LUA COMPUTER SCIENCE

by

Christopher Andrew Topalian

Christopher Topalian

Dedicated to God the Father

College of Scripting Music & Science

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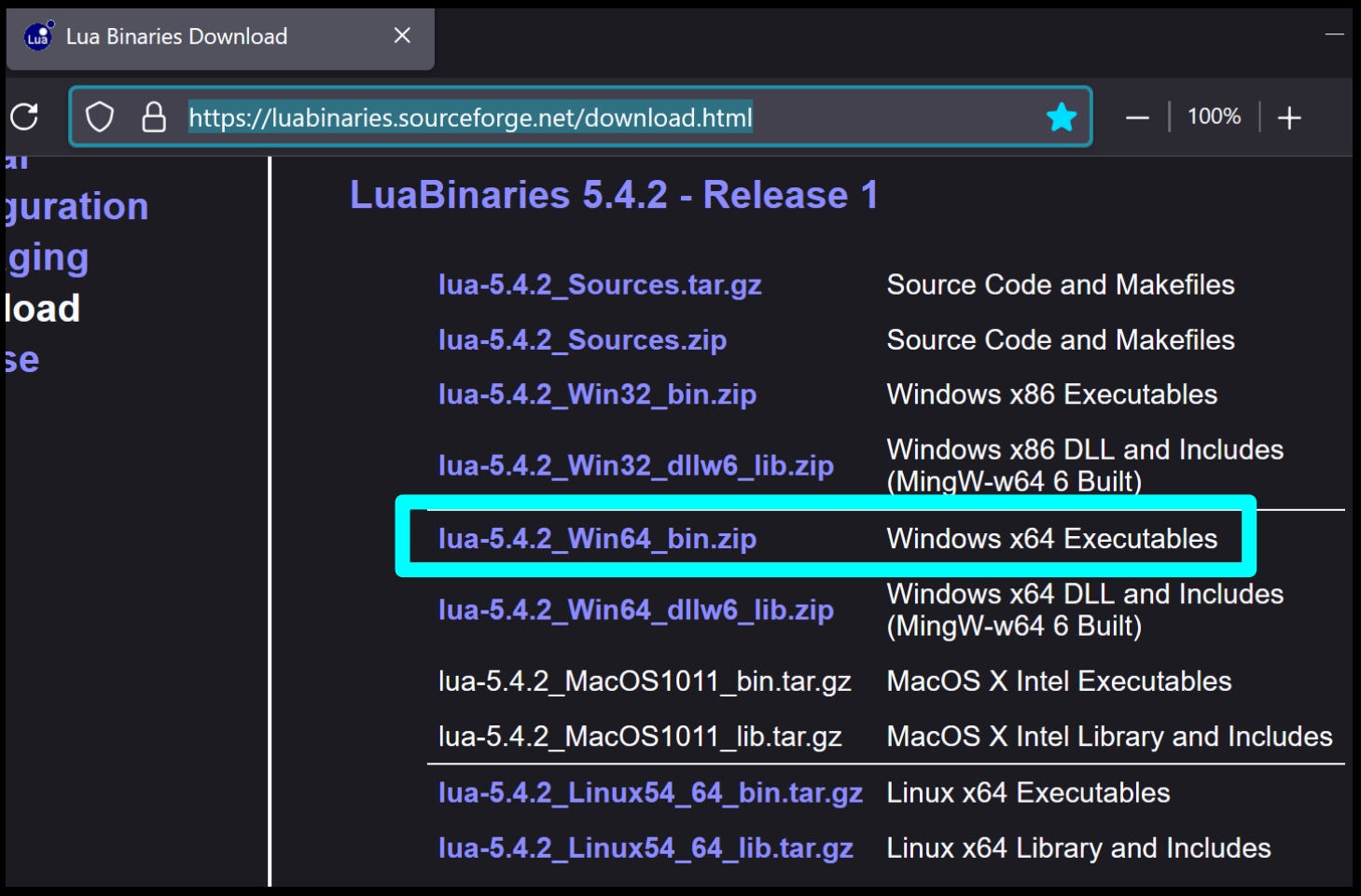
Download Lua



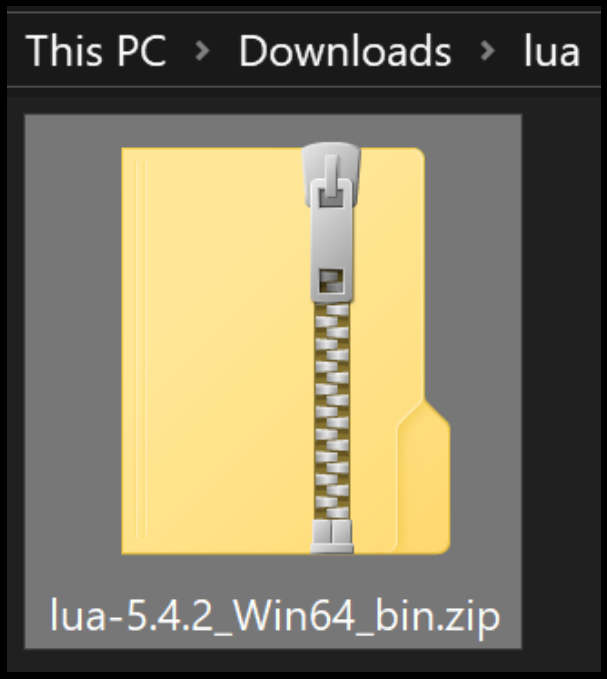
We Download Lua from:
https://luabinaries.sourceforge.net/download.html

On Windows: Download the file named:
lua-5.4.2_Win64_bin.zip
Windows x64 Executables

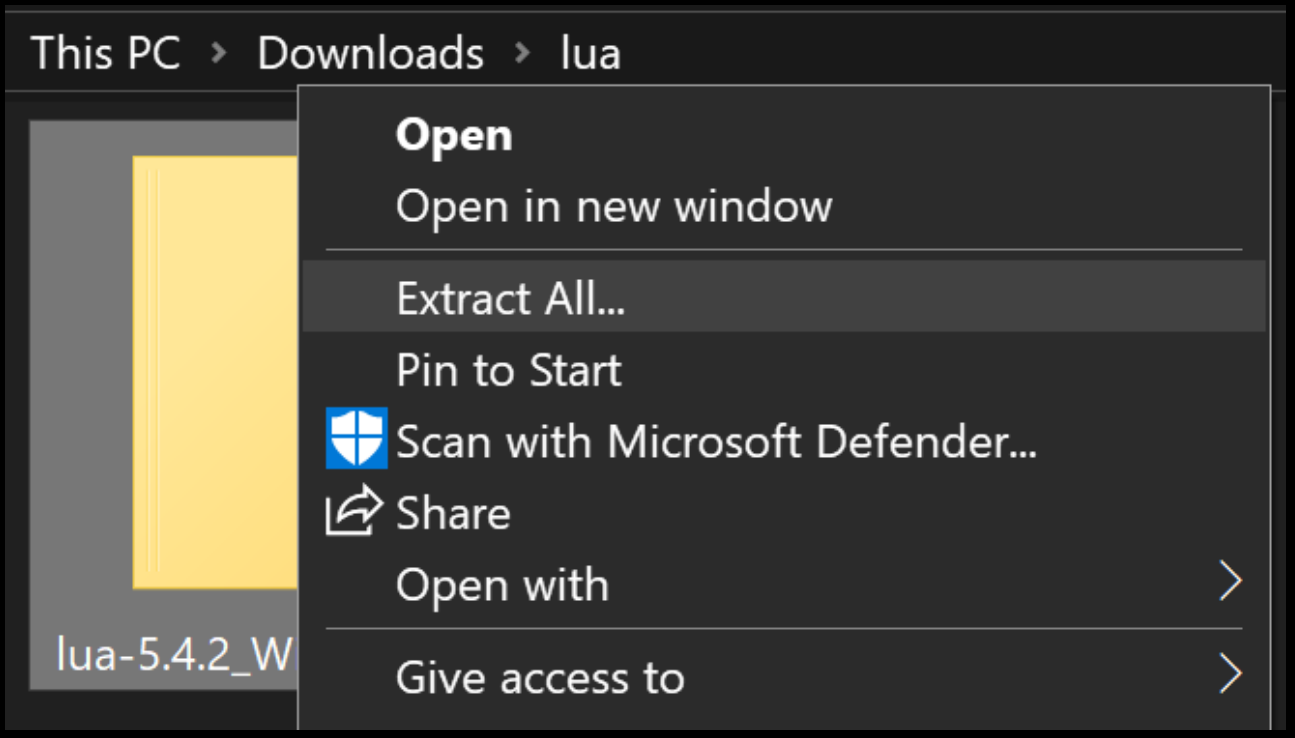
On Mac: Download the File named:
lua-5.4.2_MacOS1011_bin.tar.gz
MacOS X Intel Executables

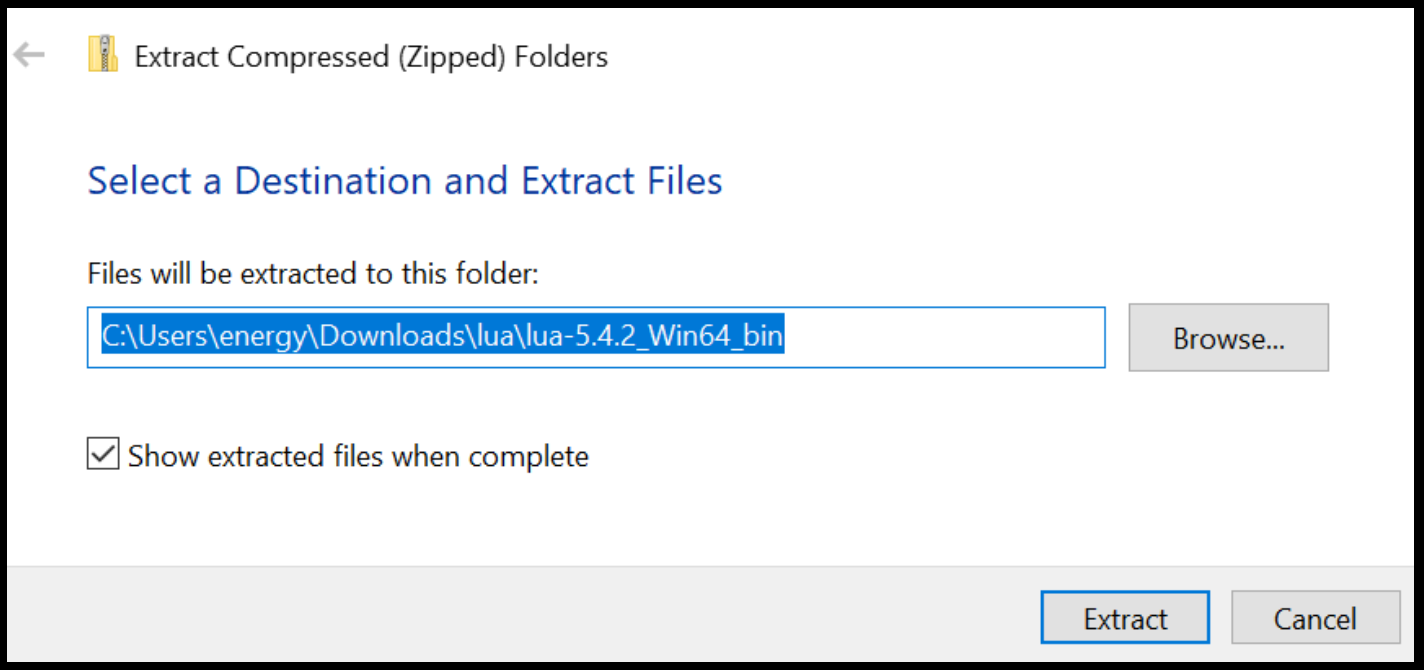
On Linux: Download the File named:
lua-5.4.2_Linux54_64_bin.tar.gz
Linux x64 Executables

