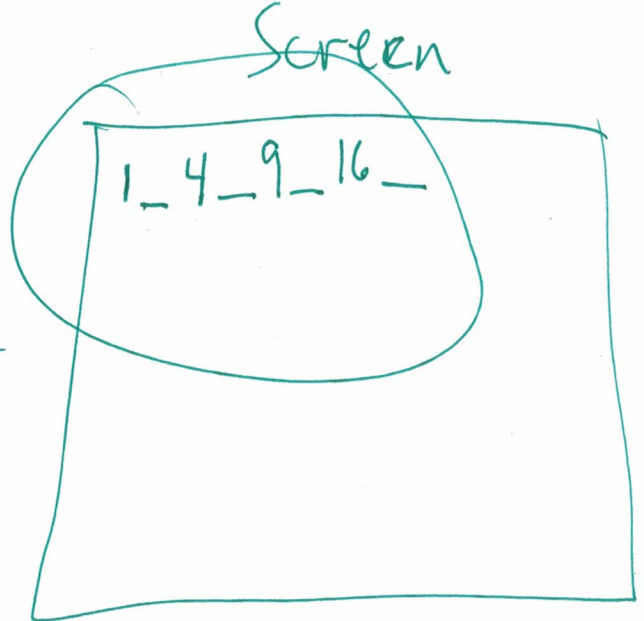
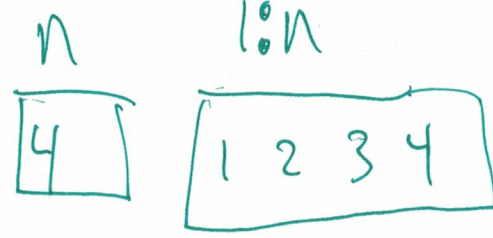


Notes from Beren
Review class

Topics: for loops

What is displayed by the following code?

```
f = function(n){  
  for (x in 1:n){  
    cat(x * x, " ")  
  }  
  cat("\n")  
  return(c(x, n))  
}
```



Answer

Answer: 4 4

What does this display?
#result = f(4)
What does this display?
#result



Topics: while loops, cat vs return

What is displayed by the following code?

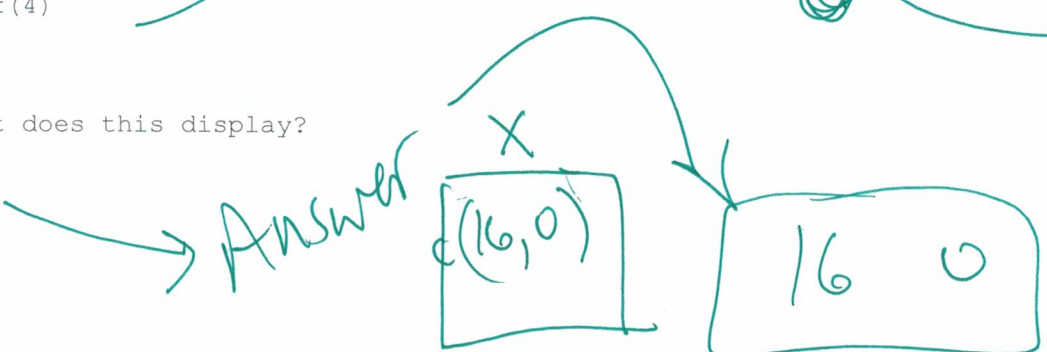
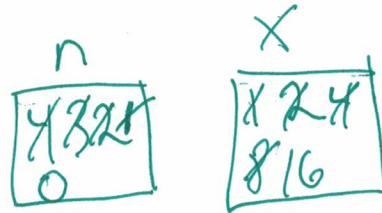
```
f = function(n){
  x = 1
  while (n >= 1){
    cat(x, " ")
    x = x * 2
    n = n - 1
  }
  cat("\n")
  return(c(x, n))
}
```

What does this display?

```
#x = f(4)
```

What does this display?

```
#x
```



```
f = function(n) {
  return (2 * n)
}
> f(3) + 100
[1] 106
```

```
f = function(n) {
  cat (2 * n)
}
> f(3) + 100
6
Error: can't add 100 to NULL
```

