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# Title: Example - RIA book p.105, 5.4 Control Flow.
# Date: 10/27/2016 7pm - 12am, 45m break for dinner.
# Memo: Practice basic looping and syntax in R.
# R script files can be printed using WordPad. Save as .rtf printed file.
# Courier New, 9pt, Rt & Bottom margins 0.5", Top & Left 1.0".
# Testing, printing from R Console. OK, but can't change margins.
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# Example 1:
# if (cond) statement
# if (cond) statement1 else statement2
# ifelse(cond, yes, no)

x <- c(-15:15)
if (x[1] %% 3 == 0) print("Fizz")
if (x[6] %% 5 == 0) print("Buzz") else print(x[6])

# Yes or No values automatically printed. No print() function needed.
# Notice: not 'print("Fizz")' but just "Fizz" for yes statement.

x <- c(1:15)
ifelse(x[6] %% 3 == 0, y <- "yes", x[6])
ifelse(x[5] %% 5 == 0, "Buzz", x[5])
ifelse(x[7] %% 5 == 0, "Buzz", x[7])

# Example 2:
# for (i in sequence) expression
#
# for (i in 1:10) {
#   multiple lines
# }

x <- (1:20)
for (i in x)
  if (x[i] %% 3 == 0) print("Fizz") else print(x[i])

for (i in 1:20)
  if (i %% 3 == 0) print("Fizz") else print(i)

# i takes on values of sequence, even strings.
for (i in c(1, 2, 3, "hello", "me", "good", 7, 8, 9, "great"))
  print(i)

# Spaces around all algebraic operators.
# Curly braces, first on same line, last on new line. 2nd... indent 2 spaces.
# Don't need curly braces for 1 line block following 'if'. Be consistent.

for (i in 1:30) {
  if (i %% 15 == 0) {
    print("FizzBuzz")
  } else {
    if (i %% 3 == 0) {
      print("Fizz")
    } else {
      if (i %% 5 == 0) {
        print("Buzz")
      } else {
        print(i)
      }
    }
  }
}

# Example 3:
# while (cond) statement

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i <- 1
while (i < 22) {
  print(i)
  print(i*i)
  i <- i+2
}

# while (i > 0) {do1; do2; do3} Notice semicolons separating statements.
i <- 1
while (i < 20) {print(i); print(i*i); i <- i+1}

# Example 4:
# switch(i, value1 = outcome1, value2 = outcome2, ...)
#
# switch(i,
#   value1 = outcome1,
#   value2 = outcome2, ...
# )
```