Extract the LUA zip file

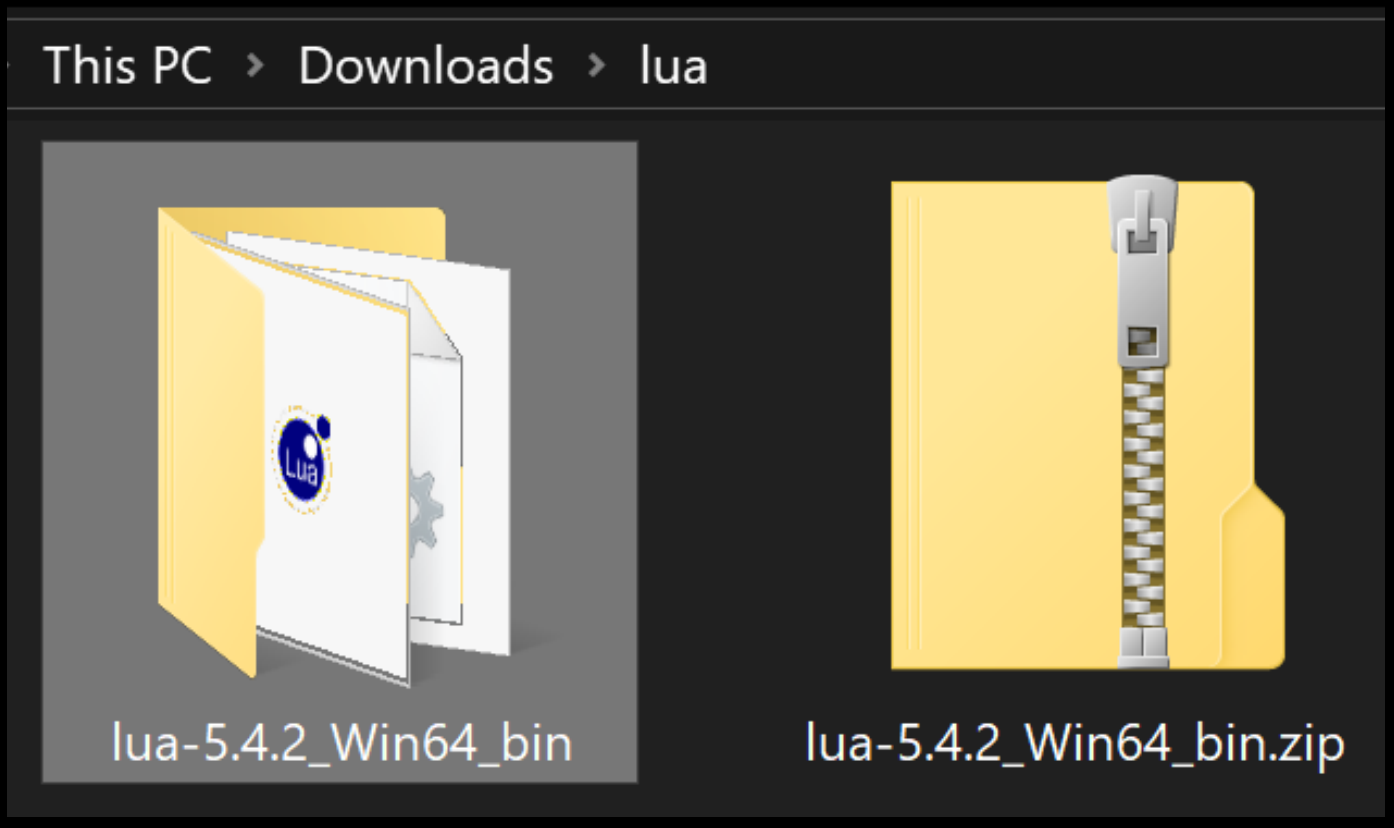


Right Click on the **Downloaded Zip Folder**
Choose **Extract All...**

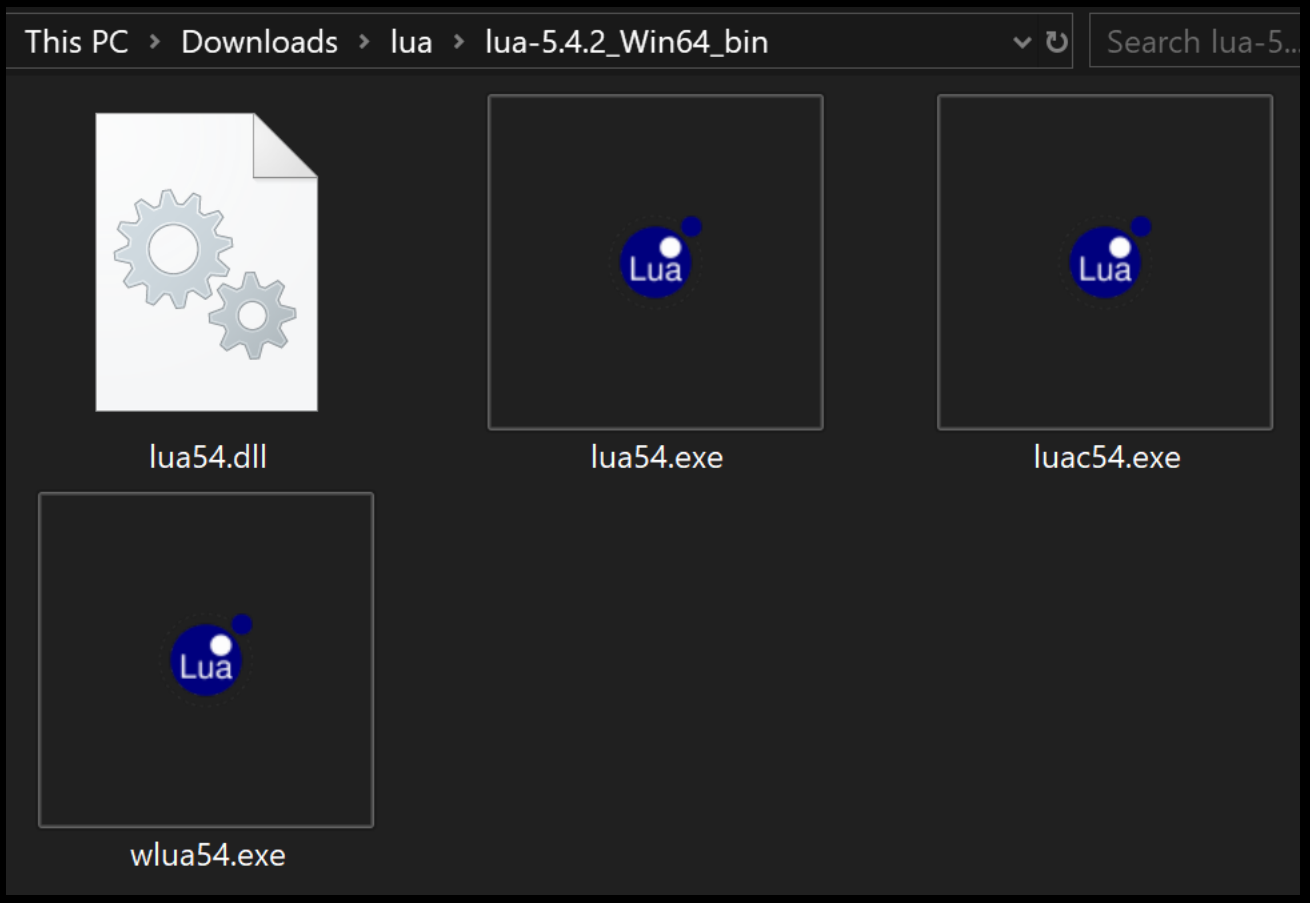




Left Click Extract Button



Here is our Lua Folder. Now that it is extracted we can use the .exe files in the Lua Folder.



Above, we see our Lua Folder.

This Lua Folder contains the Lua .exe files.

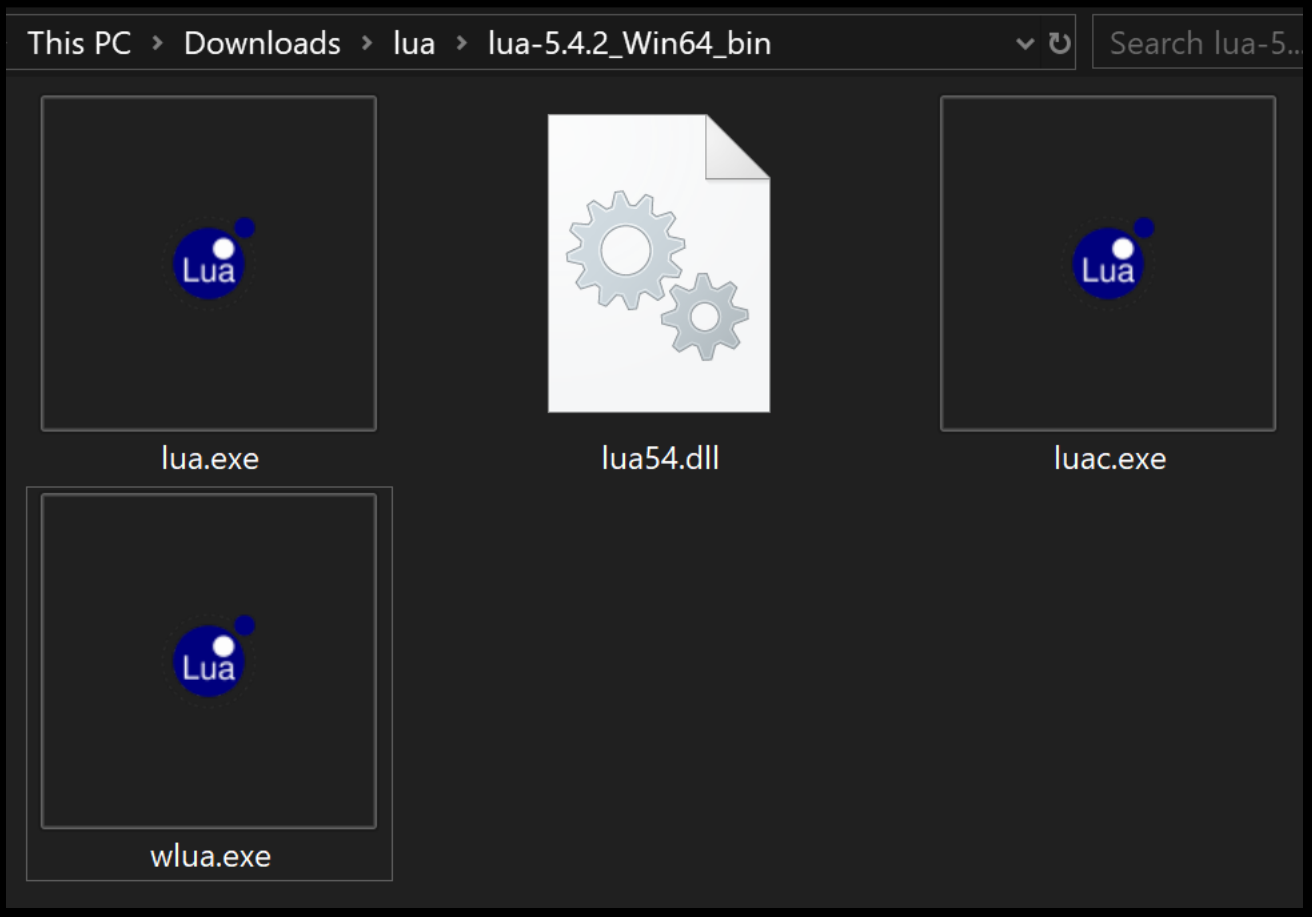
Currently, they are named with a version number, such as, Lua54.exe

But, since we don't want to have to write the version number everytime that we **cmd**, we can change the name of these files to say lua without the version number of 54.

