Lecture 20 & 21 - Loops and conditionals in R

For loops R

For loops are conceptually similar regardless of the language, so you already know how to use them.

You only need to know the specific syntax for your language!

Here is specific syntax. What are the general components?

```
letters=c('A','B','C','D')
for(i in letters){
   print(i)
}
```

index variable to subset or index data structure

instead of looping through our set, we loop through a set of integers as long as our set

allows for indexing and/or subsetting with `[]`

create and fill (preallocation), rather than appending makes this faster

```
for(i in 1:10){

}
```

Challenge: cumulative sums with a loop

Write some code to create a vector of cumulative sums for the provided vector: [3, 10, 4, 12, 55].

SWC: Making Choices

Only look at the “Conditionals” section

while loop

An alternative to a for loop

```
i=0
while(i<10){
    print(i)
    i=i+1
}
```

while loop

most useful when used with an `if-else` statement because it allows you to loop through a set until something occurs

For example:

```
i=1

count=0

while(count<5){

    if(data[i]==5){

        count=count+1

    }

    i=i+1

}

print(i-1)
```

Challenge

Use a `for loop` and `if-else` statement to calculate the sum of wages for males and females in `wages.csv`.

Challenge

Create a script that reads a series of integers from a text file ("findRuns.txt" available on Sakai) and reports the index for the element at the beginning of runs of repeated values and the length of the runs. For example, in the vector 0, 1, 2, 2, 3, 4 your script should store and/or return the values 3 (because the repeated 2's begin in element 3 of the vector) and 2 because there are two 2's in a row. Make sure your solution uses a for loop and at least one if-else statement.