Relational Operators

INTERMEDIATE R

Filip Schouwenaars
DataCamp Instructor

datacamp

Equality ==

```
TRUE == TRUE
```

```
TRUE
```

```
TRUE == FALSE
```

```
FALSE
```

```
"hello" == "goodbye"
```

```
FALSE
```

```
3 == 2
```

```
FALSE
```

Inequality !=

```
TRUE != TRUE
```

```
FALSE
```

```
TRUE != FALSE
```

```
TRUE
```

```
"hello" != "goodbye"
```

```
TRUE
```

```
3 != 2
```

```
TRUE
```

< and >

```
3 < 5
```

```
TRUE
```

```
3 > 5
```

```
FALSE
```

```
#Alphabetical Order!
"Hello" > "Goodbye"
```

```
TRUE
```

```
#TRUE coerces to 1
#FALSE coerces to 0
TRUE < FALSE
```

```
FALSE
```

<= and >=

```
5 >= 3
```

```
TRUE
```

```
3 >= 3
```

```
TRUE
```

Relational Operators & Vectors

```
linkedin <- c(16, 9, 13, 5, 2, 17, 14)
linkedin
```

```
16  9 13  5  2 17 14
```

```
linkedin > 10
```

```
TRUE FALSE  TRUE FALSE FALSE  TRUE  TRUE
```

Relational Operators & Vectors

```
facebook <- c(17, 7, 5, 16, 8, 13, 14)
facebook
```

```
17  7  5 16  8 13 14
```

```
facebook <= linkedin
```

```
FALSE  TRUE  TRUE FALSE FALSE  TRUE  TRUE
```

Let's practice!

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Logical Operators

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Logical Operators

- AND operator &
- OR operator |
- NOT operator !

AND operator "&"

```
TRUE & TRUE
```

```
TRUE
```

```
TRUE & FALSE
```

```
FALSE
```

```
FALSE & TRUE
```

```
FALSE
```

```
FALSE & FALSE
```

```
FALSE
```

AND operator "&"

```
x <- 12
x > 5 & x < 15
```

```
TRUE
```

```
x <- 17
x > 5 & x < 15
```

```
FALSE
```

OR operator "|"

```
TRUE | TRUE
```

```
TRUE
```

```
FALSE | TRUE
```

```
TRUE
```

```
TRUE | FALSE
```

```
TRUE
```

```
FALSE | FALSE
```

```
FALSE
```

OR operator "|"

```
y <- 4
y < 5 | y > 15
```

```
TRUE
```

```
y <- 14
y < 5 | y > 15
```

```
FALSE
```

NOT operator "!"

```
!TRUE
```

```
FALSE
```

```
!FALSE
```

```
TRUE
```

```
!(x < 5)
```

```
x >= 5
```

NOT operator "!"

```
is.numeric(5)
```

```
TRUE
```

```
!is.numeric(5)
```

```
FALSE
```

```
is.numeric("hello")
```

```
FALSE
```

```
!is.numeric("hello")
```

```
TRUE
```

Logical Operators & Vectors

```
c(TRUE, TRUE, FALSE) & c(TRUE, FALSE, FALSE)
```

```
TRUE FALSE FALSE
```

```
c(TRUE, TRUE, FALSE) | c(TRUE, FALSE, FALSE)
```

```
TRUE  TRUE FALSE
```

```
!c(TRUE, TRUE, FALSE)
```

```
FALSE FALSE  TRUE
```

"&" vs "&&", "|" vs "||"

```
c(TRUE, TRUE, FALSE) & c(TRUE, FALSE, FALSE)
```

```
TRUE FALSE FALSE
```

```
c(TRUE, TRUE, FALSE) && c(TRUE, FALSE, FALSE)
```

```
TRUE
```

"&" vs "&&", "|" vs "||"

```
c(TRUE, TRUE, FALSE) | c(TRUE, FALSE, FALSE)
```

```
TRUE  TRUE FALSE
```

```
c(TRUE, TRUE, FALSE) || c(TRUE, FALSE, FALSE)
```

```
TRUE
```

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Conditional Statements

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if statement

```
if(condition) {
  expr
}
```

```
x <- -3
```

```
if(x < 0) {
  print("x is a negative number")
}
```

```
"x is a negative number"
```

if statement

```
if(condition) {
  expr
}
```

```
x <- 5
```

```
if(x < 0) {
  print("x is a negative number")
}
```

```
#No printout
```

else statement

```
if(condition) {
  expr1
} else {
  expr2
}
```

```
x <- -3
```

```
if(x < 0) {
  print("x is a negative number")
} else {
  print("x is either a positive number or zero")
}
```

```
"x is a negative number"
```

else statement

```
if(condition) {
  expr1
} else {
  expr2
}
```

```
x <- 5
if(x < 0) {
  print("x is a negative number")
} else {
  print("x is either a positive number or zero")
}
```

```
"x is either a positive number or zero"
```

else if statement

```
if(condition1) {
  expr1
} else if(condition2) {
  expr2
} else {
  expr3
}
```

else if statement

```
x <- -3
```

```
if(x < 0) {
  print("x is a negative number")
} else if(x == 0) {
  print("x is zero")
} else {
  print("x is a positive number")
}
```

```
"x is a negative number"
```

else if statement

```
x <- 0
```

```
if(x < 0) {
  print("x is a negative number")
} else if(x == 0) {
  print("x is zero")
} else {
  print("x is a positive number")
}
```

```
"x is a zero"
```

else if statement

```
x <- 5
```

```
if(x < 0) {
  print("x is a negative number")
} else if(x == 0) {
  print("x is zero")
} else {
  print("x is a positive number")
}
```

```
"x is a positive number"
```

if, else if, else

```
x <- 6
```

```
if(x %% 2 == 0) {
  print("divisible by 2")
} else if(x %% 3 == 0) {
  print("divisible by 3")
} else {
  print("not divisible by 2 nor by 3...")
}
```

```
"divisible by 2"
```

Let's practice!

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