Thus, as shown on the next page, let us change the names of these files to say only lua

lua54.exe will be renamed to **lua.exe**

We change the names of the Lua .exe files, to make it easier for us to use cmd later



As we can see above, the Lua .exe files are now named without a version number.

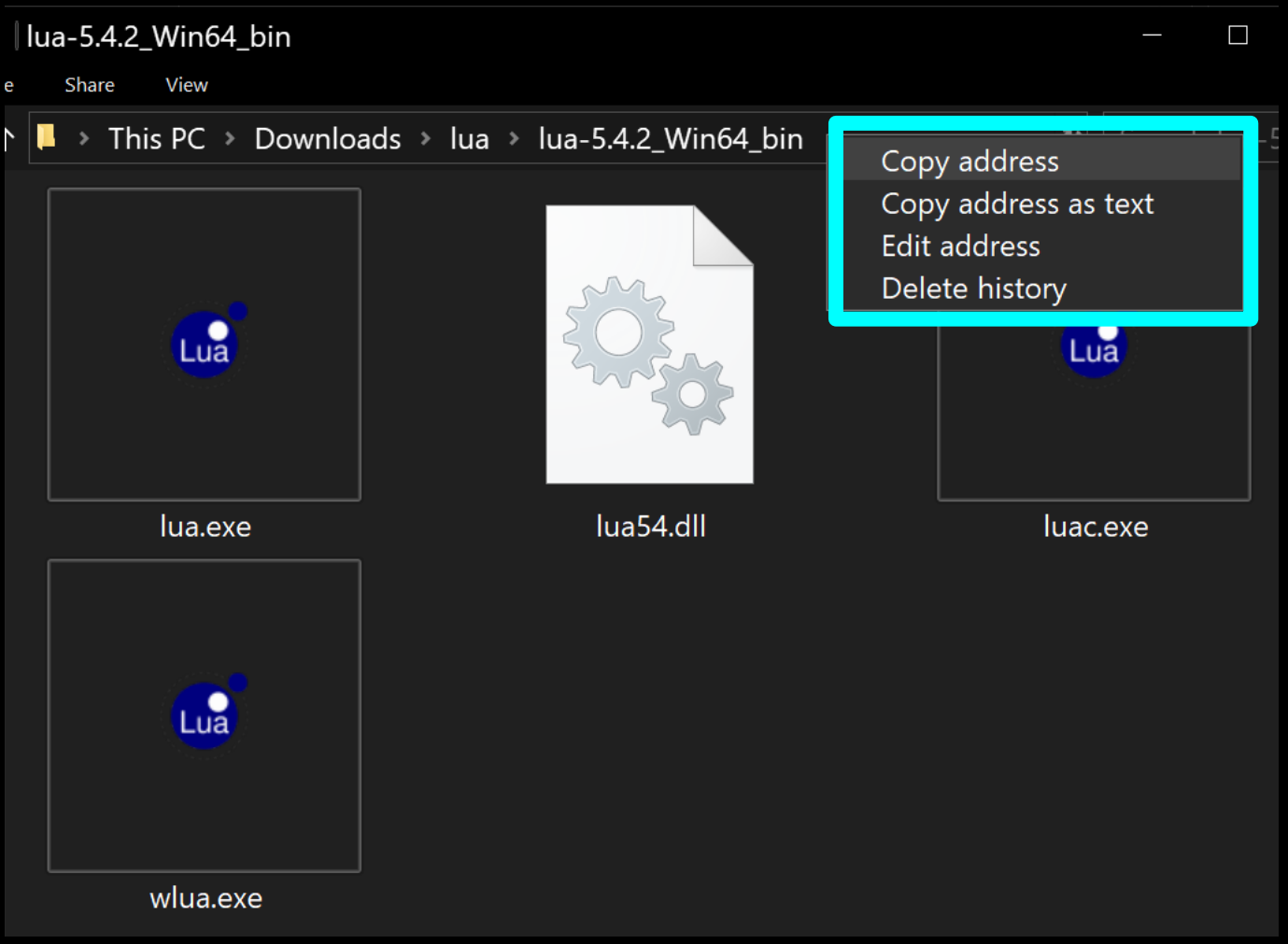
We have changed the name of the exe files to make it easier for us to later **cmd** our folder and thus to activate our scripts we now only have to write in command prompt:

lua nameOfScript.lua

instead of

lua54 nameOfScript.lua

We Copy the Path of our Lua Folder to later use it for our Lua Environment Variable



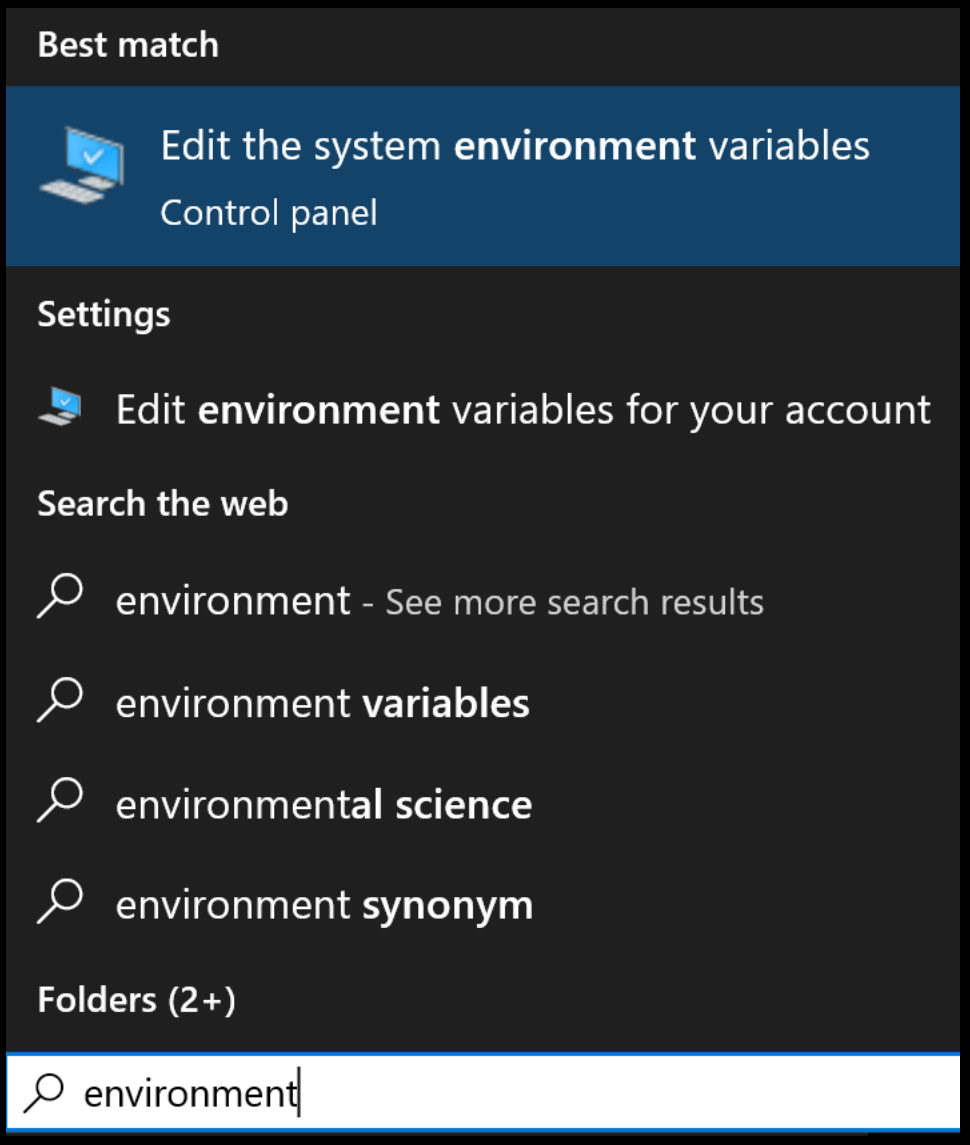
We have copied the Path of our Lua folder. It looks like this:

C:\Users\energy\Downloads\lua\lua-5.4.2_Win64_bin

We will later use this path, to add a Lua Environment Variable on Windows, so that we can cmd our scripts and have them open in Command Prompt.

