

Convert a for into a while loop

DSC 205 - Introduction to advanced data science

Problem

Can you turn this while loop discussed in class into a for loop? The problem was to calculate the average flow of the river Nile until the flow drops below a threshold:

```
## Initialize variables
threshold <- 900
total_flow <- 0
year_count <- 0
i <- 1

## Loop through dataset until a flow less than 800 is found
while (Nile[i] >= threshold) {
  total_flow <- total_flow + Nile[i]
  year_count <- year_count + 1
  i <- i + 1
}

## calculate average flow up to the found year
average_flow <- total_flow / year_count

## print results
cat("Years until encountering a flow less than", threshold, ":", year_count, "\n")
cat("Average flow up to that year:", average_flow, "\n")
```

```
Years until encountering a flow less than 900 : 6
Average flow up to that year: 1128.833
```

Solution 1: looping via vector index values

```
## Initialize variables
threshold <- 900
total_flow <- 0

## Loop through dataset until a flow less than threshold is found
for (i in 1:length(Nile)) {
  if (Nile[i] < threshold) break
  total_flow <- total_flow + Nile[i]
}

## calculate average flow up to the found year
average_flow <- total_flow / (i-1)

## calculate and print results
cat("Years until encountering a flow less than", threshold, ":", year_count, "\n")
cat("Average flow up to that year:", average_flow, "\n")
```

```
Years until encountering a flow less than 900 : 6
Average flow up to that year: 1128.833
```

Solution 2:looping via loop index (vector values)

```
## Initialize variables
threshold <- 900
total_flow <- 0

## Loop through dataset until a flow less than threshold is found
for (i in Nile) {
  if (i < threshold) break
  total_flow <- total_flow + i
}
## calculate average flow up to the found year
average_flow <- total_flow / (which(Nile==i)-1)

## calculate and print results
cat("Years until encountering a flow less than", threshold, ":", year_count, "\n")
cat("Average flow up to that year:", average_flow, "\n")
```

```
Years until encountering a flow less than 900 : 6
Average flow up to that year: 1128.833
```

Author: Marcus Birkenkrahe (pledged)

Created: 2024-04-05 Fri 18:30

[Validate](#)