Problem8: Sum Odd Numbers

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Introduction

In this exercise, we will compute sum of odd numbers in an array. On `R`, you can check whether a number is odd or prime by `%`.

```
a = 4
b = 7

a%%2
```

```
## [1] 0
```

```
b%%2
```

```
## [1] 1
```

if `x%%2` returns `1`, x is an odd number.

Question

- you have an array `OS <- as.integer(runif(100, min = 1, max = 99))`
- write a code to sum the odd numbers in `OS`
- write the shortest code as you can

Hints

You already know what the code below outputs.

```
a <- 3
a%%2
```

Then you will be able to answer what will come about.

```
A <- c(3,4,5,6)
A[1]%%2
```

That means you can understand each result

```
A <- c(3,4,5,6)
A[1]%%2
A[2]%%2
A[3]%%2
A[4]%%2
```

How many elements dose `A` have? You can get by

```
A <- c(3,4,5,6)
N <- length(A)
```

If you want check every element of `A`, `for loop` would be helpful.

```
A <- c(3,4,5,6)
N <- length(A)
for(i in 1:N){
   A[i]%%2
}
```

How to check whether `A[i]%%2` is `1` or `0` and decide sum it or not? `if` is good.

```
A <- c(3,4,5,6)
N <- length(A)
S = 0
for(i in 1:N){
   x <- A[i]
   if(x%%2 == 1){
     S <- S + x
   }
 }
print(S)
```

```
## [1] 8
```

Now it's time to make the above code short.

All you have to do to write answer question is following.

- check whether each element is odd or not
- sum of numbers you select first step

You can check every elements of `A` at one time by `A%%2`

```
A%%2
```

```
## [1] 1 0 1 0
```

On the other hands, you can sum of *all of* elements of `A` by

```
sum(A)
```

```
## [1] 18
```

You might say that "I want to sum only odd numbers!"

This is the point of this exercise. In other word, what this quiz asks you is how to pick up elements from an array that satisfies the specific condition.