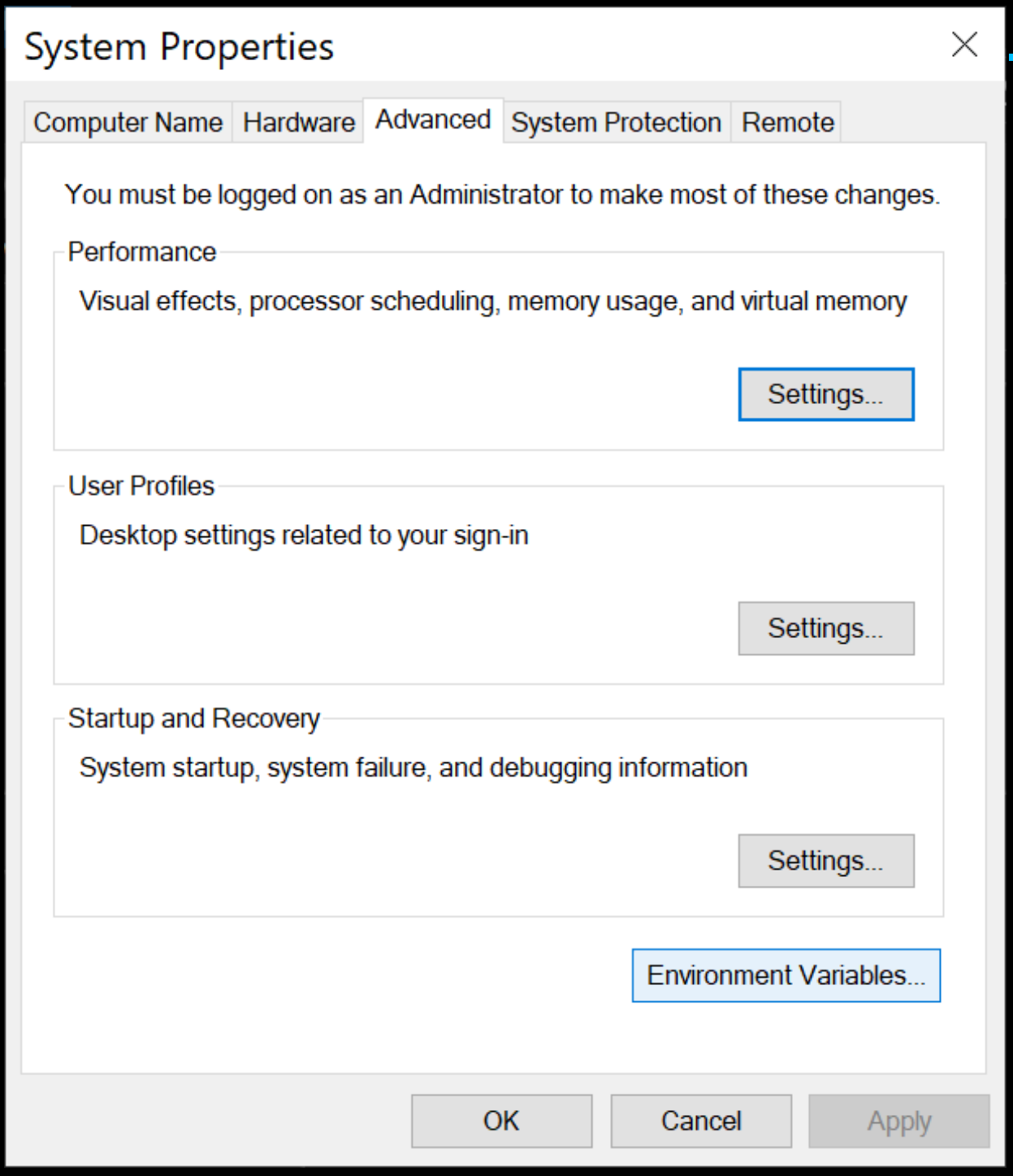
We Add an Environment Variable for Lua for cmd Ability

In the Windows Start Menu SEARCH for: environment



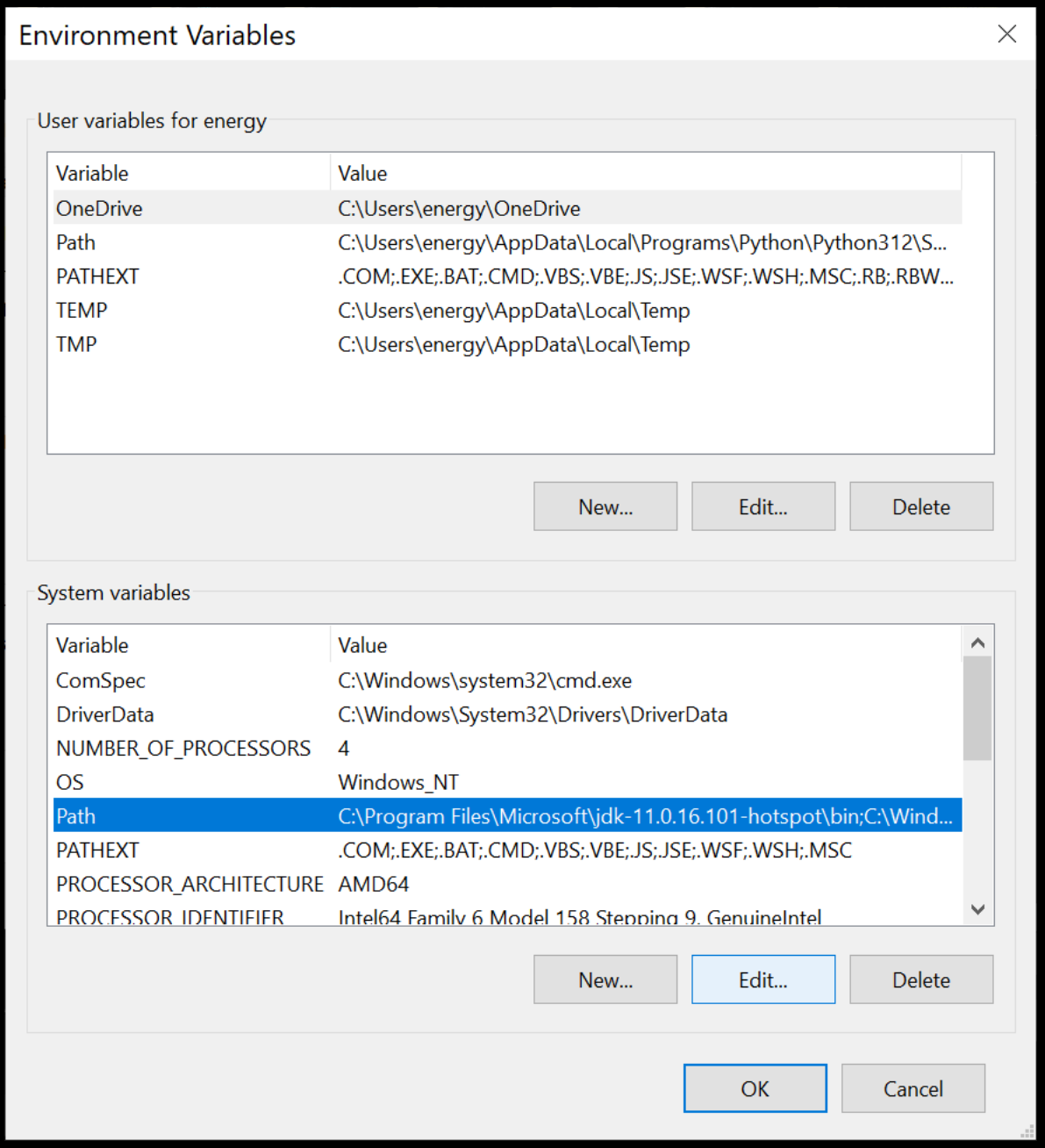
We Left Click on: Edit the system environment variables

System Properties Opens and we Left Click on Environment Variables Button



We Left Click on:
Environment Variables... Button

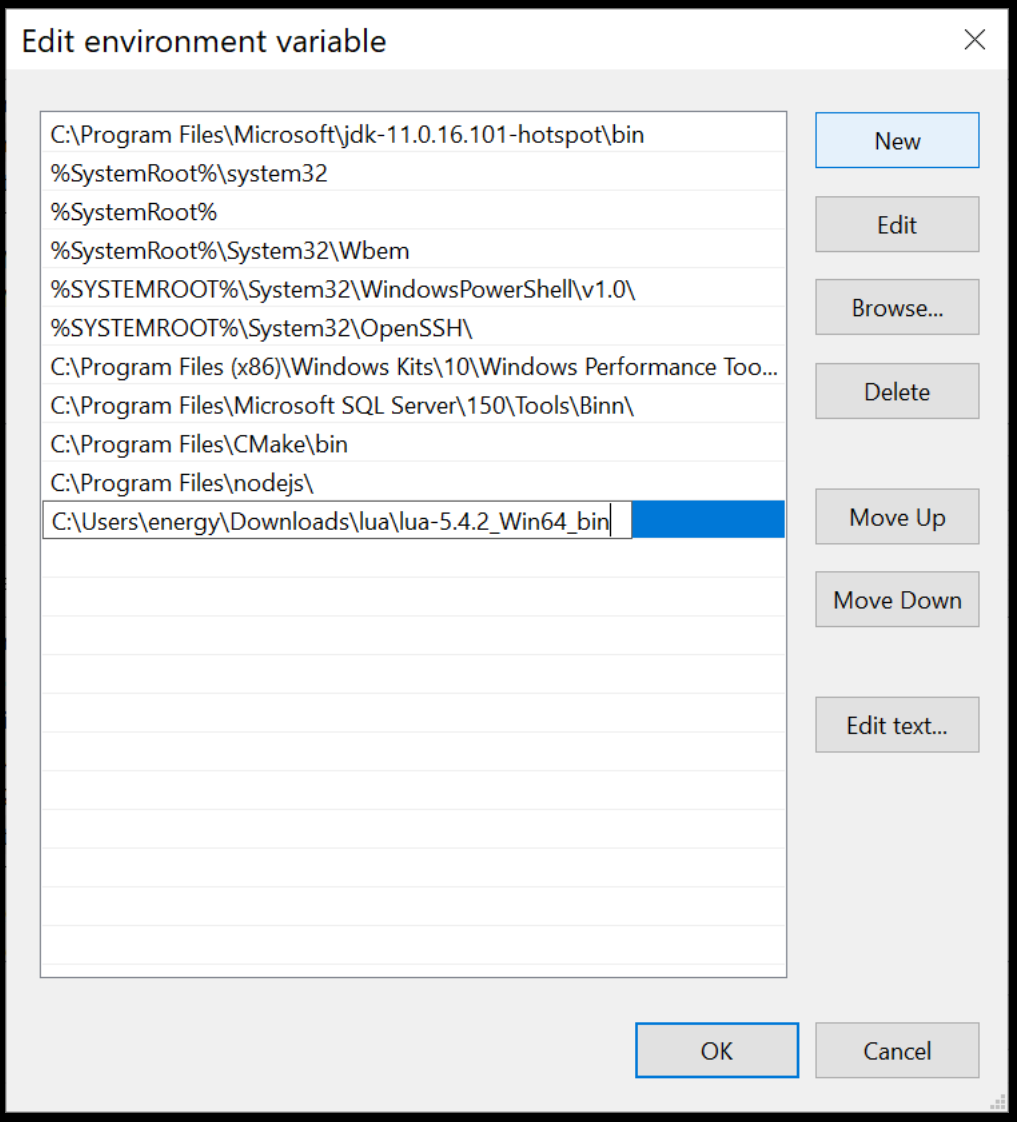
In System Variables, at the bottom, we Left Click on Path, and then Left Click Edit Button



