

# Quiz for Fundamentals of Programming

Total points 21/21 ?

This quiz will reinforce the concepts you are learning. By taking this quiz, you will become a stronger programmer.

✓ Go emphasizes ease of programming. If you use the short declaration operator, you do not need to specify the type. \* 1/1

☒ True



☐ False

In your own words, explain how computers work.

on off  
.....

## Feedback

*Computers run on electricity. Electricity has two discrete states: on & off. We can associate a coding scheme with the state of a circuit. For example, the porch light on Halloween in America: when it is "on" it means "come trick or treat", and when it is "off" it means "go away." If we had two porch lights, we could encode four messages:*

*on on = some message  
on off = some message  
off on = some message  
off off = some message*

*If we had 3 porch lights, we could encode 8 messages. The formula for figuring out how many messages can be encoded is 2 to the power of N where "N" is the number of porch lights. For instance, 2 to the power of 3, is 8.*

*Instead of writing "on off on on off", etcetera, we can have "1" represent "on" and "0" represent "off" and thus more easily write "1 0 1 1 0"*



In relation to computers, what do zeros & ones represent?

binary numbers

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### Feedback

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✓ A boolean value is one that is either true or false \*

1/1

☒ true

☐ false



✓ If you have 5 porch lights, how many messages can you encode? \* 1/1

- ☐ 8
- ☐ 16
- ☒ 32
- ☐ 64
- ☐ 128



**Feedback**

*2 to the power of 5 is 32*

✓ The computer power symbol is cleverly a ZERO and a ONE. This is pretty neat as ZERO represents OFF and ONE represents ON, which is exactly what a power symbol allows you to do - turn something ON and OFF. \* 1/1

- ☒ True
- ☐ False



✓ "Bit" is an abbreviation of "binary digit" \* 1/1

- ☒ True
- ☐ False



✓ ON & OFF, 1 & 0, Binary Digits, Bits, and Machine Language are all words used to refer to this idea that, within a computer, it's all nothing but a bunch of ZERO's and ONE's, or switches that are ON or OFF, it's all just a bunch of Binary Digits, or Bits, that's the language which computers speak, it's machine language. \*

☒ True



☐ False

✓ circuits, switches, transistors, and even "gates" are all words used to refer to this thing within a computer that can either be ON or OFF. It's a circuit, it's a switch, it's a gate that can either be OPENED or CLOSED, it's a transistor - you will learn that people use all of those words to talk about this same thing, this ability of computers to store ON / OFF states. \*

☒ True



☐ False

✓ The world's most popular text coding scheme today is \* 1/1

☐ ASCII

☒ UTF-8



☐ JIS

☐ W Europe



✓ 1000 bytes = \*

1/1

- ☐ 1 TB
- ☐ 1 GB
- ☐ 1 MB
- ☒ 1 KB



✓ 1000 GB = \*

1/1

- ☒ 1 TB
- ☐ 1 GB
- ☐ 1 MB
- ☐ 1 KB



Consult this link [https://en.wikipedia.org/wiki/Transistor\\_count](https://en.wikipedia.org/wiki/Transistor_count) and then enter the number of transistors (aka circuits, switches, "lightbulbs" in my porch analogy) which can be found on processors today.

7 billion

.....



✓ How many circuits (aka transistors, switches, "lightbulbs" in my porch analogy) did the Eniac computer have? \* 1/1

- ☐ 160
- ☐ 1,600
- ☒ 16,000
- ☐ 1,600,000



✓ rune is an alias for int32 \* 1/1

- ☒ True
- ☐ False



✓ byte is an alias for uint8 \* 1/1

- ☒ True
- ☐ False



✓ If you use type int, then the compiler will choose whether int32 or int64 is used. Another way to say this is that int has implementation-specific sizes. \* 1/1

- ☒ True
- ☐ False



✓ As a rule of thumb, for numeric types, you should just use "int" for whole numbers (without decimals) and "float64" for real numbers (with decimals) \* 1/1

☒ True



☐ False

✓ A string is a sequence of bytes. \* 1/1

☒ True



☐ False

✓ Go source code is always UTF-8. \* 1/1

☒ True



☐ False

**Feedback**

[https://blog.golang.org/strings#TOC\\_5.](https://blog.golang.org/strings#TOC_5)



✓ A string is a sequence of bytes that represent Unicode code points, called runes. \* 1/1

☒ True



☐ False

What is a coding scheme?

on off

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✓ What is the number 42 in decimal? \*

1/1

- ☒ 42
- ☐ 101010
- ☐ 2A
- ☐ I skipped the numeral system video



✓ What is the number 42 in binary? \*

1/1

- ☐ 42
- ☒ 101010
- ☐ 2A
- ☐ I skipped the numeral system video



✓ What is the number 42 in hex? \*

1/1

- ☐ 42
- ☐ 101010
- ☒ 2A
- ☐ I skipped the numeral system video



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