Topics: for loops, nested loops, if

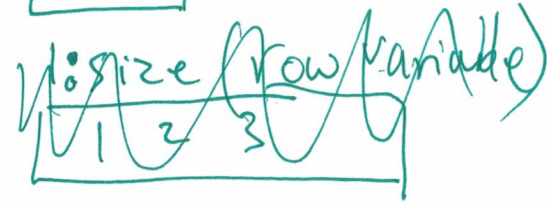
What is displayed by the following code?

```
drawSomething = function(size){
  if (!is.numeric(size) || trunc(size) != size || size < 0){
    stop("size must be a non-negative whole number")
  }

  for (row in 1:size){
    for (col in 1:size){
      if (col == row || col == size - row + 1){
        cat("@")
      } else {
        cat(".")
      }
    }
    cat("\n")
  }

  cat("\nHope you like the picture! :) \n")
}
```

Size



row



1:size (row var)



col



1:size (col variable)



What do these display?

```
#drawSomething(3)
#drawSomething(5)
#drawSomething(1)
#drawSomething(0) # be careful! This is tricky. Probably not what you'd expect.
```

drawSomething(-1) → ERROR: size must be a non-negative whole number
 drawSomething("hello") → ERROR: size must be a non-negative whole number



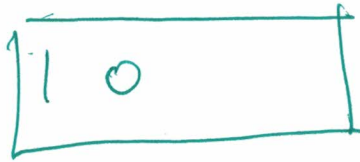
draw something(0)

size



row

1:0



> 3:1

[1] 3 2 1

col

1:0



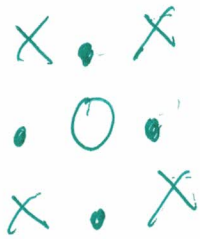
screen



Topics: for loops, nested loops, if

The only thing that changed are the lines that are highlighted in the code with “# THIS CHANGED”.
What will be displayed now?

```
drawSomething = function(size){  
  if (!is.numeric(size) || trunc(size) != size || size < 0){  
    stop("size must be a non-negative whole number")  
  }  
  
  for (row in 1:size){  
    for (col in 1:size){  
      if (col == row || col == size - row + 1){ # THIS CHANGED  
        # THIS CHANGED  
        if ( row %% 2 == 0) # THIS CHANGED  
          cat("0") # THIS CHANGED  
        else # THIS CHANGED  
          cat("X") # THIS CHANGED  
        # THIS CHANGED  
      } else {  
        cat(".")  
      }  
    }  
  }  
  cat("\n")  
  cat("\nHope you like the picture! :)\n")  
}
```



```
# What does this display?  
#drawSomething(5)
```

Topics: for loops, nested loops, if

What is displayed by the following code?

```
drawSomething = function(size){  
  if (!is.numeric(size) || trunc(size) != size || size < 0){  
    stop("size must be a non-negative whole number")  
  }  
  for(row in 1:size){  
    if( row == 1 || row == size ){  
      for (x in 1:size){  
        cat("-")  
      }  
      cat("\n")  
    } else {  
      for (col in 1:size) {  
        if( row == 1 || row == size ){  
          for (x in 1:size){  
            cat("-")  
          }  
          cat("\n")  
        } else {  
          if (col == 1){  
            cat("|")  
          } else if (col == size){  
            cat("| \n")  
          } else if (row == col) {  
            cat("x")  
          } else {  
            cat(".")  
          }  
        }  
      }  
    }  
  }  
}
```

size



row



1:size (row)



x



1:size (x)



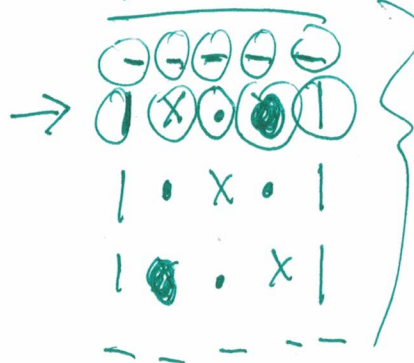
col



1:size (col)



screen



What does this display?
#drawSomething(5)