We **Left Click** on:
Path

We **Left Click** on:
Edit Button

We make a New Environment Variable and paste the address of our Lua Folder



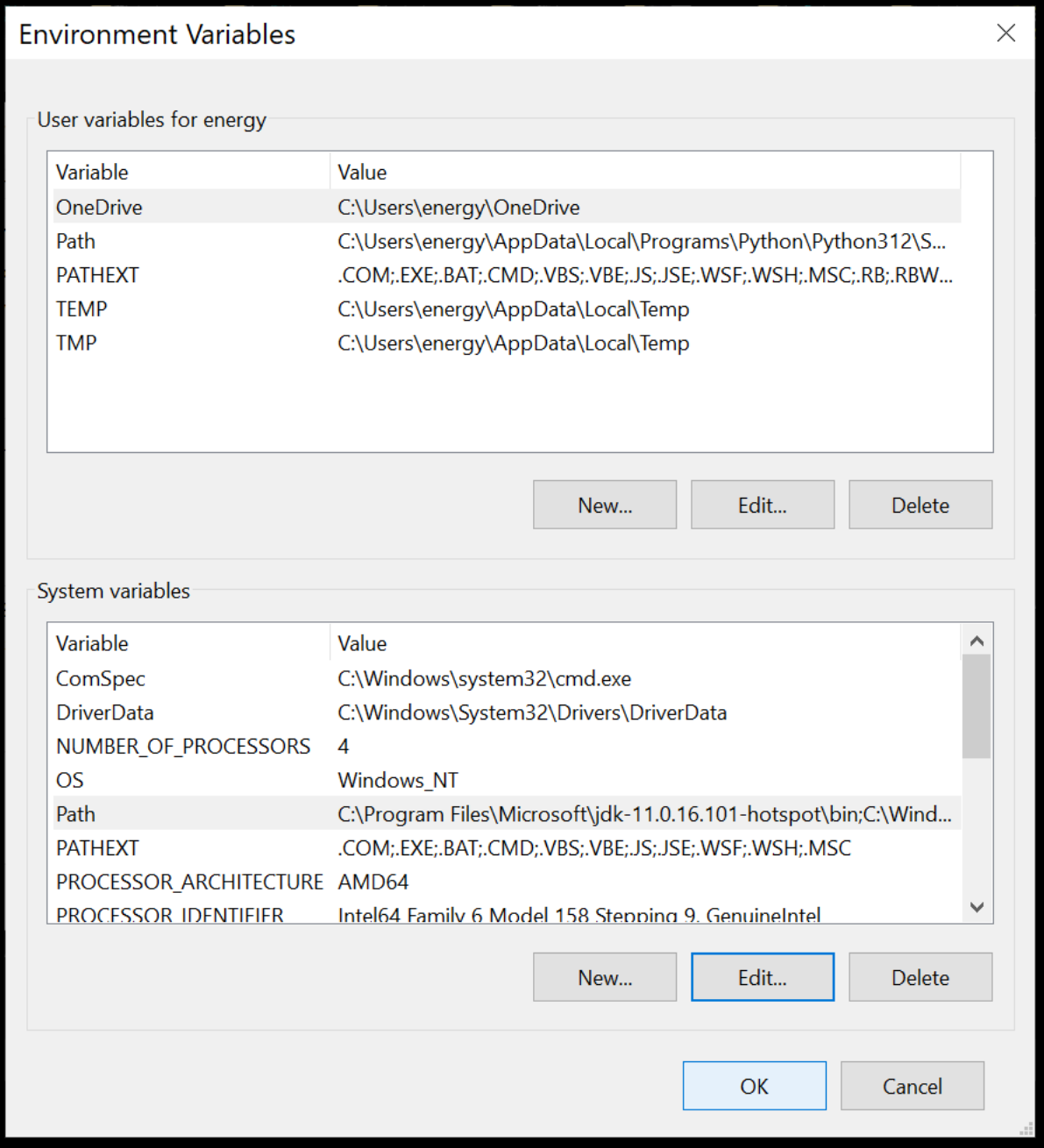
We Left Click on:
New Button

We Paste the Lua Folder Address:
Control + V or Right Click Paste

C:\Users\energy\Downloads\lua\lua-5.4.2_Win64_bin

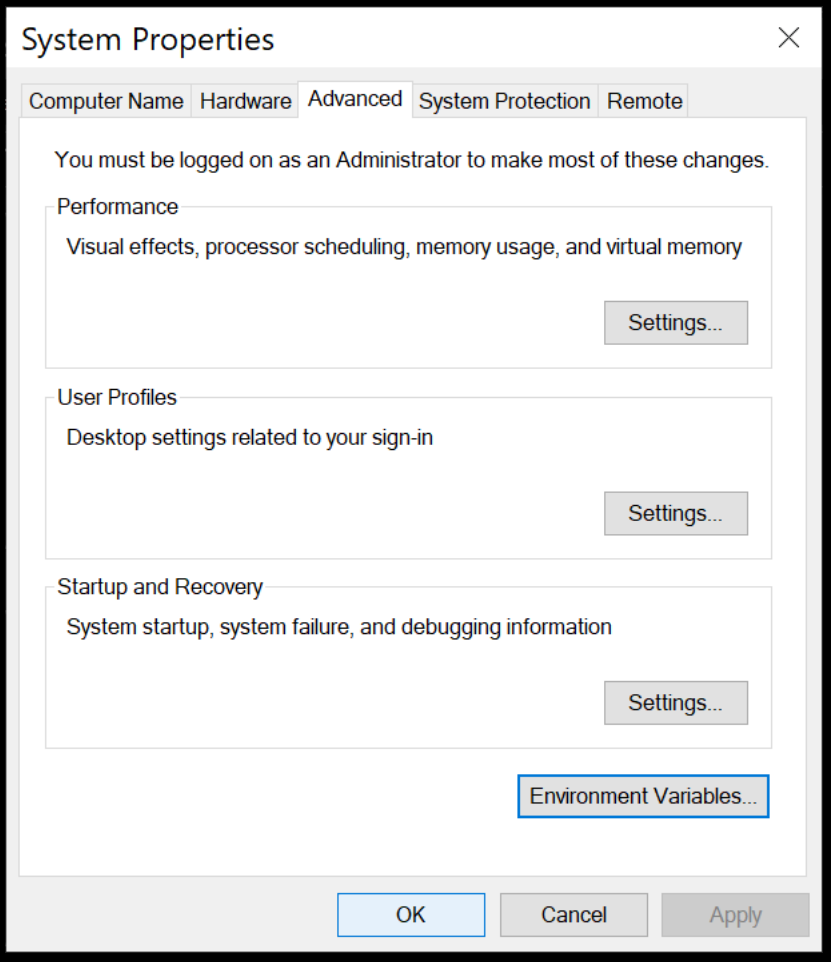
We Left Click on:
OK Button

We Left Click the OK Button of the Environment Variables to Confirm the Changes that we have made



We Left Click on:
OK Button

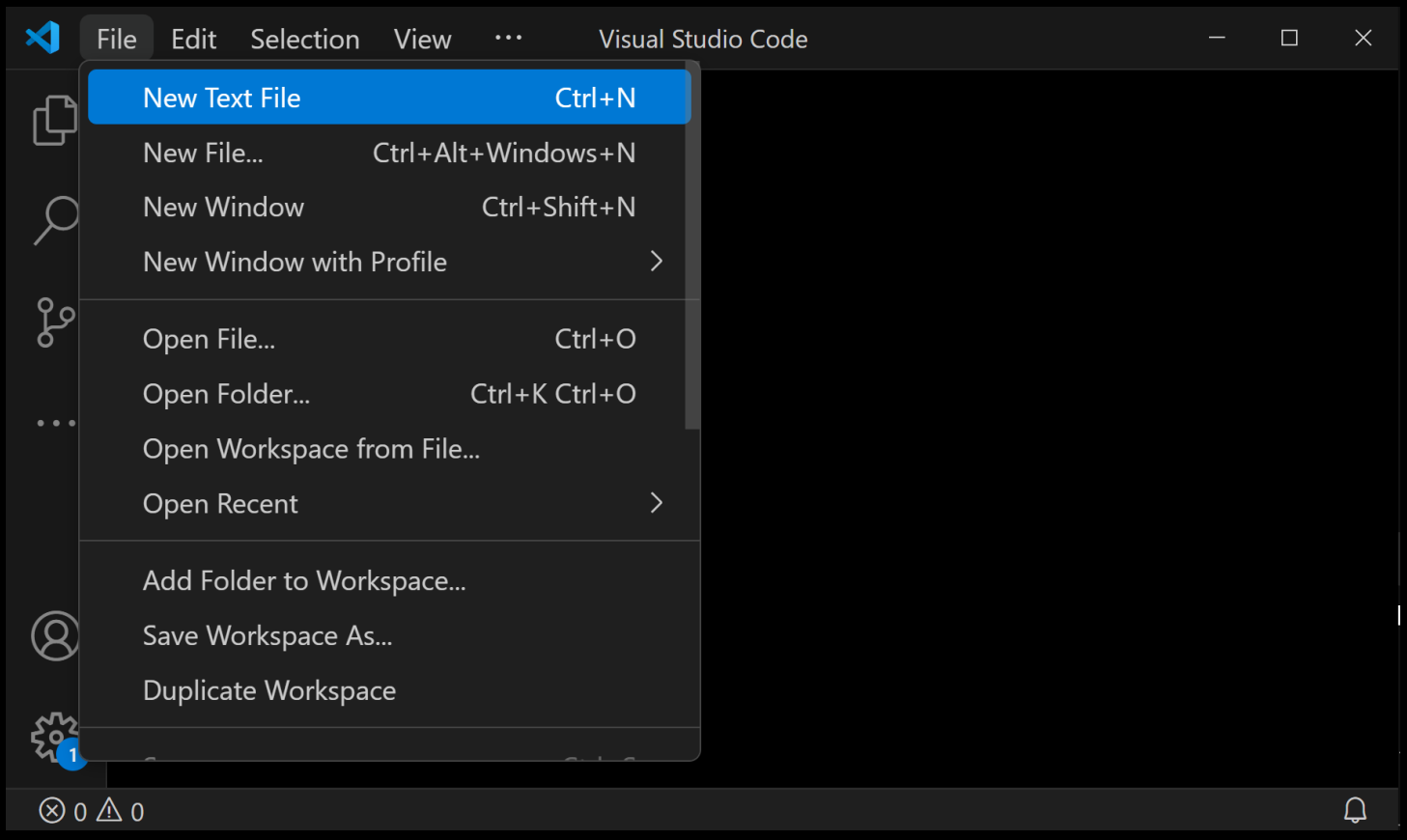
We Left Click the OK Button of the System Properties to Confirm the Changes that we have made



Now we can use Lua Scripts on our Computer.

