a `for` loop looks like practically

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

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

output
```

Subsetting Lists



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)))
```

World Bank: Importing the Data

- Conceptual Roadmap:
  - Make a function that:
    - Read in the files
    - Drop fake columns
    - Rename columns
    - Reshaping (keep it tidy)
    - Rename columns
  - Make a list of all the data
  - Read the data in

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.")
}
```