While loop

INTERMEDIATE R

Filip Schouwenaars
DataCamp Instructor

while loop

```
while(condition) {
  expr
}
```

```
while(ctr <= 7) {
```

while loop

```
while(condition) {
  expr
}
```

```
while(ctr <= 7) {
  print(paste("ctr is set to", ctr))
```

while loop

```
while(condition) {
  expr
}
```

```
while(ctr <= 7) {
  print(paste("ctr is set to", ctr))
  ctr <- ctr + 1
}
```

while loop

```
while(condition) {
  expr
}
```

```
while(ctr <= 7) {
  print(paste("ctr is set to", ctr))
  ctr <- ctr + 1
}
```

```
"ctr is set to 1"
```

while loop

```
while(condition) {
  expr
}
```

```
while(ctr <= 7) {
  print(paste("ctr is set to", ctr))
  ctr <- ctr + 1
}
```

```
"ctr is set to 2"
```

while loop

```
while(condition) {
  expr
}
```

```
while(ctr <= 7) {
  print(paste("ctr is set to", ctr))
  ctr <- ctr + 1
}
```

```
"ctr is set to 7"
```

while loop

```
while(condition) {
  expr
}
```

```
while(ctr <= 7) {
  print(paste("ctr is set to", ctr))
  ctr <- ctr + 1
}
#No printout!
```

while loop

```
ctr <- 1
while(ctr <= 7) {
  print(paste("ctr is set to", ctr))
  ctr <- ctr + 1
}
```

```
"ctr is set to 1"
"ctr is set to 2"
...
"ctr is set to 7"
```

```
ctr
```

```
8
```

while loop

```
ctr <- 1
while(ctr <= 7) {
  print(paste("ctr is set to", ctr))
  ctr <- ctr + 1
}
```

Infinite while loop

```
ctr <- 1
while(ctr <= 7) {
  print(paste("ctr is set to", ctr))

}
```

```
"ctr is set to 1"
"ctr is set to 1"
"ctr is set to 1"
"ctr is set to 1"
"ctr is set to 1"
"ctr is set to 1"
"ctr is set to 1"
"ctr is set to 1"
...
```

break statement

```
ctr <- 1
while(ctr <= 7) {
  if(ctr %% 5 == 0) {
    break
  }
  print(paste("ctr is set to", ctr))
  ctr <- ctr + 1
}
```

```
"ctr is set to 1"
"ctr is set to 2"
"ctr is set to 3"
"ctr is set to 4"
```

Let's practice!

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For loop

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for loop

```
for(var in seq) {
  expr
}
```

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")
cities
```

```
"New York"   "Paris"  ...  "Cape Town"
```

for loop

```
for(var in seq) {
  expr
}
```

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")

for(var in seq) {
  expr
}
```

for loop

```
for(var in seq) {
  expr
}
```

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")

for(city in cities) {
  expr
}
```

for loop

```
for(var in seq) {
  expr
}
```

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")

for(city in cities) {
  print(city)
}
```

for loop

```
for(var in seq) {
  expr
}
```

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")

for(city in cities) {
  print(city)
}
```

```
"New York"
```

for loop

```
for(var in seq) {
  expr
}
```

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")

for(city in cities) {
  print(city)
}
```

```
"Paris"
```

for loop

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")

for(city in cities) {
  print(city)
}
```

```
"New York"
"Paris"
"London"
"Tokyo"
"Rio de Janeiro"
"Cape Town"
```

for loop over list

```
cities <- list("New York", "Paris",
               "London", "Tokyo",
               "Rio de Janeiro", "Cape Town")

for(city in cities) {
  print(city)
}
```

```
"New York"
"Paris"
"London"
"Tokyo"
"Rio de Janeiro"
"Cape Town"
```

break statement

```
cities <- list("New York", "Paris",
               "London", "Tokyo",
               "Rio de Janeiro", "Cape Town")
```

```
for(city in cities) {
  if(nchar(city) == 6) {
    break
  }
  print(city)
}
```

break statement

```
cities <- list("New York", "Paris",
               "London", "Tokyo",
               "Rio de Janeiro", "Cape Town")
```

```
for(city in cities) {
  if(nchar(city) == 6) {
    break
  }
  print(city)
}
```

```
"New York"
```

```
"Paris"
```

next statement

```
cities <- list("New York", "Paris",
               "London", "Tokyo",
               "Rio de Janeiro", "Cape Town")
```

```
for(city in cities) {
  if(nchar(city) == 6) {
    next
  }
  print(city)
}
```

```
"New York"
"Paris"
"Tokyo"
"Rio de Janeiro"
"Cape Town"
```

for loop: v2

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")

for(city in cities) {
  print(city)
}
```

for loop: v2

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")

for(i in 1:length(cities)) {
  print(city)
}
```

for loop: v2

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")

for(i in 1:length(cities)) {
  print(cities[i])
}
```

```
"New York"
"Paris"
"London"
"Tokyo"
"Rio de Janeiro"
"Cape Town"
```

for loop: v2

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")

for(i in 1:length(cities)) {
  print(paste(cities[i], "is on position",
              i, "in the cities vector."))
}
```

```
"New York is on position 1 in the cities vector."
"Paris is on position 2 in the cities vector."
"London is on position 3 in the cities vector."
"Tokyo is on position 4 in the cities vector."
"Rio de Janeiro is on position 5 in the cities vector."
"Cape Town is on position 6 in the cities vector."
```

for loop: wrap-up

```
cities <- c("New York", "Paris",
            "London", "Tokyo",
            "Rio de Janeiro", "Cape Town")
```

```
#Concise, easy to read, but no access to looping index
for(city in cities) {
  print(city)
}

#Harder to read and write, but more versatile
for(i in 1:length(cities)) {
  print(cities[i])
}
```

Let's practice!

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