Happy Scripting :-)

In VSCode Editor we Make a New File and Type the our First Lua Script and Save it as print.lua

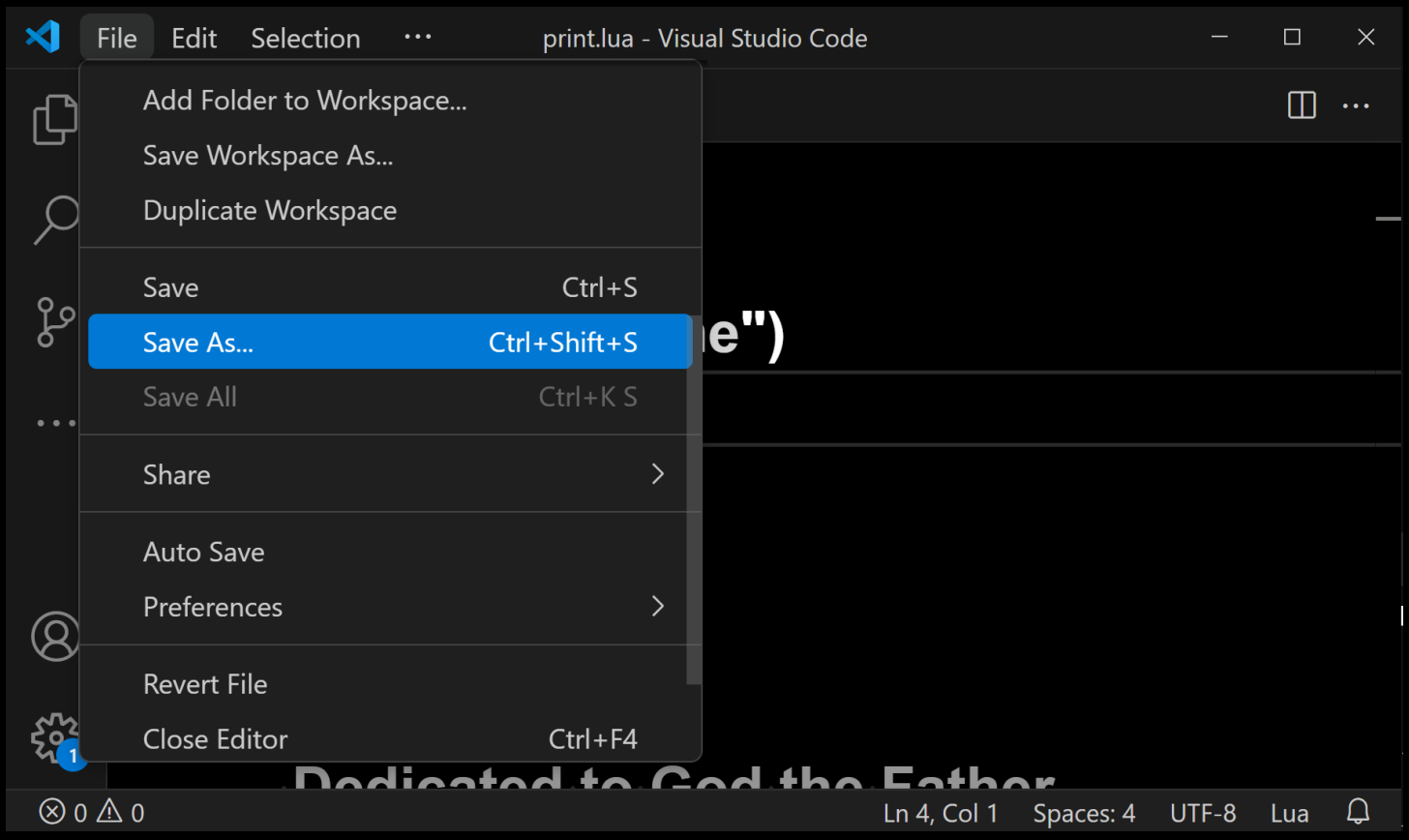


VSCode will color the code what we type in Lua.

SEE NEXT PAGE for CODE: print.lua

```
-- print.lua

print("Hi Everyone")

io.write("Press Enter to Exit")

io.read()

----

-- Hi Everyone
-- Press Enter to Exit
```

We Save our Lua Script as print.lua

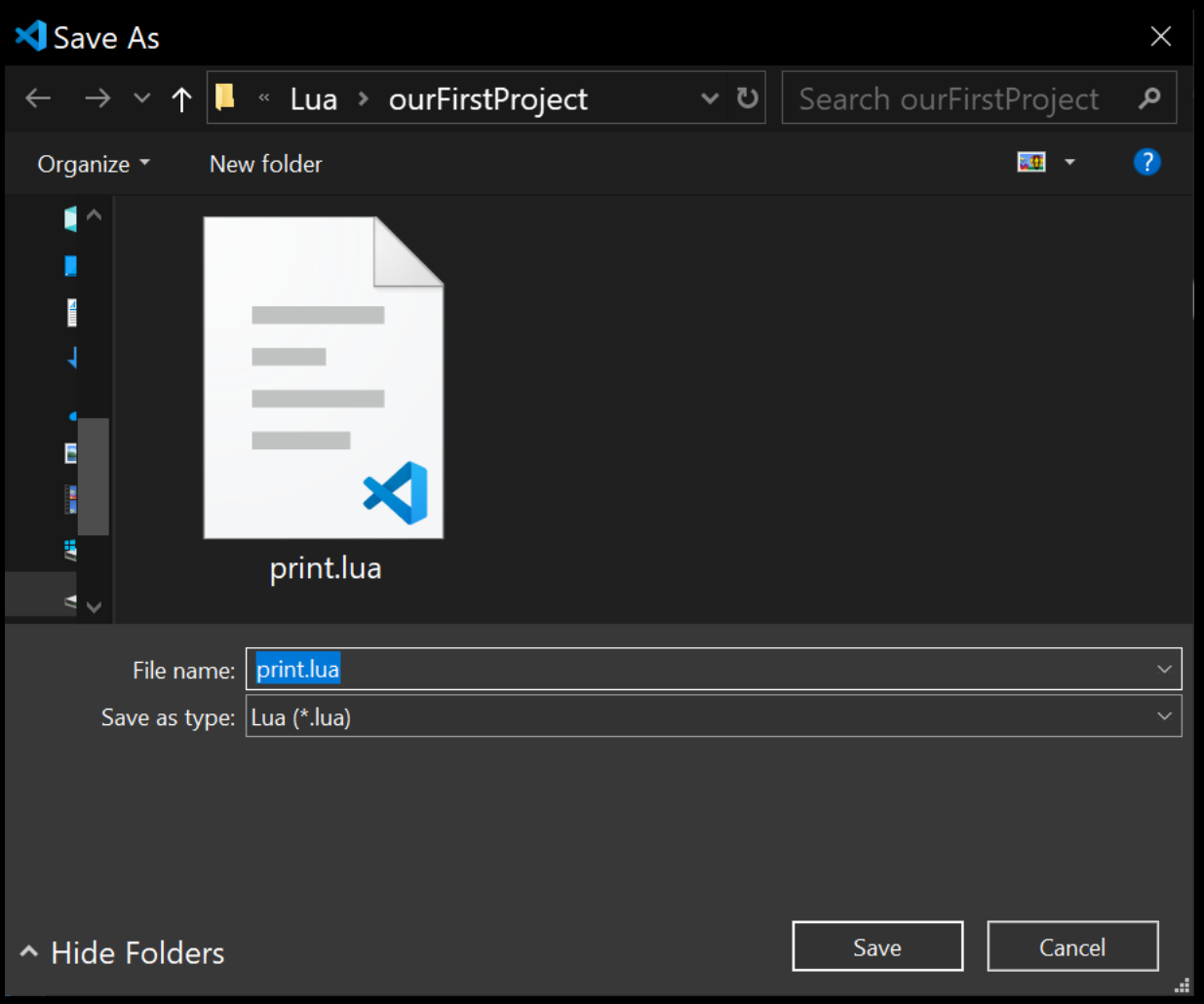


We **Left Click**:
Save As...

We **Make a New Folder Named**:
ourFirstProject

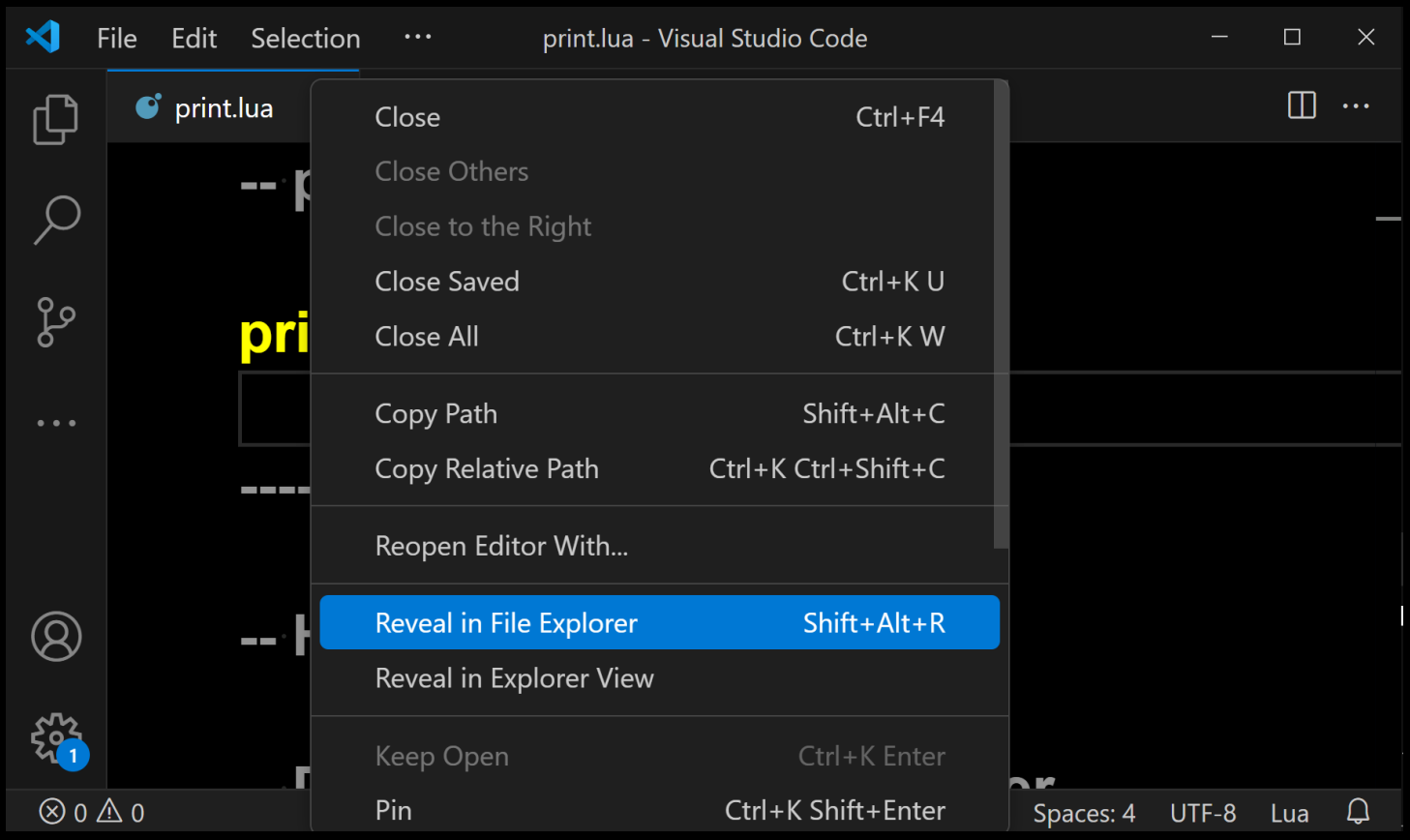
Next page shows our first lua script that we saved in ourFirstProject folder.

We Left Click the Save Button to Save our Lua script in ourFirstProject Folder



On the next page, we show a very easy way to locate the script that we have Saved in VSCode, so that we can run it.

