



Week 8: For Loops

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What is a loop? What is a for loop?

Loop - the action of doing something over and over again

For Loop - type of loop that have a pre-specified beginning and end; used when you want to repeat an action a certain number of times

Examples:

- “Set the table for 4 people”
- “Make 10 burritos”
- Chicken dance!

Example: Imagine you're giving instructions to someone who has never set a table before for 4

Do this 4 times:

- Put out placemat
- Put out plate
- Put out napkin
- Place fork on napkin on left side
- Place knife then spoon on right side of the plate
- Put glass on right side of placemat

Another example

I'm having a Halloween party. I need to make a guest list and send text messages to everyone to invite them.

I could do a group text, but I figured it would be more personal to send individual messages.

```
guest_list = Willa, Roya, Gold, Stephanie, Sinclair, Eliza
```

That's it for now. I can always add more people later. (Plus, gotta check the covid protocols...)

```
guest_list = Willa, Roya, Gold, Stephanie, Sinclair, Eliza
```

Now that I have my list, I'm going to write my message:

```
message = "I'm having a Halloween Party on 10/31! The party starts at 9pm. I  
hope to see you there!"
```

Sweet! Now that I have my guest list and message, I'm ready to start sending text invites **to each person on the guest list.**

```
To Willa: send(message)  
To Roya: send(message)  
To Gold: send(message)  
... etc.
```



```
For each person on the guest list:  
    send(message)
```

Let's get ready to do this in R

```
guest_list = Willa, Roya, Gold, Stephanie, Sinclair, Eliza
```

```
message = "I'm having a Halloween Party on 10/31! The party starts at 9pm. I  
hope to see you there!"
```

For each person on the guest list:
`send(message)`

*Question: How do we "access" each
guest in the guest list? **INDEXING!***

index	1	2	3	4	5	6
guest_list	Willa	Roya	Gold	Stephanie	Sinclair	Eliza

guest_list[1] => "Willa"
guest_list[2] => "Roya"



guest_list[i]

...

We need an 'iterator' or a 'pointer' to help us keep track of where we are in the vector (i.e., what index we are at)

Let's make our 'index iterator' be a variable named i , which can have the value 1 to the length of the guest_list (in this case 6).

$i = 1$



index	1	2	3	4	5	6
guest_list[i] =>	Willa	Roya	Gold	Stephanie	Sinclair	Eliza

guest_list[1] => "Willa"
guest_list[2] => "Roya"
...



```
for i in 1 to length of guest_list:  
    guest_list[i]
```

We need an 'iterator' or a 'pointer' to help us keep track of where we are in the vector (i.e., what index we are at)

Let's make our 'index iterator' be a variable named *i*, which can have the value 1 to the length of the guest_list (in this case 6).

