Quiz: Control Flow

1. Which of the following code blocks prints the squares of the numbers from 1 to 10 (including 1 and 10)?

A
```
n = 1
while n < 10
    println(n**2)
    n += 1
end
```

B
```
n = 0
while n < 11
    println(n**2)
    n += 1
end
```

C
```
n = 1
while n < 11
    println(n^2)
    n += 1
end
```

D
```
n = 0
while n < 11
    println(n^2)
    n += 1
end
```

2. What will be the output of the following code?

```
m, n = 3, 4
a = fill(0, (m, n))
length(a)
```

A 12

B 4

C 1

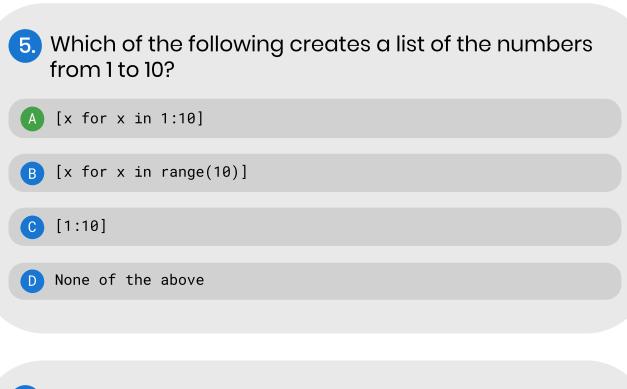**D** 3

3. What will be the output of the following code?

```
a = ["Joe", "has", "an", "array"]
i = 1
while i < length(a)
    print(a[i])
    i += 1
end
```
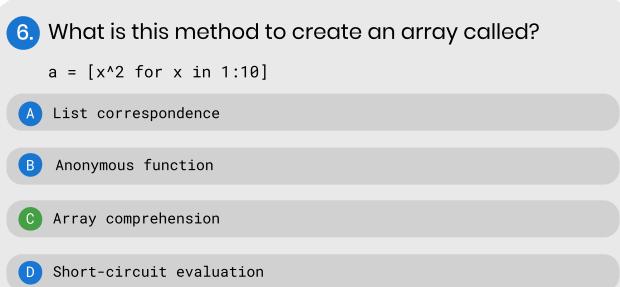
A Joe has an array

B Joehasanarray

C Joe has an

D Joehasan

4. What will be the output of the following code?

```
a = fill(0, (2, 6))
for i in 1:2, j in 1:6
    a[i, j] = i + j
end
a
```

A 2×6 Array{Int64,2}:
   0 0 0 0 0 0
   0 0 0 0 0 0

B 2×6 Array{Int64,2}:
   2 3 4 5 6 7
   3 4 5 6 7 8

C 2×6 Array{Int64,2}:
   8 8 8 8 8 8
   8 8 8 8 8 8

D Error

5. Which of the following creates a list of the numbers from 1 to 10?

A `[x for x in 1:10]`

B `[x for x in range(10)]`

C `[1:10]`

D `None of the above`

6. What is this method to create an array called?

`a = [x^2 for x in 1:10]`

A `List correspondence`

B `Anonymous function`

C `Array comprehension`

D `Short-circuit evaluation`

7. What does the following code create?

`a = [i == j ? 1 : 0 for i in 1:5, j in 1:5]`

A `A 5x5 Identity Matrix`

B `A 5x5 matrix with all ones`

C `A 5x5 matrix with all zeros`

D `Error`

8. Which of the following code blocks prints the text correctly?

A
```
if a < 100
    println("a has two digits")
elseif a < 10
    println("a has one digit")
else
    println("a has more than 2 digits")
end
```

B
```
if a < 10
    println("a has one digit")
elseif a < 100
    println("a has two digits")
else
    println("a has more than 2 digits")
end
```

C
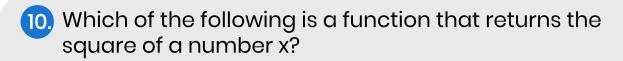```
if a <= 10
    println("a has one digit")
elseif a < 100
    println("a has two digits")
else
    println("a has more than 2 digits")
end
```

D
```
if a <= 10
    println("a has one digit")
elseif a <= 100
    println("a has two digits")
else
    println("a has more than 2 digits")
end
```

**9.** What is the following code called?

```
println(b > c ? b : c)
```

A Array Comprehension

B Short-circuit evaluation

C Anonymous function

D Ternary Operator

10. Which of the following is a function that returns the square of a number x?

A
```
function square(x)
    return square(x)
end
```

B
```
function square(x)
    return x**2
end
```

C
```
function square(x)
    return x^2
end
```

D
```
function square(x)
    x = x^2
end
```

11. Which of the following prints "Hello, World"?

A `true && println("Hello, World")`

B `false && println("Hello, World")`

C `true and println("Hello, World")`

D `false and println("Hello, World")`

12. Which of the following returns the square of a number x?

A `f = x**2`

B `f = x^2`

C `f = x -> x^2`

D `None of the above`

13. Which of the following is a function that returns the square of each number in an array?

A
```
function square_arr(x)
    return x.^2
end
```

B
```
function square_arr(x)
    return x^2
end
```

C
```
function square_arr(x)
    return square_arr.(x)
end
```

D
```
function square_arr!(x)
    return x^2
end
```

14. Which of the following sorts the array x?

A   `sort(x)`

B   `sort!(x)`

C   `sort.(x)`

D   `None of the above`

15. Why do we use the ! symbol for mutating functions?

A   `Convention`

B   `So the compiler knows the function is mutating`

C   `Because ! shows importance`

D   `None of the above`