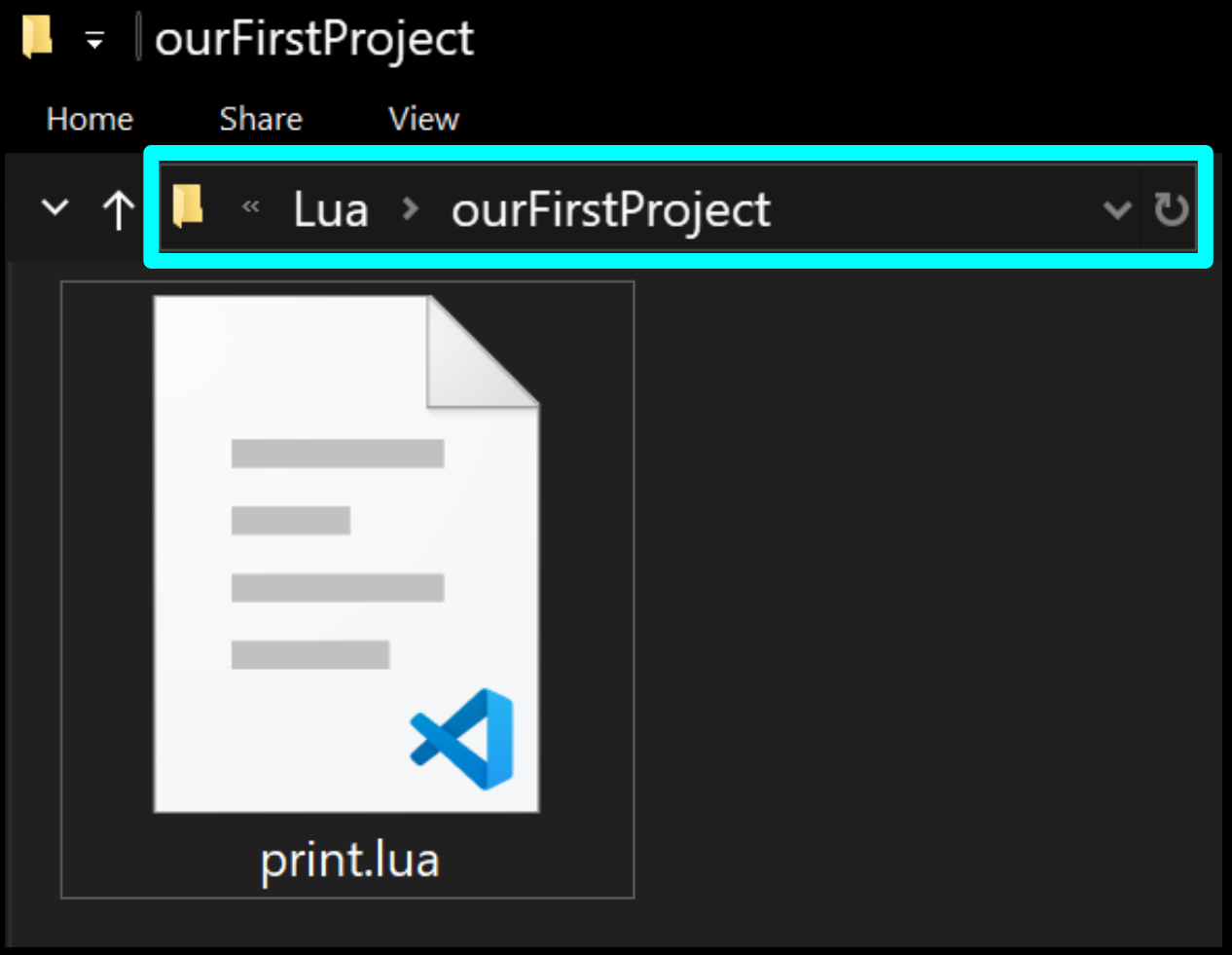
In VSCode, We Right Click on the Tab for print.lua file and Choose Reveal in File Explorer



We Right Click: print.lua Tab

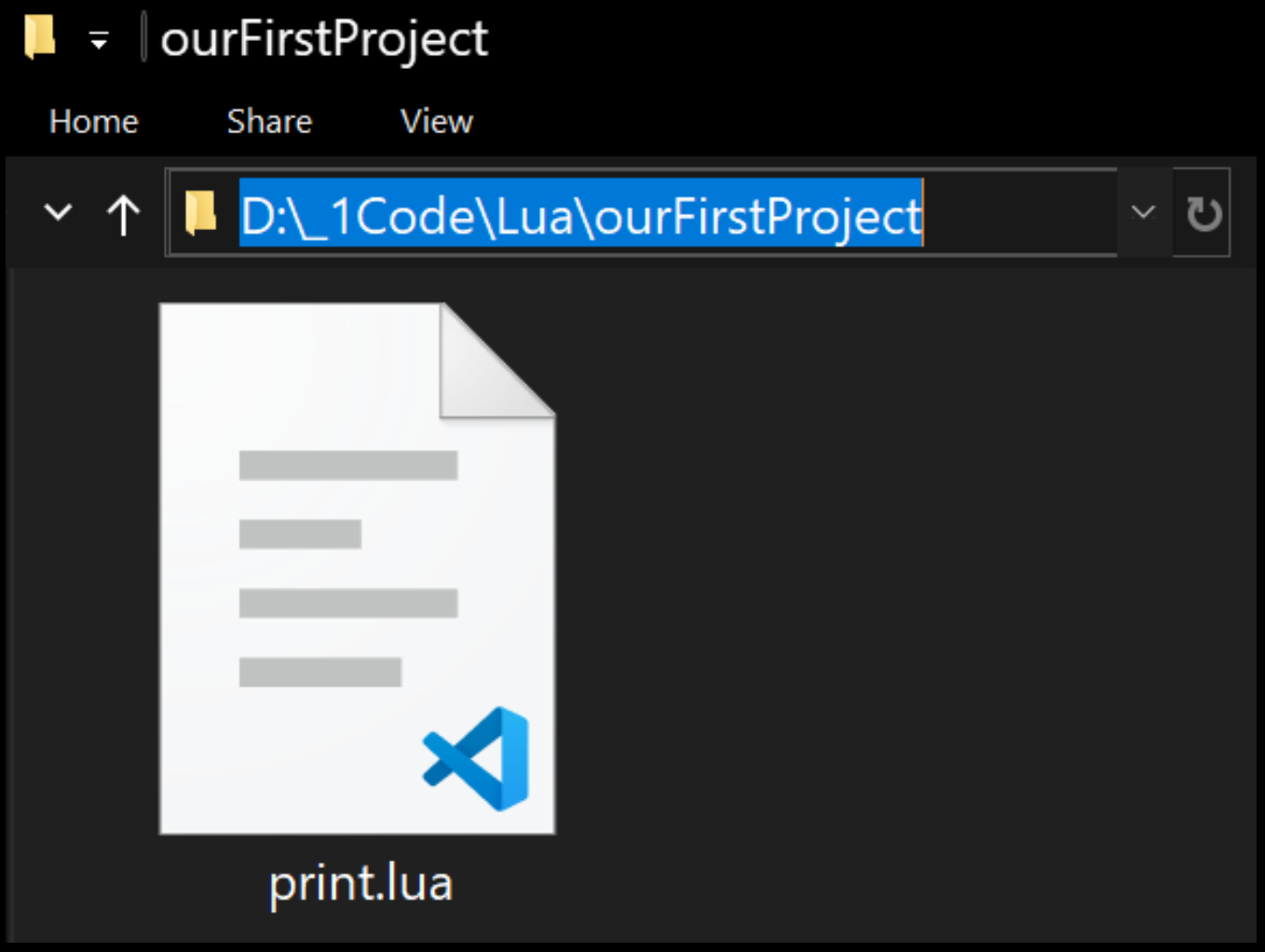
We Left Click: Reveal in File Explorer

We see our Lua script, named print.lua, which we placed in a folder that we named ourFirstProject



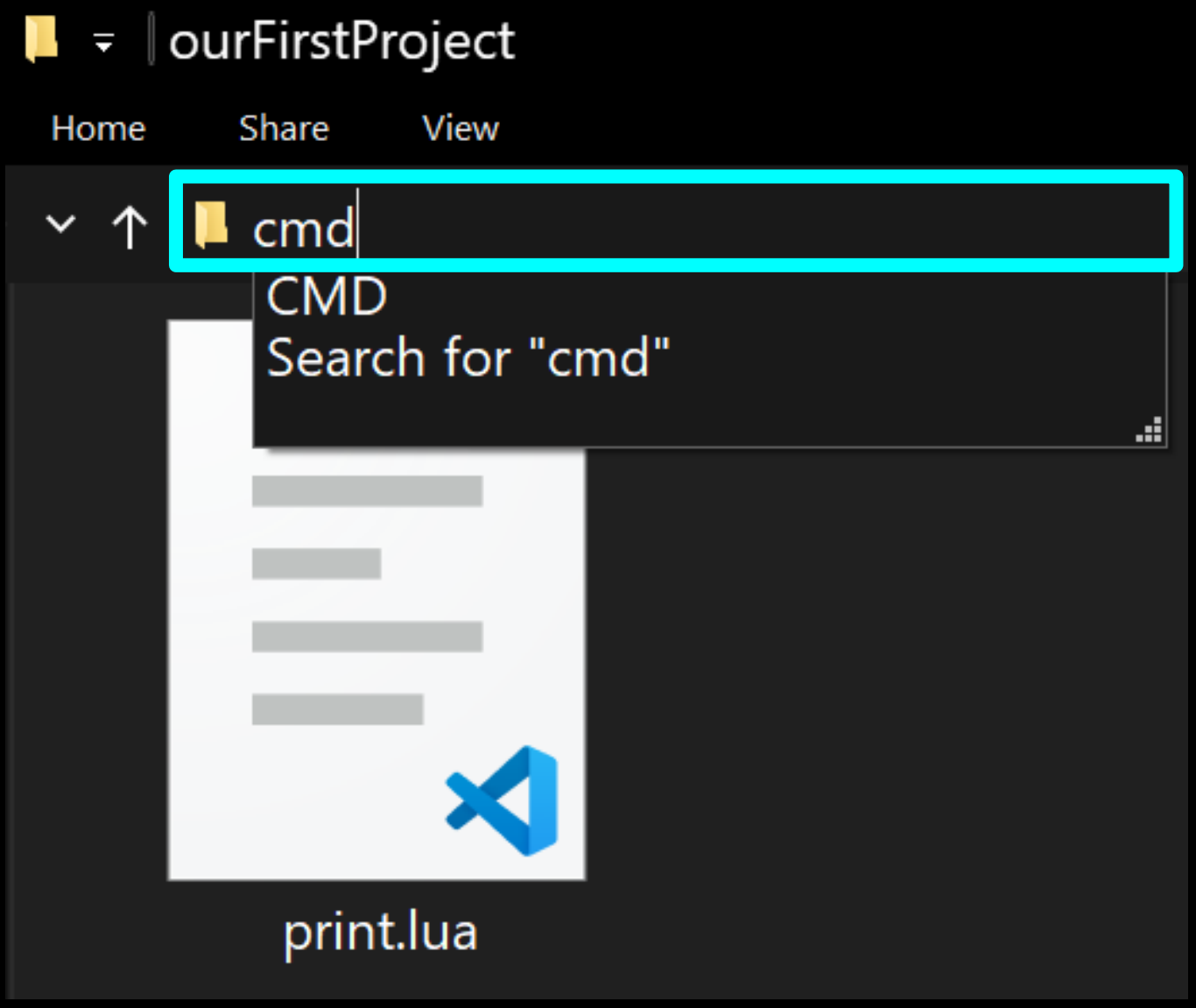
We Left Click: Address Bar of ourFirstProject folder

From Left Clicking in the Address Bar of ourFirstProject folder, we see that it is now highlighted



Now that we have the Address Bar Highlighted, meaning, selected, we can type what is shown on the next page in this address bar and then hit the Enter button on the keyboard.

Typing cmd in Address Bar of Folder

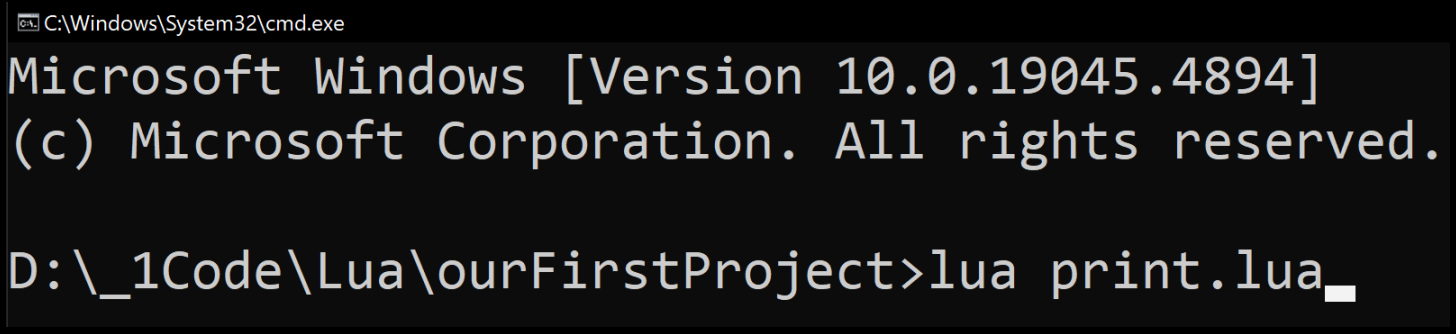


We Type:

cmd

press Enter

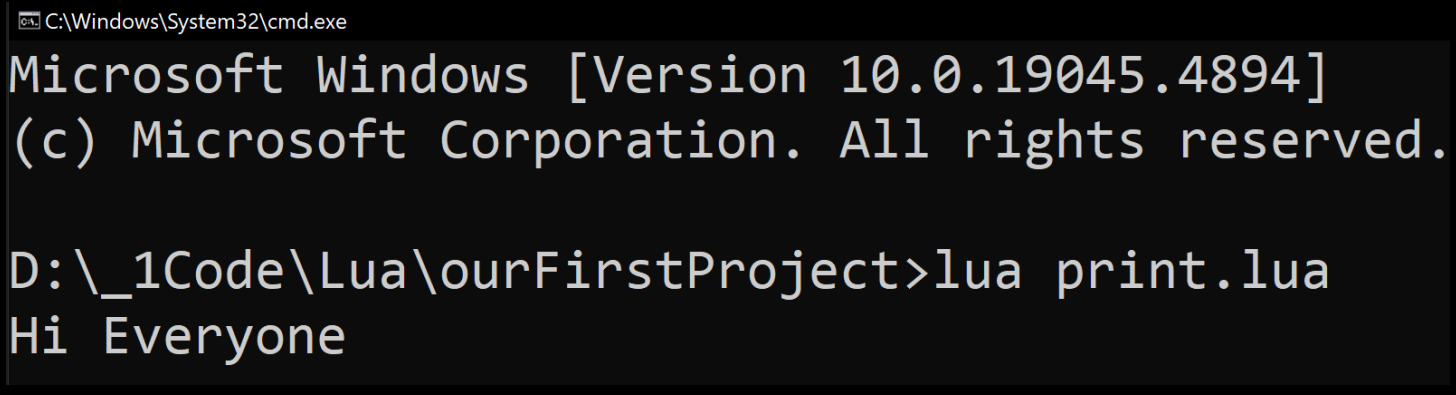
We See the Command Prompt has opened in ourFirstProject folder



We Type:

lua print.lua

press Enter



Result of activating our Code:
Hi Everyone

```
-- print_comments.lua

print("Hi Everyone")

io.write("Press Enter to Exit")
io.read()

-- This is a single line comment in
Lua

--[[
This is a multi line comment in Lua

We write our comments freely here
]]--

----

-- Hi Everyone
-- Press Enter to Exit
```

```
-- print_with_multiple_line_breaks.lua

print("Hi Everyone\n\nHappy Scripting")

io.write("Press Enter to Exit")
io.read()

----

--[[
Hi Everyone

Happy Scripting
Press Enter to Exit
--]]
```

```
-- print_variable_integer.lua

local ourInteger = 25

print(ourInteger)

io.write("Press Enter to Exit")
io.read()

-- 25
-- Press Enter to Exit
```

```
-- print_variable_string.lua

numberOfPeople = "Twenty"

print(numberOfPeople)

io.write("Press Enter to Exit")
io.read()

----

--[[
Twenty
Press Enter to Exit
--]]
```

```
-- open_browser.lua

local url = "https://www.x.com"

io.popen('start "" "' .. url .. '"')

print(url .. " is opened")

io.write("Press Enter to Exit")
io.read()

----

--[[
https://www.google.com is
opened
Press Enter to Exit
]]--
```

```lua
-- open_a_file_in_write_mode.lua

local file = io.open("001.txt", "w")

-- write content to the file
file:write("Hi Everyone\n")
file:write("Here is more text")

-- close file to save changes
file:close()

io.write("Press Enter to Exit")
io.read()
```

```lua
-- read_text_file.lua

local file = io.open("001.txt", "r")

-- check if file was opened
if file then
    -- read each line of  file
    for line in file:lines() do
        print(line)
    end
    -- close file after reading
    file:close()
else
    print("File did not open")
end

io.write("Press Enter to Exit")
io.read()
```

```lua
-- tables_key_value_pairs.lua

local people = {
    {
        name = "jane",
        score = 98
    },
    {
        name = "tabitha",
        score = 98
    }
}

for i = 1, #people do
    print("Name: " ..
people[i].name .. ", Score: " ..
people[i].score)
```

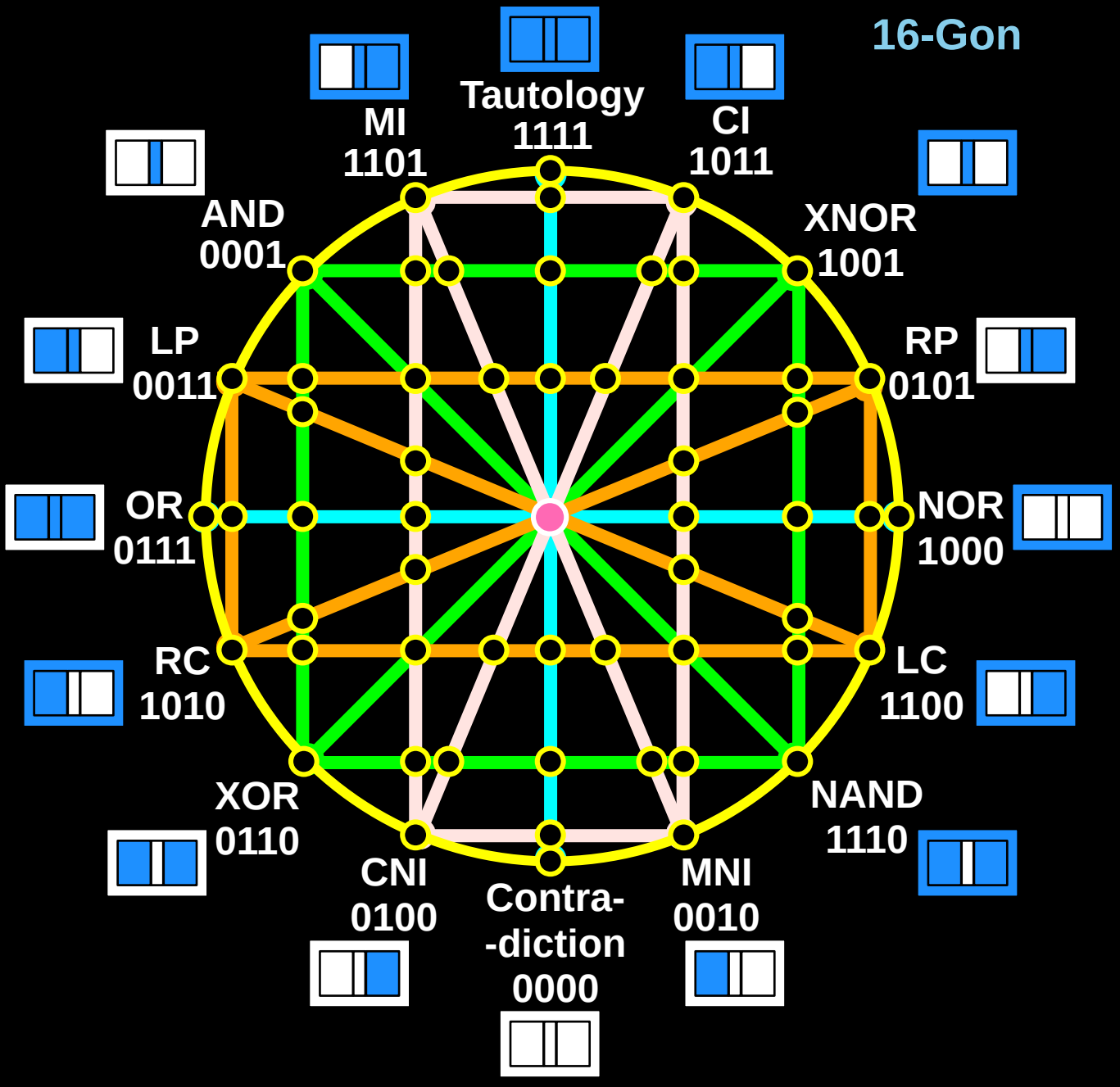
```
end

io.write("Press Enter to Exit")
io.read()

--[[
Name: jane, Score: 98
Name: tabitha, Score: 98
Press Enter to Exit
]]--
```

```lua
-- isNumberEvenOrOdd.lua

-- checks if a number is even or odd
function checkEvenOdd(number)
    if number % 2 == 0 then
        print(number .. " is even.")
    else
        print(number .. " is odd.")
    end
end

-- ask user to input a number
print("Enter a number to check if it's
even or odd:")

-- read user input (string) and
convert it to a number
local input = io.read("*n")

-- check if input is a valid number
```

```
if input then
    checkEvenOdd(input)
else
    print("Use a valid number")
end

print("Press Enter to exit.")
io.read()

----

--[[
Enter a number to check if it's even
or odd:
25
25 is odd.
Press Enter to exit.
]]--
```

Christopher Topalian

True Artificial Intelligence System



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Dedicated to God the Father

**This book is created by the
College of Scripting Music & Science.
Always remember, that each time you write a script with a pencil and paper, it becomes imprinted so deeply in memory that the material and methods are learned extremely well.**

When you Type the scripts, the same is true. The more you type and write out the scripts by keyboard or pencil and paper, the more you will learn programming!

**Write and Type every example that you find.
Keep all of your scripts organized.
Every script that you create increases your programming abilities.
SEEING CODE, is one thing,
but WRITING CODE is another.
Write it, Type it, Speak it, See it, Dream it.**

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